Table of Contents

Rpt. 65316705 24-Jul-2018	**GOOGLE INC** GLOBALDATA - GLOBALDATA	6 - 84
Rpt. 65408808 23-Jul-2018	**ALPHABET INC** VALUENGINE, INC. - ANON	85 - 95
Rpt. 65408826 23-Jul-2018	**ALPHABET INC** VALUENGINE, INC. - ANON	96 - 106
Rpt. 65416385 23-Jul-2018	**ALPHABET INC** WILLIAM BLAIR & COMPANY - SCHACKART, RALPH, ET AL	107 - 112
Rpt. 65393593 20-Jul-2018	**ALPHABET INC** DEUTSCHE BANK - WALMSLEY, LLOYD, ET AL	113 - 125
Rpt. 65401831 20-Jul-2018	**WILLIAM O'NEIL + CO.: O'NEIL MARKET VIEW** WILLIAM O NEIL + CO. - RESEARCH DEPARTMENT	126 - 131
Rpt. 65382019 18-Jul-2018	**ALPHABET INC** COWEN AND COMPANY - KERR, WILLIAM, ET AL	132 - 144
Rpt. 65380977 18-Jul-2018	**ALPHABET INC** UBS RESEARCH - SHERIDAN, ERIC, ET AL	145 - 152
Rpt. 65381566 18-Jul-2018	**ALPHABET INC** JPMORGAN - ANMUTH, DOUG, ET AL	153 - 159
Rpt. 65371704 17-Jul-2018	**ALPHABET INC** DEUTSCHE BANK - WALMSLEY, LLOYD, ET AL	160 - 192

THOMSON REUTERS

Table of Contents

Rpt. 65363454 16-Jul-2018	**ALPHABET INC** CREDIT SUISSE - JU, STEPHEN, ET AL	193 - 210
Rpt. 65357063 13-Jul-2018	**ALPHABET INC** VALIDEA - REESE, JOHN	211 - 220
Rpt. 65350557 13-Jul-2018	**ALPHABET INC** BARCLAYS - SANDLER, ROSS, ET AL	221 - 233
Rpt. 65357896 13-Jul-2018	**WILLIAM O'NEIL + CO.: O'NEIL MARKET VIEW** WILLIAM O NEIL + CO. - RESEARCH DEPARTMENT	234 - 240
Rpt. 65349499 12-Jul-2018	**ALPHABET INC** ACQUISDATA - RESEARCH TEAM, ACQUISDATA, ET AL	241 - 249
Rpt. 65335763 11-Jul-2018	**ALPHABET INC** EVERCORE ISI - BELTON, JOHN, ET AL	250 - 266
Rpt. 65327810 10-Jul-2018	**ALPHABET INC** RBC CAPITAL MARKETS (CANADA) - MAHANEY, MARK, ET AL	267 - 298
Rpt. 65308295 06-Jul-2018	**WILLIAM O'NEIL + CO.: O'NEIL MARKET VIEW** WILLIAM O NEIL + CO. - RESEARCH DEPARTMENT	299 - 304
Rpt. 65300734 05-Jul-2018	**ALPHABET INC** SOCIETE GENERALE - CHERBLANC, CHRISTOPHE, ET AL	305 - 322
Rpt. 65301076 05-Jul-2018	**ALPHABET INC** CAPITAL MARKET LABS - GOTTLIEB, OPHIR, ET AL	323 - 328

Table of Contents

Rpt. 65276465 03-Jul-2018	**ALPHABET INC** WRIGHT INVESTORS SERVICE - WRIGHT REPORTS, ET AL	329 - 396
Rpt. 65256108 29-Jun-2018	**WILLIAM O'NEIL + CO.: O'NEIL MARKET VIEW** WILLIAM O NEIL + CO. - RESEARCH DEPARTMENT	397 - 402
Rpt. 65252973 29-Jun-2018	**ALPHABET INC** MORGAN STANLEY - NOWAK, BRIAN, ET AL	403 - 410
Rpt. 65242838 28-Jun-2018	**ALPHABET INC** MORGAN STANLEY - NOWAK, BRIAN, ET AL	411 - 429
Rpt. 65236100 27-Jun-2018	**ALPHABET INC** SADIF ANALYTICS - RESEARCH SADIF	430 - 441
Rpt. 65231395 26-Jun-2018	**WILLIAM O'NEIL + CO.: TREND WATCH** WILLIAM O NEIL + CO. - ALVAREZ, ROMEO, ET AL	442 - 443
Rpt. 65209098 22-Jun-2018	**WILLIAM O'NEIL + CO.: O'NEIL MARKET VIEW** WILLIAM O NEIL + CO. - RESEARCH DEPARTMENT	444 - 449
Rpt. 64707725 20-Jun-2018	**GOOGLE INC** GLOBALDATA - GLOBALDATA	450 - 524
Rpt. 65190620 19-Jun-2018	**ALPHABET INC** BMO CAPITAL MARKETS - SALMON, DANIEL, ET AL	525 - 561
Rpt. 65188280 19-Jun-2018	**ALPHABET INC** SUSQUEHANNA FINANCIAL GROUP LLLP - PATIL, SHYAM, ET AL	562 - 565

Table of Contents

Rpt. 65185038 18-Jun-2018	**ALPHABET INC** UBS RESEARCH - SHERIDAN, ERIC, ET AL	566 - 573
Rpt. 65186598 18-Jun-2018	**ALPHABET INC** CFRA EQUITY RESEARCH - KESSLER, SCOTT, ET AL	574 - 582
Rpt. 65178827 15-Jun-2018	**WILLIAM O'NEIL + CO.: O'NEIL MARKET VIEW** WILLIAM O NEIL + CO. - RESEARCH DEPARTMENT	583 - 588
Rpt. 65130870 06-Jun-2018	**ALPHABET INC** THOMSON REUTERS STREETEVENTS - ANON	589 - 607
Rpt. 65127803 06-Jun-2018	**ALPHABET INC** MORGAN STANLEY - NOWAK, BRIAN, ET AL	608 - 615
Rpt. 65117272 04-Jun-2018	**ALPHABET INC** MORNINGSTAR INC. - MOGHARABI, ALI, ET AL	616 - 643
Rpt. 65117274 04-Jun-2018	**ALPHABET INC** MORNINGSTAR INC. - MOGHARABI, ALI, ET AL	644 - 671
Rpt. 65086944 01-Jun-2018	**ALPHABET INC** MORGAN STANLEY - NOWAK, BRIAN, ET AL	672 - 683
Rpt. 65089010 01-Jun-2018	**ALPHABET INC** MKM PARTNERS - SANDERSON, ROB, ET AL	684 - 696
Rpt. 65086606 01-Jun-2018	**ALPHABET INC** MORGAN STANLEY - NOWAK, BRIAN, ET AL	697 - 703

Table of Contents

Rpt. 65102163 31-May-2018 **ALPHABET INC** BUYSELLSIGNALS RESEARCH - RESEARCH TEAM, ET AL 704 - 757

Rpt. 65086238 31-May-2018 **ALPHABET INC** BARCLAYS - SANDLER, ROSS, ET AL 758 - 772

Rpt. 65104990 31-May-2018 **ALPHABET INC** BUYSELLSIGNALS RESEARCH - RESEARCH TEAM, ET AL 773 - 818

Rpt. 65075259 30-May-2018 **ALPHABET INC** MORGAN STANLEY - NOWAK, BRIAN, ET AL 819 - 825

Rpt. 65085382 30-May-2018 **ALPHABET INC** WILLIAM O NEIL + CO. - ALVAREZ, ROMEO, ET AL 826 - 827

Rpt. 65044358 24-May-2018 **ALPHABET INC** MORGAN STANLEY - NOWAK, BRIAN, ET AL 828 - 837

Rpt. 65033872 22-May-2018 **ALPHABET INC** WRIGHT INVESTORS SERVICE - WRIGHT REPORTS, ET AL 838 - 905

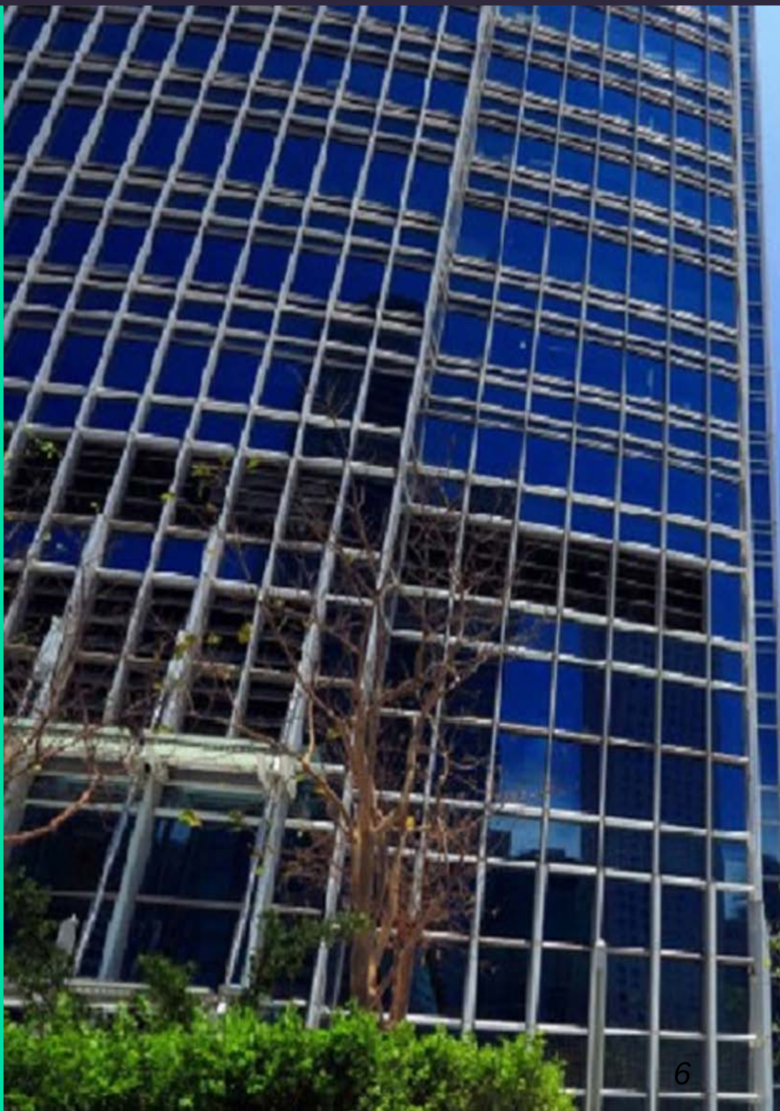
Rpt. 65032898 21-May-2018 **ALPHABET INC** CFRA EQUITY RESEARCH - KESSLER, SCOTT, ET AL 906 - 914

Rpt. 65013672 18-May-2018 **ALPHABET INC** MORGAN STANLEY - NOWAK, BRIAN, ET AL 915 - 929

Rpt. 65009749 17-May-2018 **ALPHABET INC** AEGIS CAPITAL - RESEARCH DEPARTMENT 930 - 940

Google LLC

Strategic SWOT Analysis Review



Report Code: GDTC2633703SA
Published: July 2018

Company Snapshot

1600 Amphitheatre Parkway	**Phone**	+1 650 2530000	**Revenue**	109,652 (million USD)
Mountain View, CA	**Fax**		**Net Profit**	NA
94043	**Website**	www.google.com	**Employees**	NA
United States	Exchange		**Industry**	Technology and Communications

Company Overview

Google LLC (Google), a subsidiary of Alphabet Inc., is a leading provider of search and advertising services on the internet. The company focuses on business areas such as advertising, search, platforms and operating systems, and enterprise and hardware products. Its portfolio of products and services include Google Web Search, Google Chrome, Google Docs, Google Calendar, Google Images, Google Finance, Google Books, Google News, Google Earth, Google Play, AdMob, Google Maps, Google Videos, Google Reader, Blogger, Google Wallet, Gmail, Google Groups, and YouTube. The company offers online display advertising services through its AdSense and AdWords programs.

Key Executives

Name	Title
Sundar Pichai	Chief Executive Officer
Nick Fox	Vice President, Communications Products
Diane B. Greene	Senior Vice President
Ruth M. Porat	Chief Financial Officer
Caesar Sengupta	Vice President, Product Management

Source: Company Website, Primary and Secondary Research, GlobalData

Key Competitors

Microsoft Corp
Salesforce.Com Inc
International Business Machines Corp
Facebook Inc
Baidu, Inc.

Source: Company Website, Primary and Secondary Research, GlobalData

SWOT Analysis

Google LLC, SWOT Analysis	
Strengths	**Weaknesses**
Revenue Performance Penetration of Android Operating System	Legal Proceedings Boycott by Major Advertisers
Opportunities	**Threats**
Next Billion Users Initiative Exploring Artificial Intelligence (AI)	Regulatory Affairs: EU Antitrust Rules Intense Competition

Source: Company Website, Primary and Secondary Research, GlobalData

Recent Developments

Jul 17,2018	Google in Last Ditch Effort to Avoid Colossal Android Antitrust Fine
Jul 17,2018	Personalised Google Jobs Comes to the UK
May 29,2018	E.ON brings innovative ‘Project Sunroof’ technology to Britain in partnership with Google and Tetraeder
May 18,2018	E.ON and Google deepen solar partnership around Project Sunroof

Source: Annual Report, Company Website, Primary and Secondary Research, GlobalData

Table of Contents

Table of Contents 3
List of Tables 5
List of Figures 5
Section 1 - About the Company 6
Google LLC - Key Facts 6
Google LLC - Key Employees 7
Google LLC - Key Employee Biographies 9
Google LLC - Key Operational Employees 10
Google LLC - Major Products and Services 11
Google LLC - History 13
Google LLC - Locations And Subsidiaries 31
Head Office 31
Other Locations & Subsidiaries 31
Section 2 – Company Analysis 35
Google LLC - Business Description 35
Business Description - Google Network Members properties 35
Google Network Members properties - Overview 35
Business Description - Google Properties 35
Google Properties - Overview 35
Business Description - Others 35
Others - Overview 35
Google LLC - Corporate Strategy 36
Google LLC - SWOT Analysis 37
SWOT Analysis - Overview 37
Google LLC - Strengths 37
Google LLC - Weaknesses 38
Google LLC - Opportunities 39
Google LLC - Threats 40
Google LLC - Key Competitors 41
Section 3 – Company's Mergers & Acquisitions, Capital Raising and Alliances 42
Google LLC, Transactions by Year, 2012 to YTD 2018 42
Google LLC, Transactions by Type, 2012 to YTD 2018 43
Google LLC, Transactions by Region, 2012 to YTD 2018 44
Google LLC, Recent Transactions Summary 45
Acquisition 46
Alphabet Acquires Senosis Health 46
Google Acquires Lift Labs, Tremor-Canceling Device Company 47
Partnerships 48
Candi Controls Forms Partnership with Google Cloud Platform 48
E.ON Forms Partnership with Google 49
Venture Financing 50
Lift Labs Raises US$1 Million In Seed Funding 50
Section 4 – Company's Recent Developments 51
Jul 17, 2018: Google in Last Ditch Effort to Avoid Colossal Android Antitrust Fine 51
Jul 17, 2018: Personalised Google Jobs Comes to the UK 52
May 29, 2018: E.ON brings innovative 'Project Sunroof' technology to Britain in partnership with Google and Tetraeder 53
May 18, 2018: E.ON and Google deepen solar partnership around Project Sunroof 54
May 15, 2018: Buying renewables the new way to get businesses back in the black 55
Apr 24, 2018: Total To Develop Artificial Intelligence Solutions With Google Cloud 56
Apr 12, 2018: Scientists teach computers how to analyze brain cells 57
Apr 11, 2018: Google breaks ground on $600m data centre in Alabama 59
Apr 04, 2018: Buying 100 percent renewable energy: Google 60

Apr 04, 2018: Google hits clean energy target ... 61
Apr 03, 2018: Google shakes up leadership to sharpen focus on AI... 62
Mar 20, 2018: AkzoNobel, DSM, Google and Philips receive first power from new Dutch wind farm Bouwdokken... 63
Feb 27, 2018: Healthcare Ready Partners with Google to Help Improve Future Disaster Response Efforts... 65
Jan 12, 2018: Google maps visionary joins Clearpath advisory board... 66
Dec 12, 2017: DNAnexus Integrates Google Brain's DeepVariant, a New Deep Learning Technology, onto Its Cloud-Based Platform ... 67
Dec 04, 2017: DeepVariant: Highly Accurate Genomes With Deep Neural Networks ... 68
Nov 30, 2017: EDF Renewable Energy Signs Agreement with Google to Supply 200 Megawatts of Wind Energy ... 69
Nov 30, 2017: Avangrid inks PPAs with Google for South Dakota wind farms... 70
Nov 30, 2017: Grand River Dam Authority to supply even more renewable energy to Google with new Oklahoma wind farm ... 71
Nov 30, 2017: Iberdrola signs a long-term renewable energy sales agreement with Google... 72
Nov 23, 2017: Nautilus Medical collaborates with Google Cloud for secure radiology storage and image exchange... 73
Nov 08, 2017: Zebra Medical Vision to Collaborate with Google Cloud to Bring a Transparent All-in-One Model to Healthcare.. 74
Oct 23, 2017: EPA Honors 2017 Green Power Leaders ... 75
Oct 12, 2017: Puppet adds new products, partnerships and executives as company ushers in new era of automation ... 77
Section 5 – Appendix ... 79
Methodology... 79
About GlobalData... 79
Contact Us... 79
Disclaimer... 79

List of Tables

Google LLC, Key Facts.......... 6
Google LLC, Key Employees 7
Google LLC, Key Employee Biographies 9
Google LLC, Key Operational Employees 10
Google LLC, Major Products and Services.......... 11
Google LLC, History 13
Google LLC, Other Locations 31
Google LLC, Subsidiaries 32
Google LLC, Key Competitors.......... 41
Google LLC, Transactions by Year, 2012 to YTD 2018 42
Google LLC, Transactions by Type, 2012 to YTD 2018 43
Google LLC, Transactions by Region, 2012 to YTD 2018 44
Google LLC, Recent Transactions Summary 45

List of Figures

Google LLC, Transactions by Year, 2012 to YTD 2018 42
Google LLC, Transactions by Type, 2012 to YTD 2018 43
Google LLC, Transactions by Region, 2012 to YTD 2018 44

Section 1 - About the Company

Google LLC - Key Facts

Google LLC, Key Facts			
Corporate Address	1600 Amphitheatre Parkway, Mountain View, CA, 94043, United States		
Telephone	+1 650 2530000	**No. of Employees**	NA
Fax		**Fiscal Year End**	December
URL	www.google.com	**Revenue (in USD Million)**	109,652
Industry	Media, Technology, Telecommunications		
Locations	Argentina, Australia, Belgium, Brazil, Canada, China, Colombia, Czech Republic, Denmark, Egypt, Finland, France, Germany, Ghana, Greece, Hong Kong, Hungary, India, Ireland, Israel, Italy, Japan, Kenya, Malaysia, Mexico, Netherlands, New Zealand, Nigeria, North Korea, Norway, Poland, Portugal, Russia, Senegal, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States		

Source: Company Website, Primary and Secondary Research GlobalData

Google LLC - Key Employees

Google LLC, Key Employees				
Name	**Job Title**	**Board Level**	**Since**	**Age**
Sundar Pichai	Chief Executive Officer	Executive Board	2015	45
Nick Fox	Vice President Communications Products	Senior Management		
Diane B. Greene	Senior Vice President	Senior Management	2015	62
Ruth M. Porat	Chief Financial Officer, Senior Vice President	Senior Management	2015	60
Caesar Sengupta	Vice President Product Management	Senior Management		
Clay Bavor	Vice President Augmented and Virtual Reality	Senior Management		
Daniel Alegre	President Global Partnerships	Senior Management		
Donald Harrison	President Global Partnership and Corporate Development	Senior Management		
Eileen Naughton	Vice President People Operations	Senior Management		
Hiroshi Lockheimer	Senior Vice President Android, Chrome OS and Play	Senior Management		
Jen Fitzpatrick	Vice President Product and Engineering	Senior Management		
Kent Walker	General Counsel, Senior Vice President	Senior Management		
Kristen Gil	Vice President Business Operations	Senior Management		
Lorraine Twohill	Senior Vice President Global Marketing	Senior Management		
Philipp Schindler	Chief Business Officer, Senior Vice President Global Sales and Operations	Senior Management		
Rick Osterloh	Senior Vice President Hardware	Senior Management		
Sridhar Ramaswamy	Senior Vice President ADS and Commerce	Senior Management		
Susan Wojcicki	Chief Executive Officer YouTube	Senior Management		
Urs Holzle	Senior Vice President Technical Infrastructure	Senior Management		
Tian Lim	Vice President Google Play	Senior Management	2017	
Diane Bryant	Chief Operating Officer	Senior Management	2017	
Mzamo Masito	Chief Marketing Officer Sub-Saharan Africa	Senior Management	2018	
Injong Rhee	Head Internet of Things (IoT) Business	Senior Management	2018	
Jeff Dean	Head Search and AI	Senior Management	2018	

Jerry Dischler	Vice President Management	Product	Senior Management

Source: Company Website, Primary and Secondary Research GlobalData

GlobalData.

Google LLC - Key Employee Biographies

Google LLC, Key Employee Biographies	
Sundar Pichai Job Title: Chief Executive Officer Board Level: Executive Board Since: 2015 Age: 45	Mr. Sundar Pichai has been the Chief Executive Officer of the company since 2015. Prior to this, he served as the Senior Vice President of Products from 2014 to 2015, and the Senior Vice President of Android, Chrome and Apps at Google from 2013 to 2014. He held several positions with Google including the Senior Vice President, Chrome and Apps; Senior Vice President, Chrome; and Vice President, Product Management. He joined Google in April 2004. Prior to this, he served in engineering and product management at Applied Materials, Inc., and management consulting at McKinsey & Company. Previously, Mr. Pichai served as a Director of Jive Software, Inc., from 2011 to 2013.
Ruth M. Porat Job Title: Chief Financial Officer, Senior Vice President Board Level: Senior Management Since: 2015 Age: 60	Ms. Ruth Porat has been the Chief Financial Officer and Senior Vice President of the company since 2015. Prior to this, she served as the Senior Vice President and Chief Financial Officer of the Alphabet since 2015. She also served as the Chief Financial Officer and the Executive Vice President of Morgan Stanley in 2010. Previously, she served as the Vice Chairman of Investment Banking from 2003 to 2009 and as Global Head of the Financial Institutions Group from 2006 to 2009.
Philipp Schindler Job Title: Chief Business Officer, Senior Vice President Global Sales and Operations Board Level: Senior Management	Mr. Philipp Schindler is the Chief Business Officer and the Senior Vice President of the Google. Prior to this, he served as the Senior Vice-President, Marketing & Sales, AOL Germany; Head of Marketing at CompuServe.
Diane Bryant Job Title: Chief Operating Officer Board Level: Senior Management Since: 2017	Ms. Diane Bryant has been the Chief Operating Officer of the company since November 2017. Prior to this, she served as a Vice President at Intel Corp. She also serves at United Technologies.
Source: Company Website, Primary and Secondary Research	GlobalData

Google LLC - Key Operational Employees

Google LLC, Key Operational Employees

Name	Job Title	Since	Age
Lily Peng	Product - Google Brain AI research		
Source: Company Website, Primary and Secondary Research			GlobalData

Google LLC - Major Products and Services

Google is a global technology provider for connecting people with information. The major products and services offered by the company include the following:

Google LLC, Major Products and Services
Products:
Gmail
Toolbar
Custom Search Engines
Google Chrome
Webmasters/Site owners
Google Checkout Buyer
YouTube
Google Image Search
Google Book Search
Google Scholar
Google Base
Google Finance
Google News
Search Google Co-op
Custom Search
Google Video
Google Docs and Spreadsheets
Google Calendar
Google Desktop
Google Pack
Google Earth
Google Maps
Google Sketchup and Sketchup Pro
Google Checkout
Google Mobile
Google Labs
Google AdWords
Google AdSense

Android Operating System

Google Play

Google Wallet

Google Translate

Google Home

Google Drive

Daydream View

Gmail

Services:

Web Search

Social Networking

Online Services

Brands:

Google

YouTube

Source: Company Website, Primary and Secondary Research GlobalData

Google LLC - History

Google LLC, History		
2018	Acquisitions/Mergers/Takeovers	In February, Google agreed to acquire LogMeIn's division, Xively.
2018	Acquisitions/Mergers/Takeovers	In January, Google announced the acquisition of Relay Media to convert ordinary web-pages to AMP web-pages.
2018	Acquisitions/Mergers/Takeovers	In January, the company announced the acquisition of Redux to focus on audio and haptics services.
2018	Acquisitions/Mergers/Takeovers	In March, the company plans to acquire a GIF platform, Tenor, for Android, iOS and desktop.
2018	Acquisitions/Mergers/Takeovers	In May, the company agreed to acquire Velostrata, a cloud migration startup based in Israel.
2018	Commercial Operation	In April, the company opened a US$600 million data center on TVA Widow's Creek coal plant site in Bridgeport, Jackson County, Alabama, the US.
2018	Commercial Operation	In May, Google and NetApp partnered to integrate NetApp's flash-powered data services with Google's cloud platform.
2018	Contracts/Agreements	In April, Google and American Medical Association (AMA) partnered to support inspire some new solutions for mobile health technology.
2018	Contracts/Agreements	In April, Google and Fitbit partnered for the innovation and transformation in digital health and wearables.
2018	Contracts/Agreements	In April, Google and Jobillico partnered to use Google for job search experience.
2018	Contracts/Agreements	In April, Google and McClatchy collaborated to develop a new subscription tool to easily access online McClatchy's 30 newsrooms.
2018	Contracts/Agreements	In April, Google Express and Christmas Central partnered to provide a universal shopping cart, Google Express Cart.
2018	Contracts/Agreements	In April, Google partnered with CyArk for preserving historical sites in Virtual Reality using CyArk's laser-scanning technology.
2018	Contracts/Agreements	In April, KBank partnered with Google Thailand, LINE and the Electronic Transactions Development Agency (ETDA) to launch the "K SME Good to Great" programme.
2018	Contracts/Agreements	In April, the company and Saudi Arabia partnered for cybersecurity training.
2018	Contracts/Agreements	In April, the company and Target partnered for a voice-activated coupon on Google Assistant.
2018	Contracts/Agreements	In February, Airtel partnered with Micromax and Lava to provide 4G smartphones on Google's Android Go platform.
2018	Contracts/Agreements	In February, Essence's WeR@Home technology integrated with the Google Assistant, for WeR@Home customers to use the Google Assistant on their phone, voice-activated speaker to operate their Essence-based IoT solutions.
2018	Contracts/Agreements	In February, Google and Healthcare Ready partnered for the development of a proof of concept to refine future disaster response through data analytics and collaboration.
2018	Contracts/Agreements	In February, Google partnered with ARM, Cisco, and Intel to launch managed service for IoT device connecting and control, Cloud IoT Core.
2018	Contracts/Agreements	In February, Google partnered with State Bank of India for its mobile payments app, Tez.
2018	Contracts/Agreements	In February, the company and Amazon partnered for huge bills in a major shake-up of the UK tax system.

2018	Contracts/Agreements	In February, the company and Getty Images signed a global licensing partnership to use Getty Images' content within its various products and services for the company.
2018	Contracts/Agreements	In February, the company partnered with Xiaomi, Huawei and Samsung to provide its augmented reality services ARCore in China.
2018	Contracts/Agreements	In January, Google and Yocale collaborated for Google to launch Reserve in Canada.
2018	Contracts/Agreements	In January, Google Assistant agreed to collaborate with D-Link for its mydlink cameras.
2018	Contracts/Agreements	In January, Google Cloud and Globant collaborated to provide an end-to-end OTT platform solution for the media and entertainment industry.
2018	Contracts/Agreements	In January, Google Cloud and Tyco Retail Solutions collaborated for expanding its market presence in next-generation real-time analytics, and store execution and performance solutions.
2018	Contracts/Agreements	In January, Innit integrated with the Google Assistant to power Kitchen of the Future.
2018	Contracts/Agreements	In January, MobileIron and Google Cloud collaborated on a new end-to-end platform for enterprise cloud services.
2018	Contracts/Agreements	In January, Tyco Retail Solutions collaborated with Google Cloud for strengthening its market leadership in real-time analytics and store execution and performance solutions.
2018	Contracts/Agreements	In January, YI Technology collaborated with Google’s Virtual Reality (VR) for YI Horizon VR180 Camera.
2018	Contracts/Agreements	In July, Google selected TE SubCom as its supplier to design and utilize its Dunant submarine cable system.
2018	Contracts/Agreements	In July, Deloitte collaborated with Google Cloud and SAP to support customers to migrate their SAP applications to Google Cloud Platform and to manage entire cloud environment.
2018	Contracts/Agreements	In July, Dish Network integrated with Google Assistant for hands-free TV experience.
2018	Contracts/Agreements	In July, Google and Innovid partnered to measure their YouTube video advertisements.
2018	Contracts/Agreements	In July, Google, Baidu, Intel, AMD, Stanford and Harvard, together develop a new benchmark suite, MLPerf for machine learning.
2018	Contracts/Agreements	In July, the company partnered with Hyundai Motor and Kakao to launch an automobile app, Android Auto, for in-car infotainment market in Korea.
2018	Contracts/Agreements	In July, the company selected TE Connectivity to design and deploy Dunant Cable System, a four-fiber pair cable system.
2018	Contracts/Agreements	In July, the company's traffic maps app Waze partnered with Allianz to provide emergency roadside assistance to its European users at the touch of a button.
2018	Contracts/Agreements	In June, Fashwire partnered with Google to launch its Fashion Discovery app to support optimize user acquisition channels.
2018	Contracts/Agreements	In June, Google and Carrefour partnered for launching Carrefour on a new Google shopping website and Google Assistant in France, to create a Carrefour-Google innovation lab and to digitize acceleration of the Carrefour Group.
2018	Contracts/Agreements	In June, Google and PLDT signed a deal to expand its mesh WiFi offering bringing Google Wifi to the Philippines.

2018	Contracts/Agreements	In June, Google partnered with the Centre for Investigative Journalism to support journalists to use digital tools for news.
2018	Contracts/Agreements	In June, Google's Cloud division partnered with Unity for simplifying game development that supports big developer migrate over its infrastructure to Google.
2018	Contracts/Agreements	In June, the company and Paysafe partnered for online shopping using Paysafe's prepaid business, paysafecard.
2018	Contracts/Agreements	In June, the company introduced a new Google Marketing platform for an easy access to advertising process.
2018	Contracts/Agreements	In March, Google and Amazon partnered for developing their own air traffic control network for low-level altitudes.
2018	Contracts/Agreements	In March, Google and Asda partnered to connect online groceries service with Google Assistant-enabled smartphones, Google Home devices, Chromebook and Android TVs.
2018	Contracts/Agreements	In March, Google and Daimler signed strategic research partnerships in the quantum computing area.
2018	Contracts/Agreements	In March, Google and J&J partnered to launch low cost surgical robots.
2018	Contracts/Agreements	In March, Google and Rolls-Royce partnered to establish autonomous drone vessels.
2018	Contracts/Agreements	In March, Google entered into a license agreement with GIATA to utilize its descriptions and mapping content in Hotel advertisements.
2018	Contracts/Agreements	In March, Google introduced a new cloud-based API to address challenges in healthcare industry.
2018	Contracts/Agreements	In March, Google partnered with the US retailers in a new initiative that helps to boost sales in the online retail sector.
2018	Contracts/Agreements	In March, Syntel and Google Cloud partnered to deliver digital business solutions to adapt its cloud service offerings.
2018	Contracts/Agreements	In March, the company and Alibaba Cloud partnered for the cloud war with new Quantum computing moves.
2018	Contracts/Agreements	In March, the company and Tata Trusts signed an agreement to explore options to use latest solutions to access primary health and cancer care for poor in India.
2018	Contracts/Agreements	In March, the company and TravelClick partnered for enabling hoteliers for more direct bookings and revenue.
2018	Contracts/Agreements	In March, the company Carrefour partnered to develop an online voice assistant for its shoppers called Lea.
2018	Contracts/Agreements	In March, the company partnered with the US Department of Defense on machine learning for analyzing drone footage.
2018	Contracts/Agreements	In May, BBVA and Google partnered to launch Android Pay in Spain.
2018	Contracts/Agreements	In May, Google and AT&T collaborated to optimize cloud networking for business customers.
2018	Contracts/Agreements	In May, Google and Confluent partnered to introduce Confluent Cloud to the Google Cloud Platform (GCP).
2018	Contracts/Agreements	In May, Google and NBCUniversal partnered to produce virtual reality content that gives a unique experience to audiences on some of their favorite networks and shows.
2018	Contracts/Agreements	In May, Google and Qualcomm partnered to tackle obstacles, using Project Treble.

2018	Contracts/Agreements	In May, Intel, Google and Volvo Cars partnered to launch the new Android Operating System (OS) running through Google applications.
2018	Contracts/Agreements	In May, the company and Bravatek Solutions signed a marketing partnership to promote Bravatek's Tuitio digitally.
2018	Contracts/Agreements	In May, the company and KPMG signed an alliance to support organizations to transform their business and operating models with secure cloud computing, machine learning, enterprise mobility and advanced analytics technologies.
2018	Corporate Changes/Expansions	In April, the company launched the new Google Home, Home Mini smart speakers in New Delhi, India.
2018	Corporate Changes/Expansions	In January, Google launched the new Google Audiobooks in India.
2018	Corporate Changes/Expansions	In January, Google opened an office in Shenzhen, Guangdong Province, China.
2018	Corporate Changes/Expansions	In January, the company plans to open a new research center based on artificial intelligence in France.
2018	Corporate Changes/Expansions	In July, the company opened a new 100 desk office in Melbourne, Australia.
2018	Corporate Changes/Expansions	In March, the company launched the new online resource center.
2018	Financing Agreements	In January, Trifacta raised US$48 million in venture financing led by the company, Ericsson, and others.
2018	Financing Agreements	In June, Google awarded US$$22 million in Series A investment to KaiOS Technologies.
2018	Financing Agreements	In March, Ubiquity6 raised US$10.5 million in Series A funding led by Google's Gradient Ventures, LDVP, Kleiner Perkins and WndrCo.
2018	New Products/Services	In April, Google Analytics launched data retention control that are adjustable by the admins.
2018	New Products/Services	In April, the company developed prototype for a microscope system with artificial intelligence that automatically detects aid in cancer.
2018	New Products/Services	In April, the company launched the new TensorFlow hub for reusable machine learning models.
2018	New Products/Services	In February, Google introduced a custom silicon slab, the tensor processing unit, to improve the reading of street signs for the StreetView software.
2018	New Products/Services	In February, Google launched a new flight feature, to save time in booking a flight.
2018	New Products/Services	In February, Google launched the new mobile payment solution, Google Pay.
2018	New Products/Services	In February, Google launched the new virtual assistant, Assistant Go, for entry level Android devices users.
2018	New Products/Services	In February, the company introduced the new Pixel Visual Core, the artificial intelligence in Pixel 2 smart phone.
2018	New Products/Services	In February, the company launched the new Cloud IoT Core service that connects and manages IoT devices.
2018	New Products/Services	In February, the company launched the new lightweight Gmail Go app for Android, that allows to read and reply to messages offline.
2018	New Products/Services	In January, Google introduced a new AI tool, Cloud AutoML Vision, designed to simply train its machine learning systems on a photo dataset of their choosing.
2018	New Products/Services	In January, Google introduced the new Google "Clips" camera, that uses Artificial Intelligence (AI) to figure out when it should take a picture or video.

2018	New Products/Services	In January, the company developed a text-to-speech artificial intelligence system, Tacotron 2, that generates human-like articulation.
2018	New Products/Services	In January, the company introduced the new facial recognition feature on its Google Arts & Culture app.
2018	New Products/Services	In January, the company merged payment platforms under Google Pay brand with a new brand.
2018	New Products/Services	In July, Google introduced a new suite of tools that leverages its new developments in machine learning for marketers.
2018	New Products/Services	In July, Google introduced various ad tools based on artificial intelligence (AI), that helps marketers to automate and develop effective advertising campaigns.
2018	New Products/Services	In July, Google launched drones and balloons to deliver internet access from the sky via balloons and to deliver items via drones.
2018	New Products/Services	In July, Google released a new ad in Google Ads that uses machine learning for an increased performance.
2018	New Products/Services	In July, Google released a range of new features and tools over its advertising and market toolkits to support efficient customers to bricks and mortars stores.
2018	New Products/Services	In July, Google released the new Morse Code as an input method on Gboard for Android (iOS).
2018	New Products/Services	In July, the company introduced a new tool that enables companies to improve device security in the company.
2018	New Products/Services	In June, Google launched a new Knowledge Graph card type in search results that appears when users search for the US colleges.
2018	New Products/Services	In June, Google launched a new Measure Tool for Google Earth available on Chrome.
2018	New Products/Services	In March, Google introduced a new education tablet designed with Chrome OS.
2018	New Products/Services	In March, Google launched a machine learning education, Learn with Google AI, to support learning concepts, and to develop skills and apply Artificial Intelligence (AI) to real-world problems.
2018	New Products/Services	In March, Google launched a new open-source project, Agones, using cloud-based Kubernetes platform.
2018	New Products/Services	In March, Google launched its Cloud Text-to-Speech service that converts text to speech in IoT devices, voice systems.
2018	New Products/Services	In March, Google launched its new Bristlecone quantum processor, a gate-based processor.
2018	New Products/Services	In March, the company added a new service to its Google Assistant that helps its users to send and request money from the contacts in Android phone or iPhone.
2018	New Products/Services	In March, the company introduced a free app, Just a line, that helps to doodle in AR mode.
2018	New Products/Services	In March, the company launched new tools to introduce and discover Indian addresses on Google Maps adding voice navigation in six additional Indian languages.
2018	New Products/Services	In May, Google launched a new file managing tool, Files Go, in various Chinese app stores for smartphones.
2018	New Products/Services	In May, Google launched a new social app that aims to build neighborhood communities.

2018	New Products/Services	In May, the company introduced a Appy Pie, a mobile application building platform, on G Suite Marketplace.
2018	Plans/Strategy	In February, the company plans to launch the new Cloud TPU machine learning accelerators on the google Cloud Platform.
2018	Plans/Strategy	In January, Google announced it palsn to merge its Android Pay and Google Wallet into a single service, Google Pay.
2018	Plans/Strategy	In July, Google announced its plans to develop an online game streaming service, code-named, Yeti.
2018	Plans/Strategy	In July, Google announced its plans to launch new tools based on machine learning for advertisers.
2018	Plans/Strategy	In June, Google announced its plans to invest US$550 million in JD.com, a Chinese e-commerce powerhouse.
2018	Plans/Strategy	In June, Google announced its plans to open an Artificial Intelligence center in Ghana, Africa.
2018	Plans/Strategy	In March, Google plans to develop its data consulting services in Brazil.
2018	Plans/Strategy	In May, the company announced its plans to invest EUR150 million to expand data center in Ireland.
2017	Acquisitions/Mergers/Takeovers	In August, Google acquired Senosis Health.
2017	Acquisitions/Mergers/Takeovers	In August, the company acquired artificial intelligence and selfie app startup, AIMatter.
2017	Acquisitions/Mergers/Takeovers	In January, the company acquired Fabric, mobile app developer platform, from twitter to join in Google's Developer Products Group.
2017	Acquisitions/Mergers/Takeovers	In July, the company acquired Halli Labs., a Bengaluru-based (Artificial Intelligence) startup.
2017	Acquisitions/Mergers/Takeovers	In March, Google acquired AppBridge, a Canada startup, to help in moving files from physical servers to G Suite apps including Google Drive.
2017	Acquisitions/Mergers/Takeovers	In March, the company acquired Kaggle Kernels, a data science community to Google cloud.
2017	Acquisitions/Mergers/Takeovers	In October, the company acquired Tiny Garage Labs, Inc., which develops a mobile application.
2017	Acquisitions/Mergers/Takeovers	In September, the company acquired the identity management company, Bitium.
2017	Acquisitions/Mergers/Takeovers	The company acquired Limes Audio, a Swedish sound company.
2017	Contracts/Agreements	In April, Android Pay joined with several banks including Bank of America, Bank of New Zealand, Discover, mBank and USAA for facilitating linking of cards with Android Pay
2017	Contracts/Agreements	In April, Google entered into an agreement with PayPal for allowing its consumers to use PayPal as payment process in Android Pay.
2017	Contracts/Agreements	In April, the company announced a collaboration agreement with comScore, to provide advertisers with greater visibility into the context in which their ads appear.
2017	Contracts/Agreements	In April, the company announced a partnership with Neustar, Inc., to help marketers more accurately analyze their marketing investments across multiple brands, channels and regions.
2017	Contracts/Agreements	In April, the company entered into a partnership with PayPal Holdings, Inc., on digital payments.
2017	Contracts/Agreements	In August, HARMAN International, subsidiary of Samsung Electronics Co Ltd,

		entered into agreement with Google for provision of three-month free subscription trial of the Google Play Music services to customers in 47 countries in Asia- Pacific, the Americas and Europe.
2017	Contracts/Agreements	In August, Pivotal collaborated with VMware and the company to launch the Pivotal Container Service (PKS) at VMworld.
2017	Contracts/Agreements	In August, the company and Codefresh collaborated to streamline application deployments on Kubernetes.
2017	Contracts/Agreements	In August, VMware announced expansion of partnership with Google for enabling unified endpoint management of Chrome devices by VMware workspace ONE powered by AirWatch.
2017	Contracts/Agreements	In August, Wal-Mart entered into a partnership with Google for provision of voice based shopping services to customers on Android.
2017	Contracts/Agreements	In December, DNAnexus partnered with Google to develop DeepVariant bioinformatics tool for genomic variation analysis.
2017	Contracts/Agreements	In December, MATRIXX Software launched its MATRIXX Digital Commerce on the Google Cloud Platform.
2017	Contracts/Agreements	In December, the company entered into an agreement with EDF Renewable Energy and Avangrid Renewables to purchase 396MW of clean energy.
2017	Contracts/Agreements	In February, CLX Communications and Waterfall signed a partnership with Google to offer the messaging services to brand marketers using Rich Communication Services (RCS).
2017	Contracts/Agreements	In February, FCA partnered with Google on the next-generation connected car systems powered by android.
2017	Contracts/Agreements	In February, LG Electronics in parttnership with the company to launch two new smartwatches, the LG Sport and LG Style.
2017	Contracts/Agreements	In January, Google and Fiant Chrysler Automaker collaborated to launch Android Nougat 7.0 powered 8.4-inch automotive infotainment in the vehicles.
2017	Contracts/Agreements	In July, Google entered into an agreement with Eneco to purchase green electricity from Sunport Delfzijl in Netherlands.
2017	Contracts/Agreements	In July, the company and Citrix extended their strategic relation, which helps to enables the customers to use Citrix Cloud platform.
2017	Contracts/Agreements	In June, the company to launch art and fashion platform along with the collaboration of 180 institutions.
2017	Contracts/Agreements	In March, Dome9 Security integrated with the Google Cloud Platform.
2017	Contracts/Agreements	In March, Google and SAP partnered to offer an innovative solution to privacy of customers' sensitive data on a public cloud platform.
2017	Contracts/Agreements	In March, Google and Veritas partnered for 360 Data Management capacities to Google Cloud Platform and G Suite customers.
2017	Contracts/Agreements	In March, Google entered into a collaboration with Rackspace to offer new managed services for Google cloud platform customers.
2017	Contracts/Agreements	In March, Google partnered with Emirates to showcase virtual reality 3D painting tools and an e-book reading lounge at its Emirates Airline Festival of Literature.
2017	Contracts/Agreements	In March, Google signed a partnership with SAP to offer its in-memory database SAP HANA through other solutions.
2017	Contracts/Agreements	In March, Looker introduced a suite of Looker Blocks compatible with Google BigQuery Data Transfer service, designed to provide the tools for enhancing critical data analysis for marketers.

2017	Contracts/Agreements	In March, the company and Trifacta, Inc., collaborated to build Google Cloud Dataprep.
2017	Contracts/Agreements	In May, CIBC partnered with Google to launch Android Pay for all its clients.
2017	Contracts/Agreements	In May, the company announced a partnership with Google Maps.
2017	Contracts/Agreements	In May, the company entered into a partnership with E.ON, to introduce Sunroof, a solar-energy data platform, outside the US.
2017	Contracts/Agreements	In May, the company partnered with Volvo Cars to build Android into next generation connected cars.
2017	Contracts/Agreements	In May, the company's self-driving-car technology company and signed a deal with Lyft for the development and testing of autonomous-car technology.
2017	Contracts/Agreements	In May,the company and Qualcomm Technologies, Inc., collaborated to develop a daydream standalone VR headset developed by the Qualcomm Snapdragon 835 VR platform.
2017	Contracts/Agreements	In November, Kroger Co. entered into a collaboration agreement with Google Cloud Platform.
2017	Contracts/Agreements	In November, the company and Nautilus Medical collaborated for secure radiology storage and image exchange.
2017	Contracts/Agreements	In November, the company and Zebra Medical Vision collaborated to bring a transparent all-in-one model to healthcare.
2017	Contracts/Agreements	In November, the company collaborated with CANDI to simplify the connection of smart building devices and data to Apps
2017	Contracts/Agreements	In November, the company entered into a partnership with Volkswagen Group, on quantum computers.
2017	Contracts/Agreements	In November, the company signed a long-term renewable energy sales agreement with Iberdrola SA.
2017	Contracts/Agreements	In October, Target Corporation announced deepening of partnership with Google for expansion of Target's voice- activated shopping on Google Express and addition of Target REDcard as a payment option in 2018.
2017	Contracts/Agreements	In October, the company and Cisco signed a partnership to deliver a hybrid cloud solution.
2017	Contracts/Agreements	In October, the company and Time Inc., partnered to launch Adapt Video, a proprietary video advertising tool.
2017	Contracts/Agreements	In October, the company entered into a partnership with Target, for voice-assisted shopping and nationwide delivery.
2017	Contracts/Agreements	In October, the company paired up with Rolls-Royce to develop autonomous ship solutions.
2017	Contracts/Agreements	In September, Ayla Networks selected Google Home voice integration added to its offerings that supports smart home cloud-based voice services.
2017	Contracts/Agreements	In September, Cleartrip and Google Flights entered into an agreement for expansion of services of Google Flights in India.
2017	Contracts/Agreements	In September, Google entered into an agreement to acquire a part of HTC Corp.’s engineering and design teams for US$1.1 billion to support the US internet giant’s nascent hardware business.
2017	Contracts/Agreements	Puppet entered into collaboration with Google Cloud for quick access of Google Cloud Platform (GCP) services to its customers.
2017	Corporate Changes/Expansions	In February, Google established a new office in the Philippines.
2017	Corporate Changes/Expansions	In February, the company announced the launch of its smart speaker in the

		UK.
2017	Corporate Changes/Expansions	In July, the company opened a new cloud Platform (GCP) in London.
2017	Corporate Changes/Expansions	In June, the company launched its cloud platform in Singapore.
2017	Corporate Changes/Expansions	In November, Google launched Android Pay in Brazil and the Czech Republic.
2017	Corporate Changes/Expansions	In November, Google launched its contactless payment service, Android Pay in Ukraine.
2017	Corporate Changes/Expansions	In November, the company announced to open a new office in Tokyo, Japan.
2017	Corporate Changes/Expansions	In September, the company announced to open a new cloud platform in Germany.
2017	Corporate Changes/Expansions	In September, the company announced to open a new office in Berlin.
2017	Corporate Changes/Expansions	In September, the company changed its name from Google Inc. to Google LLC.
2017	New Products/Services	In April, the company announced to provide its reach in India with neural machine translation technology.
2017	New Products/Services	In April, the company launched new translation technology for nine Indian languages.
2017	New Products/Services	In August, the company and Xiaomi paired up to launch Xiaomi A1smartphone.
2017	New Products/Services	In August, the company collaborated with Litera Corp to bring professional document comparison to G suite.
2017	New Products/Services	In August, the company launched a reality platform for Android.
2017	New Products/Services	In December, Google introduced an open source artificial intelligence tool, Deep Variant, that is used to create a picture of a person's genetic blueprint using sequencing data.
2017	New Products/Services	In December, the company launched a new cryptocurrency pricing tool.
2017	New Products/Services	In December, the company launched new screening system to fight fake news.
2017	New Products/Services	In July, the company and Tri Alpha Energy (TAE) announced to develop a new computer algorithm to accelerate experiments on plasmas.
2017	New Products/Services	In July, the company launched its new Backup and Sync desktop application, which helps to upload files and photos to the cloud.
2017	New Products/Services	In July, the company launched Trusted Contacts location sharing app on the iOS App store.
2017	New Products/Services	In June, the company announced to launch Daydream view VR headset in India.
2017	New Products/Services	In June, the company introduced its third developer preview of Android O.
2017	New Products/Services	In June, the company launched YouTube party app for the iPhone.
2017	New Products/Services	In March, Google introduced its new globally distributed database, Cloud Spanner.
2017	New Products/Services	In March, the company announced to offer new Android wear 2.0 connect smartwatch.
2017	New Products/Services	In March, the company announced to offer P2P payments to Gmail Android app customers.

2017	New Products/Services	In March, the company introduced the new Google Pixel 2.
2017	New Products/Services	In May, Rambus company paired up with Google and Interac Association to enable Interac debit card support for Android Pay in Canada.
2017	New Products/Services	In May, the company and PayPal Holdings, Inc. announced the launch of new joint mobile shopping strategy using fingerprints.
2017	New Products/Services	In May, the company announced a partnership with Weebly to offer Android Pay to digital enabled customers.
2017	New Products/Services	In May, the company announced the availability of its Android Pay app in Russia.
2017	New Products/Services	In May, the company announced to offer a new machine learning service.
2017	New Products/Services	In May, the company launched its mesh Wi-Fi system in Canada.
2017	New Products/Services	In May, VMware introduced Workspace ONE, a new initiative for Chromebooks in enterprise by entering into a partnership with Google
2017	New Products/Services	In November, the company launched Resonance Audio, a new spatial audio SDK.
2017	New Products/Services	In October, the company announced to launch a personalized phishing protection and updated security checkup tool.
2017	New Products/Services	In October, the company launched a new Chromebook called the google Pixelbook.
2017	New Products/Services	In October, the company launched NoSQL document database Firebase platform for app developers.
2017	New Products/Services	In September, the company and Levi's announced to launch a smart jean jacket for US$350.
2017	New Products/Services	In September, the company launched a mobile payments and commerce app called Tez.
2017	New Products/Services	In September, the company launched Android One Moto X4 smartphone for Fi users.
2017	Plans/Strategy	In April, Google plans to build a new data center in Reno, Nevada, the US.
2017	Plans/Strategy	In August, the company planned to invest US$50 million in the U.S. and Europe to train job seekers.
2017	Plans/Strategy	In December, the company plans to open an artificial intelligence research center in China.
2017	Plans/Strategy	In February, Google plans to expand its carpool service on its Waze navigation app, to compete with Uber and Lyft and similar apps.
2017	Plans/Strategy	In February, the company announced plans to divest its Terra Bella business, to Planet Labs.
2017	Plans/Strategy	In February, the company announced to sells Terra Bella, a satellite imaging business, to Planet Labs, a San Francisco-based private satellite operator.
2017	Plans/Strategy	In February, the company plans to introduce its wearable platform, Android Wear 2.0.
2017	Plans/Strategy	In June, the company planned for King's Cross Campus in London.
2017	Plans/Strategy	NetEase announced to launch Google Play in China.
2016	Acquisitions/Mergers/Takeovers	The company acquired Cronologics a smartwatch technology company, to boost the search giant's ailing Android Wear platform.

2016	Acquisitions/Mergers/Takeovers	The company acquired Synergyse a provider of interactive training services for google apps.
2016	Acquisitions/Mergers/Takeovers	The company acquired Web-based URL scanner VirusTotal, to improve browser security.
2016	Acquisitions/Mergers/Takeovers	The company announced the acquisition of Pie, a Singapore-based business messaging start-up.
2016	Contracts/Agreements	In April, Google and the Hong Kong Trade Development Council partnered to provide online marketing channels to support Hong Kong small- and medium-sized enterprises.
2016	Contracts/Agreements	In April, the company and TIE Kinetix entered into a strategic collaboration for Google Adwords.
2016	Contracts/Agreements	In January, the company and Kronos SaaShr, Inc., entered into a partnership to develop innovative workforce management solutions to small and midsize businesses.
2016	Contracts/Agreements	In November, Vodafone Business Services, enterprise arm of Vodafone India, entered into alliance with Google to provide cloud based G Suite access services to Vodafone enterprise customers in India.
2016	Contracts/Agreements	In October, Google partnered with three shopping platforms; Magento, BigCommerce, and PrestaShop, to offer easy online selling.
2016	New Products/Services	In February, the company paired up with Agiloft, Inc., to offer top-rated security option.
2016	Other	The company along with Alibaba Group and other investors invested US$793.5 million in Magic Leap, Inc., a startup company.
2016	Patent Grant	The company secured patent for bus detection on autonomous vehicles.
2015	Acquisitions/Mergers/Takeovers	The company acquired Granata Decision Systems, a Toronto-based technology start-up company.
2015	Acquisitions/Mergers/Takeovers	The company acquired intellectual property of JVL Ventures, LLC.
2015	Acquisitions/Mergers/Takeovers	The company acquired Launchpad Toys, a mobile app maker.
2015	Acquisitions/Mergers/Takeovers	The company acquired Odysee, a photo backup and sharing app for smartphones.
2015	Acquisitions/Mergers/Takeovers	The company acquired Pixate, a mobile app prototyping tool.
2015	Acquisitions/Mergers/Takeovers	The company acquired Pulse.io Inc., which specializes in making applications faster and more responsive.
2015	Acquisitions/Mergers/Takeovers	The company acquired Red Hot Labs Inc., a provider of Toro service for application developers.
2015	Acquisitions/Mergers/Takeovers	The company acquired Skillman & Hackett and Thrive Audio.
2015	Acquisitions/Mergers/Takeovers	The company acquired Timeful to increase its mobile services and product offerings.
2015	Acquisitions/Mergers/Takeovers	The company acquired Toro, a mobile marketing company, which helps developers market their apps on social media platforms like Facebook.
2015	Acquisitions/Mergers/Takeovers	The company announced the acquisition of Agawi., a specialist in streaming native mobile apps.
2015	Acquisitions/Mergers/Takeovers	The company announced the acquisition of Lumedyne Technologies.
2015	Acquisitions/Mergers/Takeovers	The company announced the acquisition of Softcard Technology, an NFC-based mobile payment service.

2015	Acquisitions/Mergers/Takeovers	The company sets plans to acquire minority stake in the Lake Turkana Wind Power Project in Kenya.
2015	Acquisitions/Mergers/Takeovers	The company was acquired by Alphabet Inc., a conglomerate company based in the US.
2015	Contracts/Agreements	In August, Google and ClearStory Data collaborated for speed data analysis on large, diverse data to answer latest business questions.
2015	Contracts/Agreements	In December, Google purchased wind and solar power projects totalling 842MW.
2015	Contracts/Agreements	In December, Google signed a deal with EDF Renewable Energy to purchase renewable energy for its data center.
2015	Contracts/Agreements	In October, Google partnered with Udacity to launch a new program, the Tech Entrepreneur Nanodegree, that helps in teaching students on how to develop sustainable revenue-generating businesses.
2015	Contracts/Agreements	In September, Eolus entered into a power purchase agreement with Google to purchase all of the clean, renewable electricity generated by the new 76MW wind farm at Jenasen in Sweden.
2015	Contracts/Agreements	The company agreed to join forces with The US Federal Railroad Administration to enable rail crossings safer for drivers and passengers.
2015	Contracts/Agreements	The company along with Facebook, Inc., LinkedIn and Twitter partnered with BNP Paribas to expand its digital presence worldwide.
2015	Contracts/Agreements	The company collaborated with SolarCity Corp., to jointly establish a fund worth US$750 million in residential solar projects.
2015	Contracts/Agreements	The company entered into a co-development agreement with Toumaz Limited for Cast-for-Audio technology.
2015	Contracts/Agreements	The company entered into a partnership with ChowNow, an online ordering platform, to bring Google Wallet for thousands of independent restaurants across the US.
2015	Contracts/Agreements	The company entered into a partnership with Johnson & Johnson Limited for development of innovative robotics tools.
2015	Contracts/Agreements	The company entered into a strategic collaboration with Ethicon, Inc., to work with the Life Sciences team on advancing surgical robotics.
2015	Contracts/Agreements	The company extended its partnership with TravelClick, Inc., to allow 'one-click' mobile web bookings through Google Wallet.
2015	Contracts/Agreements	The company joined forces with BlackBerry Limited to manage the devices equipped with Android.
2015	Contracts/Agreements	The company joined forces with CBT Nuggets, an on-demand video training programme provider, to deliver training courses for Google Cloud Platform.
2015	Contracts/Agreements	The company joined forces with Ingenico Group to assist online merchants strengthen their business abroad with Export Accelerator joint program.
2015	Contracts/Agreements	The company joined forces with Lending Club, a peer-to-peer lending firm, to deliver its partners with small business loans.
2015	Contracts/Agreements	The company partnered with ClearStory Data, Inc., to combine their Spark-Powered Data Analysis with its Cloud Dataflow to speed data analysis on large, diverse data.
2015	Contracts/Agreements	The company partnered with JDA Software Group, Inc., where the company will provide a uniquely scalable and flexible technology platform via the cloud to support JDA's future application development and delivery.
2015	Contracts/Agreements	The company partnered with Nestle to launch YouTube my break limited edition KITKAT packs.

2015	Contracts/Agreements	The company signed a definitive agreement to collaborate with Google, Inc., to work with the Life Sciences team on advancing surgical robotics to benefit surgeons, patients and health care systems.
2015	Contracts/Agreements	The company signed a memorandum of understanding with the state government of Telangana to cunstruct the biggest campus of Asia in Hyderabad, Telangana, India, with an investment of US$155.5 million.
2015	Contracts/Agreements	The company signed an agreement with WePay whereby WePay will provide payment services to integrate Google Wallet Instant Buy into its checkout experience.
2015	Contracts/Agreements	The company's Google Earth Outreach program entered into a partnership with Aclima, Inc., to map and understand urban air quality.
2015	Corporate Changes/Expansions	The company launched Gmail payment service in the UK.
2015	Corporate Changes/Expansions	The company launched Google Compare Auto Insurance website to compare car insurance and buy policies.
2015	Corporate Changes/Expansions	The company opened 'The Google shop' in London
2015	Corporate Changes/Expansions	The company opened a new campus at Boulder, Colorado.
2015	New Products/Services	In December, Google has unveiled a new tool, the tool, Google Cloud Vision API.
2015	New Products/Services	The company announced to launch a new information kit on health and fitness in the search tool as well as through a new app.
2015	New Products/Services	The company introduced a new user consent policy for publishers and site visitors of European Union.
2015	New Products/Services	The company launched a new feature called 'Purchases on Google,' which allows shopper to buy items directly from mobile search ads.
2015	New Products/Services	The company launched a specialized Android tablet, where doctors could record medical info from inside the high-risk zone and then send it wirelessly to servers on the outside.
2015	New Products/Services	The company launched Classroom-Labeled Mobile Application.
2015	New Products/Services	The company launched Eddystone, an open source and cross-platform Bluetooth LE beacon standard.
2015	New Products/Services	The company launched its Google Play Gift Cards in India.
2015	New Products/Services	The company launched PerfKit, an open-source cloud-benchmarking tool.
2015	New Products/Services	The company launched the Android M Developer Preview 2, an improved version of its Android M preview.
2015	Other	The company announced to invest US$600 million in new data center on Tennessee Valley Authority coal plant site.
2015	Patent Grant	The company secured patent grant from the US Patent and Trademark Office for pedestrians protection system.
2015	Plans/Strategy	In November, the company plans to launh Google Play store in China.
2015	Plans/Strategy	The company announced to acquire Dunnhumby.
2015	Plans/Strategy	The company announced to establish a data centre at former coal-burning power plant in Jackson County, Alabama, the US.
2015	Plans/Strategy	The company announced to launch Android Pay, a mobile payments system.
2015	Plans/Strategy	The company announced to launch self-driving cars by 2020

2015	Plans/Strategy	The company announced to launch solar-powered planes to provide wireless Internet service in the world's unconnected areas.
2015	Plans/Strategy	The company announced to restart its Glass project.
2015	Plans/Strategy	The company planned to launch a 'modular' smartphone in Puerto Rico, a United States territory.
2015	Plans/Strategy	The company planned to sell wireless phone service directly to the customers.
2014	Acquisitions/Mergers/Takeovers	Google announced the acquisition of cyber security start-up Impermium in a bid to improve its abuse monitoring efforts.
2014	Acquisitions/Mergers/Takeovers	The company acquired Baarzo, a video search startup.
2014	Acquisitions/Mergers/Takeovers	The company acquired cloud monitoring service Stackdriver.
2014	Acquisitions/Mergers/Takeovers	The company acquired drone maker Titan Aerospace, a solar-powered drone maker.
2014	Acquisitions/Mergers/Takeovers	The company acquired Firebase, a cloud service provider, to assist developers build realtime apps.
2014	Acquisitions/Mergers/Takeovers	The company acquired Gecko Design, a mechanical engineering and product design company.
2014	Acquisitions/Mergers/Takeovers	The company acquired Jetpac, a popular photo analyzing application.
2014	Acquisitions/Mergers/Takeovers	The company acquired Lift Labs and as a result of transaction Lift Labs will continue to make and sell the product, and Lift Labs team will be incorporated into Google X's life sciences group.
2014	Acquisitions/Mergers/Takeovers	The company acquired Rangespan, a retail forecasting firm in the UK.
2014	Acquisitions/Mergers/Takeovers	The company acquired RelativeWave for the development of Mac app called Form.
2014	Acquisitions/Mergers/Takeovers	The company acquired restaurant website builder, Appetas.
2014	Acquisitions/Mergers/Takeovers	The company acquired stake in a Silicon Valley-based robotics company, Savioke.
2014	Acquisitions/Mergers/Takeovers	The company acquired Zync Inc., a Video, Special-Effects Startup company.
2014	Acquisitions/Mergers/Takeovers	The company entered into an agreement to acquire Nest Labs, Inc. for US$3.2 billion.
2014	Business / Operations Closure	The company closed its first social network, Orkut.
2014	Contracts/Agreements	The company agreed to acquire equity interest in Panhandle II Wind farm situated in the US, from Pattern Energy Group Inc., for a purchase consideration of US$75 million.
2014	Contracts/Agreements	The company collaborated with Tata Communications to provide 'Cloud Interconnect' over the Internet.
2014	Contracts/Agreements	The company entered into 10-year cross-license agreement with LG Electronics to cover a broad range of products and technologies.
2014	Contracts/Agreements	The company entered into a partnership with SkyTruth, a digital mapping firm and Oceana, ocean conservation and advocacy organization, to develop Global Fishing Watch.
2014	Contracts/Agreements	The company entered into an agreement with Lenovo under which Lenovo will acquire Motorola Mobility smartphone business from Google.
2014	Contracts/Agreements	The company's Google Wallet was selected by Blackhawk Network, Inc., a prepaid and payments network, it allows the customers to spend and track

		gift card balances on mobile devices.
2014	Contracts/Agreements	The company-owned Nest Labs acquired Revolv, a developer of smart-home automation products.
2014	Corporate Changes/Expansions	The company launched Android TV.
2014	New Product Approvals	The company launched Chromecast Web TV streaming dongle.
2014	New Products/Services	The company along with SunPower Corp. launched a new program which will provide financing to support approximately US$250 million of residential solar lease projects in the US.
2014	New Products/Services	The company introduced Street View Imagery feature in Google Maps, which allows users to see the latest image of a particular place and an older image of the same place.
2014	New Products/Services	The company launched 'Google Fit Health Tracking App', a health and fitness software application.
2014	New Products/Services	The company launched first 'Android Wear update' it offers support for GPS features, offline music playback and Bluetooth.
2014	New Products/Services	The company launched Gmail 5.0 latest version of the Gmail app.
2014	New Products/Services	The company launched Nexus 9 tablet and Nexus 6 smartphone.
2014	Other	A consumer rights law firm, filed a national class-action lawsuit against Google, claiming that the company unlawfully denies payments to thousands of website owners and operators who place ads on their sites sold through Google AdWords.
2014	Patent Grant	Google and Apple agreed to settle patent litigation.
2014	Plans/Strategy	The company announced to merge Wallet application with Google Glass.
2014	Plans/Strategy	The company planned to enhance its shopping service
2014	Plans/Strategy	The company planned to invest US$1 billion to launch satellites.
2013	Acquisitions/Mergers/Takeovers	The company acquired a Canadian startup, which specializes in getting machines to understand what people are trying to say.
2013	Acquisitions/Mergers/Takeovers	The company acquired a portfolio of U.S. patents and patent applications from SR Tech Group LLC.
2013	Acquisitions/Mergers/Takeovers	The company acquired Flutter, a gesture recognition company.
2013	Acquisitions/Mergers/Takeovers	The company acquired Israeli mapping startup Waze, an online real-time mapping service provider.
2013	Acquisitions/Mergers/Takeovers	The company acquired WIMM Labs, a android smartwatch manufacturer.
2013	Contracts/Agreements	The company entered into an agreement with GROUPE OPEN SA, pursuant to which Groupe Open SA will its customers a cloud-based multi-services solution.
2013	Contracts/Agreements	The company entered into an agreement with Himax Technologies Inc, pursuant to which Google will invest in Himax Technologies Inc's subsidiary, Himax Display Inc.
2013	Contracts/Agreements	The company's Google Play and Telenor ASA's Telenor Norway entered into a collaboration to enable Android mobile users to find relevant apps in Google Play.
2012	Acquisitions/Mergers/Takeovers	Google acquired Nik Software, which makes photo editing application Snapseed.

2012	Acquisitions/Mergers/Takeovers	Google completed the acquisition of Motorola Mobility Holdings, a manufacturer of telecommunications equipment. The acquisition was mainly focused at strengthening the Android ecosystem and improving mobile computing capabilities.
2012	Acquisitions/Mergers/Takeovers	The company acquired a BufferBox, a provider of lockers to receive e-commerce shipments.
2012	Acquisitions/Mergers/Takeovers	The company acquired mobile office software company, Quickoffice.
2012	Acquisitions/Mergers/Takeovers	The company acquired TxVia, a payment services company.
2012	Acquisitions/Mergers/Takeovers	The company acquired Wildfire, a provider of social media marketing tools.
2012	Acquisitions/Mergers/Takeovers	The company completed the acquisition of VirusTotal, a provider of anti-virus engines from third-party providers.
2012	Asset Purchase	The company acquired Milk Inc., for worth USD30 million.
2012	Contracts/Agreements	The company also entered into a definitive agreement with John Wiley & Sons Inc, to procure the assets of its Travel business.
2012	Contracts/Agreements	The company also signed an Internet AdSense advertising agreement with Jobookit Holdings Ltd, under which, the company will add its advertising links to Jobookit's Exact Me website.
2012	Contracts/Agreements	The company extended its desktop search agreement with Opera Software ASA for a period of 2 months.
2012	Contracts/Agreements	The company extended its strategic partnership with Daimler. Under the terms of the partnership, Google will provide Daimler with an access to a suite of application programming interfaces (APIs) for map-related applications in Daimler vehicles.
2012	Contracts/Agreements	The company signed a strategic agreement with Opera Software ASA to integrate the Opera mobile and desktop browsers with Google search.
2012	New Products/Services	The company launched a new platform, Google Play. Under this platform, the company integrates all its application such as books, music and movies.
2011	Acquisitions/Mergers/Takeovers	Google and Real Estate Opportunities Limited entered into an agreement to sell Montevetro, Dublin's tallest commercial office building, to Google.
2011	Acquisitions/Mergers/Takeovers	The company acquired digital coupon and loyalty program provider, Zave Networks.
2011	Acquisitions/Mergers/Takeovers	The company acquired eBook Technologies Inc, to deliver richer reading experience to its customers on electronic readers, tablets and other portable devices.
2011	Contracts/Agreements	The company entered into a low-income housing tax credit investment partnership with AEGON USA Realty Advisors, LLC, a commercial real estate investment and management arm of AEGON companies.
2011	Contracts/Agreements	The company entered into a partnership with Booktopia Pty Ltd., an online retailer, to sell ebooks.
2011	Contracts/Agreements	The company entered into a partnership with Gilt City, delivers access for unique lifestyle experience, to provide expanded deal services.
2011	New Products/Services	The company's Android team launched Ice Cream Sandwich with focus on improved sharing through Google+.
2010	Acquisitions/Mergers/Takeovers	Google acquired Widevine, an anti-piracy company.
2010	Acquisitions/Mergers/Takeovers	The company acquired On2 Technologies, Inc. valued at approximately US$124.6 million.

2010	Acquisitions/Mergers/Takeovers	The company acquired Picnik, a site enabling you to edit your photos in the cloud, without leaving your browser.
2010	Acquisitions/Mergers/Takeovers	The company acquired Slide, a social technology company with an extensive history of building new ways for people to connect with others across numerous platforms online.
2010	Acquisitions/Mergers/Takeovers	The company signed an agreement to acquire ITA, a software company specializing in organizing airline data, including flight times, availability and prices.
2010	Contracts/Agreements	Google Inc., Brocade Communications Systems, Inc., Santur Corporation and JDS Uniphase Corporation entered into a multi-source agreement (the 10X10 MSA) to establish compatible sources of low-power, low-cost, pluggable 100G optical transceivers based on 10 optical lanes at 10G.
2009	Acquisitions/Mergers/Takeovers	Google announced to acquire On2 Technologies, a leading developer of video compression technology. The transaction is valued at approximately US$106.5 million.
2009	Acquisitions/Mergers/Takeovers	The company signed an agreement to acquire AdMob, a mobile display ad technology provider, to enhance its existing expertise and technology in mobile advertising.
2009	Contracts/Agreements	The company entered into a retail partnership with Best Buy Mobile, a unit of Best Buy Co. Inc., to distribute Google Mobile App on smartphones.
2009	Contracts/Agreements	The company entered into partnership with Verizon.
2009	New Products/Services	Google announced the launch of Google Toolbar 6 Beta for Internet Explorer to host new features and making search and navigation faster, stronger, and easier.
2009	New Products/Services	The company launched its Picasa for Mac, free software that helps Mac users easily organize their photos in one place, edit pictures, and share them online with friends, family, and the world.
2008	Acquisitions/Mergers/Takeovers	Google completed the acquisition of DoubleClick
2008	Contracts/Agreements	The company's Google Health product partnered with CVS Caremark, retail and health care firm, to securely store, organize and manage medical records of users.
2008	New Products/Services	A new version of Google Earth was launched.
2008	New Products/Services	Google Sites was launched following the acquisition of JotSpot.
2008	New Products/Services	The company launched Google Finance China, which enables Chinese investors to get stock and mutual fund data.
2008	New Products/Services	The company launched Google Health, enabling people to collect, store, and manage their medical records and health information online.
2007	Contracts/Agreements	Google entered into a partnership with LG Electronics.
2007	Contracts/Agreements	The company signed a strategic alliance with Salesforce.com.
2007	Corporate Awards	The company received 'Ritz Interactive Partner of the Year Award' from Ritz Interactive.
2006	Acquisitions/Mergers/Takeovers	Google signed partnership with Warner Music Group Corporation and Sony BMG.
2006	Acquisitions/Mergers/Takeovers	The company acquired YouTube, an online video-sharing site.
2006	Contracts/Agreements	Google and eBay signed a multi-year agreement to benefit both companies' collective communities of users, merchants and advertisers around the globe.

2006	Contracts/Agreements	Google signed a partnership agreement with MTV Networks.
2006	Incorporation/Establishment	The company established its operations in India and China.
2006	New Products/Services	The company launched Checkout, a merchant payment solution.
2006	New Products/Services	The company launched Google Docs & Spreadsheets.
2006	New Products/Services	The company launched Google Video Store, its open video marketplace.
2005	Acquisitions/Mergers/Takeovers	Google acquired Urchin Software, a web analytics company.
2005	Contracts/Agreements	Google and NASA signed a memorandum of understanding (MOU).
2005	Contracts/Agreements	The company signed an agreement with Sun Microsystems (Sun Micro).
2005	New Products/Services	Google Sitemaps, Google Talk, Google Desktop, and Google Blog were launched by the company.
2005	New Products/Services	The company launched Google Video, Google Maps, and Google Web Accelerator.
2004	Acquisitions/Mergers/Takeovers	The company acquired Keyhole, a digital and satellite mapping company.
2004	Acquisitions/Mergers/Takeovers	The company acquired Picasa, a California-based digital photo management company.
2004	Contracts/Agreements	The company signed agreements with the libraries of Harvard, Stanford, the University of Michigan, the University of Oxford, and The New York Public Library.
2004	New Products/Services	Google launched its desktop search, a beta-based web application.
2004	New Products/Services	The company launched its Gmail service.
2004	Stock Listings/IPO	The company issued Initial Public Offerings and listed on the NASDAQ Stock Exchange.
2003	Acquisitions/Mergers/Takeovers	The company acquired Pyra Labs.
2002	New Products/Services	The company launched online shopping service, Froogle, news feeds, and Google News.
2001	Acquisitions/Mergers/Takeovers	Google acquired Deja.com's Usenet archive.
2001	New Products/Services	The company launched Google Labs to develop new products.
2001	New Products/Services	The company released wireless search technology for i-Mode mobile phones.
2000	Contracts/Agreements	The company signed partnership agreements with Yahoo, Chinese portal NetEase and NEC's Biglobe portal.
2000	Corporate Awards	Google was awarded the Webby Award and a People's Voice Award for technical achievement.
2000	Corporate Changes/Expansions	The company moved its headquarters to Mountain View, California.
1999	Corporate Changes/Expansions	The company moved its headquarters to University Avenue in Palo Alto, California.
1998	Incorporation/Establishment	Google LLC was incorporated.

Source: Company Website, Primary and Secondary Research GlobalData

Google LLC - Locations And Subsidiaries

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Source: Company Website, Primary and Secondary Research GlobalData

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Source: Company Website, Primary and Secondary Research GlobalData

Section 2 – Company Analysis

Google LLC - Business Description

Google LLC (Google) is a global technology company, which provides internet products such as Search, Ads, Commerce, Maps, YouTube, Google Cloud, Android, Chrome, Google Play and hardware products.

The company operates through three business segments: Google Properties, Google Network Members' Properties, and Others. In FY2017, Google Properties accounted for 71% of the company's total revenue, followed by Google Network Members' Properties (16%) and Others (13%).

The company conducts research and development (R&D) activities on improving the performance of products and developing new technologies. The R&D team of the company initiated several projects to enhance and develop various products and technologies in the areas of artificial intelligence (AI), virtual reality, Big Data, and others.

The company has business presence worldwide and its products and services are available in several languages and in various countries, regions, and territories.

Business Description - Google Network Members properties

Google Network Members properties - Overview

Offers services such as AdWords, AdSense, AdMob and DoubleClick's AdExchange.

AdWords is an auction-based advertising program that allows advertisers to create suitable text-based advertisements. Google AdSense comprises Google AdSense for Search, an online service for distributing related ads from the company's advertisers for displaying the search results on the Google network members' websites and Google AdSense for Content analyzes the meaning of the content on the web page and provide related ads based on the meaning of such content. AdMob enables app developers to generate insights about their users. An AdExchange is a technology platform that facilitates the buying and selling of media advertising inventory from multiple ad networks.

Business Description - Google Properties

Google Properties - Overview

Provides services through its owned and operated properties such as Gmail, Maps, YouTube, Google Chrome, and Google Play.

Google Maps offers services such as GPS navigation, traffic alerts, and transit directions. Gmail is a free, advertising-supported email service developed by Google. Through Google Play, customers can subscribe to access millions of songs. The users can discover, watch, and share favorite videos and music through YouTube. Google Chrome is a simple and secure browser.

Business Description - Others

Others - Overview

Provides apps, in-app purchases, and digital content in the Google Play store; and hardware services. Google's apps include Google Allo, a smart messaging app and Google Duo, a video calling app.

Google LLC - Corporate Strategy

Google focuses on establishing itself as a major enterprise vendor supplying future technology. The company leverages its cloud platform to meet the requirements of developers and penetrate into the enterprise market. It focuses on strategic enterprise business drivers such as cost savings through its Google Cloud Platform to increase value proposition of its customers. Google also plans to create and manage digital apps for both segments of customers including enterprise digital professional and the enterprise developer.

The company adopts inorganic growth strategy to expand its expertise in engineering and other functional areas. Google's major acquisitions are focused on strengthening its cloud customer base, app-based solutions, life-science businesses, and broaden its portfolio of patented technology. In March 2018, the company acquired Tenor Inc., a developer of the GIF keyboards, which could complements its services that are offered to the users.

Google LLC - SWOT Analysis

SWOT Analysis - Overview

Google LLC (Google) is global technology leader focused on web search and advertising services. Strong revenue performance, dominance in search engine market, and robust research and development capabilities are the company's major strengths, whereas involvement in lawsuits, and update patching issues remain major areas of concern. Focus on artificial intelligence market; next billion users' initiative and cloud computing market are likely to offer growth opportunities to the company. However, intense competition, security breaches, and stringent regulations could affect its business operations.

Google LLC - Strengths

Strength - Revenue Performance

The company's total revenue increased from US$89,463 million in FY2016 to US$109,652 million in FY2017, an annual growth of 22.5%. Revenue growth was due to 20.1% increase in advertising revenue, which increased from US$79,383 million in FY2016 to US$95,375 million in FY2017. Growth in the advertising revenues was contributed from the increase in the YouTube engagement ad's and mobile search queries. Growth in the revenue was also due to improvements made to ad formats and delivery related initiatives. Higher advertising revenue also resulted from growth in the higher programmatic advertising buying and AdMob. There was also US$4,197 million increase in the Google Other revenue from Google cloud offerings, hardware sales, and Google Play app.

Strength - Penetration of Android Operating System

Google's Android operating system (OS) has emerged as the leading mobile OS worldwide. The OS is expected to gain more market share in the global smartphone market in the future. According to Google, the monthly activation of Android devices reached over two billion worldwide. The Android users download over 1.5 billion apps and games from the Google Play store monthly. In addition to this, the company introduced an enhanced version of android operating system- Android P equipped with new gesture navigation, screen notch support, AI powered smart replies, task predictions extended battery life, and tools that stops smartphone addictions. In May 2018, the Google collaborated with Qualcomm Technologies, Inc., on project Treble, which aims at making Android P accessible on Snapdragon platforms. Android holds strong market share across various geographies worldwide. According to in-house research, it has 85% share in smartphone OS market in Asia-Pacific and Latin America each, 79% in Central and Eastern Europe, 68% each in Western Europe, and Africa and Middle East, 64% in North America, and 56% in Australia.

Strength - Research and Development (R&D) Capabilities

Strong R&D capabilities enable the company to implement innovative technologies and deliver advanced products and services that meet its customers' critical needs. Google has robust research and development (R&D) capabilities, which focus on improving the performance of products and developing new technologies. The company's R&D activities endeavor to develop new online advertising offerings and enhance its technological advantages. It enables to overcome the technical barriers encountered in the commercialization of search, advertising, operating systems and platforms, and enterprise. The R&D team of the company initiated several projects to enhance and develop various products and technologies. Google focuses on improving the performance of its Voice Search to enable users to quickly find what they look for. Its Google Assistant allows users to type or talk with in a natural conversational way to search and find actual results.

Google LLC - Weaknesses

Weakness - Legal Proceedings

The lawsuits filed against the company could affect the company's bottom line performance. In April 2018, Google was sued by its competitor, Oracle America Inc., for copying of 37 packages of Java application programming interface (API) for use in its Android platform. In January 2018, the company was sued by its former employee James Damore. In this lawsuit, Google was alleged for systematic race, gender, and political bias against white, male, and conservative employees. In March 2018, Google was sued by Oracle America, Inc in the US District Court for the Northern District of California. In the lawsuit, Oracle alleged Google for infringing copyrights of its 37 packages of its Java Application programming interface (API Packages) into Google's Android operating system. In addition to this, in February 2018, lawsuit was filed against Google for selling defective Pixel and Pixel XL smartphones by its users. In this case, the company was alleged for knowingly selling Pixel and Pixel XL smartphones to its users although several users had given complaints about the faulty microphones.

Weakness - Boycott by Major Advertisers

Google has recently faced boycott of its search engine and video platform YouTube by major advertisers such as AT&T, Verizon, Johnson & Johnson, Wal-Mart, L'Oreal, Tesco, Sainsbury Lloyd's of London, Audi, Volkswagen, the BBC, the Guardian newspaper, Marks & Spencer, HSBC, RBS, Havas and the British government. In March 2017, these advertisers pulled their ads after finding their ads were running alongside extremist and hate-filled content. Though Google ensured its clients for not placing their ads alongside unsavory videos, it needed improvement of its automated programs to place advertisement on videos.

Google LLC - Opportunities

Opportunity - Next Billion Users Initiative

Google plans to provide equal access to the internet to people living in any part of world under its initiative of reaching the next billion users. As part of its initiative, the company focuses on addressing the issues of connectivity and low bandwidth in emerging countries. It has launched a project, CSquared to build fiber and wifi networks across various cities of Uganda and Ghana to provide faster and reliable network to the users. Its Project Loon comprises a network of balloons, which are sent up to the stratosphere for providing internet services in rural and remote areas worldwide where traditional means fails to reach. The company develops low cost operating system to help mobile manufacturers develop cheap smartphone. It also focuses on improving results of Google searches in developing countries by increasing search speeds and reducing data usages. Google intends to strengthen its presence in Southeast Asia especially Singapore, which strengthens its network to serve emerging markets such as India and Indonesia. The company decentralizes its decision making process that enable managers to localize products to meet the requirements of relevant market. In FY2017, Google strengthened its NBU initiative by introducing Google Assistant, Files Go, a file management app and Tez, an easy bill payments app in India, which already had 400 million internet users as of December 2017.

Opportunity - Exploring Artificial Intelligence (AI)

The company's open-source software library for Machine Intelligence (ML), TensorFlow allows it to explore the capabilities of AI to conduct numerical computation using data flow graphs. Google rebranded its research division as Google AI, which develops TensorFlow for facilitating ML and deep neural networks research. It helps in detecting skin cancer and preventing blindness in diabetics along with making language translation easier. In November 2017, the company introduced TensorFlow v1.4, which is equipped with the additional functionalities such as eager execution for interactive imperative style programming, XLA, an optimized compiler, and TensorFlow Lite, a lightweight solution for mobile and embedded devices. The company also expanded its TensorFlow model repository with various models, including TensorFlow Lattice and TensorFlow Object Detection API. In addition to this, Google introduced deeplearn.js, an open-source hardware implementation of deep learning API's in the browser. It also plans to deploy TensorFlow models directly into the deeplearn.js environment in FY2018. In December 2017, the company planned to establish a new Google AI Center in Beijing, China. In July 2017, Google acquired Halli Labs, a Bengaluru-based start-up, which leverages AI and ML techniques to allow people to solve old age problems.

Opportunity - Cloud Computing Market

Cloud-based operations enable enterprises to scale their operations instantly, handle demand fluctuations, and access systems and services over a variety of devices at a lower cost. According to an in-house research, the global cloud computing market is expected to grow at a CAGR of 28.3% to reach US$69,929.6 million by 2022 from US$18,687.2 million in 2017. During 2017-2022 forecast period, in terms of variants of cloud, Software-as-a-Service (SaaS) is expected to be the major contributor with market share of 53.2%, followed by Infrastructure-as-a-Service (IaaS) with 24.3%, and Platform-as-a-Service with 22.5% respectively. The US is expected to account for 58.3% market share, followed by Europe (19.6%), Asia-Pacific (12.8%), Rest of the World (9.2%), and the Middle East (0.2%) during 2017-2022. The company undertook several initiatives to improve the performance of its cloud platform. In January 2018, Google introduced a new digital store, which offers cloud-based software to all organizations. In line to this, the company collaborated with MobileIron, Inc., to integrate its cloud Orbitera commerce platform with MobileIron's app distribution, security and analytics capabilities.

Google LLC - Threats

Threat - Regulatory Affairs: EU Antitrust Rules

In February 2018, Google was imposed a fine of INR1,360 million by the India's antitrust regulator for infringing anti-trust conduct. The company was fined for using unfair business practices in the Indian local market for online search. The penalty amounted to 5% of the company's average revenue generated from India. The complaint was filed by Matrimony.com and Consumer Unity and Trust Society (CUTS) against Google LLC, Google India Pvt. Ltd and Google Ireland Ltd. In June 2017, the European Union (EU) levied a penalty of EUR2.4 billion on Google to create dominant position in comparison shopping service market by artificially manipulating its search engine results. In its investigation, the commission found that Google was dominating general internet search markets with a market share of approximately 90% in all 31 countries in EU. It alleged that the company created this dominating position by promoting its own comparison shopping service in its search results, and demoting those of competitors. The commission found that Google's practice resulted in sudden decline in traffic on some of the competitors' websites ranging from 85% in the UK, to 92% in Germany and 80% in France. The commission gave 90 days to the company to adopt legal trade practices and comply with its decisions. Any non-compliance will result in imposition of fine upto 5% of the average daily worldwide turnover of its parent company, Alphabet. Though Google plans to appeal against the commission's decision such issues could affect its operational performance.

Threat - Intense Competition

Google operates in a highly competitive market which could affect its business and operating results. The company witnesses competition from general purpose search engines including Baidu, Inc. and Microsoft's Bing. It also witnessed competition from recently introduced Google Assistant and competitors AI apps such as Siri, Cortana and Alexa. In June 2018, Apple introduced MacOS 'Mojave', an operating system with unique features, which is more user-friendly and secured compared to Google's Android. In January 2018, Microsoft announced to acquire Avere Systems, a hybrid cloud data storage service provider to strengthen its presence in media and entertainment industry.

Google faces stiff competition in cloud computing business where top 10 vendors attract a significant proportion of the overall market. According to in-house research, the top ten cloud computing vendor accounts for 55.7% to the total market size. The market is dominated by vendors such as Amazon Web Services (AWS), Salesforce.com, Microsoft, IBM, and SAP with respective market share of 11.9%, 9.4%, 7%, 6.8%, and 3.8%. Google holds a market share of just 3.7%, requiring the company to increase investments in this market, which has been witnessing consolidation.

Threat - Security Breaches

The company's products and services involve in the storage and transmission of users' and customers' proprietary information. Google's security measures could be breached due to the actions of outside parties, employee error, malfeasance, and as a result an unauthorized party could obtain access to the company's data or users' data. Also, its clients are subject to laws and regulations in the US and other jurisdictions designed to protect privacy of their personal information. The experienced computer programmers and hackers could pierce its network security and misappropriate confidential information, create system disruptions and cause shutdowns.

In May 2017, the Google Docs users received an email accompanying an invitation to open and edit a Google documents with subject line, 'has shared a document on Google Docs with you'. The mail had a HTML code, if clicked, providing hackers the access of reading, sending, deleting and managing emails connected to the Google Docs account.

NOTE:
The above strategic analysis is based on in-house research and reflects the publishers opinion only

Google LLC - Key Competitors

Google LLC, Key Competitors

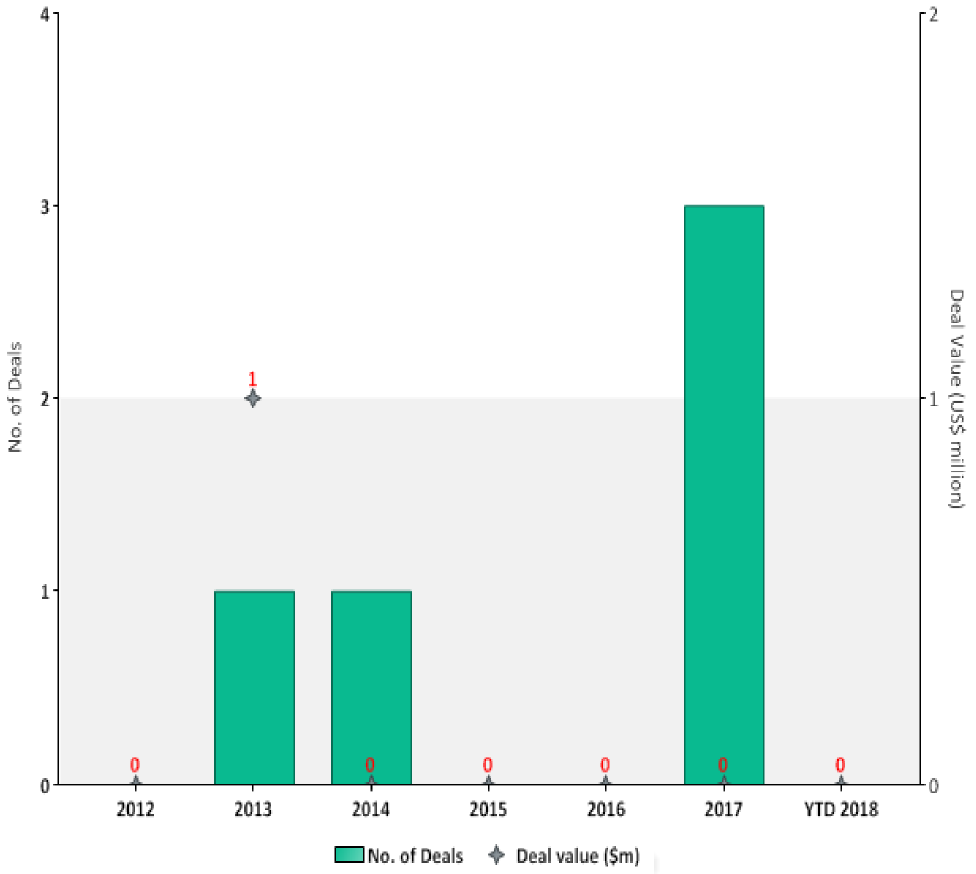
Name	Headquarters	Revenue (US$ m)
Amazon.com Inc	United States	177,866
Baidu, Inc.	China	12,549
Facebook Inc	United States	40,653
Fujitsu Limited	Japan	37,838
International Business Machines Corp	United States	79,139
Microsoft Corp	United States	89,950
Oracle Corporation	United States	39,831
Salesforce.Com Inc	United States	8,392
SAP SE	Germany	26,450

Source: Company Website, Primary and Secondary Research GlobalData

Section 3 – Company's Mergers & Acquisitions, Capital Raising and Alliances

Google LLC, Transactions by Year, 2012 to YTD 2018

Google LLC, Transactions by Year, 2012 to YTD 2018



Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed. GlobalData
Above data is extracted from GlobalData's Deals and Alliances Profile.

Google LLC's, deal volume increased from zero deals in 2016 to three deals in 2017. No deals were reported by the company in YTD 2018.

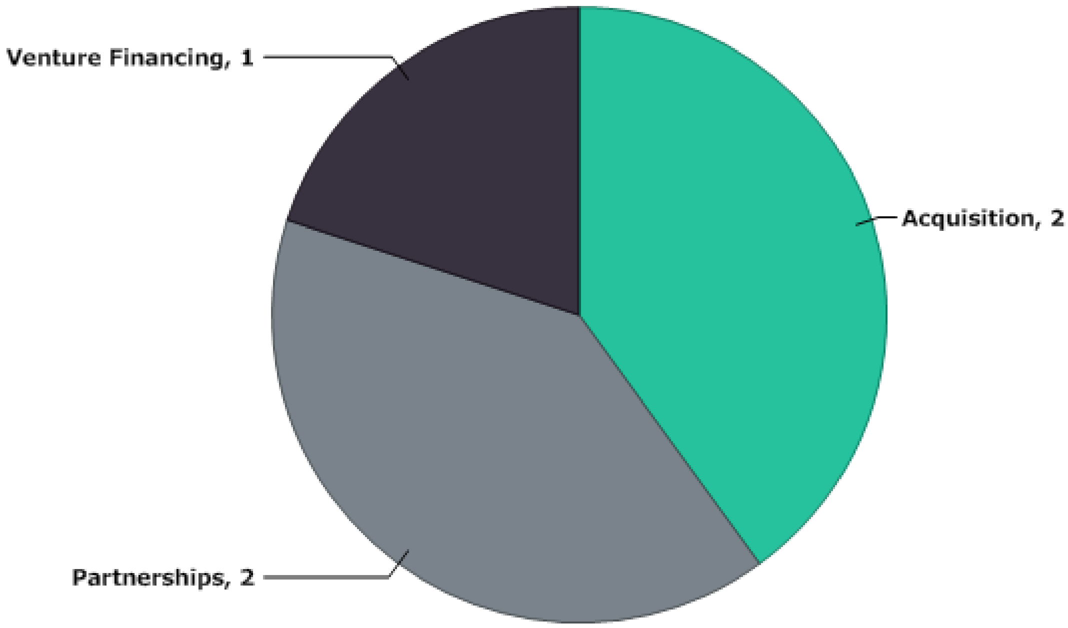
Google LLC, Transactions by Year, 2012 to YTD 2018

YEAR	No. of Deals	Deal value ($m)
2012	0	NA
2013	1	1
2014	1	NA
2015	0	NA
2016	0	NA
2017	3	NA
YTD 2018	0	NA

Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed.Above data is extracted from GlobalData's Deals and Alliances Profile. GlobalData

Google LLC, Transactions by Type, 2012 to YTD 2018

Google LLC, Transactions by Type, 2012 to YTD 2018



Note: Deals include all announced deals from 2011 onwards
Above data is extracted from GlobalData's Deals and Alliances Profile.
GlobalData

Google LLC's deals activity has been reportedly focusing on acquisition and partnerships with two deals each during the period 2012 to YTD 2018.

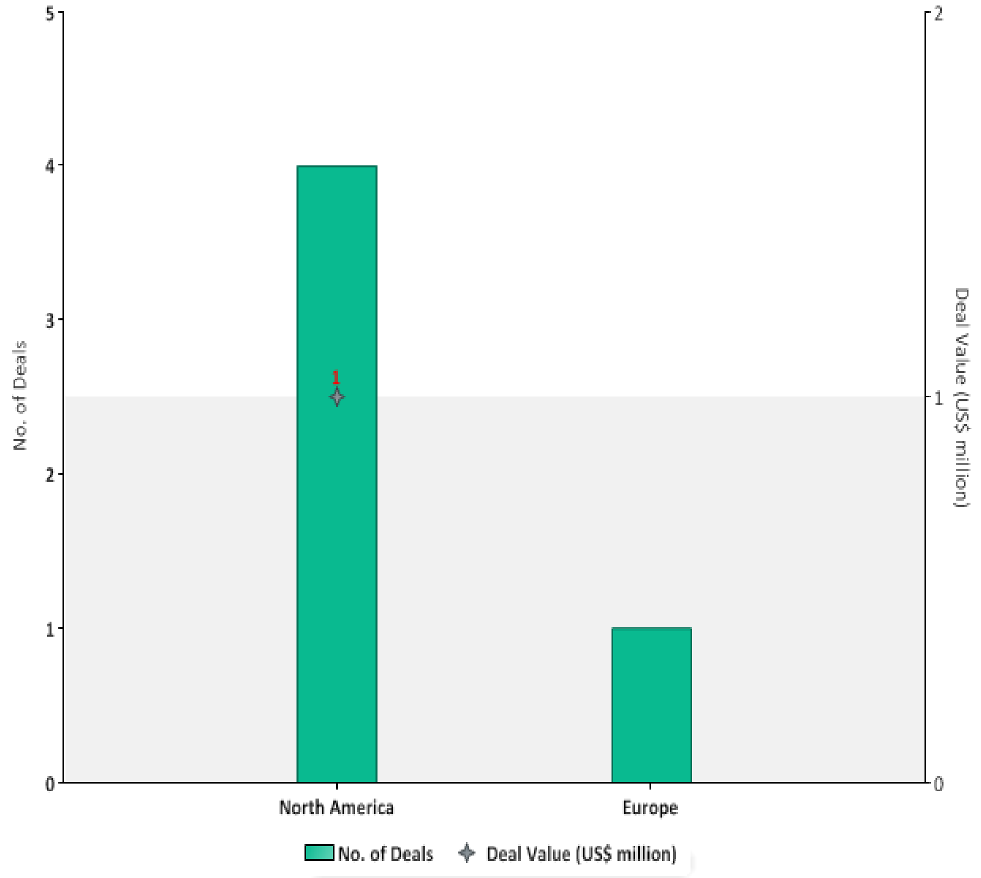
Google LLC, Transactions by Type, 2012 to YTD 2018

Deal type	No. of Deals	Deal Value (US$ million)
Acquisition	2	
Partnerships	2	
Venture Financing	1	1

Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed.Above data is extracted from GlobalData's Deals and Alliances Profile.
GlobalData

Google LLC, Transactions by Region, 2012 to YTD 2018

Google LLC, Transactions by Region, 2012 to YTD 2018



Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed. GlobalData
Above data is extracted from GlobalData's Deals and Alliances Profile.

Google LLC, deals activity has been reportedly focusing on North America with four deals worth $1 million during the period 2012 to YTD 2018.

Google LLC, Transactions by Region, 2012 to YTD 2018

Region	No. of Deals	Deal Value (US$ million)
North America	4	1
Europe	1	

Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed.Above data is extracted from GlobalData's Deals and Alliances Profile. GlobalData

Google LLC, Recent Transactions Summary

Google LLC, Recent Transactions Summary

Deal Date	Deal type	Deal Status	Deal Headline	Deal Value (US $ million
16-Nov-2017	Partnerships	Completed	Candi Controls Forms Partnership with Google Cloud Platform	
13-Aug-2017	Acquisition	Completed	Alphabet Acquires Senosis Health	
03-May-2017	Partnerships	Completed	E.ON Forms Partnership with Google	
10-Sep-2014	Acquisition	Completed	Google Acquires Lift Labs, Tremor-Canceling Device Company	
18-Sep-2013	Venture Financing	Completed	Lift Labs Raises US$1 Million In Seed Funding	1.00

Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed. GlobalData
Above data is extracted from GlobalData's Deals and Alliances Profile.

Acquisition

Alphabet Acquires Senosis Health

Alphabet Acquires Senosis Health			
Deal Type	Acquisition	**Deal Sub Type**	100% Acquisition
Deal in Brief			
Alphabet Inc., a global technology company and a holding company of Google, has acquired Senosis Health, a health start up company.			
Deal Information			
Deal Status	Completed		
Completed Date	13-Aug-2017		
% Acquired	100		
Companies Information			
Acquirer Company Information			
Company Name	Alphabet Inc		
Business Description			
Alphabet Inc. (Alphabet), the holding company of Google, is a global technology company. It offers a wide range of products and platforms including Search, Maps, Ads, Gmail, Google Play, Android, Commerce, Google Cloud, Chrome, YouTube and hardware products such as Pixel 2 phone, Pixelbook laptop and other related products. The company also provides Internet products such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo, and X. It also offers online advertising services through its AdSense and AdWords, Internet and TV services and licensing and research and development services. Alphabet is also involved in investing in infrastructure, data management, analytics and artificial intelligence (AI). The company has business operations worldwide. Alphabet is headquartered in Mountain View, California, the US.			
Target Company Information			
Company Name	Senosis Health	**Parent**	Google LLC
Source: GlobalData			

Google Acquires Lift Labs, Tremor-Canceling Device Company

Google Acquires Lift Labs, Tremor-Canceling Device Company			
Deal Type	Acquisition	**Deal Sub Type**	100% Acquisition
Deal in Brief			
Google Inc., a provider of search and advertising services on the Internet, through its division Google X, has acquired Lift Labs, a health technology company. Following the transaction, Lift Labs will continue to make and sell the product, and Lift Labs team will be incorporated into Google X's life sciences group.Lift Labs developed a special spoon designed to make it easier to eat for people with diseases like Parkinson's or essential tremor. Lift Lab's product, called Liftware, vibrates to stabilize tremors, countering the movements of a patient's hand as he or she raises the spoon to the mouth. This transaction enables Google to expand healthcare focus by providing Liftware system for people with Parkinson's or essential tremor who could benefit from using tremor-canceling devices.			
Deal Rationale			
This transaction enables Google to expand healthcare focus by providing Liftware system for people with Parkinson's or essential tremor who could benefit from using tremor-canceling devices.			
Deal Information			
Deal Status	Completed		
Completed Date	10-Sep-2014		
% Acquired	100		
Companies Information			
Acquirer Company Information			
Company Name	Alphabet Inc		
Business Description			
Alphabet Inc. (Alphabet), the holding company of Google, is a global technology company. It offers a wide range of products and platforms including Search, Maps, Ads, Gmail, Google Play, Android, Commerce, Google Cloud, Chrome, YouTube and hardware products such as Pixel 2 phone, Pixelbook laptop and other related products. The company also provides Internet products such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo, and X. It also offers online advertising services through its AdSense and AdWords, Internet and TV services and licensing and research and development services. Alphabet is also involved in investing in infrastructure, data management, analytics and artificial intelligence (AI). The company has business operations worldwide. Alphabet is headquartered in Mountain View, California, the US.			
Target Company Information			
Company Name	Lift Labs	**Parent**	Google LLC
Source: GlobalData			

Partnerships

Candi Controls Forms Partnership with Google Cloud Platform

Candi Controls Forms Partnership with Google Cloud Platform			
Deal Type	Partnership		
Deal in Brief			
Candi Controls, Inc., (CANDI) a clean technology company, has formed partnership with Google Cloud Platform, to launch a new solution that simplifies the connection of smart building devices and data to apps.Through the integration of Google Pub/Sub and CANDI's PowerTools, IoT developers and service providers can more easily connect to edge data, link directly into Google's Cloud Platform toolset, and drive business value across the IoT ecosystem. The solution is designed with out-of-the-box support for smart buildings, which includes reference designs and sensor kits for energy, HVAC, and equipment management using Intel BMP gateways.			
Deal Information			
Deal Status	Completed		
Completed Date	16-Nov-2017		
Companies Information			
Partner Company Information			
Company Name	Candi Controls Inc		
Business Description			
Candi Controls, Inc. is a cloud-based software as a service (SaaS) company that connects devices and data in mainstream commercial buildings to cloud-based services for energy and facilities management.			
Company Name	Google LLC	**Parent**	Alphabet Inc
Business Description			
Google LLC (Google), a subsidiary of Alphabet Inc., is a leading provider of search and advertising services on the internet. The company focuses on business areas such as advertising, search, platforms and operating systems, and enterprise and hardware products. Its portfolio of products and services include Google Web Search, Google Chrome, Google Docs, Google Calendar, Google Images, Google Finance, Google Books, Google News, Google Earth, Google Play, AdMob, Google Maps, Google Videos, Google Reader, Blogger, Google Wallet, Gmail, Google Groups, and YouTube. The company offers online display advertising services through its AdSense and AdWords programs. Google is headquartered in Mountain View, California, the US.			
Source: GlobalData			

E.ON Forms Partnership with Google

E.ON Forms Partnership with Google			
Deal Type	Partnership	**Deal Sub Type**	Other
Deal in Brief			
E.ON SE, a power generation, distribution and transmission company, a renewable energy company, has formed partnership with Google, Inc., a US-based Internet technology and advertising company, to jointly offer the Sunroof platform in Germany.Under the partnership, around seven million buildings are covered by the sunroof platform, including those in major urban areas like Munich, Berlin, Rhine-Main and the Ruhr. Using this technology, homeowners can easily and precisely determine their home's potential solar capacity and generate plans for installing a solar system. The sunroof platform brings together technologies like Google Earth & Maps, 3D models, and machine learning in order to answer inquiries as precisely as possible. Sunroof calculates how much sunlight falls on a roof during the course of a year. It takes into account weather data, the position of the sun in different seasons, the area and slope of the roof as well as shadows from surrounding buildings or trees. Then sunroof converts the data on sunlight into energy and calculates the potential cost savings.On May 18, 2018, E.ON and Google have announced that they have extended the one-year program until the end of 2018. In addition, E.ON and Google are making their sunroof platform available to the homeowners in Great Britain. At the same time, E.ON and Google are preparing the market launch in Italy.			
Deal Information			
Deal Status	Completed		
Completed Date	03-May-2017		
Companies Information			
Partner Company Information			
Company Name	E.ON SE		
Business Description			
E.ON SE (E.ON), formerly E.ON AG, is an energy company that generates electricity, produces, stores, transports and supplies gas, and conducts trading, carbon sourcing, and electricity and gas distribution. It generates power from diverse fuel sources including wind, hydro, nuclear, coal, natural gas, oil, solar and biomethane. The storage and transport operations of the company include underground gas storage reservoirs and interests in the Nord Stream AG. The company trades gas, electricity, biomass, coal, freight and carbon allowances. It operates an electricity distribution network in Europe and the US and gas distribution network in Europe. E.ON is headquartered in Essen, Germany.			
Company Name	Google LLC	**Parent**	Alphabet Inc
Business Description			
Google LLC (Google), a subsidiary of Alphabet Inc., is a leading provider of search and advertising services on the internet. The company focuses on business areas such as advertising, search, platforms and operating systems, and enterprise and hardware products. Its portfolio of products and services include Google Web Search, Google Chrome, Google Docs, Google Calendar, Google Images, Google Finance, Google Books, Google News, Google Earth, Google Play, AdMob, Google Maps, Google Videos, Google Reader, Blogger, Google Wallet, Gmail, Google Groups, and YouTube. The company offers online display advertising services through its AdSense and AdWords programs. Google is headquartered in Mountain View, California, the US.			
Source: GlobalData			

Venture Financing

Lift Labs Raises US$1 Million In Seed Funding

Lift Labs Raises US$1 Million In Seed Funding			
Deal Type	Venture Financing	**Deal Sub Type**	Seed
Deal in Brief			
Lift Labs, a developer of a suite of home health hardware, raised US$1m in seed funding round. This finance was provided by Silicon Valley-based angel investors. The company intends to use the proceeds to launch Liftware, a spoon that detects and autocorrects for hand tremors, in the market; and to expand its business.Anupam Pathak, CEO of Lift Labs, said, “It’s a first round of private money after being funded by the grant. The government is now handing off support to private investors. A lot of it is going to our manufacturing costs. There’s significant amount of capital required, especially since we’re doing the bulk of our manufacturing here. The funding is basically just to pay engineering support, manufacturing support and also help with marketing and developing the business. It’s a modest amount, but we think that it will get us out there and allow us to begin to expand the business to future products we’ll be developing.”			
Deal Rationale			
The company intends to use the proceeds to launch Liftware, a spoon that detects and autocorrects for hand tremors, in the market; and to expand its business.			
Deal Information			
Deal Status	Completed		
Deal Finance	None		
Completed Date	18-Sep-2013		
Deal Financials			
Deal Value (US$ m)	1		
Companies Information			
Target Company Information			
Company Name	Lift Labs	**Parent**	Google LLC
Source: GlobalData			

Section 4 – Company's Recent Developments

Jul 17, 2018: Google in Last Ditch Effort to Avoid Colossal Android Antitrust Fine

Google's CEO Sundar Pichai was due to speak to the European Union's competition Commissioner Margrethe Vestager Tuesday in a last ditch effort to avoid being hit with an anticipated record-breaking antitrust fine for the conditions it imposes on mobile manufacturers using Android.
That's according to two sources close to the investigation, speaking to Bloomberg. They claimed the pending European Commission fine, believed to be announced on Wednesday, will be larger than last year's record EUR2.4 billion (£2.1 billion) penalty in Google's shopping-search investigation.

Google Antitrust Allegations: What's the BeefA 2016 investigation by the European Commission raised three main issues.

Search Dominance1: Google forces mobile phone manufacturers to set Google Search as a default search provider and pre-install Google's Chrome browser if they want to run Play Store on the devices: "The Commission seeks to ensure that manufacturers are free to choose which apps they pre-install on their devices. This is especially important since the Commission's analysis has shown that consumers rarely download applications that would provide the same functionality as an app that is already pre-installed,the EC said at the time.

Big Forking Fight2: Android is open source and can be freely tweaked to create a modified mobile OS (a so-called "Android fork). The European Commission alleges that if a manufacturer wishes to pre-install Google proprietary apps, including Google Play Store and Google Search, on any of its devices, Google requires it to enter into an "Anti-Fragmentation Agreementthat commits it not to sell devices running on Android forks. With Play Store so dominant, this is a major concern, it says: "Google has also closed off an important way for its competitors to introduce apps and services.

Exclusivity3: Finally, the EC alleges that Google has granted "significantfinancial incentives to major smartphone manufacturers and mobile network operators, on condition that they exclusively pre-install Google Search on their devices: "The Commission takes issue not with financial incentives in general but with the conditions associated with Google's financial incentives, in particular with the condition that the financial incentive is not paid if any other search provider than Google Search is pre-installed.

The Android case was triggered by a 2013 complaint by lobbying group FairSearch whose members at the time included Oracle and Microsoft.

Shopping HeadacheGoogle's remedy for the shopping antitrust case remains contested, with the Competition Commissioner sending rivals a list of questions earlier this year to see if they had benefited from the remedy.

FairSearch claims Google's current remedy proposal has made matters worse and does "nothing to address the demotion half of Google's illegal Conduct–the penalty algorithms, such as Panda, that are prone to demoting competing services.

In June last year Vestager said: "Google abused its market dominance as a search engine by promoting its own comparison shopping service in its search results, and demoting those of competitors. What Google has done is illegal under EU antitrust rules. It denied other companies the chance to compete on the merits and to innovate. And most importantly, it denied European consumers a genuine choice of services and the full benefits of innovation.

Google has been contacted for comment.

Jul 17, 2018: Personalised Google Jobs Comes to the UK

Google Jobs, anyone
Google has teamed up with a swathe of the UK's leading job sites to offer personalised job opportunities, in a function previously available in the US and Spain.

Local job portals Guardian Jobs, Haymarket, Reed, and Totaljobs.com have joined global sites LinkedIn and Glassdoor to support the customised jobs search, which automatically shows the "freshest and most relevantopenings based on a user's location and other data when they type relevant terms into Google Search.

The function may prove useful for job seekers: according to the British Chambers of Commerce, it found that the UK itself was facing a talent shortage in filling people in the right positions.

Dr Adam Marshall, Director General for the British Chambers of Commerce commented that: "Labour and skills shortages are set to be the biggest potential drag anchor on business in 2018, since ultimately it is people that make businesses work.

"Business itself must do more – by training and investing wherever possible in people – but government must also give firms the confidence to put their livelihoods on the line and go for growth.

Google Jobs: The OptionsGoogle's job search feature uses artificial intelligence (AI) that helps the user find their ideal job by typing in a few key phrases. These phrases can range from "jobs near me, "software engineer jobsor similar queries that are related to positions in the UK.

Alongside this, there is the option to click on a feature that allows the jobseeker to find out about jobs that meet specific requirements and skills. You can find out about the job's salary information, review and ratings of a potential employer before applying for the position. There is the opportunity to also save individual jobs with a single tap, thus making it accessible to keep track of the job search through multiple devices.

The feature is currently being offered for free to UK job sites – although for how long remains an open question.

May 29, 2018: E.ON brings innovative ‘Project Sunroof’ technology to Britain in partnership with Google and Tetraeder

Ground-breaking solar technology, ‘Google’s Project Sunroof’, is being made available to residents in Britain for the first time, thanks to a partnership between E.ON, Google and software provider Tetraeder. Project Sunroof from Google is an easy-to-use online tool which allows homeowners to calculate the savings they could make by installing solar technology in their homes.

As the first energy supplier to offer a personalised solar savings estimator in Britain, E.ON is giving homeowners the opportunity to take power into their own hands and get the detailed information they need to make informed decisions about whether solar technology could be a viable option for them. This initiative supports the UK's target to produce 30% renewable energy by 20201.

E.ON is committed to providing smarter, sustainable solutions for its customers. The innovative Project Sunroof tool uses Google Earth, Google Maps and Machine Learning to estimate how much solar potential a house has by examining the property's surroundings, weather data, sun positioning, and roof area/angle. Believed to be the most advanced technology of its kind, the tool can even assess the impact of shade from a single tree on the solar output potential of a particular property.

Michael Lewis, Chief Executive of E.ON UK said: "Last year, we successfully launched Google's Project Sunroof in Germany and we're delighted to bring this exciting new technology to British homeowners too. At E.ON, we're aiming to create a better tomorrow by offering customers smarter, innovative solutions like Google's Project Sunroof and Solar and Storage, our solar PV and battery offering.

"The launch of Project Sunroof is also part of our ongoing efforts to bring fresh digital solutions to market for the benefit of our customers. We're proud to be the first company, working with Google and Tetraeder, to launch Project Sunroof – a service which is easy to use and highly effective in giving people the in-depth and personalised information they need to make well-informed decisions about whether solar technology is the right solution for them.

Homeowners in certain regions2 can now visit eon-solar.co.uk to use Google's Project Sunroof to learn about the solar potential for their home. The tool not only calculates potential cost savings quickly, it also allows people to sign up and begin their solar panel installation process.

People who take E.ON Solar and Storage could make significant savings on their electricity bills as well as earning money through the FiT scheme. Together this could save and earn typical customers £630 a year3.

Nicole Lombardo, Business Development & Partnerships of Google, said: "At Google, we're deeply committed to sustainability and having a positive impact on the environment. We are excited to help people in the UK make more informed choices about installing solar panels on their rooftops and transition to renewable energy sources.

Stephan Wilforth, Managing Director of Tetraeder, said: "Since the beginning of the 2010's, we've been developing our own software for the most accurate and efficient forecast of solar yield on roofs to help calculate the cost-effectiveness of PV installations. Our goal is to give homeowners the best possible support when deciding on their own PV system. We are proud to be able to provide our outstanding technology in partnership with E.ON and Google for the British people.

May 18, 2018: E.ON and Google deepen solar partnership around Project Sunroof

The solar partnership between E.ON and Google is developing into a European success story. Since May 2017, the joint Sunroof platform, which determines the solar potential of millions of buildings, has been bringing new solar energy systems onto German roofs. Homeowners can be happy: the one-year programme will be extended until the end of 2018.

In addition, the success in the European pioneer market of Germany is now being exported. Over the coming weeks, Sunroof is being made available to homeowners in Great Britain. At the same time, E.ON and Google are preparing the market launch in Italy. As in Germany, E.ON will be the first energy company in Britain and Italy to offer its customers a digital assessment of the PV potential of their homes – simple, free of charge and personally tailored.

In Germany the website www.eon-solar.de has established itself as the first address for interested parties who want to take their power supply into their own hands. Well over 10,000 customers have requested a detailed initial analysis of their roof's solar potential. Sunroof is thus making a significant contribution to E.ON's strong annual revenues growth of 150 percent in its solar business. E.ON's goal is to become Germany's market leader in photovoltaics in 2019 the latest.

All you have to do is enter your address online. Based on a few additional parameters, the construction of a solar energy system can be planned. Sunroof's websites combine technologies such as Google Earth and Google Maps, 3D models and machine learning, i.e. automated software improvement, to provide an accurate estimate of a home's individual solar potential. Sunroof calculates how much sunlight falls on each roof during the year. It takes into account weather data, the position of the sun at different seasons, the area and inclination of the roof as well as the shade of surrounding buildings or trees. In the end, Sunroof "translates" the determined amount of light into energy and the potential cost savings. The data are calculated by the software company tetraeder as an additional Partner in the sunroof project.

Based on this data, customers in Germany can request a complete package consisting of a photovoltaic module and the E.ON SolarCloud, optionally with Aura battery storage. In addition, E.ON provides a "sunshine guarantee" to ensure that the solar system achieves the calculated yields. The company compensates for lower values financially.

May 15, 2018: Buying renewables the new way to get businesses back in the black

While President Trump is trying to recapture the glory days of coal, some of the biggest companies in the United States are helping to move the country towards the future by buying and using more clean energy.
Tech giants Google and Apple had both set a target to get all of their power from clean energy, and they both exceeded that target this year – well ahead of schedule.

By signing power purchase agreements (PPAs) to buy their power from big wind and solar farms, Google and Apple are now the world's largest buyers of renewable energy, with Google currently pipping Apple for top spot. This has allowed both corporations to clean up their emissions while also controlling their costs.

Google paves the path to PPAs

Google began to explore PPAs in 2009, and signed its first agreement with a 114 MW wind farm in Iowa in the following year. Over the next six years, Google signed an additional 20 agreements, totalling nearly 2.6 GW of renewable energy generation around the world. By 2017, Google was buying more renewable energy than it needed to power its entire business, including its offices and data centres. This is a remarkable achievement considering that in 2015 its data centres consumed a similar amount of energy to the entire city of San Francisco.

Apple takes a bite out of emissions

Less than a week after Google announced that it had reached its 100 per cent renewable energy goal, Apple CEO Tim Cook also announced that his company's global facilities were now completely powered by renewable energy. This includes Apple's retail stores, data centres, offices and co-located facilities in 43 countries. And the tech giant has also taken the next step by asking its suppliers to do the same.

To date, Apple has 25 operational renewable energy projects globally, adding up to 626 MW of generating capacity. With another 15 projects currently under construction, Apple's clean energy generation will eventually total 1.4 GW across 11 countries. In addition, Apple has signed a PPA with the Montague Wind Power Project, a 200 MW wind farm in Oregon that is set to come online by the end of 2019. Apple's emission reduction efforts resulted in the company stopping 1.5 million metric tons of greenhouse gases from being emitted into the atmosphere in 2017.

Corporate PPAs Down Under

Back in Australia, it's clear that the wheels are in motion when it comes to corporate PPAs. The Melbourne Renewable Energy Project (MREP) is a prime example of this, with 14 organisations coming together to purchase renewable energy from various projects. This ground-breaking agreement between different sectors in the economy is guaranteed to bring returns for the entire renewable energy industry. MREP involves organisations such as RMIT University, NAB and the City of Melbourne joining with energy partner Pacific Hydro through its retail arm Tango Energy. Pacific Hydro will build an 80 MW wind farm in the north-west of Victoria that will sell clean energy to the MREP partners. This will translate into an emission reduction of 96,800 tonnes per year over the lifespan of the decade-long deal.

Corporate PPAs are a sophisticated way for businesses to enter the renewable energy market and drive down their emissions and power costs. Whether you're a large global player such as Google or Apple, a participant in an innovative new renewable energy partnership in Melbourne or a large beer brewer such as Carlton United Breweries (CUB), corporate PPAs are a win-win for all involved. Corporate PPAs allow renewables to flourish due to increased demand and investment, while reducing emissions and costs at the same time. As a recent report by the Climate Council found, almost half of Australia's major businesses are moving towards clean energy in some form.

So maybe it's time to stop trying to resurrect the glory days of our coal-driven past and start thinking forward to the glory days of clean energy. They're just around the corner.

Apr 24, 2018: Total To Develop Artificial Intelligence Solutions With Google Cloud

Total and Google Cloud have signed an agreement to jointly develop artificial intelligence (A.I.) solutions applied to subsurface data analysis for oil and gas exploration and production.

The agreement focuses on the development of A.I. programs that will make it possible to interpret subsurface images, notably from seismic studies (using Computer Vision technology) and automate the analysis of technical documents (using Natural Language Processing technology). These programs will allow Total's geologists, geophysicists, reservoir and geo-information engineers to explore and assess oil & gas fields faster and more effectively.

Under this partnership, Total geoscientists will work side-by-side with Google Cloud's machine learning experts within the same project team based in Google Cloud's Advanced Solutions Lab in California.

"Total is convinced that applying artificial intelligence in the oil and gas industry is a promising avenue to be explored for optimizing our performance, particularly in subsurface data interpretation. We are excited to work with Google Cloud towards this goal. This builds on the strategy being developed at Total, where A.I. is already used, for example, in predictive maintenance at facilities,said Marie-No&eumllle Semeria, Senior Vice President, Group CTO at Total.

"We believe that the combination of Total's geoscience expertise and Google's artificial intelligence skills will ensure the project's success. Our ambition is to give our geoscience engineers an A.I. personal assistant in the next few years that will free them up to focus on high value-added tasks.said Kevin McLachlan, Senior Vice President Exploration for Exploration & Production at Total.

"We are thrilled to welcome Total in our Advanced Solutions Labs for the development of A.I. solutions,said Paul-Henri Ferrand, President of Global Customer Operations Google Cloud. "We are keen to engage our best A.I. engineers to work with Total's geosciences' experts.

Artificial Intelligence Applied to Exploration & Production at Total

Total started applying artificial intelligence to characterize oil & gas fields using machine learning algorithms in the 1990s.

In 2013, Total used machine learning algorithms to implement predictive maintenance for turbines, pumps and compressors at its industrial facilities, thus generating savings of several hundred million dollars.

Today, Total teams are exploring multiple machine learning and deep learning applications such as production profile forecasting, automated analysis of satellite images or analysis of rock sample images.

Apr 12, 2018: Scientists teach computers how to analyze brain cells

In the early days of neuroscience research, scientists painstakingly stained brain cells and drew by hand what they saw in a microscope. Fast forward to 2018 and machines may be able to learn how to do that work. According to a new study in Cell, it may be possible to teach machines how to pick out features in neurons and other cells that have not been stained or undergone other damaging treatments.
According to a new study in Cell, it may be possible to teach machines how to pick out features in neurons and other cells that have not been stained or undergone other damaging treatments. The study was partially funded by the National Institute of Neurological Disorders and Stroke (NINDS), part of the National Institutes of Health.

"This approach has the potential to revolutionize biomedical research,said Margaret Sutherland, Ph.D., program director at the NINDS.

"Researchers are now generating extraordinary amounts of data. For neuroscientists, this means that training machines to help analyze this information can help speed up our understanding of how the cells of the brain are put together and in applications related to drug development.

A dish, or culture, of neuronal cells appears uniform to the naked eye and the different, individual cells in it cannot be seen. Ever since the late nineteenth century when pioneering neuroscientists, Santiago Ramon y Cajal and Camillo Golgi, drew the earliest maps of the nervous system, scientists have been developing dyes and staining methods to help distinguish the structures in the brain, including different types of cells and their state of health. However, many of these methods involve harsh chemicals that fix, or freeze, cells in an unnatural state or damage living cells after multiple stains have been applied. The traditional techniques also limit the details scientists can observe.

A team led by Steven Finkbeiner, M.D., Ph.D., director and senior investigator at the Gladstone Institutes in San Francisco, and professor of neurology and physiology at the University of California, San Francisco, explored whether computers could be trained to identify structures in unstained cells.

"Every day our lab had been creating hundreds of images, much more than we could look at and analyze ourselves. One day, a couple of researchers from Google knocked on our door to see if they could help us,said Dr. Finkbeiner, the senior author of the study.

The researchers used a method called Deep Learning, which relies on principles of machine learning, a type of artificial intelligence in which machines can learn from data and make decisions. Facial recognition software is an example of machine learning.

Using Deep Learning, Dr. Finkbeiner's team trained a computer program to analyze brain cells by showing it stained and unstained images. Then, to test whether the program had learned anything, the researchers challenged it with new unlabeled images.

After the first round of training, the program identified where cells were located in the culture dish by learning to spot a cell's nucleus, a round structure that contains genetic information and serves as the cell's command center. During additional experiments, Dr. Finkbeiner's group increased the complexity of the features the program was looking for and successfully trained it to distinguish dead cells from living cells, as well as to identify specific types of brain cells. In addition, the program learned to differentiate between axons and dendrites, which are two specific types of extensions on neurons. According to the results, the program was successful in predicting structures in unlabeled tissue.

"Deep Learning takes an algorithm, or a set of rules, and structures it in layers, identifying simple features from parts of the image, and then passes the information to other layers that recognize increasingly complex features, such as patterns and structures. This is reminiscent of how our brain processes visual information,said Dr. Finkbeiner. "Deep Learning methods are able to uncover much more information than can be seen with the human eye.

Dr. Finkbeiner and his team noted that the main drawback to using this technology is that the training datasets need to be very large, ideally around 15,000 images. In addition, there may be a risk to overtraining the programs, that they become so specialized they can only identify structures in a particular set of images or in images generated in a particular way, and not make predictions about more general images, which could limit the use of this technology.

Dr. Finkbeiner and his colleagues plan to apply these methods to disease-focused research.

"Now that we showed that this technology works, we can start using it in disease research. Deep Learning may spot something in cells that could help predict clinical outcomes and can help us screen potential treatments,said Dr. Finkbeiner.

More research is needed to refine the technology and make it more widely available.

This study was supported by NINDS (NS091046, NS083390, NS101995), the NIH's National Institute on Aging (AG065151, AG058476), the NIH's National Human Genome Research Institute (HG008105), Google, the ALS Association, and the Michael J. Fox Foundation.

GlobalData.

Apr 11, 2018: Google breaks ground on $600m data centre in Alabama

Google has broken ground on a $600m data centre on the old TVA Widow's Creek coal plant site in Bridgeport, Jackson County, Alabama. The project, being established as part of Google's expansion to 14 new data centres and offices across the US, will create as many as 100 full-time jobs with potential for growth in the future.

The Bridgeport data centre, being constructed on a 360-acre site, will be a hub for Internet traffic and Alabama's first large-scale data centre. The project was announced in June 2015.

Construction of the new data centre is expected to take 12 to 15 months.

The Tennessee Valley Authority (TVA) is working with Google to provide renewable energy for the facility.

Google Cloud head of global technology partnerships Nan Boden said: "Google is committed to investing in Jackson County to create new economic and educational opportunities for the people of Alabama and the surrounding region.

"As a native Alabamian, I am so proud to be part of the effort to bring this Google data centre to life in the coming months and years.

The company said that the new data centre will feature modern energy efficiency. The Alabama facility will become Google's 14th data centre globally and the eighth in the US.

Alabama Governor Kay Ivey said: "As one of the world's most dynamic and innovative technology companies, Google's products touch billions of people across the globe every single day.

"We're proud that Alabama is playing an important role in Google's future growth, and we look forward to seeing this data centre operation help power that growth.

Mayor David 'Bubba' Hughes said: "This is a big day for Bridgeport because it helps our city in many different ways. Having Google in our community will bring us great jobs and offer real opportunities for our young people.

"Google is a generous supporter of schools, and the company's presence will help us recruit other high-tech companies.

Apr 04, 2018: Buying 100 percent renewable energy: Google

A little over a year ago, we announced that we were on track to purchase enough renewable energy to match all the electricity we consumed over the next year. We just completed the accounting for Google’s 2017 energy use and it’s official—we met our goal. Google’s total purchase of energy from sources like wind and solar exceeded the amount of electricity used by our operations around the world, including offices and data centers.
Today, we have contracts to purchase three gigawatts (3GW) of output from renewable energy projectsno corporate purchaser buys more renewable energy than we do. To date, our renewable energy contracts have led to over $3 billion in new capital investment around the world.

The road to 100 percent

We've been working toward this goal for a long time. At the outset of last year, we felt confident that 2017 was the year we'd meet it. Every year, we sign contracts for new renewable energy generation projects in markets where we have operations. From the time we sign a contract, it takes one to two years to build the wind farm or solar field before it begins producing energy. In 2016, our operational projects produced enough renewables to cover 57 percent of the energy we used from global utilities. That same year, we signed a record number of new contracts for wind and solar developments that were still under construction. Those projects began operating in 2017–and that additional output of renewable energy was enough to cover more than 100 percent of what we used during the whole year.

We say that we "matchedour energy usage because it's not yet possible to "powera company of our scale by 100 percent renewable energy. It's true that for every kilowatt-hour of energy we consume, we add a matching kilowatt-hour of renewable energy to a power grid somewhere. But that renewable energy may be produced in a different place, or at a different time, from where we're running our data centers and offices. What's important to us is that we are adding new clean energy sources to the electrical system, and that we're buying that renewable energy in the same amount as what we're consuming, globally and on an annual basis.

Looking ahead

We're building new data centers and offices, and as demand for Google products grows, so does our electricity load. We need to be constantly adding renewables to our portfolio to keep up. So we'll keep signing contracts to buy more renewable energy. And in those regions where we can't yet buy renewables, we'll keep working on ways to help open the market. We also think every energy buyer–individuals and businesses alike–should be able to choose clean energy. We're working with groups like the Renewable Energy Buyers Alliance and Re-Source Platform to facilitate greater access to renewably-sourced energy.

This program has always been a first step for us, but it is an important milestone in our race to a carbon-free future. We do want to get to a point where renewables and other carbon-free energy sources actually power our operations every hour of every day. It will take a combination of technology, policy and new deal structures to get there, but we're excited for the challenge. We can't wait to get back to work.

Apr 04, 2018: Google hits clean energy target

Google has achieved the 100% renewable energy target it committed to more than a year ago. The internet giant's senior vice-president of technical infrastructure Urs Holzle said that over the course of 2017, for every kilowatt hour of electricity consumed,...

Apr 03, 2018: Google shakes up leadership to sharpen focus on AI

John Giannandrea will step down as the company’s AI and search chief.
Internet giant Google is making changes at the top to become a leading player in artificial intelligence (AI).

As part of a top level shake up, John Giannandrea will exit from his role as Google's AI and search chief.

Google, which had combined its search and artificial intelligence units in early 2016, is now taking a U-turn by splitting them into two separate divisions to sharpen its focus on the emerging technology.

Giannandrea was earlier responsible for both the units and he will now be making way for two new leaders for the search and AI divisions.

Jeff Dean, who is currently leading Google Brain project, will get the additional responsibility of heading a dedicated AI unit for the search engine company.

On the other hand, Ben Gomes, the current head at search engineering will lead Google's search division as vice president.

As far as Giannandrea is concerned, the veteran computer scientist will stay on with Google, serving the company in a different role.

Known for his expertise in machine learning, Giannandrea had joined in Google about eight years ago, following the search engine company's acquisition of Freebase developer Metaweb Technologies.

The technology, which was developed by Giannandrea and others at the San Francisco-based startup, is considered to be the basis of the "Knowledge Graphfeature that was introduced by Google in 2012.

Knowledge Graph, which is shown on the right side of the search engine results page, was launched to improve Google's search results by pulling out information collected from multiple sources into a box.

In the recent times, Google has made it clear that improving its artificial intelligence capabilities will be its top strategy. To support that, its parent company Alphabet has pumped in huge amounts of money into machine learning and other capabilities.

Mar 20, 2018: AkzoNobel, DSM, Google and Philips receive first power from new Dutch wind farm Bouwdokken

AkzoNobel Specialty Chemicals, DSM, Google and Philips have started receiving power from the Bouwdokken wind farm in the Netherlands – a milestone achievement resulting from a unique green energy purchasing consortium they jointly established. All four companies consume a substantial amount of power in the Netherlands, and by working together they are making a significant contribution to delivering on the Netherlands' renewable energy target of 14% by 2020.
In October 2016 and January 2017, the companies signed two long-term power purchase agreements (PPAs) that enabled construction of two Dutch wind farm projects – Krammer and Bouwdokken. These wind farms, both of which are located in the southwest of the Netherlands, have a total capacity of over 140 MW, enough to power approximately 140,000 households.

It is the first time that a group of multinationals in the Netherlands have teamed up to negotiate long-term PPAs directly with project developers, bypassing the involvement of an energy utility company. The Rocky Mountain Institute's (RMI) Business Renewables Center, a leading independent authority on sustainability, says the consortium is among the earliest examples of aggregated corporate demand successfully participating in clean energy markets worldwide.

"This marks the next big step towards a new way of supplying energy for Dutch industry,said Marcel Galjee, Energy Director at AkzoNobel Specialty Chemicals, on behalf of the consortium. "We brought together a group of companies that is united in its sustainability leadership. We believe it is of utmost importance to join forces and come up with innovative partnerships to achieve the sustainability goals of our companies as well as those set out in the Paris climate agreement.

Harry Coorens, VP Procurement Sustainability at Royal DSM added: "The collaboration and progress as shown in this initiative is well recognized outside the Netherlands. I receive questions from all over the world to explain this success story. It is a prime example to show an industry drive and collaboration that supports a mutual goalcreating a cleaner environment for people today and generations to come. Looking back historically, it's interesting to note that this project was developed near the Delta Works, another visionary feat that is highly regarded outside the Netherlands.

Marc Oman, &lrmEU Energy Lead, of Google Global Infrastructure said: "In 2017, Google purchased enough renewable energy to match 100 percent of our consumption for global operations. Success with this consortium plays a meaningful part in our global clean energy plans, and as a company, we are continuing to push innovation for corporate renewable energy procurement.

As a purpose-driven health technology company, a healthy planet is central to our mission, and we are making good progress to decouple economic growth from our environmental impact. All our operations in the United States are already powered by wind energy, and through this unique consortium, also our operations in the Netherlands will soon be completely powered by green electricity.

Simon Braaksma

Senior Director of Group Sustainability at Philips

Simon Braaksma, Senior Director of Group Sustainability at Philips said: "As a purpose-driven health technology company, a healthy planet is central to our mission, and we are making good progress to decouple economic growth from our environmental impact. All our operations in the United States are already powered by wind energy, and through this unique consortium, also our operations in the Netherlands will soon be completely powered by green electricity.

All four companies are also members of the RE100, a collaborative global initiative uniting more than 100 businesses committed to 100% renewable electricity, working to massively increase demand for - and delivery of - renewable energy.

AkzoNobel Specialty Chemicals, which already sources some 45% of its energy from renewable sources, will use the green energy chiefly to produce chlorine, caustic soda and 'green' hydrogen at its site in Rotterdam, all essential raw materials in the chemical industry.

DSM uses the renewable energy as an addition to its commitment to purchase electricity from renewable sources to manufacture products in health, nutrition and materials and create solutions that nourish, protect and improve performance.

Google will supply its datacenter in the Netherlands with energy from the grid on which the wind farms are producing electricity.

When both Dutch windfarms are fully operational, 100% of Philips' activities in the Netherlands will be powered by Dutch wind energy, an important milestone in the company's ambition to become carbon neutral by 2020.

The Bouwdokken wind farm is owned and constructed by E-Connection on the Neeltje Jans artificial island, which is part of the so-called Delta Works – a series of construction projects that protect the southwest of the Netherlands from the sea. Wind Cooperation Zeeuwind is a 25% shareholder of the wind farm, which consists of 7 turbines of 4.2 megawatt each.

Feb 27, 2018: Healthcare Ready Partners with Google to Help Improve Future Disaster Response Efforts

Healthcare Ready, a nonprofit focused on improving the resiliency of healthcare systems to better meet health needs amid disaster, today announced its partnership with Google to develop a proof of concept for refining future disaster response through data analytics and collaboration. Healthcare Ready developed a case study that outlines the impact of its partnership to help improve the future of disaster relief and response.

Google's aggregated search trends, paired with Healthcare Ready's Rx Open data, an interactive map that shows the operating status of pharmacies in areas impacted by disaster, provided a better understanding of where limited healthcare access and high-density patient areas were centered in relation to open pharmacies, shelters and dialysis centers. This intersection of information helped Healthcare Ready prioritize where to direct resources and send patients.

"The goal of our partnership is to automate and refine available data that can be utilized during future disasters and to ensure we are addressing patient needs in real time," said Nicolette Louissaint, Ph.D., executive director of Healthcare Ready. "The results of our work together provide an excellent example of how leveraging health data and technology can improve public health efforts, especially in times of disaster and uncertainty. We are thrilled to continue this collaboration into the future with the goal of improving our ability to meet patient needs amid disasters."

Rx Open tracked more than 16,000 chain and community pharmacies from California to Florida and Puerto Rico during the 2017 hurricane season. The tool, which is free to use, helps direct patients and first-responders to vital medications, while providing public agencies and private sector partners insight into pharmacy status and healthcare recovery. Daily updates for more than 100 days of activation ensured that Rx Open remained a useful tool for quick decisions during the 2017 response and recovery efforts.

"During Hurricane Harvey, Google partnered with the Pharmaceutical Research and Manufacturers of America (PhRMA) and Healthcare Ready to provide real-time medical Search Trends in the Houston area," said Courtney Rose, industry director for Google Government, Advocacy, and Elections. "This allowed the Healthcare Ready team to find patterns in zip codes affected by the hurricane and deploy resources to increase access to medicine. Users turn to Google Search for information in their moments of need and we're thankful to partner with PhRMA and Healthcare Ready on the analysis of this data, and for their real-time response to the people in Houston."

By partnering with Google, Healthcare Ready strengthened its Rx Open data by overlaying a map with aggregated Google Search Trends from hurricane-impacted communities searching for healthcare and hurricane assistance. In the future, this data could pinpoint strained areas early in response and recovery efforts so that facilities can be resupplied before medication shortages and life-threatening situations arise.

Healthcare Ready works through its member organizations, including PhRMA, the Biotechnology Innovation Organization (BIO), the Healthcare Distributors Alliance (HDA), the National Association of Chain Drugs Stores (NACDS), Amgen, and the American Red Cross to protect patient access to medicines and healthcare during emergencies.

Jan 12, 2018: Google maps visionary joins Clearpath advisory board

Clearpath is proud to welcome former vice president of Google’s and Uber’s Mapping divisions, Brian McClendon, to its board of advisors. McClendon will provide insight and expertise on mapping technologies to the company's OTTO Motors industrial division and Clearpath Robotics research solutions division. He joins advisory board member and Tesla co-founder Marc Tarpenning, who currently advises on electric vehicle technologies.

"It's often overlooked, but self-driving vehicles rely upon digital mountains of very specialized mapping data in order to operate,said Matt Rendall, Chief Executive Officer at Clearpath. "Brian is a visionary in the world of mapping technology. His expertise and mentorship will help us build truly world-class mapping technology and we could not be more excited to have him join us.

McClendon has built a career as an entrepreneur and technical leader in geographic information systems (GIS). In 2004, his digital mapping startup, Keyhole, was acquired by Google and became the foundation for Google Earth. During a 10-year tenure at Google, he became the vice president of Google Maps, Earth and Street View. He joined Uber in 2015 as vice president of Mapping and most recently stepped down to return to his hometown in Kansas to become a research professor at the University of Kansas. McClendon serves on the advisory board for the University of Kansas, was inducted into the National Academy of Engineering in 2015 and has also been recognized by the United Nations as a "Champion of the Earth," its top environmental prize.

McClendon will advise the team on mapping technologies, software architecture and engineering leadership as they continue to develop strategies for accurate, scalable mapping capability of the OTTO self-driving vehicle.

"What's exciting to me about Clearpath is that they are building their mapping system and database from scratch,explains McClendon. "This presents a really exciting opportunity to innovate and guide the next generation of technology with the next generation of company.

Dec 12, 2017: DNAnexus Integrates Google Brain's DeepVariant, a New Deep Learning Technology, onto Its Cloud-Based Platform

DNAnexus, the global leader in genome informatics and data management, announced the availability of the DeepVariant bioinformatics tool on the DNAnexus Platform.
Developed by researchers at Google, DeepVariant is a deep learning technology that uses deep neural networks to call genetic variants from next-generation sequencing data. An earlier version of DeepVariant won the PrecisionFDA Truth Challenge Award for overall accuracy in calling variants in individual genomes. This process is essential to determine what makes an individual genetically unique, and is essential in helping scientists locate genes associated with disease. The release from Google marks the first time this deep learning method has been made fully available to the community.

"The tools of machine intelligence promise to increase the productivity of our life sciences discovery and development pipelines, and to improve the efficacy and efficiency of healthcare delivery," said Dr. Vikram (Vik) Bajaj, Managing Director at Foresite Capital Management and former Chief Scientific Officer at Verily Life Sciences. "DeepVariant is one of the first tools to deliver on that promise by making the critical first step to more accurately identify genetic differences among individuals. By making a reference implementation broadly accessible, I believe Google and DNAnexus will accelerate a growing body of research that requires high quality genomic information."

DeepVariant applies the Inception TensorFlow framework, which was originally developed to perform image classification. This represents the information as images like what a clinician would look at from a genome browser and then learns the signatures of variant and non-variate images. By cross-applying this technology in only a short development time, DeepVariant can outperform methods that developers have been working on for a decade. The technology was initially described in a December 2016 pre-publication paper hosted on bioRxiv (doi: 10.1101/092890).

"Deep learning-based data analysis tools have tremendous potential in driving further advances in our understanding of disease biomarkers. DNAnexus is able to host scalable architecture to support these complex technologies," said Richard Daly, CEO of DNAnexus. "We are pleased to offer DNAnexus customers integrated access to DeepVariant, a significant advance in the state-of-the-art."

DNAnexus is providing early access to DeepVariant through an initial Pilot Program. To request access to DeepVariant on DNAnexus please sign up here. For more information about DeepVariant and the DNAnexus Platform, please visit our blog.

Dec 04, 2017: DeepVariant: Highly Accurate Genomes With Deep Neural Networks

Across many scientific disciplines, but in particular in the field of genomics, major breakthroughs have often resulted from new technologies. From Sanger sequencing, which made it possible to sequence the human genome, to the microarray technologies that enabled the first large-scale genome-wide experiments, new instruments and tools have allowed us to look ever more deeply into the genome and apply the results broadly to health, agriculture and ecology.

One of the most transformative new technologies in genomics was high-throughput sequencing (HTS), which first became commercially available in the early 2000s. HTS allowed scientists and clinicians to produce sequencing data quickly, cheaply, and at scale. However, the output of HTS instruments is not the genome sequence for the individual being analyzed – for humans this is 3 billion paired bases (guanine, cytosine, adenine and thymine) organized into 23 pairs of chromosomes. Instead, these instruments generate ~1 billion short sequences, known as reads. Each read represents just 100 of the 3 billion bases, and per-base error rates range from 0.1-10%. Processing the HTS output into a single, accurate and complete genome sequence is a major outstanding challenge. The importance of this problem, for biomedical applications in particular, has motivated efforts such as the Genome in a Bottle Consortium (GIAB), which produces high confidence human reference genomes that can be used for validation and benchmarking, as well as the precisionFDA community challenges, which are designed to foster innovation that will improve the quality and accuracy of HTS-based genomic tests.

Today, we announce the open source release of DeepVariant, a deep learning technology to reconstruct the true genome sequence from HTS sequencer data with significantly greater accuracy than previous classical methods. This work is the product of more than two years of research by the Google Brain team, in collaboration with Verily Life Sciences. DeepVariant transforms the task of variant calling, as this reconstruction problem is known in genomics, into an image classification problem well-suited to Google's existing technology and expertise.

We started with GIAB reference genomes, for which there is high-quality ground truth (or the closest approximation currently possible). Using multiple replicates of these genomes, we produced tens of millions of training examples in the form of multi-channel tensors encoding the HTS instrument data, and then trained a TensorFlow-based image classification model to identify the true genome sequence from the experimental data produced by the instruments. Although the resulting deep learning model, DeepVariant, had no specialized knowledge about genomics or HTS, within a year it had won the the highest SNP accuracy award at the precisionFDA Truth Challenge, outperforming state-of-the-art methods. Since then, we've further reduced the error rate by more than 50%.

DeepVariant is being released as open source software to encourage collaboration and to accelerate the use of this technology to solve real world problems. To further this goal, we partnered with Google Cloud Platform (GCP) to deploy DeepVariant workflows on GCP, available today, in configurations optimized for low-cost and fast turnarounds using scalable GCP technologies like the Pipelines API. This paired set of releases provides a smooth ramp for users to explore and evaluate the capabilities of DeepVariant in their current compute environment while providing a scalable, cloud-based solution to satisfy the needs of even the largest genomics datasets.

DeepVariant is the first of what we hope will be many contributions that leverage Google's computing infrastructure and ML expertise to both better understand the genome and to provide deep learning-based genomics tools to the community. This is all part of a broader goal to apply Google technologies to healthcare and other scientific applications, and to make the results of these efforts broadly accessible.

Nov 30, 2017: EDF Renewable Energy Signs Agreement with Google to Supply 200 Megawatts of Wind Energy

EDF Renewable Energy has signed an agreement to supply Google, a subsidiary company of Alphabet with 200 megawatts (MW) of wind energy generated from the new Glaciers Edge Wind Project in Iowa.
Glaciers Edge Wind Project, located in Cherokee County in the northwest portion of the state, is expected to create more than 150 jobs during the construction phase along with millions of dollars injected into the local economy. Once the wind farm comes online, anticipated in December 2019, the additional capacity will help Google reach its goal of purchasing enough renewable energy to match its energy consumption for global operations.

Dai Owen, Director, Power Marketing for EDF RE commented, "The strong U.S. wind market relies in part on America's corporate sector and companies like Google, who through the purchase of wind energy demonstrate leadership in the drive for a low-carbon economy. Their commitment allows Glaciers Edge to proceed, providing an economic boost to the Iowa economy, through new construction and operations jobs, expanded tax base, and recurring, long-term income for participating landowners.

"Renewables from projects like Glaciers Edge bring value to our business as we scale and accelerate investment in the communities where we operate,said Gary Demasi, Google's director of global infrastructure. "With solar and wind declining dramatically in cost and propelling significant employment growth, the transition to clean energy is driving unprecedented economic opportunity and doing so faster than we ever anticipated.

EDF RE and Google forged a relationship in December 2012, when Google made an approximate $200 million equity investment in EDF RE's Spinning Spur Wind Project, located in Oldham County, Texas. The business partnership progressed in 2016 with the power purchase agreement for the Great Western Wind Project in Oklahoma which supplies Google with 225 MW of clean electricity.

EDF RE is a leading developer among corporate buyers of renewables which demonstrates the trust that environmentally-conscious companies place in EDF RE to deliver value. The Company's growing North America portfolio of corporate purchasers includes Google, Microsoft, Salesforce, Procter & Gamble, Kimberly-Clark, Walmart and Yahoo.

Glaciers Edge will bring the EDF RE's portfolio of wind project development in Iowa to 1.1 GW.

Nov 30, 2017: Avangrid inks PPAs with Google for South Dakota wind farms

Avangrid Renewables has signed its first major wind contracts with Google for 196MW of new South Dakota wind power.
The power purchase agreements will cover the full output of Avangrid Renewables' Coyote Ridge and Tatanka Ridge Wind Farms in Brookings and Deuel counties, each 98 MW, just northeast of Brookings, east of I-29. The two wind farms would produce enough energy each year to power the equivalent of more than 50,000 average households with clean, homegrown energy. Once the wind farms come online, the additional capacity will help Google reach its goal of purchasing enough renewable energy to match its energy consumption for global operations.

"Renewables from projects like Coyote Ridge and Tatanka Ridge bring value to our business as we scale and accelerate investment in the communities where we operate,said Gary Demasi, Google's director of global infrastructure. "With solar and wind declining dramatically in cost and propelling significant employment growth, the transition to clean energy is driving unprecedented economic opportunity and doing so faster than we ever anticipated.

Avangrid Renewables anticipates that the two wind farms would contribute more than $40 million over their lifetimes in combined land lease and tax payments.

"Working with partners like Google who have made a commitment to 100% renewable energy for their global operations is exciting and inspiring,said Avangrid Renewables President and CEO Laura Beane. "This partnership creates a positive impact in these local communities, delivering jobs, new investment and economic development for rural America while advancing our country's energy independence.

In addition to these new projects, Avangrid Renewables already owns and operates the 210 MW Buffalo Ridge II project in Brookings and Deuel counties, the 50.4 MW Buffalo Ridge I project southeast of the proposed Coyote Ridge project, and 50 MW from the 150 MW MinnDakota Wind Farm in Brookings County. Upon commercial operation for Coyote Ridge and Tatanka Ridge, the company will own and operate more than 500 MW of wind power in South Dakota. Avangrid Renewables is finalizing its development work at the Coyote Ridge and Tatanka Ridge projects and expects to be in full construction by 2019.

Nov 30, 2017: Grand River Dam Authority to supply even more renewable energy to Google with new Oklahoma wind farm

The Grand River Dam Authority (GRDA) announced that it has signed a contract with Google for 140 megawatts (MW) of The Red Dirt Wind Farm.
The Red Dirt Wind Farm is a 300-megawatt facility located in Oklahoma's Kingfisher and Logan counties. Constructed by the project owner and eventual operator, Enel Green Power North America, Inc., the wind farm will be operational by the end of 2017 and will bring GRDA's total wind generation capacity (combined across several wind farms in Oklahoma) to approximately 385 MW.

"This is another important milestone in GRDA's continued pursuit of more renewable energy in our generation portfolio,said GRDA Chief Executive Officer Dan Sullivan. "The commitment that our partner Google has made to utilizing renewables has always been an important factor in that pursuit.

Once the wind farm comes online, by the end of 2017 the additional capacity will help Google reach its goal of purchasing enough renewable energy to match its energy consumption for global operations.

"Renewables from projects like Red Dirt bring value to our business as we scale and accelerate investment in the communities where we operate,said Gary Demasi, Google's director of global infrastructure. "With solar and wind declining dramatically in cost and propelling significant employment growth, the transition to clean energy is driving unprecedented economic opportunity and doing so faster than we ever anticipated.

In addition to its power purchase agreement with Red Dirt, GRDA also has a power purchase agreement with the Canadian Hills Wind Farm, near El Reno, Oklahoma. GRDA has been supplying Google's electricity needs in MAIP since the data center began operations in 2011.

Nov 30, 2017: Iberdrola signs a long-term renewable energy sales agreement with Google

Iberdrola, through its subsidiary Avangrid Renewables, has signed its first two large contracts for the supply of renewable energy with the American multinational Google.
Under the terms of the agreement signed between the two companies, Iberdrola will supply Google with a total of 196 megawatts (MW) of renewable energy from the Coyote Ridge and Tatanka Ridge wind farms. Each of them will have 98 MW of installed capacity.

These two new facilities, which will be located in the counties of Brookings and Deuel in the state of South Dakota, will produce renewable energy equivalent to the average annual consumption of more than 50,000 North American households.

Through this agreement, Google will move towards meeting its ambitious energy consumption targets through renewable sources in all of its global operations.

"Renewables from projects like Coyote Ridge and Tatanka Ridge bring value to our business as we scale and invest in the communities where we operate,said Gary Demasi, Google's director of global infrastructure.

Contracts such as the one signed with Google are denominated in the United States as Power Purchase Agreements (PPAs) and guarantee the profitability of the energy facilities in this country in the long term.

Iberdrola has already signed PPAs in most of its US renewable facilities, which have provided great stability to its investments in this strategic market for the company, being one of the main pillars of its commitment to the country.

Nov 23, 2017: Nautilus Medical collaborates with Google Cloud for secure radiology storage and image exchange

Nautilus Medical in collaboration with Google Cloud Technology Partner program is releasing a more robust image exchange and DICOM and patient information storage and distribution system.
The release will be available at the 2017 RSNA Show at Chicago's McCormick Place November 26th-30th.

As one of the largest exchange providers, Nautilus Medical is utilizing the broad technology within Google services to provide a comprehensive image management platform that is used by hundreds of imaging sites today.

"Our focus is to bring best in breed services, speed and security to the healthcare market in a platform that anyone can use without the typical high expense and lack of features," says Nautilus CEO Timothy Kelley. He continued, "Our customers don't have concerns over security, large upfront costs and lengthy commitments."

Nautilus' easy to use medical information exchange solutions utilize hardware signatures, key strokes, and mouse movements to create unique private keys that ensures foolproof data security.

The company's million-dollar insurance policy for breach protection is testimony to their security capability. An extensive number of features are included that quickly improve workflow and the ability of caregivers to assemble and distribute patient images and data easily.

With built-in routing, editing, and anonymization features, Nautilus improves communication between caregivers and patients. Utilizing their 'print to DICOM' feature, users can print documents, reports, or images of various types as a DICOM file into a patient folder to ensure a complete view of the patient.

The relationship between Nautilus and Google will deliver more capabilities to more sites including underserved professionals in offices that could use this powerful platform, but do not have a budget for more expensive offerings.

Nautilus' pay-per-use model is very attractive to facilities and individuals looking to reduce cost while not sacrificing quality.

For more information about the new collaboration, come visit us at Google Cloud booth 8161 at the Radiological Society of North America (RSNA) annual meeting in Chicago from November 26 to December 1.

Healthcare Tech Outlook recently named Nautilus Medical "Top 10 Medical Imaging Solution Providers - 2017" since Nautilus will have a vital impact on medical imaging for saving cost, speed to care, security and ease of use. Nautilus software is used by more than 700 sites with thousands of users including 33 of the top 50 medical centers in the US.

Nov 08, 2017: Zebra Medical Vision to Collaborate with Google Cloud to Bring a Transparent All-in-One Model to Healthcare

Zebra Medical Vision, a leading deep learning imaging analytics company, is announcing that all its current and future radiology algorithms will be enabled on the Google Cloud as part of its new AI1 offering to global health providers.
A pioneer in the field of machine and deep learning for medical imaging, Zebra-Med is driving transparency in its business model to encourage faster global adoption of advanced tools that can improve health. With over 450 new petabytes per year in imaging data, based on IDC's health insights 2017, the amount of imaging storage is expected to double in the next 5 years and substantially challenge health providers to keep track of scaling their storage and IT infrastructure , hence the cloud opportunity.

Over the last two decades, the demand for imaging services has been increasing, outpacing the supply of qualified physicians, stretching providers and radiologists to constantly produce more output, without compromising patient care. By adopting new technology, health providers can significantly enhance the capabilities of radiologists and enable better population health management. Automated Imaging Analytics tools such as Zebra-med's Deep Learning Engine will provide the needed clinical and computational horsepower to allow radiologists to make the next leap in patient care.

Using millions of longitudinal high quality imaging scans, Zebra-Med has been developing a deep learning engine that can automatically detect various medical findings in imaging scans. Current capabilities include automatic detection of liver, lung, cardiovascular, and bone disease all while new capabilities are constantly being released – covering breast cancer, lung cancer, brain trauma, hypertension, and other clinical areas. Zebra-Med's findings are integrated into the PACS system running on Google Cloud Platform, allowing radiologists to include them in their reading and reporting workflow. This automated assistance contributes to more comprehensive, quantitative, and consistent reporting, improving the output of radiologists and contributing to overall improved patient care. The company's Analytics Engine is deployed in more than 50 hospitals globally, and has analyzed more than 1M patient scans to date.

"With the AI1 all-in-one offering, enabled on Google Cloud, we can offer health providers ongoing population-health and clinical insights to improve patients' lives and reduce healthcare costs,says Elad Benjamin, Co-founder and CEO of Zebra Medical Vision. "We are making a commitment to provide our current tools, and all future ones, for a flat $1 USD per scan. By doing so we believe that a true difference can be made in the provision of radiology services worldwide.

Oct 23, 2017: EPA Honors 2017 Green Power Leaders

The U.S. Environmental Protection Agency (EPA) announces its 17th annual Green Power Leadership Awards, recognizing 19 Green Power Partners across the country – including Amphitheater Public Schools (Tuscon, AZ), Apple, Bainbridge Island (Washington), Capital One, the City of Houston (Texas), Google, Intel, L'Oreal, Microsoft, Lockheed Martin, and University of Missouri – for achievements in advancing the nation's voluntary green power market.

The award winners are being recognized for their efforts in expanding the domestic voluntary green power market. From using enough green power to meet 100 percent of electricity needs to signing long-term contracts to enable new green power projects, these organizations are demonstrating leadership by furthering the case for accessible, affordable green power use.

The winners for each of four award categories are:

Green Power Partner of the Year

-City of Houston, Texas purchased wind renewable energy certificates equal to 80 percent of the city's annual power use in 2016, and also entered into a power purchase agreement (PPA) that will supply the city with the output from 50 megawatts (MW) of solar power generated at a facility in Alpine, Texas, with anticipated savings to consumers of more than $1.9 million per year over the 20-year term.

-L'Oréal USA's manufacturing operation has since 2016 increased its use of green power from 33 percent up to 100 percent, and installed on-site solar panel arrays at its factories in Florence, Kentucky and North Little Rock, Arkansas, bring L'Oréal's total number of solar energy installations to 16 across the United States.

Green Power Community of the Year

-Bainbridge Island, Washington holds one of the highest community participation rates in the Puget Sound Energy's green power program, and all city facilities use 100 percent green power.

Direct Project Engagement

- Amphitheater Public Schools entered into a 25-year power purchase agreement for installed solar across 24 school sites and support facilities in 2016, supplying more than 65 percent of the school district's electricity demand.

-Apple Inc. generates more than 228 million kWh at its facilities and has built or contracted for 580 megawatts (MW) of solar PV and 200 MW of wind power to support its data centers and corporate offices in California, Oregon, Nevada, Arizona and North Carolina.

- Intel Corporation uses more than 3.8 billion KWh or green power annually in the U.S., through on-site projects, utility programs, and renewable energy certificates, and in 2016 added a 6.5 megawatt (MW) solar carport at its Folsom campus to its green portfolio.

-Iron Mountain Information Management, LLC's green power use accounts for 40 percent of its power requirements and is encouraging the development of new green power generation in the Mid-Atlantic region.

- Lockheed Martin Corporation procured green power for 20 percent of its total U.S. operations' electricity needs, and has 11 operational on-site green power installations.

-Stanford University's cutting-edge energy supply facility has district-level heat-recover and 72 megawatts of solar capacity, meeting more than 50 percent of the university's electricity needs.

- University of Missouri currently combines on-site generation and an innovative wind power purchase agreement (PPA) to purchase more than 90 million kilowatt-hours of green power, representing 36 percent of the university's campus electricity.

- Victor Valley Wastewater Reclamation Authority produced nearly 7.5 million kilowatt hours on-site, representing 74 percent of its own electricity, through an innovative Biogas-to-Energy Program.

Excellence in Green Power Use

- Capital One achieved its corporate energy goals three years early, including powering the company 100 percent with green power.

-Clif Bar & Company has sourced 100 percent green power for all its owned and operated facilities since 2003, and has developed innovative programs to support green power for its supply chain and employees.

- Equinix, Inc. was the first interconnection and data center to announce a goal of using 100 percent green power across its global footprint and has signed financial power purchase agreements for wind power that will, as of 2016, cover 80 percent of its U.S. load.

- Google Inc. procures more than 1.7 billion kilowatt-hours of green power for its operation, and is on track to achieve its commitment to power all of its operations with green power in 2017.

-Microsoft Corporation procured more than 3.3 billion kilowatt hours of green power last year for its domestic operations to expand its ongoing investment in building a cleaner, more responsible cloud.

- TOTO USA / Morrow, Georgia Facility uses green power for 100 percent of its facility electricity use, and was the first large-volume participant in Georgia Power's Simple Solar Program to meet 100 percent of its use through the purchase of RECs from certified solar power.

-University of California has made numerous large-scale investments in green power, including long-term power purchase agreements for 80 megawatts of with solar energy projects in California's Central Valley that began to come online in 2016 and represent the largest solar purchase ever made by a university in the United States.

-University of Tennessee, Knoxville became the largest college or university green power user in the partnership as of 2016, purchasing more than 250 million kilowatt hours of green power annually.

The U.S. Environmental Protection Agency (EPA) established the Green Power Partnership (GPP) in 2001 to protect human health and the environment by increasing organizations' voluntary green power use to advance the American market for green power and development of those resources. The program provides a framework that includes credible usage benchmarks, market information, technical assistance, and public recognition to companies and other organizations that use green power.

Oct 12, 2017: Puppet adds new products, partnerships and executives as company ushers in new era of automation

Puppet, the standard for automating the delivery and operation of the software that powers everything around us, announced new products, partnerships and executives as the company expands its global footprint and product portfolio.
"At Puppet, we strive to help our customers be successful on their automation journey, every single day," said Sanjay Mirchandani, CEO, Puppet. "I'm proud of the investments that we've made to deliver on Puppet's vision of making our customers more powerful through software. Today's announcements put Puppet in an even better position to help solve our customers' needs -- of today and tomorrow -- as they evolve their automation and DevOps practices."

In today's world where every company needs to behave like a software company, more than 75 of the Fortune 100 rely on Puppet to ship software faster. Puppet is helping its customers drive automation and deliver an unprecedented level of innovation for solving IT's toughest challenges. To help customers transform pockets of automation to automation that's pervasive throughout the software delivery lifecycle, Puppet is making new investments in product, strategic alliances, its leadership team and global expansion.

New products and offerings

As part of the company's strategic plans to make the shortest path to better software a reality for enterprises, Puppet also today announced a number of new products and updates to existing offerings. Recently, Puppet acquired Distelli, an innovative continuous delivery platform for developers and enterprises to expand automation across the entire software delivery lifecycle. Today, Puppet is introducing Distelli's products into Puppet's automaton portfolio:

Puppet Pipelines for Applications provides continuous integration and continuous delivery (CI/CD) capabilities for traditionally packaged applications.Puppet Pipelines for Containers, a platform for continuously delivering container-based applications across multiple Kubernetes clusters running on any cloud, or on-premises.Puppet Container Registry, an open source container registry that provides an easy way for software teams to host Docker images within their infrastructure and get a unified view of all their images stored in local and remote repositories.Puppet Discovery

In addition, Puppet today introduced Puppet Discovery, a new product that enables frictionless discovery of on-premises, cloud and container infrastructure, provides deep insights about that infrastructure, and helps customers bring it all under control. Download the technical preview here: https://puppet.com/products/puppet-discovery

Puppet Tasks

Released today, Puppet Tasks is a family of offerings which encompasses a new open source, agentless product as well as a set of capabilities in Puppet Enterprise that make it easy for organizations to get started with automation and expand its use across their infrastructure and applications.

Available today is Puppet Bolt, a simple, agentless open source task runner that enables users to execute ad hoc tasks such as troubleshooting systems, executing sequenced actions, or stopping and restarting services across remote machines via a command line interface (CLI) over SSH (Linux) or WinRM (Windows). Bolt can run scripts written in any framework and execute them on any supported platform.Available today in Puppet Enterprise 2017.3 is the Task Management capability. Task Management adds scale to execute tasks across hundreds of thousands of nodes, governance to enable control and auditability, and flexibility to run tasks from a web UI and filter and target infrastructure.Puppet Tasks are now supported and available in several modules on the Puppet Forge.

Puppet Enterprise 2017.3

In addition to the new Task Management capability, Puppet Enterprise 2017.3 also includes major enhancements:

Package Inspector: Makes it even easier to browse and search for packages discovered on nodes connected to Puppet Enterprise. Now you can quickly determine whether a package is already managed by Puppet Enterprise, and if so, identify its location and remediate any known vulnerabilities with Task Management.Puppet 5 Platform: The components of the core Puppet platform -- Puppet Agent, Puppet Server and PuppetDB -- have now moved to a more coordinated release model, with compatibility guarantees and consistent versioning among them. This enables customers to download, implement and upgrade the Puppet platform more easily without requiring additional testing and troubleshooting.Configuration Data: This new capability, Configuration Data, improves code reusability and makes it easier to configure nodes using either the node classifier or Hiera from the user interface.Japanese language support: Japanese language support has been enhanced to include additional translations of Task Management, module READMEs for Apache, Azure, and PostgreSQL, error and informational messages displayed when using the MySQL module, the text-based installer used to install Puppet Enterprise, the Learning VM, and the Code Manager user guide.New partnerships and strategic alliances

New offerings with Splunk, Google Cloud and Arm, plus new Technology Alliance Partners, make it easier for joint customers to spread automation across their organizations.

New alliance with Google Cloud: Puppet recently announced a new collaboration that enables Puppet customers to quickly adopt Google Cloud Platform (GCP) services, including its advanced machine learning and data analytics capabilities, while reducing IT costs and gaining the agility and flexibility of the cloud. Customers are now able to leverage a set of Google-developed modules that automate the provisioning, configuration, and ongoing management of GCP services to help Puppet customers quickly and effectively take advantage of GCP, including: Google Cloud Spanner, Google Cloud Pub/Sub and Google Stackdriver. Puppet Tasks are now included in several Google Cloud modules, including Google Compute Engine, Google Container Engine, Google Cloud Storage, and Google Cloud SQL.New Splunk Partnership: IT teams need a foundation for continuous analysis and automation across their entire organization. Splunk and Puppet have partnered to offer complementary solutions that address the need for real-time analysis and automation to help organizations transform their business and achieve success. This collaboration has resulted in a new integration new app and new technical add-on, available as the Splunk ITSI Module for Puppet Enterprise and the Splunk App and Add-On for Puppet Enterprise. The new Splunk IT Service Intelligence (ITSI) integration gives Splunk users the ability to take immediate action with the power of Puppet as the underlying action engine to remediate any vulnerability concerns without leaving Splunk, leading to the elimination of manual steps and faster delivery.New partners for DevOps: Puppet has added eleven important partners as part of its Technology Alliance Partner Program (TAPP): Barracuda, CloudPassage, Conjur/CyberArk, Cumulus Networks, Electric Cloud, F5, Intelliment Security, Onyx Point, Splunk, Praecipio Consulting, and Sensu.Collaboration with Arm: Arm®technology is at the heart of a computing and connectivity revolution that is transforming the way people live and businesses operate. Arm technology is enabling intelligence in over 100 billion devices today and securely powering products from the sensor to the smartphone to the supercomputer. In collaboration with Arm, later this year Puppet will release and support a new agent to manage infrastructure built on the 64-bit Arm architecture.Cloud and Container Updates

Puppet continues to invest in the cloud and container ecosystem with new offerings that enable customers to migrate to the cloud and adopt containers.

• New Blueshift modules: Puppet remains committed to helping enterprises adopt next generation technologies.

-- Kubernetes module: Installs and configures Kubernetes in a secure and highly reliable way.

-- Helm module: Installs, configures and manages the Helm package manager, and enables users to manage applications running on Kubernetes.

-- Docker module: The new Docker module includes major enhancements, including support for Puppet Code Manager, Docker Swarm mode and Docker Secrets.

-- Kream tool: A new open source tool that enables users to install and manage Kubernetes and Helm, and build a local development cluster.

• Updates to Puppet Azure module: The Puppet Azure module has been updated to include enhanced Disk storage and networking support and support for Azure tags.

New additions to Puppet's leadership team

Puppet is experiencing unprecedented growth in 2017 as adoption of Puppet Enterprise expands globally. Today, the company announced two executive appointments to strengthen its product and business development leadership. Samm DiStasio has been appointed vice president of business development and Matt Waxman has been named vice president of product management.

Giving back at PuppetConf 2017

Giving back is part of the fabric of Puppet's annual event which features programs that are connected to the company's vision to make people more powerful through software. At PuppetConf 2017, Puppet is giving back through a partnership with iDTech, a leading computer technology educator. Together Puppet and iDTech will donate nearly 40 scholarships globally to kids who otherwise can't afford to attend iDTech's coding camps.

Section 5 – Appendix

The data and analysis within this report is driven by GlobalData.

GlobalData gives you key information to drive sales, investment and deal making activity in your business.

Our coverage includes 200,000 + reports on 185,000+ companies (including 150,000+ private) across 200+ countries and 29 industries. The key industries include Alternative Energy, Oil & Gas, Clean Technology, Technology and Telecommunication, Pharmaceutical and Healthcare, Power, Financial Services, Chemical and Metal & Mining.

Methodology

GlobalData company reports are based on a core set of research techniques which ensure the best possible level of quality and accuracy of data. The key sources used include:

- Company Websites
- Company Annual Reports
- SEC Filings
- Press Releases
- Proprietary Databases

Notes

- Financial information of the company is taken from the most recently published annual reports or SEC filings
- The financial and operational data reported for the company is as per the industry defined standards
- Revenue converted to USD at average annual conversion rate as of fiscal year end

About GlobalData

GlobalData is one of the world's leading providers of company operational data and strategic analysis, providing detailed information on tens of thousands of companies globally. Our highly qualified team of Analysts, Researchers, and Solution Consultants use proprietary data sources and various tools and techniques to gather, analyze and represent the latest and the most reliable information essential for businesses to sustain a competitive edge. Data is continuously updated and revised by large teams of research experts, so that it always reflects the latest events and information. With a large dedicated research and analysis capability, GlobalData employs rigorous primary and secondary research techniques in developing unique data sets and research material for this series and its other reports. GlobalData offers comprehensive geographic coverage across world's most important sectors, focusing particularly on energy and healthcare.

Contact Us

If you have any queries about this report or would like further information, please contact info@globaldata.com

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The data and analysis within this report is driven by GlobalData from its own primary and secondary research of public and proprietary sources and does not necessarily represent the views of the company profiled.

The facts of this report are believed to be correct at the time of publication but cannot be guaranteed. Please note that the findings, conclusions and recommendations that GlobalData delivers will be based on information gathered in good faith from both primary and secondary sources, whose accuracy we are not always in a position to guarantee. As such GlobalData can accept no liability whatever for actions taken based on any information that may subsequently prove to be incorrect.

ValuEngine™

The Leader in Stock Valuation and Forecasting

RATING AND FORECAST REPORT

Company Name: ALPHABET INC-A
Ticker: GOOGL

Jul. 23, 2018

TABLE OF CONTENTS

- Data Summary 1
- ValuEngine Recommendation 1
- Forecast Analysis 1
- Price and Recommendation History 1
- ValuEngine Evaluation & Rankings 2
- Comparison to Industry 2
- Comparison with Peers 3
- Analyst Opinions 4
- EPS Consensus Expectations 4
- Business Summary 4
- Annual Financials 5
- Quarterly Financials 7
- ValuEngine Service Descriptions 9
- ValuEngine's Methodology 10

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Rating and Forecast Report

ALPHABET INC-A (NSDQ: GOOGL)

Report Date: Jul 23, 2018

DATA SUMMARY

Sector: Computer and Technology
Industry: Internet Services

Last Close: $1197.88	**Trade Date:** Jul 20, 2018	**1-Yr Forecast:** 7.89%	**1-Yr Momentum:** 20.73%
Valuation: 17.44%	**Trailing P/E:** 30.94	**Market Cap (bil):** 814.76	**Forward P/E:** 27.99
EPS Growth: 10.54%	**PEG Ratio:** 2.94	**P/S Ratio:** 6.95	**M/B Ratio:** 5.81
5-Yr Avg Return: 18.84%	**Volatility:** 19.79%	**Sharpe Ratio:** 0.95	**Beta:** 1.03
52-Wk High: $1221.59	**52-Wk Low:** $918.60	**Avg Volume:** 1952683	**Alpha:** 0.08

VALUENGINE RECOMMENDATION

NEGATIVE underperform	NEUTRAL match	POSITIVE outperform

ValuEngine Rating

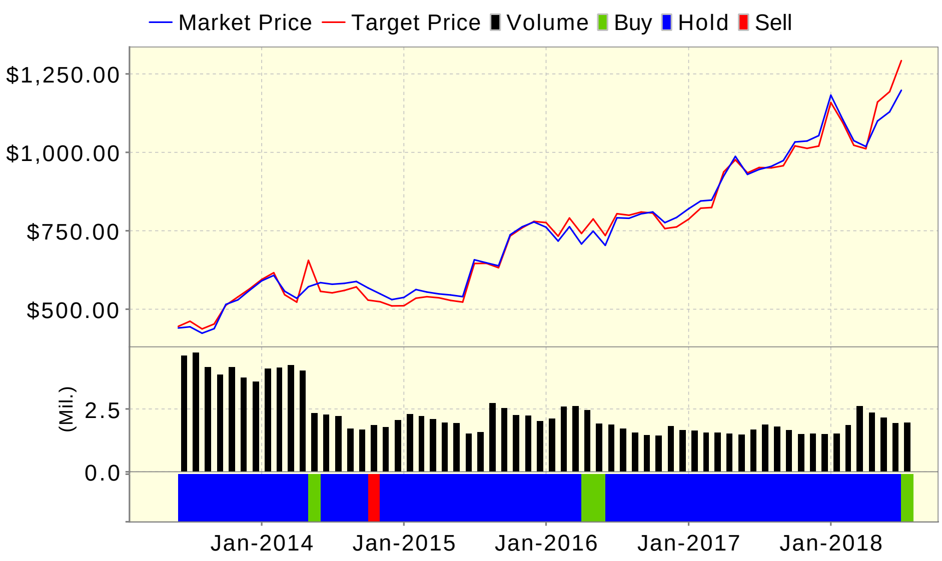
ValuEngine recommendation covers more than 5000 companies. The recommendations are based on the proprietary ValuEngine one-year forecast return model output for each individual equity. ValuEngine's Five-Engine rating stocks have an averaged annual return of 12.98% since 2002.

FORECAST ANALYSIS

	Target Price	Exp. Return
1-Month	$1205.76	0.66%
3-Month	$1220.32	1.87%
6-Month	$1248.31	4.21%
1-Year	$1292.36	7.89%
2-Year	$1350.19	12.71%
3-Year	$1368.56	14.25%

The predictive variables used in Valuengine's forecast model include both proprietary and well-established variables derived from credible financial studies and publications. We use a distinct forecasting model for each time horizon and apply the most advanced statistical/econometric techniques to ensure that our stock return forecasts are as reliable as possible.
Click for more information on ValuEngine's models.

PRICE AND RECOMMENDATION HISTORY



Most Recent Recommendation Changes

Jul 02, 2018
Upgrade to Buy
Jun 02, 2016
Downgrade to Hold
Apr 04, 2016
Upgrade to Buy

Past Performance

Last One Month	5.54%
Last Three Month	11.19%
Last Six Month	4.76%
Last One Year	20.73%

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ValuEngine's fundamentally-based, quant-derived research is now available to private investors. ValuEngine's research will enhance your ability to evaluate individual stocks, manage your portfolio and allocate capital for maximum returns. ValuEngine currently covers @5500 US equities as well as most major Canadian stocks.

Rating and Forecast Report

ALPHALBET INC-A (NSDQ: GOOGL)

Report Date: Jul 23, 2018

VALUEENGINE EVALUATION & RANKINGS

	Value	Rank
1-Yr Forecast	7.89%	91
Valuation	17.44%	24
1-Yr Momentum	20.73%	73
P/E Ratio	30.94	44
Market Cap	814.76B	100
EPS Growth	10.54%	35
5-Yr Avg Return	18.84%	88
Volatility	19.79%	68
Sharpe Ratio	0.95	92
P/S Ratio	6.95	17
M/B Ratio	5.81	25
Surprise	7.83%	62

Just as important as the percentages shown for our predictive variables for each stock is the way they are ranked against @7000 stocks in our database. This is sometimes confusing to newcomers to ValuEngine. Each of these quantitative measurements is ranked on a scale of 1 to 100. Generally the higher the ranking, the more positive the influence each measurement has on the overall attractiveness of the stock. In other words a high rank is always better. For example:

Forecast rank 91: 9% of stocks have higher forecast returns.
Valuation rank 24: 76% of stocks are more undervalued.
Momentum rank 73: 27% of stocks have higher momentum.
P/E rank 44: 56% of stocks have lower P/E ratios.
Size rank 100: 0% of stocks have higher market capitalization.
Volatility rank 68: 32% of stocks have less volatility.

COMPARISON TO INDUSTRY

1-Yr Forecast		**Rank**
GOOGL	7.89%	91
Industry	3.09%	66
Sector	3.21%	66

EPS Growth		**Rank**
GOOGL	10.54%	35
Industry	46.18%	53
Sector	45.13%	52

1-Yr Momentum		**Rank**
GOOGL	20.73%	73
Industry	46.84%	60
Sector	24.37%	57
S&P 500	13.28%	64

5-Yr Avg Return		**Rank**
GOOGL	18.84%	88
Industry	4.34%	55
Sector	3.87%	57
S&P 500	3.05%	56

Valuation		**Rank**
GOOGL	17.44%	24
Industry	15.07%	45
Sector	16.54%	39

P/S Ratio		**Rank**
GOOGL	6.95	17
Industry	4.03	48
Sector	4.34	50

P/E Ratio		**Rank**
GOOGL	30.94	44
Industry	38.84	34
Sector	32.11	44

M/B Ratio		**Rank**
GOOGL	5.81	25
Industry	10.50	41
Sector	8.23	40

Market Cap (bil.)		**Rank**
GOOGL	814.76	100
Industry	29.00	50
Sector	9.17	50

Surprise		**Rank**
GOOGL	7.83%	62
Industry	0.80%	53
Sector	4.78%	55

Volatility		**Rank**
GOOGL	19.79%	68
Industry	62.91%	33
Sector	56.01%	39
S&P 500	19.24%	69

SharpeRatio		**Rank**
GOOGL	0.95	92
Industry	0.10	51
Sector	0.16	54
S&P 500	0.16	59

Rating and Forecast Report

ALPHABET INC-A (NSDQ: GOOGL)

Report Date: Jul 23, 2018

COMPARISON WITH PEERS

Ticker	Company Name	VE Rating	Return Forecast : Expected Return 1-Mon	3-Mon	6-Mon	1-Yr	2-Yr	3-Yr
GOOGL	ALPHABET INC-A	4	0.66%	1.87%	4.21%	7.89%	12.71%	14.25%
FB	FACEBOOK INC-A	4	0.57%	0.76%	2.80%	6.81%	5.48%	3.51%
TCEHY	TENCENT HOLDING	3	0.30%	-1.15%	-0.45%	3.65%	-11.98%	-20.57%
AAPL	APPLE INC	4	0.56%	1.01%	3.41%	6.67%	15.82%	21.98%
BIDU	BAIDU INC	4	0.81%	1.93%	4.75%	9.67%	16.79%	19.45%

1-Yr Forecast		Rank
GOOGL	7.89%	91
FB	6.81%	87
TCEHY	3.65%	74
AAPL	6.67%	86
BIDU	9.67%	94

1-Yr Momentum		Rank
GOOGL	20.73%	91
FB	27.60%	80
TCEHY	26.31%	79
AAPL	27.34%	79
BIDU	35.89%	84

Valuation		Rank
GOOGL	17.44%	24
FB	9.35%	36
TCEHY	-2.23%	58
AAPL	12.59%	30
BIDU	22.95%	19

P/E Ratio		Rank
GOOGL	30.94	44
FB	29.04	46
TCEHY	44.22	38
AAPL	17.60	68
BIDU	26.23	49

Market Cap (bil.)		Rank
GOOGL	814.76	100
FB	587.20	100
TCEHY	450.30	100
AAPL	1115.09	100
BIDU	91.18	99

Volatility		Rank
GOOGL	19.79%	68
FB	27.47%	54
TCEHY	25.30%	58
AAPL	22.48%	63
BIDU	34.42%	45

EPS Growth		Rank
GOOGL	10.54%	35
FB	16.32%	45
TCEHY	47.71%	72
AAPL	15.26%	43
BIDU	-5.65%	14

5-Yr Avg Return		Rank
GOOGL	18.84%	88
FB	41.11%	97
TCEHY	37.28%	97
AAPL	23.68%	92
BIDU	18.87%	88

P/S Ratio		Rank
GOOGL	6.95	17
FB	13.17	10
TCEHY	11.38	11
AAPL	4.51	25
BIDU	6.57	17

M/B Ratio		Rank
GOOGL	5.81	25
FB	10.19	15
TCEHY	11.32	14
AAPL	8.79	17
BIDU	5.48	27

Surprise		Rank
GOOGL	7.83%	62
FB	19.38%	77
TCEHY	-1.40%	33
AAPL	5.10%	54
BIDU	33.91%	85

SharpeRatio		Rank
GOOGL	0.95	92
FB	1.50	98
TCEHY	1.47	98
AAPL	1.05	94
BIDU	0.55	79

Rating and Forecast Report

ALPHABET INC-A (NSDQ: GOOGL)

ValuEngine™

Report Date: Jul 23, 2018

ANALYST OPINIONS

Strong Buy

The mean recommendation was calculated from the numbers provided by Zacks.

Current Mean: 4.73

Number of Analyst: 30

Strong Buy:	24
Buy:	4
Hold:	2
Sell:	0
Strong Sell:	0

Recommendation Mean Trend

Three Month Ago:	4.61
Two Month Ago:	4.72
One Month Ago:	4.72
Current:	4.73

EPS CONSENSUS EXPECTATIONS

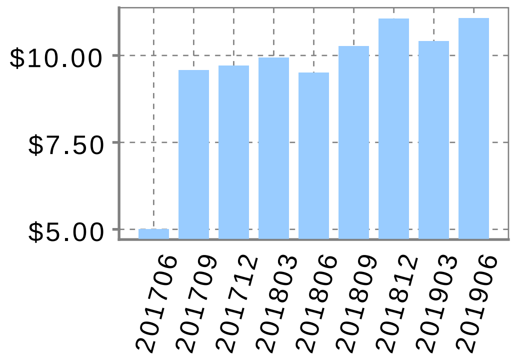
Quarter	**201806**	**201809**	**201812**	**201903**	**201906**
Mean	$9.51	$10.26	$11.05	$10.41	$11.07
# of Estimates	14	13	13	3	3
High	$10.21	$10.85	$11.80	$11.30	$11.49
Low	$9.05	$9.08	$10.38	$9.68	$10.38
Same Qtr Last Yr	$5.01	$9.57	$9.70	$9.93	$9.51
% Growth	89.75	7.22	13.89	4.87	16.48

Qtr/Year/LTG	**201806**	**201809**	**2018**	**2019**	**LTG**
Mean - Current	$9.51	$10.26	$40.80	$48.21	17.21%
Mean - 7 Days Ago	$9.51	$10.26	$40.80	$48.21	17.21%
Mean - 30 Days Ago	$9.52	$10.29	$40.84	$48.21	17.21%
Mean - 60 Days Ago	$9.52	$10.29	$40.97	$47.96	17.21%
Mean - 90 Days Ago	$9.78	$10.78	$41.16	$48.62	22.73%

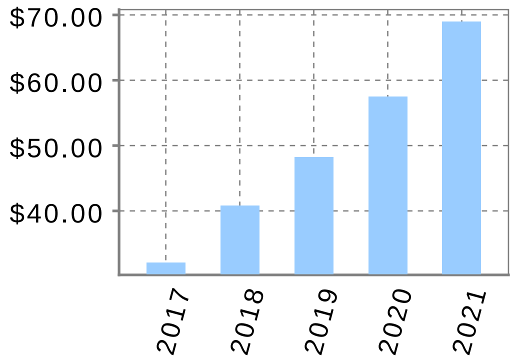
Year/LTG	**2018**	**2019**	**2020**	**2021**	**LTG**
Mean	$40.80	$48.21	$57.51	$68.97	17.21%
# of Estimates	13	16	6	2	7
High	$42.78	$52.00	$61.45	$74.86	21.00%
Low	$39.76	$42.96	$54.73	$63.07	13.00%
Previous Year	$32.05	$40.80	$48.21	$57.51	
% Growth	27.31	18.15	19.29	19.93	

Quarter	**201706**	**201709**	**201712**	**201803**
Estimated EPS	$4.39	$8.43	$10.12	$9.21
Actual EPS	$5.01	$9.57	$9.70	$9.93
Difference	$0.62	$1.14	$-0.42	$0.72
% Surprise	14.12	13.52	-4.15	7.82

Quarterly EPS Trend



Annual EPS Trend



BUSINESS SUMMARY

Alphabet Inc. is engaged in technology business. The Company provides web-based search, advertisements, maps, software applications, mobile operating systems, consumer content, enterprise solutions, commerce and hardware products through its subsidiaries. Alphabet Inc., formerly known as Google Inc., is headquartered in Mountain View, California.

ANNUAL FINANCIALS (All numbers in millions)

Balance Sheet	201012	201112	201212	201312	201412	201512	201612	201712
Cash	13630	9983	14778	18898	18347	16549	12918	10715
Marketable Securities	21345	34643	33310	39819	46048	56517	73415	91156
Receivables	5002	6172	8585	9390	11556	13909	14232	18705
Inventory			505.00	426.00			268.00	749.00
Raw Materials			77.00	115.00				
Work in Progress								
Finished Goods			428.00	311.00				
Notes Receivable								
Other Current Assets	1585	1960	3276	4353	4734	3139	4575	2983
Total Current Assets	**41562**	**52758**	**60454**	**72886**	**80685**	**90114**	**105408**	**124308**
Property, Plant & Equipment	11771	14400	17697	23837	32746	40146	47527	59647
Accumulated Depreciation	4012	4797	5843	7313	8863	11130	13293	17264
Net Property, Plant & Equipment	7759	9603	11854	16524	23883	29016	34234	42383
Investment & Advances	523.00	790.00	1469	1976	3079	5183	5878	7813
Other non-current Assets								
Deferred Charges	265.00					251.00	383.00	680.00
Intangibles	7300	8924	18010	17558	20206	19716	19775	19439
Deposits & other assets	442.00	499.00	2011	1976	3280	3181	1819	2672
TOTAL ASSETS	**57851**	**72574**	**93798**	**110920**	**131133**	**147461**	**167497**	**197295**
Notes Payable	3465	1218	2549	3009	2009	3225		
Accounts Payable	483.00	588.00	2012	2453	1715	1931	2041	3137
Current Portion of Long-term Debt								
Current Portion of Capital Leases								
Accrued Expenses	3256	4356	6968	7986	9455	10636	13062	18733
Income Taxes Payable	37.00	197.00	240.00	24.00	96.00	302.00	554.00	881.00
Other Current Liabilities	2755	2554	2568	2436	3530	3216	1099	1432
Total Current Liabilities	**9996**	**8913**	**14337**	**15908**	**16805**	**19310**	**16756**	**24183**
Mortgages								
Deferred Charges (taxes/income)	35.00	331.00	1972	2086	2075	340.00	428.00	770.00
Convertible Debt								
Long Term Debt		2986	2988	2236	3228	1995	3935	3969
Non-Current Capital Leases								
Other Long-Term Liabilities	1579	2199	2786	3381	4525	5485	7342	15871
TOTAL LIABILITIES	**11610**	**14429**	**22083**	**23611**	**26633**	**27130**	**28461**	**44793**
Minority Interest (liabilities)								
Preferred Stock								
Common Stock, Net	0.32	0.33	0.33	0.34	0.68	0.69	0.69	0.69
Capital Surplus	18235	20264	22835	25922	28766	32981	36306	40246
Retained Earnings	27868	37605	48342	61262	75706	89223	105131	113247
Treasury Stock								
Other Liabilities	138.00	276.00	538.00	125.00	27.00	-1874	-2402	-992.00
SHAREHOLDERS' EQUITY	**46241**	**58145**	**71715**	**87309**	**104500**	**120331**	**139036**	**152502**
TOTAL LIABILITES & SHAREHOLDERS	**57851**	**72574**	**93798**	**110920**	**131133**	**147461**	**167497**	**197295**

Rating and Forecast Report

ALPHABET INC-A (NSDQ: GOOGL)

Report Date: Jul 23, 2018

ANNUAL FINANCIALS (All numbers in millions)

Income Statement	201012	201112	201212	201312	201412	201512	201612	201712
Net Sales or Revenues	29321	37905	50175	59825	66001	74989	90272	110855
Cost of Goods Sold	10417	13188	20634	25858	25691	28164	35138	45583
Gross Profit	18904	24717	29541	33967	40310	46825	55134	65272
Research & Development Expense	3762	5162	6793	7952	9832	12282	13948	16625
Selling, General, & Admin. Expense	4761	7813	9988	12049	13982	15183	17470	22501
Income Before Deprec.,Depletion,Amort.	10381	11742	12760	13966	16496	19360	23716	26146
Depreciation,Depletion,Amortization								
Non-Operating Income	415.00	584.00	626.00	530.00	763.00	291.00	434.00	1047
Interest Expense								
Pretax Income	10796	12326	13386	14496	17259	19651	24150	27193
Provision for Income Taxes	2291	2589	2598	2282	3331	3303	4672	14531
Minority Interest								
Investment Gains (Losses)								
Other Income								
Income Before Extraordinaries & Disc	8505	9737	10788	12214	13928	16348	19478	12662
Extraordinary Items & Discontinued			-51.00	706.00	516.00			
Net Income	**8505**	**9737**	**10737**	**12920**	**14444**	**16348**	**19478**	**12662**
EPS - Basic, net	13.35	15.09	16.41	19.41	21.37	23.11	28.32	18.27
EPS - Diluted, net	13.16	14.88	16.16	19.07	21.02	22.84	27.85	18.00
EPS - Diluted, before non-recurring items	13.16	14.88	17.01	18.21	20.82	22.84	27.85	32.05

Cash Flow Statement	201012	201112	201212	201312	201412	201512	201612	201712
Net Income (Cash Flow)	8505	9737	10737	12920	14444	16348	19478	12662
Depreciation,Depletion,Amortization-CF	1396	1851	2962	3939	4979	5063	6144	6915
Net Increase (decrease) in	-99.00	630.00	898.00	-31.00	364.00	-409.00	3300	9246
Cash from (used in) Discontinued								
Other Adjustments - Net	1279	2347	2022	1831	2589	5022	7114	8268
Net Cash from (used by) Operating	**11081**	**14565**	**16619**	**18659**	**22376**	**26024**	**36036**	**37091**
(increase) Decrease in Prop,Plant,&	-4018	-3438	-3273	-7358	-10959	-9915	-9972	-13085
Acquisition/disposition of subsidiaires,othr	-1067	-1900	-10568	1077	-4502	-236.00	-986.00	-287.00
Increase (decrease) in investments	-7956	-13349	1119	-7099	-6997	-13210	-17779	-19448
Other Cash inflow from investment	2361	-354.00	-334.00	-299.00	1403	-350.00	-2428	1419
Net Cash from (used by) invesment	**-10680**	**-19041**	**-13056**	**-13679**	**-21055**	**-23711**	**-31165**	**-31401**
Issuance (purchase) of equity shares	-801.00					-1780	-3693	-4046
Issuance (repayment) of debt securities		726.00	1328	-557.00	-18.00	-23.00	-1335	-86.00
Increase (decrease) in bank & other	3463							
Payment of dividends & other cash								
Other cash from (used by) financing	388.00	81.00	-99.00	-300.00	-1421	-1874	-3304	-4166
Net Cash from (used by) Financing	**3050**	**807.00**	**1229**	**-857.00**	**-1439**	**-3677**	**-8332**	**-8298**
Effect of Exchange Rate Changes on	-19.00	22.00	3.00	-3.00	-433.00	-434.00	-170.00	405.00
Net Change in Cash & Cash Equivalents	3432	-3647	4795	4120	-551.00	-1798	-3631	-2203
Cash & Equivalents at beginning of year	10198	13630	9983	14778	18898	18347	16549	12918
Cash & Equivalents at year end	13630	9983	14778	18898	18347	16549	12918	10715

QUARTERLY FINANCIALS (All numbers in millions)

Balance Sheet	201606	201609	201612	201703	201706	201709	201712	201803
Cash	13627	9406	12918	18132	15711	10581	10715	12658
Marketable Securities	64833	73650	73415	74307	79002	89562	91156	90227
Receivables	12762	12395	14232	12969	14877	15577	18705	16814
Inventory		559.00	268.00	280.00	398.00	765.00	749.00	636.00
Raw Materials								
Work in Progress								
Finished Goods								
Notes Receivable								
Other Current Assets	3016	2536	4575	3106	2398	2860	2983	3426
Total Current Assets	**94238**	**98546**	**105408**	**108794**	**112386**	**119345**	**124308**	**123761**
Property, Plant & Equipment	43904	46094	47527	50321	53341	56358	59647	67801
Accumulated Depreciation	12491	13341	13293	14385	15665	16238	17264	18956
Net Property, Plant & Equipment	31413	32753	34234	35936	37676	40120	42383	48845
Investment & Advances	5820	5705	5878	6131	6642	7269	7813	10976
Other non-current Assets								
Deferred Charges	253.00	273.00	383.00	365.00	376.00	505.00	680.00	678.00
Intangibles	19293	19395	19775	19684	19537	19614	19439	20671
Deposits & other assets	3275	3276	1819	1846	2004	2683	2672	2004
TOTAL ASSETS	**154292**	**159948**	**167497**	**172756**	**178621**	**189536**	**197295**	**206935**
Notes Payable	2219							1329
Accounts Payable	1716	2175	2041	2306	2488	2674	3137	3526
Current Portion of Long-term Debt								
Current Portion of Capital Leases								
Accrued Expenses	10256	11054	13062	10999	14838	16529	18733	17600
Income Taxes Payable	185.00	171.00	554.00	803.00	133.00	221.00	881.00	1343
Other Current Liabilities	2965	923.00	1099	1148	1226	1269	1432	1596
Total Current Liabilities	**17341**	**14323**	**16756**	**15256**	**18685**	**20693**	**24183**	**25394**
Mortgages								
Deferred Charges (taxes/income)	802.00	562.00	428.00	927.00	714.00	497.00	770.00	709.00
Convertible Debt								
Long Term Debt	1984	3938	3935	3937	3955	3964	3969	3973
Non-Current Capital Leases								
Other Long-Term Liabilities	6286	7022	7342	7687	6981	7282	15871	16034
TOTAL LIABILITIES	**26413**	**25845**	**28461**	**27807**	**30335**	**32436**	**44793**	**46110**
Minority Interest (liabilities)								
Preferred Stock								
Common Stock, Net	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.70
Capital Surplus	34292	35336	36306	37697	38508	39608	40246	41486
Retained Earnings	94737	99798	105131	109420	111505	118237	113247	120008
Treasury Stock								
Other Liabilities	-1151	-1032	-2402	-2169	-1728	-746.00	-992.00	-670.00
SHAREHOLDERS' EQUITY	**127879**	**134103**	**139036**	**144949**	**148286**	**157100**	**152502**	**160825**
TOTAL LIABILITES & SHAREHOLDERS	**154292**	**159948**	**167497**	**172756**	**178621**	**189536**	**197295**	**206935**

QUARTERLY FINANCIALS (All numbers in millions)

Income Statement	201606	201609	201612	201703	201706	201709	201712	201803
Net Sales or Revenues	21500	22451	26064	24750	26010	27772	32323	31146
Cost of Goods Sold	8130	8699	10661	9795	10373	11148	14267	13467
Gross Profit	13370	13752	15403	14955	15637	16624	18056	17679
Research & Development Expense	3363	3596	3622	3942	4172	4205	4306	5039
Selling, General, & Admin. Expense	4039	4389	5142	4445	7333	4637	6086	5639
Income Before Deprec.,Depletion,Amort.	5968	5767	6639	6568	4132	7782	7664	7001
Depreciation,Depletion,Amortization								
Non-Operating Income	151.00	278.00	218.00	251.00	245.00	197.00	354.00	3542
Interest Expense								
Pretax Income	6119	6045	6857	6819	4377	7979	8018	10543
Provision for Income Taxes	1242	984.00	1524	1393	853.00	1247	11038	1142
Minority Interest								
Investment Gains (Losses)								
Other Income								
Income Before Extraordinaries & Disc	4877	5061	5333	5426	3524	6732	-3020	9401
Extraordinary Items & Discontinued								
Net Income	**4877**	**5061**	**5333**	**5426**	**3524**	**6732**	**-3020**	**9401**
EPS - Basic, net	7.11	7.36	7.73	7.85	5.09	9.71	-4.38	13.53
EPS - Diluted, net	7.00	6.78	8.05	7.73	5.01	9.57	-4.31	13.33
EPS - Diluted, before non-recurring items	7.00	7.25	7.56	7.73	5.01	9.57	9.70	9.93

Cash Flow Statement	201606	201609	201612	201703	201706	201709	201712	201803
Net Income (Cash Flow)	9084	14145	19478	5426	8950	15682	12662	9401
Depreciation,Depletion,Amortization-CF	2861	4457	6144	1503	3128	4889	6915	1986
Net Increase (decrease) in	1087	2724	3300	-79.00	205.00	-81.00	9246	1065
Cash from (used in) Discontinued								
Other Adjustments - Net	3746	5297	7114	2698	4668	6333	8268	-810.00
Net Cash from (used by) Operating	**16778**	**26623**	**36036**	**9548**	**16951**	**26823**	**37091**	**11642**
(increase) Decrease in Prop,Plant,&	-4551	-6908	-9972	-2467	-5285	-8796	-13085	-7269
Acquisition/disposition of subsidiaires,othr	-72.00	-324.00	-986.00	-101.00	-143.00	-273.00	-287.00	-1250
Increase (decrease) in investments	-8432	-16803	-17779	-1033	-6014	-16777	-19448	673.00
Other Cash inflow from investment	-363.00	-2428	-2428	750.00	1419	1419	1419	
Net Cash from (used by) invesment	**-13418**	**-26463**	**-31165**	**-2851**	**-10023**	**-24427**	**-31401**	**-7846**
Issuance (purchase) of equity shares	-3693	-3693	-3693	-647.00	-2265	-1945	-4046	-2173
Issuance (repayment) of debt securities	-1048	-1322	-1335	-18.00	-56.00	-64.00	-86.00	1313
Increase (decrease) in bank & other								
Payment of dividends & other cash								
Other cash from (used by) financing	-1610	-2425	-3304	-1009	-2093	-3111	-4166	-1158
Net Cash from (used by) Financing	**-6351**	**-7440**	**-8332**	**-1674**	**-4414**	**-5120**	**-8298**	**-2018**
Effect of Exchange Rate Changes on	69.00	137.00	-170.00	191.00	279.00	387.00	405.00	165.00
Net Change in Cash & Cash Equivalents	-2922	-7143	-3631	5214	2793	-2337	-2203	1943
Cash & Equivalents at beginning of year	16549	16549	16549	12918	12918	12918	12918	10715
Cash & Equivalents at year end	13627	9406	12918	18132	15711	10581	10715	12658

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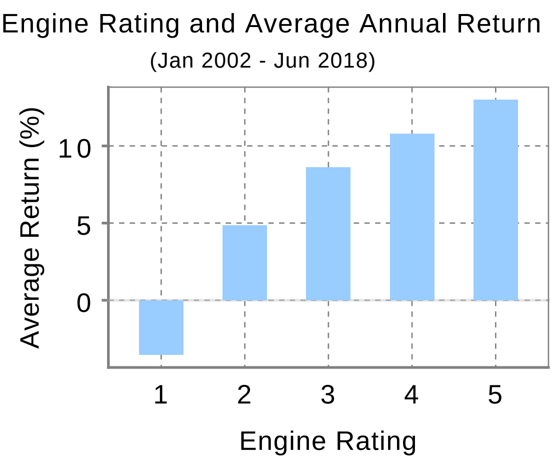

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2. Hold: Expected to perform in line with the SP500 with average returns.
3. Sell: Expected to underperform the SP500 producing below-average returns.

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RATING AND FORECAST REPORT

Company Name: ALPHABET INC-C
Ticker: GOOG

Jul. 23, 2018

TABLE OF CONTENTS

- Data Summary 1
- ValuEngine Recommendation 1
- Forecast Analysis 1
- Price and Recommendation History 1
- ValuEngine Evaluation & Rankings 2
- Comparison to Industry 2
- Comparison with Peers 3
- Analyst Opinions 4
- EPS Consensus Expectations 4
- Business Summary 4
- Annual Financials 5
- Quarterly Financials 7
- ValuEngine Service Descriptions 9
- ValuEngine's Methodology 10

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Rating and Forecast Report

ALPHABET INC-C (NSDQ: GOOG)

ValuEngine™

Report Date: Jul 23, 2018

DATA SUMMARY

Sector: Computer and Technology

Industry: Internet Services

Last Close: $1184.91	**Trade Date:** Jul 20, 2018	**1-Yr Forecast:** 5.27%	**1-Yr Momentum:** 22.39%
Trailing P/E: 43.84	**Market Cap (bil):** 402.09	**Forward P/E:** 22.47	**EPS Growth:** 95.14%
PEG Ratio: 0.46	**P/S Ratio:** 3.43	**M/B Ratio:** 2.87	**5-Yr Avg Return:** 18.08%
Volatility: 18.67%	**Sharpe Ratio:** 0.97	**Beta:** 1.06	**52-Wk High:** $1204.50
52-Wk Low: $903.40	**Avg Volume:** 1535228	**Alpha:** 0.08	**Shares Outs(mil):** 339.34

VALUENGINE RECOMMENDATION

NEGATIVE underperform	NEUTRAL match	POSITIVE outperform

ValuEngine Rating

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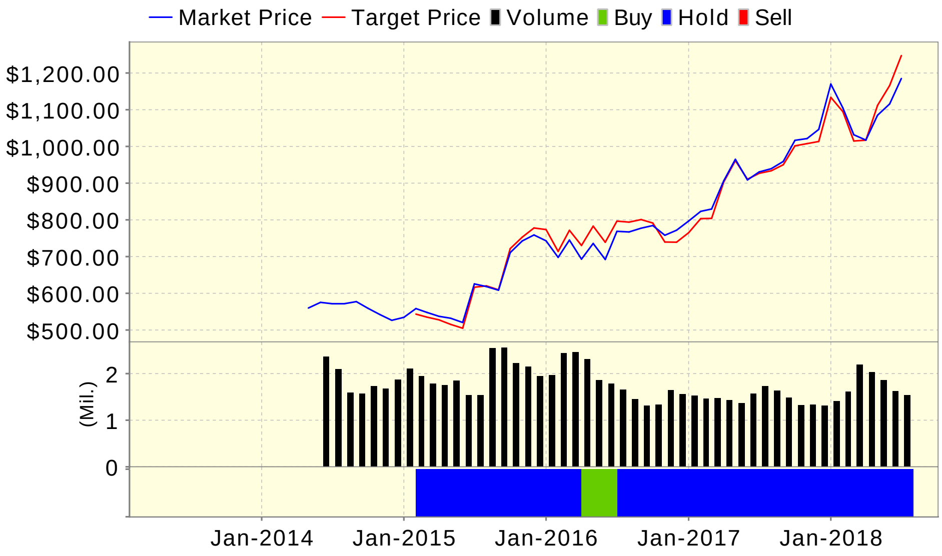
FORECAST ANALYSIS

	Target Price	Exp. Return
1-Month	$1190.11	0.44%
3-Month	$1188.00	0.26%
6-Month	$1206.54	1.83%
1-Year	$1247.35	5.27%
2-Year	$1164.86	-1.69%
3-Year	$1091.42	-7.89%

The predictive variables used in Valuengine's forecast model include both proprietary and well-established variables derived from credible financial studies and publications. We use a distinct forecasting model for each time horizon and apply the most advanced statistical/econometric techniques to ensure that our stock return forecasts are as reliable as possible.
Click for more information on ValuEngine's models.

PRICE AND RECOMMENDATION HISTORY



Most Recent Recommendation Changes

Jul 18, 2016
Downgrade to Hold
Apr 01, 2016
Upgrade to Buy
Jan 22, 2013
Downgrade to Hold

Past Performance

Last One Month	5.84%
Last Three Month	10.43%
Last Six Month	4.17%
Last One Year	22.39%

CONTACT VALUENGINE

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ValuEngine's fundamentally-based, quant-derived research is now available to private investors. ValuEngine's research will enhance your ability to evaluate individual stocks, manage your portfolio and allocate capital for maximum returns. ValuEngine currently covers @5500 US equities as well as most major Canadian stocks.

Rating and Forecast Report

ALPHABET INC-C (NSDQ: GOOG)

ValuEngine™

Report Date: Jul 23, 2018

VALUENGINE EVALUATION & RANKINGS

	Value	Rank
1-Yr Forecast	5.27%	81
1-Yr Momentum	22.39%	75
P/E Ratio	43.84	38
Market Cap	402.09B	100
EPS Growth	95.14%	85
5-Yr Avg Return	18.08%	87
Volatility	18.67%	71
Sharpe Ratio	0.97	92
P/S Ratio	3.43	33
M/B Ratio	2.87	43
Beta	1.06	33
Alpha	0.08	74

Just as important as the percentages shown for our predictive variables for each stock is the way they are ranked against @7000 stocks in our database. This is sometimes confusing to newcomers to ValuEngine. Each of these quantitative measurements is ranked on a scale of 1 to 100. Generally the higher the ranking, the more positive the influence each measurement has on the overall attractiveness of the stock. In other words a high rank is always better. For example:

Forecast rank 81: 19% of stocks have higher forecast returns.
Momentum rank 75: 25% of stocks have higher momentum.
P/E rank 38: 62% of stocks have lower P/E ratios.
Size rank 100: 0% of stocks have higher market capitalization.
Volatility rank 71: 29% of stocks have less volatility.

COMPARISON TO INDUSTRY

1-Yr Forecast		**Rank**
GOOG	5.27%	81
Industry	3.09%	66
Sector	3.21%	66

1-Yr Momentum		**Rank**
GOOG	22.39%	75
Industry	46.84%	60
Sector	24.37%	57
S&P 500	13.28%	64

Valuation		**Rank**
GOOG		
Industry	15.07%	45
Sector	16.54%	39

P/E Ratio		**Rank**
GOOG	43.84	38
Industry	38.84	34
Sector	32.11	44

Market Cap (bil.)		**Rank**
GOOG	402.09	100
Industry	29.00	50
Sector	9.17	50

Volatility		**Rank**
GOOG	18.67%	71
Industry	62.91%	33
Sector	56.01%	39
S&P 500	19.24%	69

EPS Growth		**Rank**
GOOG	95.14%	85
Industry	46.18%	53
Sector	45.13%	52

5-Yr Avg Return		**Rank**
GOOG	18.08%	87
Industry	4.34%	55
Sector	3.87%	57
S&P 500	3.05%	56

P/S Ratio		**Rank**
GOOG	3.43	33
Industry	4.03	48
Sector	4.34	50

M/B Ratio		**Rank**
GOOG	2.87	43
Industry	10.50	41
Sector	8.23	40

Surprise		**Rank**
GOOG		
Industry	0.80%	53
Sector	4.78%	55

SharpeRatio		**Rank**
GOOG	0.97	92
Industry	0.10	51
Sector	0.16	54
S&P 500	0.16	59

Rating and Forecast Report

ALPHABET INC-C (NSDQ: GOOG)

ValuEngine™

Report Date: Jul 23, 2018

COMPARISON WITH PEERS

			Return Forecast : Expected Return					
Ticker	**Company Name**	**VE Rating**	**1-Mon**	**3-Mon**	**6-Mon**	**1-Yr**	**2-Yr**	**3-Yr**
GOOG	ALPHABET INC-C	3	0.44%	0.26%	1.83%	5.27%	-1.69%	-7.89%
FB	FACEBOOK INC-A	4	0.57%	0.76%	2.80%	6.81%	5.48%	3.51%
TCEHY	TENCENT HOLDING	3	0.30%	-1.15%	-0.45%	3.65%	-11.98%	-20.57%
BIDU	BAIDU INC	4	0.81%	1.93%	4.75%	9.67%	16.79%	19.45%
YAHOY	YAHOO JAPAN CP	2	-0.41%	1.55%	1.80%	-4.95%	14.45%	26.51%

1-Yr Forecast		Rank
GOOG	5.27%	81
FB	6.81%	87
TCEHY	3.65%	74
BIDU	9.67%	94
YAHOY	-4.95%	21

1-Yr Momentum		Rank
GOOG	22.39%	81
FB	27.60%	80
TCEHY	26.31%	79
BIDU	35.89%	84
YAHOY	-26.55%	10

Valuation		Rank
GOOG		
FB	9.35%	36
TCEHY	-2.23%	58
BIDU	22.95%	19
YAHOY		

P/E Ratio		Rank
GOOG	43.84	38
FB	29.04	46
TCEHY	44.22	38
BIDU	26.23	49
YAHOY	16.74	71

Market Cap (bil.)		Rank
GOOG	402.09	100
FB	587.20	100
TCEHY	450.30	100
BIDU	91.18	99
YAHOY	18.59	93

Volatility		Rank
GOOG	18.67%	71
FB	27.47%	54
TCEHY	25.30%	58
BIDU	34.42%	45
YAHOY	22.10%	64

EPS Growth		Rank
GOOG	95.14%	85
FB	16.32%	45
TCEHY	47.71%	72
BIDU	-5.65%	14
YAHOY	-16.03%	10

5-Yr Avg Return		Rank
GOOG	18.08%	87
FB	41.11%	97
TCEHY	37.28%	97
BIDU	18.87%	88
YAHOY	-5.89%	32

P/S Ratio		Rank
GOOG	3.43	33
FB	13.17	10
TCEHY	11.38	11
BIDU	6.57	17
YAHOY	2.41	45

M/B Ratio		Rank
GOOG	2.87	43
FB	10.19	15
TCEHY	11.32	14
BIDU	5.48	27
YAHOY	2.85	43

Surprise		Rank
GOOG		
FB	19.38%	77
TCEHY	-1.40%	33
BIDU	33.91%	85
YAHOY		

SharpeRatio		Rank
GOOG	0.97	92
FB	1.50	98
TCEHY	1.47	98
BIDU	0.55	79
YAHOY	-0.27	27

Rating and Forecast Report

ALPHABET INC-C (NSDQ: GOOG)

ValuEngine™

Report Date: Jul 23, 2018

ANALYST OPINIONS

Strong Buy

The mean recommendation was calculated from the numbers provided by Zacks.

Current Mean: 4.75

Number of Analyst: 4

Strong Buy:	3
Buy:	1
Hold:	0
Sell:	0
Strong Sell:	0

Recommendation Mean Trend

Three Month Ago:	4.83
Two Month Ago:	4.75
One Month Ago:	4.75
Current:	4.75

EPS CONSENSUS EXPECTATIONS

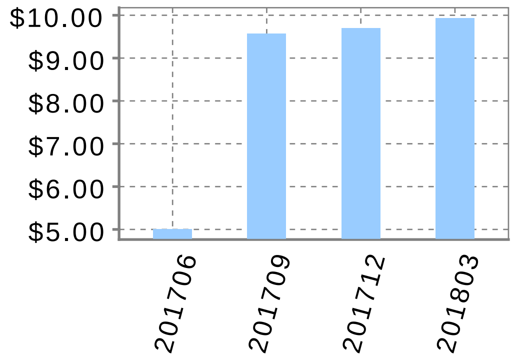
Quarter	**201806**	**201809**	**201812**	**201903**
Mean				
# of Estimates	0	0		
High				
Low				
Same Qtr Last Yr	$5.01	$9.57	$9.70	$9.93
% Growth				

Qtr/Year/LTG	**201806**	**201809**	**2018**	**2019**	**LTG**
Mean - Current					
Mean - 7 Days Ago					
Mean - 30 Days Ago					
Mean - 60 Days Ago				$46.96	
Mean - 90 Days Ago				$46.96	

Year/LTG	**2018**	**2019**	**2020**	**2021**	**LTG**
Mean					
# of Estimates	0	0			0
High					
Low					
Previous Year	$32.05				
% Growth					

Quarter	**201706**	**201709**	**201712**	**201803**
Estimated EPS				
Actual EPS	$5.01	$9.57	$9.70	$9.93
Difference				
% Surprise				

Quarterly EPS Trend



BUSINESS SUMMARY

Alphabet Inc. is engaged in technology business. The Company provides web-based search, advertisements, maps, software applications, mobile operating systems, consumer content, enterprise solutions, commerce and hardware products through its subsidiaries. Alphabet Inc., formerly known as Google Inc., is headquartered in Mountain View, California.

ANNUAL FINANCIALS (All numbers in millions)

Balance Sheet	201012	201112	201212	201312	201412	201512	201612	201712
Cash	13630	9983	14778	18898	18347	16549	12918	10715
Marketable Securities	21345	34643	33310	39819	46048	56517	73415	91156
Receivables	5002	6172	8585	9390	11556	13909	14232	18705
Inventory			505.00	426.00			268.00	749.00
Raw Materials			77.00	115.00				
Work in Progress								
Finished Goods			428.00	311.00				
Notes Receivable								
Other Current Assets	1585	1960	3276	4353	4734	3139	4575	2983
Total Current Assets	**41562**	**52758**	**60454**	**72886**	**80685**	**90114**	**105408**	**124308**
Property, Plant & Equipment	11771	14400	17697	23837	32746	40146	47527	59647
Accumulated Depreciation	4012	4797	5843	7313	8863	11130	13293	17264
Net Property, Plant & Equipment	7759	9603	11854	16524	23883	29016	34234	42383
Investment & Advances	523.00	790.00	1469	1976	3079	5183	5878	7813
Other non-current Assets								
Deferred Charges	265.00					251.00	383.00	680.00
Intangibles	7300	8924	18010	17558	20206	19716	19775	19439
Deposits & other assets	442.00	499.00	2011	1976	3280	3181	1819	2672
TOTAL ASSETS	**57851**	**72574**	**93798**	**110920**	**131133**	**147461**	**167497**	**197295**
Notes Payable	3465	1218	2549	3009	2009	3225		
Accounts Payable	483.00	588.00	2012	2453	1715	1931	2041	3137
Current Portion of Long-term Debt								
Current Portion of Capital Leases								
Accrued Expenses	3256	4356	6968	7986	9455	10636	13062	18733
Income Taxes Payable	37.00	197.00	240.00	24.00	96.00	302.00	554.00	881.00
Other Current Liabilities	2755	2554	2568	2436	3530	3216	1099	1432
Total Current Liabilities	**9996**	**8913**	**14337**	**15908**	**16805**	**19310**	**16756**	**24183**
Mortgages								
Deferred Charges (taxes/income)	35.00	331.00	1972	2086	2075	340.00	428.00	770.00
Convertible Debt								
Long Term Debt		2986	2988	2236	3228	1995	3935	3969
Non-Current Capital Leases								
Other Long-Term Liabilities	1579	2199	2786	3381	4525	5485	7342	15871
TOTAL LIABILITIES	**11610**	**14429**	**22083**	**23611**	**26633**	**27130**	**28461**	**44793**
Minority Interest (liabilities)								
Preferred Stock								
Common Stock, Net	0.32	0.33	0.33	0.34	0.68	0.69	0.69	0.69
Capital Surplus	18235	20264	22835	25922	28766	32981	36306	40246
Retained Earnings	27868	37605	48342	61262	75706	89223	105131	113247
Treasury Stock								
Other Liabilities	138.00	276.00	538.00	125.00	27.00	-1874	-2402	-992.00
SHAREHOLDERS' EQUITY	**46241**	**58145**	**71715**	**87309**	**104500**	**120331**	**139036**	**152502**
TOTAL LIABILITES & SHAREHOLDERS	**57851**	**72574**	**93798**	**110920**	**131133**	**147461**	**167497**	**197295**

ANNUAL FINANCIALS (All numbers in millions)

Income Statement	201012	201112	201212	201312	201412	201512	201612	201712
Net Sales or Revenues	29321	37905	50175	59825	66001	74989	90272	110855
Cost of Goods Sold	10417	13188	20634	25858	25691	28164	35138	45583
Gross Profit	18904	24717	29541	33967	40310	46825	55134	65272
Research & Development Expense	3762	5162	6793	7952	9832	12282	13948	16625
Selling, General, & Admin. Expense	4761	7813	9988	12049	13982	15183	17470	22501
Income Before Deprec.,Depletion,Amort.	10381	11742	12760	13966	16496	19360	23716	26146
Depreciation,Depletion,Amortization								
Non-Operating Income	415.00	584.00	626.00	530.00	763.00	291.00	434.00	1047
Interest Expense								
Pretax Income	10796	12326	13386	14496	17259	19651	24150	27193
Provision for Income Taxes	2291	2589	2598	2282	3331	3303	4672	14531
Minority Interest								
Investment Gains (Losses)								
Other Income								
Income Before Extraordinaries & Disc	8505	9737	10788	12214	13928	16348	19478	12662
Extraordinary Items & Discontinued			-51.00	706.00	516.00			
Net Income	**8505**	**9737**	**10737**	**12920**	**14444**	**16348**	**19478**	**12662**
EPS - Basic, net	13.35	15.09	16.41	19.41	21.37	23.11	28.32	18.27
EPS - Diluted, net	13.16	14.88	16.16	19.07	21.02	22.84	27.85	18.00
EPS - Diluted, before non-recurring items			33.88	36.32	20.76	22.84	27.85	32.05

Cash Flow Statement	201012	201112	201212	201312	201412	201512	201612	201712
Net Income (Cash Flow)	8505	9737	10737	12920	14444	16348	19478	12662
Depreciation,Depletion,Amortization-CF	1396	1851	2962	3939	4979	5063	6144	6915
Net Increase (decrease) in	-99.00	630.00	898.00	-31.00	364.00	-409.00	3300	9246
Cash from (used in) Discontinued								
Other Adjustments - Net	1279	2347	2022	1831	2589	5022	7114	8268
Net Cash from (used by) Operating	**11081**	**14565**	**16619**	**18659**	**22376**	**26024**	**36036**	**37091**
(increase) Decrease in Prop,Plant,&	-4018	-3438	-3273	-7358	-10959	-9915	-9972	-13085
Acquisition/disposition of subsidiaires,othr	-1067	-1900	-10568	1077	-4502	-236.00	-986.00	-287.00
Increase (decrease) in investments	-7956	-13349	1119	-7099	-6997	-13210	-17779	-19448
Other Cash inflow from investment	2361	-354.00	-334.00	-299.00	1403	-350.00	-2428	1419
Net Cash from (used by) invesment	**-10680**	**-19041**	**-13056**	**-13679**	**-21055**	**-23711**	**-31165**	**-31401**
Issuance (purchase) of equity shares	-801.00					-1780	-3693	-4046
Issuance (repayment) of debt securities		726.00	1328	-557.00	-18.00	-23.00	-1335	-86.00
Increase (decrease) in bank & other	3463							
Payment of dividends & other cash								
Other cash from (used by) financing	388.00	81.00	-99.00	-300.00	-1421	-1874	-3304	-4166
Net Cash from (used by) Financing	**3050**	**807.00**	**1229**	**-857.00**	**-1439**	**-3677**	**-8332**	**-8298**
Effect of Exchange Rate Changes on	-19.00	22.00	3.00	-3.00	-433.00	-434.00	-170.00	405.00
Net Change in Cash & Cash Equivalents	3432	-3647	4795	4120	-551.00	-1798	-3631	-2203
Cash & Equivalents at beginning of year	10198	13630	9983	14778	18898	18347	16549	12918
Cash & Equivalents at year end	13630	9983	14778	18898	18347	16549	12918	10715

Rating and Forecast Report

ALPHABET INC-C (NSDQ: GOOG)

Report Date: Jul 23, 2018

QUARTERLY FINANCIALS (All numbers in millions)

Balance Sheet	201606	201609	201612	201703	201706	201709	201712	201803
Cash	13627	9406	12918	18132	15711	10581	10715	12658
Marketable Securities	64833	73650	73415	74307	79002	89562	91156	90227
Receivables	12762	12395	14232	12969	14877	15577	18705	16814
Inventory		559.00	268.00	280.00	398.00	765.00	749.00	636.00
Raw Materials								
Work in Progress								
Finished Goods								
Notes Receivable								
Other Current Assets	3016	2536	4575	3106	2398	2860	2983	3426
Total Current Assets	**94238**	**98546**	**105408**	**108794**	**112386**	**119345**	**124308**	**123761**
Property, Plant & Equipment	43904	46094	47527	50321	53341	56358	59647	67801
Accumulated Depreciation	12491	13341	13293	14385	15665	16238	17264	18956
Net Property, Plant & Equipment	31413	32753	34234	35936	37676	40120	42383	48845
Investment & Advances	5820	5705	5878	6131	6642	7269	7813	10976
Other non-current Assets								
Deferred Charges	253.00	273.00	383.00	365.00	376.00	505.00	680.00	678.00
Intangibles	19293	19395	19775	19684	19537	19614	19439	20671
Deposits & other assets	3275	3276	1819	1846	2004	2683	2672	2004
TOTAL ASSETS	**154292**	**159948**	**167497**	**172756**	**178621**	**189536**	**197295**	**206935**
Notes Payable	2219							1329
Accounts Payable	1716	2175	2041	2306	2488	2674	3137	3526
Current Portion of Long-term Debt								
Current Portion of Capital Leases								
Accrued Expenses	10256	11054	13062	10999	14838	16529	18733	17600
Income Taxes Payable	185.00	171.00	554.00	803.00	133.00	221.00	881.00	1343
Other Current Liabilities	2965	923.00	1099	1148	1226	1269	1432	1596
Total Current Liabilities	**17341**	**14323**	**16756**	**15256**	**18685**	**20693**	**24183**	**25394**
Mortgages								
Deferred Charges (taxes/income)	802.00	562.00	428.00	927.00	714.00	497.00	770.00	709.00
Convertible Debt								
Long Term Debt	1984	3938	3935	3937	3955	3964	3969	3973
Non-Current Capital Leases								
Other Long-Term Liabilities	6286	7022	7342	7687	6981	7282	15871	16034
TOTAL LIABILITIES	**26413**	**25845**	**28461**	**27807**	**30335**	**32436**	**44793**	**46110**
Minority Interest (liabilities)								
Preferred Stock								
Common Stock, Net	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.70
Capital Surplus	34292	35336	36306	37697	38508	39608	40246	41486
Retained Earnings	94737	99798	105131	109420	111505	118237	113247	120008
Treasury Stock								
Other Liabilities	-1151	-1032	-2402	-2169	-1728	-746.00	-992.00	-670.00
SHAREHOLDERS' EQUITY	**127879**	**134103**	**139036**	**144949**	**148286**	**157100**	**152502**	**160825**
TOTAL LIABILITES & SHAREHOLDERS	**154292**	**159948**	**167497**	**172756**	**178621**	**189536**	**197295**	**206935**

QUARTERLY FINANCIALS (All numbers in millions)

Income Statement	201606	201609	201612	201703	201706	201709	201712	201803
Net Sales or Revenues	21500	22451	26064	24750	26010	27772	32323	31146
Cost of Goods Sold	8130	8699	10661	9795	10373	11148	14267	13467
Gross Profit	13370	13752	15403	14955	15637	16624	18056	17679
Research & Development Expense	3363	3596	3622	3942	4172	4205	4306	5039
Selling, General, & Admin. Expense	4039	4389	5142	4445	7333	4637	6086	5639
Income Before Deprec.,Depletion,Amort.	5968	5767	6639	6568	4132	7782	7664	7001
Depreciation,Depletion,Amortization								
Non-Operating Income	151.00	278.00	218.00	251.00	245.00	197.00	354.00	3542
Interest Expense								
Pretax Income	6119	6045	6857	6819	4377	7979	8018	10543
Provision for Income Taxes	1242	984.00	1524	1393	853.00	1247	11038	1142
Minority Interest								
Investment Gains (Losses)								
Other Income								
Income Before Extraordinaries & Disc	4877	5061	5333	5426	3524	6732	-3020	9401
Extraordinary Items & Discontinued								
Net Income	**4877**	**5061**	**5333**	**5426**	**3524**	**6732**	**-3020**	**9401**
EPS - Basic, net	7.11	7.36	7.73	7.85	5.09	9.71	-4.38	13.53
EPS - Diluted, net	7.00	6.78	8.05	7.73	5.01	9.57	-4.31	13.33
EPS - Diluted, before non-recurring items	7.00	7.25	7.56	7.73	5.01	9.57	9.70	9.93

Cash Flow Statement	201606	201609	201612	201703	201706	201709	201712	201803
Net Income (Cash Flow)	9084	14145	19478	5426	8950	15682	12662	9401
Depreciation,Depletion,Amortization-CF	2861	4457	6144	1503	3128	4889	6915	1986
Net Increase (decrease) in	1087	2724	3300	-79.00	205.00	-81.00	9246	1065
Cash from (used in) Discontinued								
Other Adjustments - Net	3746	5297	7114	2698	4668	6333	8268	-810.00
Net Cash from (used by) Operating	**16778**	**26623**	**36036**	**9548**	**16951**	**26823**	**37091**	**11642**
(increase) Decrease in Prop,Plant,&	-4551	-6908	-9972	-2467	-5285	-8796	-13085	-7269
Acquisition/disposition of subsidiaires,othr	-72.00	-324.00	-986.00	-101.00	-143.00	-273.00	-287.00	-1250
Increase (decrease) in investments	-8432	-16803	-17779	-1033	-6014	-16777	-19448	673.00
Other Cash inflow from investment	-363.00	-2428	-2428	750.00	1419	1419	1419	
Net Cash from (used by) invesment	**-13418**	**-26463**	**-31165**	**-2851**	**-10023**	**-24427**	**-31401**	**-7846**
Issuance (purchase) of equity shares	-3693	-3693	-3693	-647.00	-2265	-1945	-4046	-2173
Issuance (repayment) of debt securities	-1048	-1322	-1335	-18.00	-56.00	-64.00	-86.00	1313
Increase (decrease) in bank & other								
Payment of dividends & other cash								
Other cash from (used by) financing	-1610	-2425	-3304	-1009	-2093	-3111	-4166	-1158
Net Cash from (used by) Financing	**-6351**	**-7440**	**-8332**	**-1674**	**-4414**	**-5120**	**-8298**	**-2018**
Effect of Exchange Rate Changes on	69.00	137.00	-170.00	191.00	279.00	387.00	405.00	165.00
Net Change in Cash & Cash Equivalents	-2922	-7143	-3631	5214	2793	-2337	-2203	1943
Cash & Equivalents at beginning of year	16549	16549	16549	12918	12918	12918	12918	10715
Cash & Equivalents at year end	13627	9406	12918	18132	15711	10581	10715	12658

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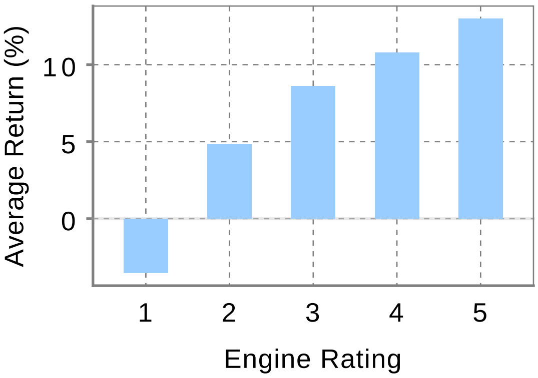
For additional information about ValuEngine's financial research and financial modeling, please click www.valuengine.com

Engine Rating and Average Annual Return

(Jan 2002 - Jun 2018)



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July 23, 2018

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Alphabet, Inc. (a.k.a. Google)

Accelerating Net Revenue Growth Driven by Mobile Search and Cloud Momentum

What You Need to Know

- Consolidated net revenue beat the Street estimate by 2%, driven by mobile search and Cloud. Net revenue growth of 25% is the strongest year-over-year growth rate since the second quarter of 2014.
- Excluding the impact of the European Commission fine, operating margin would have been 24% (in line with the Street).
- Sites TAC rate increased about 180 basis points year-over-year (exhibiting slowed growth). Network Members TAC rate decreased about 90 basis points year-over-year. Total TAC rate declined sequentially for the second consecutive quarter.
- GAAP EPS of $11.75 (excluding the EC fine) were well above the consensus estimate of $9.69.
- Management commented that it was too early to discuss any effects from GDPR.

Stock Thoughts. Shares of Alphabet are up about 3%-4% in the aftermarket after the company reported a quarter in which the top line exceeded Street estimates and EPS *would have* beat by roughly 20% excluding the one-time European Commission fine. The company continues to post healthy growth across its key business lines, including mobile search, YouTube, and Cloud. As management expected, the growth in Sites TAC as a percentage of Sites revenue decreased after the first quarter. In the first quarter, Sites TAC as a percentage increased by about 280 basis points year-over-year, while in the second quarter, the increase was just 180 basis points.

We believe that shares have roughly 15% to 20% of upside over the next 12 months based on our sum-of-the-parts EPS valuation framework (please ask your William Blair salesperson for a valuation model). We anticipate that YouTube, Other Google, and Core Search/Display (ex. YouTube) will drive the stock, in order of magnitude, over the near term. We maintain our Outperform rating.

Stock Rating:	**Outperform**

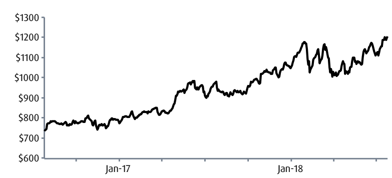
Symbol:	GOOG (NYSE)
Price	$1,205.50 (52-Wk.: $903.40-$1,206.49)
Market Value (M):	$839,178
Dividend/Yield:	$0.00/0.00%
Fiscal Year End:	December

	2017A	2018E	2019E
Estimates			
Sales (B) FY	$89.2	$109.5	$129.7
EBITDA (B) FY	$40.7	$46.2	$60.6
EPS FY	$27.85	$39.33	$46.63
Valuation			
EV/Sales	8.5x	6.9x	5.8x
FY P/E	43.3x	30.6x	25.9x

Trading Data (FactSet)	
Shares Outstanding (M):	694.6
Float (M):	648.6
Avg. Daily Volume (90-day):	1,687,009

Financial Data (FactSet)	
Book Value Per Share (MRQ):	$231.42
Return on Equity (TTM):	10.9%
Enterprise Value (M):	$756,334

Two-Year Price Performance Chart



Sources: FactSet, William Blair & Company estimates

Alphabet, Inc. is a leading provider of web search services and content through Google.com and the Google network, which consists of hundreds of thousands of third-party sites. With an internationally recognized brand name that is synonymous with internet search, Google's mission is to organize the world's information and make it universally accessible and useful. The company generates revenue by delivering highly targeted paid search listings through its AdWords system and relevant contextual advertisements on the Google network through its AdSense program.

Key Details:

- ***Management bullish on Google Cloud.*** On the call, management stated that the company continues to invest in businesses that are growing rapidly, *most notably* Cloud. Additionally, growth in sales-and-marketing expenses in the quarter was primarily related to headcount for Cloud. Management also added that the most sizable headcount increases during the quarter were in Cloud for both technical and sales roles. This investment in Cloud-related personnel leads us to believe the business is performing well. Last, management highlighted that this week's Google Cloud Next event will have more than 20,000 attendees, up from 2,000 at Google's Cloud conference in 2016. We note that management highlighted recent key wins including Domino's Pizza (DPZ $271.75), SoundCloud, and PricewaterhouseCoopers.

- ***Color on cost of revenues and operating expenses.*** Total TAC as a percentage of advertising revenue increased year-over-year, due to changes in partner agreements and the ongoing shift to mobile. Network TAC rate declined year-over-year due to a shift within the programmatic business. Management expects Sites TAC as a percentage of revenue to increase moving forward, however at a more moderate pace relative to the rate of increase in the past few quarters.

  Cost of revenues excluding TAC was up 41% year-over-year, driven by Google-related expenses associated with data centers, depreciation, and content acquisition costs (YouTube). Sales-and-marketing expenses grew by 30%, primarily due to headcount for Cloud (followed by advertising investments in Cloud and Google Assistant).

- ***GDPR.*** When asked in the Q&A portion of the call, Google CEO responded that "it's too early to tell" in terms of any impacts of the GDPR rollout.

Second-quarter Results

Alphabet Inc.
Second-Quarter Earnings Summary
(millions except per share amounts)

	2Q 2018 Actual Results	Consensus Estimates[1]	Beat / (Miss) vs. Consensus
Consolidated Financials			
Google Websites Revenue	$23,262	$22,870	Beat; $392
Year-over-year Growth	*26.3%*	*24.1%*	
Network Revenue	$4,825	$4,770	Beat; $55
Year-over-year Growth	*13.6%*	*12.3%*	
Other Google Revenue	$4,425	$4,400	Beat; $25
Year-over-year Growth	*36.5%*	*35.8%*	
Other Bets Segment Revenue	$145	$176	Miss; ($31)
Year-over-year Growth	*49.5%*	*81.2%*	
Total Gross Revenue	**$32,657**	**$32,220**	**Beat; $437**
Year-over-year Growth	*25.6%*	*23.9%*	
Traffic Acquisition Cost	$6,420	$6,600	Beat; $180
Net Revenue	**$26,237**	**$25,630**	**Beat; $607**
Year-over-year Growth	*25.4%*	*22.5%*	
GAAP Operating Income	$2,807	$7,850	Miss; ($5,043)
Margin	*8.6%*	*24.4%*	
GAAP EPS	**$4.54** [2]	**$9.69**	**Miss; ($5.15)**
Capital Expenditures	$5,477	$4,190	
Operating Metrics (Y/Y Growth)			
Paid Clicks (Google Properties)	58%	49%	**Beat**
CPC (Google Properties)	-22%	-16%	**Miss**
Impressions (Network Members)	1%	2%	Miss
CPM (Network Members)	14%	16%	Miss

1. Consensus estimates may not sum as some analysts do not publish segmented models / estimates.
2. Excluding the impact of the European Commission fine, GAAP EPS would have been $11.75.

Sources: FactSet, StreetAccount, Alphabet, Inc., and William Blair & Company, L.L.C.

Segment Reporting

The Google segment includes core businesses such as search ads, DoubleClick, YouTube, Google Play, Apps, Cloud, Android, Chrome, Maps, virtual reality, and hardware (such as Nest, Chromecast, and Chromebooks).

The Other Bets segment includes products and projects generally in earlier stages, such as Google Fiber, Calico, Verily, GV, CapitalG, Waymo, Google X, and other initiatives. It no longer includes Nest as of the first quarter of 2018.

- Revenue from Other Bets was $145 million in the quarter (up 49% year-over-year), primarily driven by Fiber and Verily. These two businesses drove growth in the prior two quarters as well.

- Waymo highlights include an expanded partnership with Fiat Chrysler to add up to 62,000 minivans to its self-driving fleet, as well as over 8 million fully autonomous miles (up from 5 million last quarter).

Alphabet Inc.
Segment Reporting Summary
(dollars in millions)

	Quarterly									Fiscal Year		
	2Q 2016	3Q 2016	4Q 2016	1Q 2017	2Q 2017	3Q 2017	4Q 2017	1Q 2018	2Q 2018	2015	2016	2017
Core Google												
Gross Revenue	$21,315	$22,254	$25,802	$24,618	$25,913	$27,655	$32,192	$30,996	$32,512	$74,541	$89,463	$110,378
Operating Expenses	$14,325	$15,480	$17,919	$17,172	$18,249	$19,073	$23,597	$22,628	$23,553	$51,194	$61,571	$78,091
GAAP Operating Income	**$6,990**	**$6,774**	**$7,883**	**$7,446**	**$7,664**	**$8,582**	**$8,595**	**$8,368**	**$8,959**	**$23,347**	**$27,892**	**$32,287**
Operating Margin %	*33%*	*30%*	*31%*	*30%*	*30%*	*31%*	*27%*	*27%*	*28%*	*31%*	*31%*	*29%*
Other Bets												
Gross Revenue	$185	$197	$262	$132	$97	$117	$131	$150	$145	$448	$809	$477
Operating Expenses	$1,040	$1,058	$1,350	$835	$730	$767	$879	$721	$877	$3,934	$4,387	$3,211
GAAP Operating Loss	**($855)**	**($861)**	**($1,088)**	**($703)**	**($633)**	**($650)**	**($748)**	**($571)**	**($732)**	**($3,486)**	**($3,578)**	**($2,734)**
Operating Margin %	*(462%)*	*(437%)*	*(415%)*	*(533%)*	*(653%)*	*(556%)*	*(571%)*	*(381%)*	*(505%)*	*(778%)*	*(442%)*	*(573%)*

Sources: Alphabet, Inc. and William Blair & Company, L.L.C.

Estimates. Following Alphabet's second-quarter results, we are making the following changes to our estimates:

Alphabet Inc.
Fiscal Year Estimate Changes
(millions except per share amounts)

	Old WB Estimate	New WB Estimate	Change ($)	*Change (%)*
Fiscal 2018 Net Revenue	**$107,904**	**$109,521**	**$1,617**	***1.5%***
Year-over-year Growth	*21.0%*	*22.8%*		
Fiscal 2018 GAAP EPS	**$44.00**	**$39.33**	**($4.67)**	***(10.6%)***
Year-over-year Growth	*144.5%*	*118.6%*		
Fiscal 2019 Net Revenue	**$126,760**	**$129,652**	**$2,891**	***2.3%***
Year-over-year Growth	*17.5%*	*18.4%*		
Fiscal 2019 GAAP EPS	**$48.51**	**$46.63**	**($1.88)**	***(3.9%)***
Year-over-year Growth	*10.3%*	*18.6%*		

Source: William Blair & Company, L.L.C.

Our earnings model is included on the following page.

Income Statement	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	1Q Mar-18	2Q Jun-18	3QE Sep-18	4QE Dec-18	Fiscal 2018E	1QE Mar-19	2QE Jun-19	3QE Sep-19	4QE Dec-19	Fiscal 2019E
Google Segment Revenue - Gross	65,674,000	74,541,000	89,463,000	110,378,000	30,996,000	32,512,000	33,814,211	38,805,725	136,127,936	37,988,292	39,128,360	39,516,995	44,150,311	160,783,957
Less: Traffic Acquisition Costs	(13,498,000)	(14,343,000)	(16,793,000)	(21,672,000)	(6,288,000)	(6,420,000)	(6,799,804)	(7,754,128)	(27,261,932)	(7,676,570)	(7,855,521)	(7,777,130)	(8,672,131)	(31,981,352)
Google Segment Total Net Revenue	**$52,176,000**	**$60,198,000**	**$72,670,000**	**$88,706,000**	**$24,708,000**	**$26,092,000**	**$27,014,407**	**$31,051,596**	**$108,866,003**	**$30,311,721**	**$31,272,839**	**$31,739,864**	**$35,478,180**	**$128,802,605**
% y / y growth	*20.7%*	*15.4%*	*20.7%*	*22.1%*	*23.6%*	*25.3%*	*21.9%*	*20.6%*	*22.7%*	*22.7%*	*19.9%*	*17.5%*	*14.3%*	*18.3%*
Other Bets Segment Revenue	**327,000**	**448,000**	**809,000**	**477,000**	**150,000**	**145,000**	**169,650**	**189,950**	**654,600**	**202,500**	**188,500**	**220,545**	**237,438**	**848,983**
% y / y growth	*2625.0%*	*37.0%*	*80.6%*	*N/A*	*13.6%*	*49.5%*	*45.0%*	*45.0%*	*37.2%*	*35.0%*	*30.0%*	*30.0%*	*25.0%*	*29.7%*
Alphabet Consolidated Revenue - Gross	**$66,001,000**	**$74,989,000**	**$90,272,000**	**$110,855,000**	**$31,146,000**	**$32,657,000**	**$33,983,861**	**$38,995,675**	**$136,782,536**	**$38,190,792**	**$39,316,860**	**$39,737,540**	**$44,387,749**	**$161,632,940**
Alphabet Consolidated Revenue - Net	**$52,503,000**	**$60,646,000**	**$73,479,000**	**$89,183,000**	**$24,858,000**	**$26,237,000**	**$27,184,057**	**$31,241,546**	**$109,520,603**	**$30,514,221**	**$31,461,339**	**$31,960,409**	**$35,715,618**	**$129,651,587**
% y / y growth	*21.4%*	*15.5%*	*21.2%*	*21.4%*	*23.5%*	*25.4%*	*22.1%*	*20.7%*	*22.8%*	*22.8%*	*19.9%*	*17.6%*	*14.3%*	*18.4%*
Gross Margin - Alphabet														
Other costs of revenue	12,193,000	13,821,000	18,345,000	23,911,000	7,179,000	7,463,000	7,596,304	9,592,936	31,831,240	8,993,744	9,181,541	9,081,093	11,141,325	38,397,703
% of total revenue	*18.5%*	*18.4%*	*20.5%*	*21.7%*	*23.0%*	*22.9%*	*22.4%*	*24.6%*	*23.4%*	*23.5%*	*23.4%*	*22.9%*	*25.1%*	*23.9%*
% y / y growth	*25.3%*	*13.4%*	*32.7%*	*30.3%*	*39.0%*	*41.3%*	*34.5%*	*22.7%*	*33.1%*	*25.3%*	*23.0%*	*19.5%*	*16.1%*	*20.6%*
Total cost of revenue (including TAC)	25,691,000	28,164,000	35,138,000	45,583,000	13,467,000	13,883,000	14,396,108	17,347,065	59,093,172	16,670,314	17,037,062	16,858,223	19,813,456	70,379,055
Gross Profit - Alphabet	**40,310,000**	**46,825,000**	**55,134,000**	**65,272,000**	**17,679,000**	**18,774,000**	**19,587,753**	**21,648,610**	**77,689,363**	**21,520,477**	**22,279,798**	**22,879,316**	**24,574,293**	**91,253,885**
Gross Margin	*61.1%*	*62.4%*	*61.1%*	*58.9%*	*56.8%*	*57.5%*	*57.6%*	*55.5%*	*56.8%*	*56.3%*	*56.7%*	*57.6%*	*55.4%*	*56.5%*
Operational Expenditures - Alphabet														
Research and development	9,832,000	12,282,000	13,948,000	16,625,000	5,039,000	5,114,000	5,130,100	5,167,200	20,450,300	6,046,800	6,034,520	6,002,217	5,993,952	24,077,489
% of total revenue	*14.9%*	*16.4%*	*15.5%*	*15.0%*	*16.2%*	*15.7%*	*15.1%*	*13.3%*	*15.0%*	*15.8%*	*15.3%*	*15.1%*	*13.5%*	*14.9%*
% y / y growth	*37.8%*	*24.9%*	*13.6%*	*19.2%*	*27.8%*	*22.6%*	*22.0%*	*20.0%*	*23.0%*	*20.0%*	*18.0%*	*17.0%*	*16.0%*	*17.7%*
Sales and marketing	8,131,000	9,047,000	10,485,000	12,893,000	3,604,000	3,780,000	3,893,760	5,085,800	16,363,560	4,324,800	4,384,800	4,594,637	5,543,522	18,847,759
% of total revenue	*12.3%*	*12.1%*	*11.6%*	*11.6%*	*11.6%*	*11.6%*	*11.5%*	*13.0%*	*12.0%*	*11.3%*	*11.2%*	*11.6%*	*12.5%*	*11.7%*
% y / y growth	*24.1%*	*11.3%*	*15.9%*	*23.0%*	*36.3%*	*30.5%*	*28.0%*	*18.0%*	*26.9%*	*20.0%*	*16.0%*	*18.0%*	*9.0%*	*15.2%*
General and administrative	5,851,000	6,136,000	6,985,000	6,872,000	2,035,000	2,002,000	1,786,400	1,953,600	7,777,000	2,238,500	2,202,200	1,965,040	2,148,960	8,554,700
% of total revenue	*8.9%*	*8.2%*	*7.7%*	*6.2%*	*6.5%*	*6.1%*	*5.3%*	*5.0%*	*5.7%*	*5.9%*	*5.6%*	*4.9%*	*4.8%*	*5.3%*
% y / y growth	*32.0%*	*4.9%*	*13.8%*	*-1.6%*	*13.0%*	*17.8%*	*12.0%*	*10.0%*	*13.2%*	*10.0%*	*10.0%*	*10.0%*	*10.0%*	*10.0%*
Total operating expenses	**23,814,000**	**27,465,000**	**31,418,000**	**36,390,000**	**10,678,000**	**10,896,000**	**10,810,260**	**12,206,600**	**44,590,860**	**12,610,100**	**12,621,520**	**12,561,894**	**13,686,434**	**51,479,948**
% of total revenue	*36.1%*	*36.6%*	*34.8%*	*32.8%*	*34.3%*	*33.4%*	*31.8%*	*31.3%*	*32.6%*	*33.0%*	*32.1%*	*31.6%*	*30.8%*	*31.8%*
% y / y growth	*31.4%*	*15.3%*	*14.4%*	*15.8%*	*27.3%*	*24.3%*	*22.3%*	*17.5%*	*22.5%*	*18.1%*	*15.8%*	*16.2%*	*12.1%*	*15.4%*
European Commission Fine	0	0	0	2,736,000	0	5,071,000	0	0	5,071,000	0	0	0	0	0
GAAP Operating Income	**16,496,000**	**19,360,000**	**23,716,000**	**26,146,000**	**7,001,000**	**2,807,000**	**8,777,493**	**9,442,010**	**28,027,503**	**8,910,377**	**9,658,278**	**10,317,423**	**10,887,859**	**39,773,937**
GAAP Operating Margin	*25.0%*	*25.8%*	*26.3%*	*23.6%*	*22.5%*	*8.6%*	*25.8%*	*24.2%*	*20.5%*	*23.3%*	*24.6%*	*26.0%*	*24.5%*	*24.6%*
Interest and other income (expense)	763,000	291,000	434,000	1,047,000	3,542,000	1,408,000	100,000	100,000	5,150,000	100,000	100,000	100,000	100,000	400,000
Income before taxes	17,259,000	19,651,000	24,150,000	27,193,000	10,543,000	4,215,000	8,877,493	9,542,010	33,177,503	9,010,377	9,758,278	10,417,423	10,987,859	40,173,937
Operating margin	*26.1%*	*26.2%*	*26.8%*	*24.5%*	*33.9%*	*12.9%*	*26.1%*	*24.5%*	*24.3%*	*23.6%*	*24.8%*	*26.2%*	*24.8%*	*24.9%*
Tax expense	3,639,000	3,303,000	4,672,000	14,531,000	1,142,000	1,020,000	1,597,949	1,717,562	5,477,511	1,621,868	1,756,490	1,875,136	1,977,815	7,231,309
Tax rate	*21.1%*	*16.8%*	*19.3%*	*53.4%*	*10.8%*	*24.2%*	*18.0%*	*18.0%*	*16.5%*	*18.0%*	*18.0%*	*18.0%*	*18.0%*	*18.0%*
GAAP Net Income, Continuing Operations	13,620,000	16,348,000	19,478,000	12,662,000	9,401,000	3,195,000	7,279,544	7,824,449	27,699,993	7,388,510	8,001,788	8,542,287	9,010,044	32,942,628
Net income (loss) from discontinued operations	516,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Adjustment Payment to Class C Stockholders	0	522,000	0	0	0	0	0	0	0	0	0	0	0	0
GAAP Net Income	**14,136,000**	**15,826,000**	**19,478,000**	**12,662,000**	**9,401,000**	**3,195,000**	**7,279,544**	**7,824,449**	**27,699,993**	**7,388,510**	**8,001,788**	**8,542,287**	**9,010,044**	**32,942,628**
Profit Margin	***21.5%***	***21.2%***	***21.8%***	***11.5%***	***30.3%***	***9.8%***	***21.5%***	***20.2%***	***20.3%***	***19.4%***	***20.5%***	***21.6%***	***20.4%***	***20.5%***
Diluted GAAP EPS (as calculated)	**$20.57**	**$22.84**	**$27.85**	**$18.00**	**$13.33**	**$4.54**	**$10.34**	**$11.10**	**$39.33**	**$10.47**	**$11.33**	**$12.09**	**$12.74**	**$46.63**
Fully Diluted Shares Outstanding	687,070	692,930	698,705	703,584	705,134	703,247	703,950	704,654	704,246	705,359	706,064	706,770	707,477	706,418
Adjusted EBITDA Calculation														
GAAP Operating Income	16,496,000	19,360,000	23,716,000	26,146,000	7,001,000	2,807,000	8,777,493	9,442,010	28,027,503	8,910,377	9,658,278	10,317,423	10,887,859	39,773,937
Stock-Based Compensation	4,175,000	5,203,000	6,703,000	7,679,000	2,457,000	2,413,000	2,363,000	2,413,000	9,646,000	2,913,000	2,713,000	2,713,000	2,763,000	11,102,000
SBC as % of Revenue	*6.3%*	*6.9%*	*7.4%*	*6.9%*	*7.9%*	*7.4%*	*7.0%*	*6.2%*	*7.1%*	*7.6%*	*6.9%*	*6.8%*	*6.2%*	*6.9%*
Depreciation & amortization	4,979,000	5,063,000	6,144,000	6,915,000	1,986,000	2,114,000	2,189,000	2,239,000	8,528,000	2,314,000	2,389,000	2,464,000	2,539,000	9,706,000
Adjusted EBITDA	**25,650,000**	**29,626,000**	**36,563,000**	**40,740,000**	**11,444,000**	**7,334,000**	**13,329,493**	**14,094,010**	**46,201,503**	**14,137,377**	**14,760,278**	**15,494,423**	**16,189,859**	**60,581,937**
% y / y growth	*17.7%*	*15.5%*	*23.4%*	*11.4%*	*13.5%*	*-5.5%*	*17.3%*	*22.2%*	*13.4%*	*23.5%*	*101.3%*	*16.2%*	*14.9%*	*31.1%*
Adjusted EBITDA margin	*38.9%*	*39.5%*	*40.5%*	*36.8%*	*36.7%*	*22.5%*	*39.2%*	*36.1%*	*33.8%*	*37.0%*	*37.5%*	*39.0%*	*36.5%*	*37.5%*

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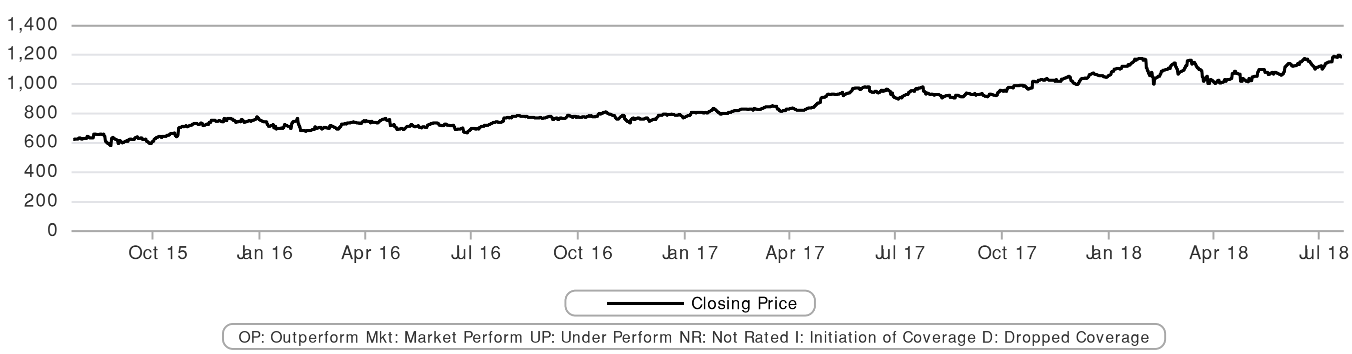
DOW JONES: 25058.10
S&P 500: 2801.83
NASDAQ: 7820.20

Alphabet, Inc. (a.k.a. Google) Rating History as of 07/21/2018
powered by: BlueMatrix



Source: FactSet & William Blair

Additional information is available upon request.

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Coverage Universe	**Percent**	**Inv. Banking Relationships ***	**Percent**
Outperform (Buy)	66	Outperform (Buy)	21
Market Perform (Hold)	32	Market Perform (Hold)	11
Underperform (Sell)	1	Underperform (Sell)	0

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Deutsche Bank
Research

Rating
Buy

North America
United States

TMT
Internet

Company
Alphabet Inc.

Reuters	Bloomberg	Exchange	Ticker
GOOG.OQ	GOOG UW	NMS	GOOG

Date
19 July 2018

Forecast Change

Price at 19 Jul 2018 (USD)	1,199.10
Price target	1,350.00
52-week range	1,198.80 - 906.66

GOOG 2Q18 Preview

Valuation & Risks

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Key takeaway

We are bullish on Alphabet shares over the medium and long term, though we view 2Q results as slightly tricky. We expect strong ex-FX Sites revenue growth (21.7%), slowing Sites TAC deleverage (32bps less than 1Q with a call option on further improvement), and we see approaching Waymo commercialization as all boding well for Google look out over the next year. While we expect margins to continue to be under pressure y/y, we see the deleverage likely to improve from 1Q levels over the course of the year on the back of TAC improvements and comping through the step-up in marketing investments. Things get tricky on revenue, where Factset consensus for $22.9B in Google Sites revenue does not appear to reflect recent FX moves, muting the potential for revenue upside, in our view. We are comfortable with our slightly below-Factset top and bottom line estimates, where we look for Sites revenue ex-FX growth of 21.7%, or $22.7B, slightly below consensus of $22.9B and GAAP EPS of $9.28 (vs Factset of $9.67), though our estimates do not include any investment gains, and the latest Lyft investment round could add $0.20-0.30 to GAAP EPS net of performance fees. We would view incremental disclosure around GCP and/or YouTube as positive, but not something we expect this quarter. We see Alphabet as well positioned, inexpensive, and a grind-higher type of name with an improving story around slower deleverage and a potential catalyst around Waymo. We reiterate our BUY rating and increase our PT to $1,350 (from $1,225) as we roll our target to a 2019/2020 blend.

Street estimates achievable; Attractive setup up for FAANG laggard

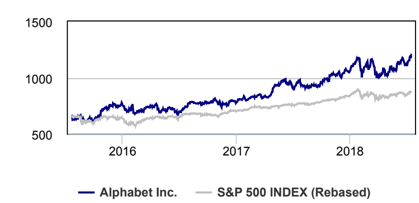
On an equal weighted basis, FAANG (FB, AMZN, AAPL, NFLX, GOOG) is up ~38% YTD, driven by outsized AMZN (+55%) and NFLX (+90%) gains while the balance of FAANG is up low-high teens. We see this as an indication that sentiment for large-cap growth remains healthy and believe there could be relative value to be found at Alphabet. Specifically, GOOG's relative YTD underperformance could begin to dissipate to the extent margin declines moderate and Waymo commercialization approaches. Despite less of an FX tailwind than we previously modeled, we increase our ex-FX assumptions on the back of healthy trends in core Search, mobile and at YouTube, where comps ease. We look for Sites revenue growth ex-FX of 21.7% Y/Y (from 20.2%), or $22.7B, a 140bps deceleration from 23.1% last quarter (on a 110bps easier comp). We look for a 1.3ppt tailwind from FX (from an 3.4ppt estimate previously). Street estimates imply 22.8% ex-FX growth in Google Sites revenue (or $22.9B). With regards to GAAP operating income, we are modeling 110bps of sequential margin, primarily driven by 50bps

Key changes

Price target	1,225.00 to 1,350.00	↑	10.2%

Source: Deutsche Bank

Price/price relative



Performance (%)	1m	3m	12m
Absolute	1.9	11.5	23.9
S&P 500 INDEX	1.5	3.9	14.4

Source: Deutsche Bank

of sequential gross margin leverage and 40bps of sequential G&A leverage. Finally, we expect a sequential increase in R&D expense associated with 2Q18, including a full quarter of acquired HTC engineers (closed in late Jan), and for sales and marketing to show 150bps of deleverage in the quarter as they continue to invest in the Hardware business.

Where we are focused on the call

On the call, we are focused around (1) any update on the TAC outlook, (2) an update on how the company might address EU concerns around Android, (3) an update on the impact of GDPR, (4) incremental color around GCP, YouTube and the hardware segment, and (5) an update on Waymo's progress towards commercial viability.

Valuation/Risks

We increase our price target to $1,350 (from $1,225) as we roll our valuation from 2019 estimates to an equal weighted blend of our 2019/2020 estimates. We maintain our valuation multiples as follows: 25x GAAP EPS, 14x EBITDA and 4% FCF yield. Downside risks include competition, reliance on partners for distribution (especially in mobile), regulatory scrutiny, GDPR regulation taking effect, ongoing margin declines, faster growth from lower margin businesses, product failure potential, and macroeconomic slowing.

Key indicators (FY1)

ROE (%)	17.3
ROA (%)	13.9
Net debt/equity (%)	-7.0
Book value/share (USD)	108.38
Price/book (x)	11.1
Net interest cover (x)	–
EBIT margin (%)	32.4

Source: Deutsche Bank

Stock & option liquidity data

Market Cap (USDm)	843,596.9
Shares outstanding (m)	1,407.1
Free float (%)	–
Volume (19 Jul 2018)	526,698
Option volume (und. shrs., 1M avg.)	4,086,868

Source: Deutsche Bank

Forecasts and ratios

Year End Dec 31	2016A	2017E	2018E
1Q EPS	7.50	9.68A	12.37
2Q EPS	8.42	11.09A	12.11
3Q EPS	9.06	11.31A	12.53
4Q EPS	9.42	9.70A	13.38
FY EPS (USD)	34.39	41.78	50.39
P/E (x)	21.6	28.7	23.8
DPS (USD)	0.00	0.00	0.00
Dividend yield (%)	0.0	0.0	0.0
Revenue (USDm)	73,479.0	89,183.0	106,742.5

Source: Deutsche Bank estimates, company data

Estimate Changes

We are adjusting our estimates largely to reflect a reduced FX tailwind and increase our ex-FX assumptions on the back of healthy trends in core Search, mobile and at YouTube.

Figure 1: Alphabet - Estimate Changes ($M)

	2Q18E				2018E				2019E				2020E			
	New Est.	Old	Delta	Street	New	Old Est.	Delta	Street	New	Old Est.	Delta	Street	New	Old Est.	Delta	Street
Google Web Sites (gross)	$22,676	$22,774	-0.4%	22,868	$95,086	$95,185	-0.1%	95,512	$112,714	$111,233	1.3%	113,869	$130,139			131,521
Google Network	$4,623	$4,520	2.3%	4,771	$19,533	$19,429	0.5%	19,799	$21,036	$20,718	1.5%	21,906	$22,563			23,941
Total Gross Ad Revenue	$27,299	$27,294	0.0%	27,639	$114,619	$114,614	0.0%	115,312	$133,751	$131,951	1.4%	135,775	$152,702			155,462
y/y growth	*20.4%*	*20.4%*	0.0%		*20.2%*	*20.2%*	0.0%		*16.7%*	*15.1%*	1.6%		*14.2%*			
Total Google Website Revenue	$22,676	$22,774	-0.4%	22,868	$95,086	$95,185	-0.1%		$112,714	$111,233	1.3%		$130,139			
TAC	$6,493	$6,430	1.0%	6,596	$27,535	$27,472	0.2%	27,620	$32,941	$32,475	1.4%	32,677	$38,164			38,147
Net Ad Revs ex TAC	**$20,806**	**$20,864**	**-0.3%**	**21,043**	**$87,084**	**$87,142**	**-0.1%**	**87,691**	**$100,810**	**$99,476**	**1.3%**	**103,098**	**$114,537**			**117,315**
Licensing & Other Revs	$4,201	$4,007	4.9%	4,399	$18,310	$17,985	1.8%	20,014	$22,692	$21,978	3.2%	25,355	$28,594			31,374
Core Google Net Revs (ex TAC)	**$25,008**	**$24,871**	**0.6%**		**$105,394**	**$105,127**	**0.3%**		**$123,501**	**$121,454**	**1.7%**		**$143,132**			
Google Sites Y/Y ex-FX	***21.7%***	***20.2%***	**1.5%**		***21.3%***	***19.6%***	**1.7%**		***17.3%***	***16.2%***	**1.1%**		***15.5%***			
Other Bets	$310	$310	0.0%	176	$1,349	$1,349	0.0%	772	$1,686	$1,686	0.0%	963	$2,107			1,210
Total Alphabet Gross Revs	**$31,810**	**$31,610**	**0.6%**		**$134,278**	**$133,948**	**0.2%**		**$158,128**	**$155,615**	**1.6%**		**$183,403**			
Total Alphabet Net Revs (ex TAC)	**$25,318**	**$25,181**	**0.5%**		**$106,742**	**$106,476**	**0.3%**		**$125,187**	**$123,139**	**1.7%**		**$145,239**			
Alphabet COGS	$6,878	$6,754	1.8%		$29,683	$29,468	0.7%		$36,462	$35,664	2.2%		$44,098			
Alphabet Gross Profit	$18,439	$18,427	0.1%		$77,059	$77,008	0.1%		$88,726	$87,475	1.4%		$101,141			
Margins	*72.8%*	*73.2%*	*-35 bps*		*72.2%*	*72.3%*	*-13 bps*		*70.9%*	*71.0%*	*-16 bps*		*69.6%*			
Total Operating Expense	$17,994	$17,815	1.0%		$76,155	$75,834	0.4%		$89,298	$87,718	1.8%		$105,002			
Alphabet GAAP EBIT	**$7,324**	**$7,365**	**-0.6%**	7,848	**$30,587**	**$30,642**	**-0.2%**	34,409	**$35,889**	**$35,422**	**1.3%**	40,245	**$40,237**			40,245
Alphabet PF EBIT	**$9,805**	**$9,833**	**-0.3%**		**$40,510**	**$40,540**	**-0.1%**		**$46,754**	**$46,109**	**1.4%**		**$52,696**			
Core GOOG PF EBIT	$10,605	$10,633	0%		$44,324	$44,354	0%		$50,154	$49,509	1%		$56,096			
Core GOOG EBITDA Margin	*42.4%*	*42.8%*	*-35 bps*		*42.1%*	*42.2%*	*-14 bps*		*40.6%*	*40.8%*	*-15 bps*		*39.2%*			
Other Bets PF EBIT	-$800	-$800	0%		(3,814)	(3,814)	0%	(3,580)	(3,400)	(3,400)	0%	(3,646)	(3,400)			(3,646)
Alphabet EBITDA (ex SBC)	**$11,890**	**$11,918**	**-0.2%**	12,162	**$49,078**	**$49,108**	**-0.1%**	50,372	**$57,123**	**$56,478**	**1.1%**	59,582	**$64,946**			68,677
Core GOOG PF EBITDA	$12,575	$12,603	0%		$52,462	$52,492	0%		$60,063	$59,418	1%		$67,886			
Core GOOG EBITDA Margin	*50.3%*	*50.7%*	*-39 bps*		*49.8%*	*49.9%*	*-15 bps*		*48.6%*	*48.9%*	*-29 bps*		*47.4%*			
Y/Y Margin Delta	***-3.9%***	***-3.5%***	***-39 bps***		***-3.0%***	***-2.9%***	***-15 bps***		***-1.1%***	***-1.0%***	***-13 bps***		***-1.2%***			
Other Bets PF EBITDA	-$685	-$685	0%		-$3,384	-$3,384	0%		-$2,940	-$2,940	0%		-$2,940			
Interest & Other Income, net	$510	$377	35.1%		$5,212	$4,852	7.4%		$2,651	$2,254	17.6%		$3,386			
Tax Rate	15.3%	15.3%	00 bps		14.0%	14.0%	01 bps		15.0%	15.0%	00 bps		15.0%			
Proforma EPS	**$12.11**	**$11.99**	**1.0%**	$11.60	**$50.39**	**$50.00**	**0.8%**	$49.91	**$57.98**	**$56.75**	**2.2%**	$56.76	**$65.31**			$67.34
GAAP EPS	**$9.40**	**$9.29**	**1.2%**	$9.69	**$43.63**	**$43.26**	**0.8%**	$44.29	**$46.18**	**$45.15**	**2.3%**	$47.96	**$51.89**			$56.66
Free cash flow	$5,419	$5,292	2.4%	$4,909	$26,128	$25,844	1.1%	$26,363	$35,305	$34,377	2.7%	$34,789	$41,774			$45,384
Capex	$4,247	$4,247	0.0%	$4,194	$20,883	$20,883	0.0%	$20,593	$21,255	$21,255	0.0%	$20,646	$23,380			$22,526

Source: Deutsche Bank estimates & Factset

EPS upside from the recent Lyft round?

In light of ASU 2016-01, Alphabet is required to include unrealized gains on non-marketable equity securities in Other Income & Expenses (previously included in AOCI) when a transaction occurs. We believe that street EPS estimates likely fail to include the impact of the recent Lyft fund round ($600M at a post money valuation of $15.1B, per press reports). While we do not know exactly what CapitalG's share of the $1.5B round was, which they led in December 2017 at an $11.5B valuation, yielding them a seat on the board, we can look to other deals that CapitalG has led in the ridesharing space for guidance.

In 2013, CapitalG invested $258M into Uber at a $3.76B post money valuation in a $361M round where they also picked up a board seat. So if we assume that CapitalG accounted for 50-75% of the $1.5B round and the Lyft valuation has appreciated 29% since the last round, we can see our way to 2.1-3.2% upside to our current 2Q18 GAAP earnings estimate.

Figure 2: EPS upside from Lyft investment

	A	B	C	Comments
CapitalG led Lyft round	$1,500	$1,500	$1,500	
(*) CapitalG's share of round	50%	65%	75%	DB Est
CapitalG investment in Lyft	$750	$975	$1,125	Invested @ $11.5B post money valuation
(*) Lyft valuation appreciation since last round	29%	29%	29%	Current round $15.1B; most recent round in March @ $11.7B
Current value of CapitalG's Lyft investment	**$968**	**$1,258**	**$1,452**	
Current value of CapitalG's Lyft investment	$968	$1,258	$1,452	From above
(-) Initial investment in Lyft	$750	$975	$1,125	From above
(-) CapitalG performance fees	$44	$57	$65	DB Est: 20% performance fee
Unrealized gain in Lyft Investment	**$174**	**$227**	**$262**	
(-) Taxed @ corporate statutory rate (20%)	$35	$45	$52	
Upside to 2Q18 GAAP Earnings	**$139**	**$181**	**$209**	
% Upside to DB 2Q18 GAAP Earnings est.	**2.1%**	**2.7%**	**3.2%**	
Upside to 2Q18 GAAP EPS	**$0.20**	**$0.26**	**$0.30**	

Source: Deutsche Bank estimates

Valuation

We increase our price target to $1,350 (from $1,225) as we roll our valuation from 2019 estimates to an equal weighted blend of our 2019/2020 estimates. We maintain our valuation multiples as follows: 25x GAAP EPS, 14x EBITDA and 4% FCF yield.

Figure 3: Alphabet - Valuation ($M)

Alphabet Inc. -- Valuation Worksheet
(in millions except per share amounts)

Current Price	$1,199.10
Shares Outstanding	705.1
Current Market Cap	845,526
Net debt (cash)	(97,902)
Adj. Enterprise Value	747,624

Price to Earnings	**2017**	**2018E**	**2019E**	**2020E**
GAAP EPS	$32.00	$43.63	$46.18	$51.89
Current P/E multiple	37.5x	27.5x	26.0x	23.1x
Target Multiple	**25.0x**	**25.0x**	**25.0x**	**25.0x**
Implied Stock Price on fwd. EPS	**$801**	**$1,093**	**$1,156**	**$1,299**

EV to EBITDA	**2017**	**2018E**	**2019E**	**2020E**
Adjusted EBITDA	43,476	49,078	57,123	64,946
Current EV/EBITDA Multiple	17.2x	15.2x	13.1x	11.5x
Target Multiple	**14.0x**	**14.0x**	**14.0x**	**14.0x**
Enterprise Value	610,403	689,057	802,013	911,836
Plus FY End Net Cash	97,902	120,763	156,135	197,980
Equity Value	708,305	809,819	958,149	1,109,816
FY End Projected Sharecount	703.5	705.6	709.3	714.5
Implied Stock Price on fwd. EBITDA	**$1,007**	**$1,148**	**$1,351**	**$1,553**

FCF Yield	**2017**	**2018E**	**2019E**	**2020E**
FCF per Share (ex MMI post split)	$33.98	$37.03	$49.78	$58.46
P/FCF Multiple	35.3x	32.4x	24.1x	20.5x
Current FCF Yield	2.8%	3.1%	4.2%	4.9%
Target Yield	**4.0%**	**4.0%**	**4.0%**	**4.0%**
Implied Stock Price on FCF yield	**$860**	**$937**	**$1,260**	**$1,480**
Average	**$889**	**$1,059**	**$1,256**	**$1,444**
Target			**$1,350**	

Source: Deutsche Bank estimates & company reports

Risks

Key downside risks include competition, reliance on partners for distribution (especially in mobile), regulatory scrutiny, GDPR regulation taking effect, ongoing margin declines, faster growth from lower margin businesses, product failure potential, and macroeconomic slowing.

Figure 4: Alphabet - Income Statement ($M)

	FY2015A	FY2016A	1Q17A	2Q17A	3Q17A	4Q17A	FY2017A	1Q18A	2Q18E	3Q18E	4Q18E	FY2018E	1Q19E	2Q19E	3Q19E	4Q19E	FY2019E	FY2020E
Consolidated Net Revenue	**60,646**	**73,479**	**20,121**	**20,919**	**22,270**	**25,873**	**89,183**	**24,858**	**25,318**	**26,501**	**30,066**	**106,742**	**28,539**	**29,938**	**31,318**	**35,392**	**125,187**	**145,239**
Gross Revenue	74,989	90,272	24,750	26,010	27,772	32,323	110,855	31,146	31,810	33,327	37,994	134,278	36,066	37,707	39,498	44,858	158,128	183,403
Google Web Sites Revenue	52,357	63,785	17,403	18,425	19,723	22,237	77,788	21,998	22,676	23,847	26,566	95,086	26,078	26,879	28,269	31,489	112,714	130,139
Google Network Web Sites Revenue	15,033	15,598	4,008	4,247	4,342	4,990	17,587	4,644	4,623	4,726	5,540	19,533	5,013	4,977	5,086	5,961	21,036	22,563
TAC	14,343	16,793	4,629	5,091	5,502	6,450	21,672	6,288	6,493	6,826	7,929	27,535	7,527	7,768	8,180	9,466	32,941	38,164
Licensing & Other Revenue	7,599	10,889	3,339	3,338	3,707	5,096	15,480	4,504	4,511	4,754	5,889	19,659	4,975	5,850	6,143	7,409	24,378	30,702
Alphabet Net Revenue	60,646	73,479	20,121	20,919	22,270	25,873	89,183	24,858	25,318	26,501	30,066	106,742	28,539	29,938	31,318	35,392	125,187	145,239
Cost of Net Revenues	13,015	17,188	4,842	4,942	5,328	7,481	22,593	6,783	6,878	6,984	9,039	29,683	8,133	8,564	8,696	11,069	36,462	44,098
Gross Profit	47,631	56,291	15,279	15,977	16,942	18,392	66,590	18,075	18,439	19,518	21,027	77,059	20,406	21,374	22,622	24,323	88,726	101,141
Operating Expenses:																		
Product Development	9,604	10,641	2,948	3,187	3,303	3,399	12,837	3,824	4,018	4,085	4,044	15,972	4,429	4,753	4,826	4,758	18,767	21,884
Sales and Marketing	8,156	9,407	2,319	2,580	2,751	4,009	11,659	3,206	3,502	3,937	4,658	15,303	3,609	4,066	4,574	5,395	17,645	20,111
General and Administrative	5,308	5,824	1,435	1,339	1,286	1,474	5,534	1,201	1,114	1,398	1,562	5,275	1,236	1,168	1,495	1,662	5,561	6,451
Stock Based Compensation	5,203	6,703	2,009	2,003	1,820	1,847	7,679	2,457	2,481	2,253	2,345	9,536	2,749	2,859	2,584	2,672	10,864	12,458
Other																		
Operating Expenses (ex. COGS, Stock Comp)	23,068	25,872	6,702	7,106	7,340	8,881	30,029	8,230	8,635	9,420	10,265	36,549	9,274	9,987	10,895	11,815	41,972	48,446
Total Operating Expenses	41,286	49,763	13,553	16,787	14,488	18,209	63,037	17,857	17,994	18,656	21,648	76,155	20,157	21,411	22,175	25,556	89,298	105,002
Income from Operations (GAAP)	19,360	23,716	6,568	4,132	7,782	7,664	26,146	7,001	7,324	7,845	8,417	30,587	8,382	8,528	9,143	9,836	35,889	40,237
Non -GAAP operating income	24,563	30,419	8,577	8,871	9,602	9,511	36,561	9,845	9,805	10,098	10,762	40,510	11,132	11,387	11,727	12,508	46,754	52,696
Depreciation & Amortization	5,063	6,144	1,503	1,625	1,761	2,026	6,915	1,986	2,085	2,193	2,304	8,568	2,415	2,528	2,650	2,777	10,370	12,250
EBITDA (inc SBC)	24,423	29,860	8,071	8,493	9,543	9,690	35,797	9,374	9,409	10,038	10,721	39,542	10,797	11,056	11,794	12,613	46,259	52,487
EBITDA - MMI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EBITDA - Consolidated	24,423	29,860	8,071	8,493	9,543	9,690	35,797	9,374	9,409	10,038	10,721	39,542	10,797	11,056	11,794	12,613	46,259	52,487
Impairment on equity investments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest income and other, net	291	434	251	245	197	354	1,047	3,542	510	554	607	5,212	601	637	689	724	2,651	3,386
Pretax Income	19,651	24,150	6,819	4,377	7,979	8,018	27,193	10,543	7,833	8,399	9,024	35,800	8,984	9,165	9,832	10,560	38,540	43,624
Provision for income taxes	3,303	4,672	1,393	853	1,247	1,181	4,674	1,142	1,201	1,288	1,384	5,016	1,348	1,375	1,475	1,584	5,781	6,544
Net Income Continuing Operations (GAAP)	16,348	19,478	5,426	3,524	6,732	6,837	22,519	9,401	6,632	7,111	7,640	30,784	7,636	7,790	8,357	8,976	32,759	37,080
Net Income (GAAP)	**15,826**	**19,478**	**5,426**	**3,524**	**6,732**	**6,837**	**22,519**	**9,401**	**6,632**	**7,111**	**7,640**	**30,784**	**7,636**	**7,790**	**8,357**	**8,976**	**32,759**	**37,080**
EPS (GAAP)	$22.83	$27.88	$7.73	$5.01	$9.57	$9.70	$32.00	$13.33	$9.40	$10.08	$10.82	$43.63	$10.80	$10.99	$11.77	$12.62	$46.18	$51.89
Diluted Shares Outstanding	693	699	702	704	704	705	704	705	705	706	706	706	707	709	710	711	709	715
Adjusted Net Income	20,435	24,031	6,797	7,802	7,957	6,837	29,394	8,723	8,542	8,846	9,446	35,556	9,753	9,991	10,346	11,034	41,125	46,673
Adjusted EPS	**$29.48**	**$34.39**	**$9.68**	**$11.09**	**$11.31**	**$9.70**	**$41.78**	**$12.37**	**$12.11**	**$12.53**	**$13.38**	**$50.39**	**$13.79**	**$14.10**	**$14.57**	**$15.51**	**$57.98**	**$65.31**
Adjusted EBITDA (ex SBC)	29,626	36,563	10,080	10,496	11,363	11,537	43,476	11,831	11,890	12,291	13,066	49,078	13,547	13,915	14,377	15,285	57,123	64,946
Adjusted EBITDA - Core Google	**32,811**	**39,644**	**10,848**	**11,200**	**12,065**	**12,353**	**46,466**	**12,960**	**12,575**	**12,976**	**13,951**	**52,462**	**14,232**	**14,600**	**15,062**	**16,170**	**60,063**	**67,886**
Adjusted EBITDA - Consolidated	**29,626**	**36,563**	**10,080**	**10,496**	**11,363**	**11,537**	**43,476**	**11,831**	**11,890**	**12,291**	**13,066**	**49,078**	**13,547**	**13,915**	**14,377**	**15,285**	**57,123**	**64,946**
Adjusted Income from Operations	**24,563**	**30,419**	**8,577**	**6,135**	**9,602**	**9,511**	**33,825**	**9,458**	**9,805**	**10,098**	**10,762**	**40,123**	**11,132**	**11,387**	**11,727**	**12,508**	**46,754**	**52,696**
Free Cash Metrics																		
Free Cash Flow	16,109	25,853	7,040	4,572	6,334	5,961	23,907	4,343	5,419	10,533	5,832	26,128	8,177	10,299	7,155	9,673	35,305	41,774
FCF per share	**$23.25**	**$37.01**	**$10.03**	**$6.50**	**$9.00**	**$8.46**	**$33.98**	**$6.16**	**$7.68**	**$14.93**	**$8.26**	**$37.03**	**$11.56**	**$14.53**	**$10.08**	**$13.60**	**$49.78**	**$58.45**
Margin Analysis																		
Gross Margin	78.5%	76.6%	75.9%	76.4%	76.1%	71.1%	74.7%	72.7%	72.8%	73.6%	69.9%	72.2%	71.5%	71.4%	72.2%	68.7%	70.9%	69.6%
Sales and Marketing as % of Net Revenue	13.4%	12.8%	11.5%	12.3%	12.4%	15.5%	13.1%	12.9%	13.8%	14.9%	15.5%	14.3%	12.6%	13.6%	14.6%	15.2%	14.1%	13.8%
Product Development as % of Net Revenue	15.8%	14.5%	14.7%	15.2%	14.8%	13.1%	14.4%	15.4%	15.9%	15.4%	13.5%	15.0%	15.5%	15.9%	15.4%	13.4%	15.0%	15.1%
General and Administrative as % of Net Revenue	8.8%	7.9%	7.1%	6.4%	5.8%	5.7%	6.2%	4.8%	4.4%	5.3%	5.2%	4.9%	4.3%	3.9%	4.8%	4.7%	4.4%	4.4%
Operating Margin (GAAP)	31.9%	32.3%	32.6%	19.8%	34.9%	29.6%	29.3%	28.2%	28.9%	29.6%	28.0%	28.7%	29.4%	28.5%	29.2%	27.8%	28.7%	27.7%
Operating Margin (Non GAAP)	40.5%	41.4%	42.6%	42.4%	43.1%	36.8%	41.0%	39.6%	38.7%	38.1%	35.8%	38.0%	39.0%	38.0%	37.4%	35.3%	37.3%	36.3%
EBITDA Margin - Core Google to Core Google Net Revs	**54.5%**	**54.6%**	**54.6%**	**54.2%**	**54.9%**	**48.5%**	**52.8%**	**52.5%**	**50.3%**	**49.7%**	**47.2%**	**49.8%**	**50.2%**	**49.4%**	**48.8%**	**46.5%**	**48.6%**	**47.4%**
Net Income (GAAP)	27.0%	26.5%	27.0%	16.8%	30.2%	26.4%	25.3%	37.8%	26.2%	26.8%	25.4%	28.8%	26.8%	26.0%	26.7%	25.4%	26.2%	25.5%
Adjusted Net Income	33.7%	32.7%	33.8%	37.3%	35.7%	26.4%	33.0%	35.1%	33.7%	33.4%	31.4%	33.3%	34.2%	33.4%	33.0%	31.2%	32.9%	32.1%
Adjusted EBITDA Margin	48.9%	49.8%	50.1%	50.2%	51.0%	44.6%	48.7%	47.6%	47.0%	46.4%	43.5%	46.0%	47.5%	46.5%	45.9%	43.2%	45.6%	44.7%
Effective Tax Rate	16.8%	19.3%	20.4%	19.5%	15.6%	14.7%	17.2%	10.8%	15.3%	15.3%	15.3%	14.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Pretax Income	32.4%	32.9%	33.9%	20.9%	35.8%	31.0%	30.5%	42.4%	30.9%	31.7%	30.0%	33.5%	31.5%	30.6%	31.4%	29.8%	30.8%	30.0%
Year Over Year Growth																		
Net Revenue	15.5%	21.2%	22.2%	19.4%	21.9%	22.0%	21.4%	23.5%	21.0%	19.0%	16.2%	19.7%	14.8%	18.3%	18.2%	17.7%	17.3%	16.0%
Gross Profit	16.6%	18.2%	18.9%	17.3%	20.4%	16.9%	18.3%	18.3%	15.4%	15.2%	14.3%	15.7%	12.9%	15.9%	15.9%	15.7%	15.1%	14.0%
Product Development	25.8%	10.8%	12.2%	21.5%	23.5%	25.2%	20.6%	29.7%	26.1%	23.7%	19.0%	24.4%	15.8%	18.3%	18.1%	17.7%	17.5%	16.6%
Sales and Marketing	10.0%	15.3%	8.1%	18.5%	21.3%	42.3%	23.9%	38.3%	35.7%	43.1%	16.2%	31.3%	12.6%	16.1%	16.2%	15.8%	15.3%	14.0%
General and Administrative	3.6%	9.7%	15.7%	-1.0%	-14.7%	-14.4%	-5.0%	-16.3%	-16.8%	8.7%	6.0%	-4.7%	2.9%	4.8%	7.0%	6.4%	5.4%	16.0%
Operating Expenses (ex. COGS, Stock Comp)	14.3%	12.2%	11.4%	15.5%	13.8%	22.4%	16.1%	22.8%	21.5%	28.3%	15.6%	21.7%	12.7%	15.7%	15.7%	15.1%	14.8%	15.4%
Operating Income (GAAP)	17.4%	22.5%	23.0%	-30.8%	34.9%	15.4%	10.2%	6.6%	77.2%	0.8%	9.8%	17.0%	19.7%	16.4%	16.5%	16.9%	17.3%	12.1%
Adjusted Net Income	18.3%	17.6%	29.5%	33.1%	25.8%	3.7%	22.3%	28.3%	9.5%	11.2%	38.2%	21.0%	11.8%	17.0%	17.0%	16.8%	15.7%	13.5%
Adjusted EPS	17.2%	16.7%	29.0%	31.8%	24.8%	3.0%	21.5%	27.8%	9.2%	10.9%	37.9%	20.6%	11.5%	16.4%	16.3%	16.0%	15.0%	12.7%
Adjusted Operating Margin	18.8%	23.8%	25.5%	-17.9%	25.9%	12.1%	11.2%	10.3%	59.8%	5.2%	13.2%	18.6%	17.7%	16.1%	16.1%	16.2%	16.5%	12.7%
FCF	45.0%	60.5%	34.6%	-34.7%	-13.1%	-5.9%	-7.5%	-38.3%	18.5%	66.3%	-2.2%	9.3%	88.3%	90.0%	-32.1%	65.8%	35.1%	18.3%
Gross Revenue Breakdown by Geography																		
Domestic	34,810	42,781	11,769	12,322	12,930	15,428	52,449	14,144	14,685	15,156	17,227	61,212	15,936	17,288	17,797	20,138	71,159	82,607
International	40,179	47,491	12,981	13,688	14,842	16,895	58,406	17,002	17,125	18,171	20,767	73,065	20,129	20,419	21,701	24,720	86,969	100,797

Source: Company reports & Deutsche Bank estimates

Appendix 1

Important Disclosures

*Other information available upon request

Disclosure checklist

Company	Ticker	Recent price*	Disclosure
Alphabet Inc.	GOOG.OQ	1186.96 (USD) 19 Jul 2018	2, 8, 14, 15

*Prices are current as of the end of the previous trading session unless otherwise indicated and are sourced from local exchanges via Reuters, Bloomberg and other vendors . Other information is sourced from Deutsche Bank, subject companies, and other sources. For disclosures pertaining to recommendations or estimates made on securities other than the primary subject of this research, please see the most recently published company report or visit our global disclosure look-up page on our website at https://research.db.com/Research/Disclosures/CompanySearch. Aside from within this report, important risk and conflict disclosures can also be found at https://research.db.com/Research/Topics/Equities?topicId=RB0002. Investors are strongly encouraged to review this information before investing.

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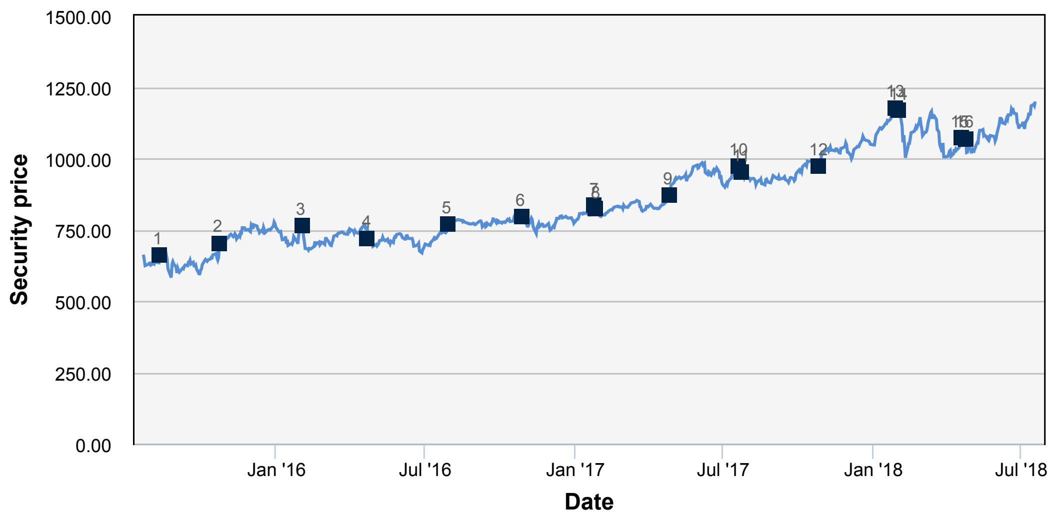
Historical recommendations and target price. Alphabet Inc. (GOOG.OQ)

(as of 07/18/2018)



Current Recommendations

Buy
Hold
Sell
Not Rated
Suspended Rating

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1.	08/11/2015	Buy, Target Price Change USD 840.00 Jay Samani**
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3.	02/02/2016	Buy, Target Price Change USD 1080.00 Jay Samani**
4.	04/22/2016	Buy, Target Price Change USD 1100.00 Jay Samani**
5.	07/29/2016	Buy, Target Price Change USD 1050.00 Jay Samani**
6.	10/28/2016	Buy, Target Price Change USD 1080.00 Jay Samani**
7.	01/25/2017	Buy, Target Price Change USD 1090.00 Lloyd Walmsley
8.	01/27/2017	Buy, Target Price Change USD 1100.00 Lloyd Walmsley
9.	04/26/2017	Buy, Target Price Change USD 1250.00 Lloyd Walmsley
10.	07/21/2017	Buy, Target Price Change USD 1258.00 Lloyd Walmsley
11.	07/25/2017	Buy, Target Price Change USD 1220.00 Lloyd Walmsley
12.	10/27/2017	Buy, Target Price Change USD 1225.00 Lloyd Walmsley
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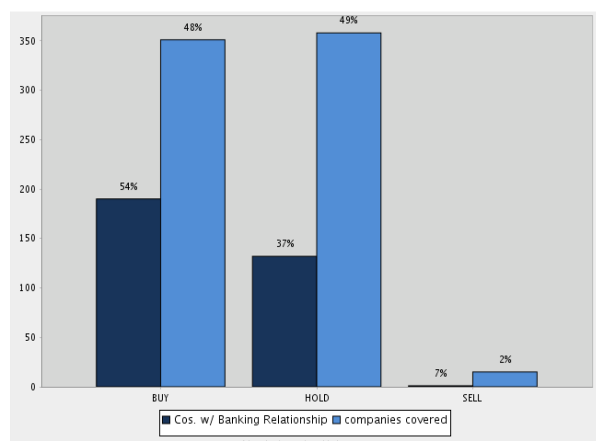

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July 20, 2018

United States

The U.S. market is in a Confirmed Uptrend. The S&P 500 and Nasdaq traded relatively flat this week, consolidating the last two weeks of gains. The S&P 500 now has four distribution days with two expiring next week, while the Nasdaq has six distribution days with three expiring next week. Leading ideas continue to show constructive action with multiple ideas hitting new highs despite sideways trade in the major averages. Earnings will continue to play a big role over the next few weeks, driving market direction. Thirty-percent of the U.S. Focus List reports next week, followed by 25% the week after. We maintain our positive view on the general market due to a declining distribution day count and good technical action in the major averages and leading ideas alike.

Stocks on our U.S. Focus List: Current Sentiment

Our USFL of 68 ideas gained 0.9% on average this week, outperforming the S&P 500 (+0.02%) and the Nasdaq (-0.07%).

Actionable Focus List ideas: Activision Blizzard (**ATVI**), Arista Networks (**ANET**), Calavo Growers (**CVGW**), Diamondback Energy (**FANG**), Fleetcor Technologies (**FLT**), Global Payments (**GPN**), Home Depot (**HD**), RingCentral (**RNG**), SS&C Technologies (**SSNC**), Unitedhealth (**UNH**), Worldpay (**WP**)

USFL ideas weekly earnings line-up:

Monday: Close: **GOOGL**, **ZION**

Wednesday: Open: **FLIR**, **GRUB**, **MKTX**, **NEP**; Close: **ALGN**, **MPWR**, **NOW**, **PYPL**, **V**, **VRTX**

Thursday: Open: **ABMD**, **MA**, **TAL**; Close: **AMZN**, **EW**, **SIVB**, **TEAM**

Friday: Open: **TYL**

By Sector

Health Care ideas on the U.S. Focus List led this week. **IDXX**, **ILMN**, **ALGN**, **PRAH**, **EW,** and **VRTX** are all trading at or near new highs. **UNH** pulled back post earnings, but found support at its 50-DMA. Banks also did well this week, though most just held the lower end of support levels and are now attempting to build the right side of new bases. **TCBI** and **WAL** reacted positively to earnings, while **ZION** and **SIVB** both report next week. After two solid weeks of gains, Software ideas held up well with a handful moving back into new highs. **ATVI**, **RNG,** and **SSNC** provided new buy points after breaking out of new bases, while **RP** and **PAYC** both regained their respective 50-DMA. Conversely, Energy ideas have lagged over the last few sessions. **FANG** remains above its 50-DMA, however, **WRD** and **CLR** are now trading more than 10% off highs and around their respective 100-DMA.

New Ideas or Deletions

We made no changes to the U.S. Focus List this week.

Developed Markets

Developed markets witnessed mixed trading action this week as 22 indices declined 0.1% on average. Nine markets are in a Confirmed Uptrend, including three in an Uptrend Under Pressure. Thirteen markets are in a Rally Attempt.

The iShares Developed Market Index (EFA) moved sideways throughout the week but ended with a 0.4% gain. The index is currently 2% and 3% below its 10-WMA and 40-WMA, respectively. It remains in Rally Attempt.

Key Developed Markets

EMEA

This week the Stoxx 600 was up 0.1%. It continues to trade above the 200-DMA and below the 50-DMA. It remains in a Rally Attempt. We continue to wait for a follow-through day, which would signal the start of a new uptrend. There was only one market status change this week: Sweden moved to a Rally Attempt on Monday.

Sixteen markets in the region lost 0.1% on average. Sweden (+1.3%), Netherland (+1.2%), Switzerland (+0.8%), and Denmark (+0.7%) led the rally, while Ireland (-2.0%), France (-1.3%), and Italy (-1.0%) declined the most.

- Retail sales in the U.K. declined 0.5% m/m in June and were well below market expectations of a 0.3% rise. This was mainly due to lower sales in clothing and footwear. However, for Q2 2018, sales climbed 2.1% q/q, the fastest pace since Q1 2004, suggesting the economy was on its way to recovery after a somewhat slow start to the year.
- Inflation in the U.K. for June was 2.4%, marginally lower than consensus estimates. Higher transport costs were offset by a decline in food and apparel prices along with lower costs for recreational and cultural items. Weekly wages, excluding bonuses, grew 2% in the three months ending in May, picking up from 1.7% in April and beating estimates of 1.9%. The unemployment rate was 4.2%, its lowest level since 1975. The Bank of England will hold its next monetary policy meeting August 2. Investors expect it to raise interest rates.
- The Rightmove House Price Index showed overall asking prices for homes in London declined 0.5% m/m in July.
- Core inflation in the eurozone in June, as measured by the CPI, was revised downward to 0.9% y/y, compared with prior estimates of 1% y/y.
- The IMF said that EU countries will likely lose about 1.5% of their annual economic output if the U.K. left the EU without any free-trade agreement in place. The loss could take five to ten years to fully take effect. These findings were the result of a revised study done by the IMF on the negative impact of Brexit on the U.K. and EU economies.

- Israel's economy expanded 4.7% y/y in Q1, higher than the previous estimate of 4.5% and accelerating from the upwardly revised 4.6% from the last quarter of 2017.

APAC

This week, APAC markets ended flat on average. Though a majority of the markets closed with gains, overall performance was weighed down by Hong Kong (-1.1%) and New Zealand (-0.7%). On the positive end, Singapore was the top performer with a gain of 1.1%.

- Hong Kong’s unemployment rate was unchanged at 2.8% in Q2, the same as the previous period and the lowest rate since 1998.
- Australia's ASX All Ordinaries Index gained 0.40% this week. It is trading 4.41% above its 40-WMA and is currently in a Confirmed Uptrend.
- Japan's trade surplus rose 66.5% to ¥721.4 B in June from ¥433.2 B in the year-ago period, and was ahead of market estimates of ¥534.2B.
- Japan's consumer prices rose 0.7 % y/y in June, less than consensus estimates of 0.8%.
- New Zealand’s consumer prices rose 1.5% y/y in the second quarter, slightly below consensus estimates of 1.6%.

Stocks on our Global Focus List for Developed Markets: Current Sentiment

For the trailing five-day period through Thursday (Asia's full week), the 65 ideas (no net weekly change) on our GFL DM were flat on average, in line with the EFA benchmark.

Weekly outperformers included the Netherlands – two stocks gained 6% on average; Germany – four stocks gained 5.5% on average; Italy – three stocks gained 2.6% on average; and Canada – five stocks gained 1.8% on average. Underperformers included Hong Kong – 13 stocks lost 3.3% on average; and Japan – 13 stocks lost 1.9% on average.

Stock Leaders included:

- Swedish Orphan Biovitrum (SOBI.SE): 13.6% gain, extended further into all-time highs
- Asml Holding (ASML.NL): 9.4% gain, trading near all-time highs
- Sixt (SIX2X.DE): 8.5% gain, reclaimed its 10-WMA
- Nemetschek (NEMX.DE): 8.2% gain, broke out of an eight-week double bottom
- Enn Energy (XINA.HK): 7.3% gain, all-time high weekly close

Actionable Developed Market Focus List ideas: Asahi Intecc (AS@H.JP), Asml (ASML.NL), Bapcor (BAP.AU), Basic-Fit (BFIT.NL), Benefit One (BONE.JP), Cochlear (COH.AU), Fast Retailing (RETA.JP), Nordic Semiconductor (NOD.NO), Rea (REA.AU), Straumann (STMN.CH), TDK Corporation (TD@N.JP)

Stock Laggards included:

- Sunny Optical Tech. (SOPT.HK): 10.5% loss, 22% off highs, at 200-DMA

- Kose (OSEC.JP): 12.5% loss, 19% off highs
- Zhongsheng Gp. (ZSG.HK): 9.8% loss, 37% off highs
- Aeon Fantasy (AEFA.JP): 7.3% loss, 29% off highs, removed from list

By Sector

Our GFL DM versus the iShares Developed Market Index is:

- Overweight – Technology, Consumer Cyclical/Retail, and Health Care.
- Underweight – Capital Equipment, Consumer Staple, Financial, Energy, Utility, and Basic Material.

New Ideas or Deletions

This week, we added Fast Retailing (RETA.JP) and TDK Corporation (TD@N.JP) and removed Smart Metering Systems (SMS.GB) and Aeon Fantasy (AEFA.JP) from the Focus List.

Emerging Markets

Twenty-four emerging markets declined 0.1% on average. Thirteen markets are in a Confirmed Uptrend, including four in an Uptrend Under Pressure. Ten markets are in a Rally Attempt, while one market is in a Downtrend.

The iShares Emerging Market Index (EEM) gained 0.3% this week after posting a 1% gain on Friday. It is still 15% off highs and remains in Rally Attempt, 2% below its 50-DMA.

Key Emerging Markets

APAC

APAC markets were mixed this week as nine indices gained 0.4% on average. Pakistan (+2.4%), Malaysia (+1.9%), and Thailand (+1.7%) were the top gainers, while Indonesia (-1.2%), South Korea (-0.9%), and China (-0.7%) were among the worst performers.

- China's economy grew 1.8% q/q in Q2, compared with a 1.4% expansion the previous quarter, beating consensus estimates of 1.6% growth. It grew 6.7% y/y in Q2.
- China's GDP expanded 6.7% y/y in Q2 2018, a slight pullback from 6.8% y/y growth registered in Q1 2018, while in line with consensus estimates. This is the slowest economic expansion witnessed since Q3 2016, due to the trade war with the U.S.
- India's WPI was at 5.77% y/y in June, higher than the 4.3% y/y registered in May and above consensus estimates of 4.93%.
- For June, Indonesia registered a trade surplus of $1.7B (+1.8% y/y), above consensus estimates of $0.65B. The increase was due to a slowdown in import growth to 12.6% y/y, compared with a 28.25% y/y surge in May.

- In June, Malaysia's CPI increased 0.8% y/y, lower than consensus estimates of 1.3%.

EMEA

Similar to their Asian peers, markets in EMEA displayed divergent trends. Ten markets in EMEA declined 1.1% on average, weighed down by a slump in Russia (-6.4%). Other laggards included Egypt (-2.9%) and Hungary (-1.8%). On the positive end, Turkey and Saudi Arabia gained 4.4% and 1%, respectively.

- Retail sales growth in Turkey eased to 4.6% y/y in May from an upwardly revised 8.2% in April. May's reading represented the weakest gain since November of last year.
- Inflation in South Africa climbed to 4.6% in June from 4.4% the previous month due to higher transportation prices. The reading, nevertheless, was below consensus expectations of 4.8%.

Americas

Emerging Americas markets traded mostly positive this week with five markets gaining 1.1% on average. Top gainers were Brazil (+3.4%), Peru (+1.1%), Chile (+0.8%), and Mexico (+0.7%), while only Columbia (-0.3%) closed in the red.

- Brazil's GDP is expected to expand 1.8% this year, down from previous views of +2.3%, according to updated estimates from the IMF. For 2019, the IMF's projection was unchanged at 2.5%. The IMF blamed the downward revision on more difficult prospects due to persistent effects of strikes, political uncertainty, and the depreciation in the Brazilian real.
- Brazil's inflation rate in mid-July likely rose above the midpoint of the central bank's 4.5% target for the first time in more than a year, according to a Reuters survey. Still, that is not expected to spur the central bank to raise interest rates any time soon, as inflation spiked primarily because of temporary factors such as a nationwide trucker strike and higher power rates. Consumer prices (IPCA index) likely increased 4.64% in the 12 months through mid-July, according to the median of 21 forecasts. That would be the fastest pace for inflation since the middle of March 2017.
- Mexico's Economy Minister Ildefonso Guajardo said that he would travel to Washington DC next week to hold bilateral trade talks with the U.S. and would later meet with Canadian officials. Guajardo, Mexico's top trade official, stated that the three countries were "resuming negotiations" on NAFTA.

Stocks on our Global Focus List for Emerging Markets: Current Sentiment

For the trailing five-day period through Thursday (Asia's full week), the 31 ideas (three additions) on our GFL EM lost 1.2% on average, underperforming the EEM benchmark index.

The one stock in Mexico gained 3.1%. Underperformers included South Korea – six stocks lost 3.4% on average; and South Africa – two stocks lost 3.1% on average.

Stock Leaders included:

- Berger Paints (BPI.IN): 3.4% gain, all-time high weekly close
- Banco Del Bajio (BJI.MX): 3.1% gain, all-time high weekly close

- Reliance Industries (REL.IN): 2.6% gain, all-time high weekly close

Actionable Emerging Markets Focus List ideas: Asian Paints (API.IN), Berger Paints (BPI.IN), Catcher (CTH.TW), HDFC (HFC.IN), Housing Development Fin. (HDF.IN), Ipca Laboratories (LAB.IN), Koh Young (KYX.KR), Kotak Mahindra Bank (KOK.IN), Maruti Suzuki (MUD.IN), Samsung Sdi (SCT.KR), Skc Kolon Pi (SKJ.KR), Sundram Fasteners (SMF.IN), Yes Bank (YEB.IN)

Stock Laggards included:

- Samsung Electro-Mechanics (SEM.KR): 7.4% loss, 8% off highs
- Edelweiss Fnsr. (EWC.IN): 6.0% loss, breached 40-WMA
- Kotak Mahindra Bank (KOK.IN): 5.1% loss, 5% off highs
- Jejuair (JJU.KR): 4.8% loss, 16% off highs

By Sector

Our GFL EM versus the iShares Emerging Market Index is:

- Overweight – Basic Materials, Capital Equipment/Transportation, Retail/Consumer Cyclical, Consumer Staple, and Financial.
- Underweight – Energy and Technology.
- Balanced – Health Care.

New Ideas or Deletions

This week, we added Housing Development Fin (HDF.IN), Yes Bank (YEB.IN), and Catcher Technology (CTH.TW) to the Focus List.

COWEN

Internet: Internet & New Media

ALPHABET

EQUITY RESEARCH

July 18, 2018

Price: $1,198.80 (07/17/2018)

Price Target: $1,350.00

OUTPERFORM (1)

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Key Data

Symbol	NASDAQ: GOOG
52-Week Range:	$1,203.04 - $903.40
Market Cap (MM):	$837,225.0
Net Debt (MM):	$(97,902.0)
Cash/Share:	NA
Dil. Shares Out (MM):	349.0
Enterprise Value (MM):	$739,642.0
ROIC:	30.1%
ROE (LTM):	17.9%
BV/Share:	NA
Dividend:	NA

FY (Dec)	2017A	2018E	2019E
Earnings Per Share			
Q1	$7.73	$13.33A	-
Q2	$5.01	$9.91	-
Q3	$9.57	$11.67	-
Q4	$(4.35)	$10.18	-
Year	$18.06	$45.09	$46.77
P/E	66.4x	26.6x	25.6x
Consensus EPS	$18.06	$43.89	$47.44

Consensus source: Thomson Reuters

Revenue (MM)			
Q1	$24,750.0	$31,146.0A	-
Q2	$26,010.0	$32,051.7	-
Q3	$27,772.0	$33,803.5	-
Q4	$32,323.0	$38,650.6	-
Year	$110,855.0	$135,651.7	$160,546.9
EV/S	6.7x	5.5x	4.6x

COMPANY UPDATE

GOOG FINED ~$5BN BY THE EUROPEAN COMMISSION; BUSINESS IMPACT LIKELY MINIMAL

THE COWEN INSIGHT

GOOG was fined ~$5BN by the EC for using Android to further increase its market dominance in Search, a finding that was largely expected and unlikely to impact the business going forward, in our view. Nonetheless we think the regulatory overhang in the EU could persist for several years given the EC's ongoing investigations and reviews of other parts of GOOG's biz.

GOOG Fined ~$5BN by The European Commission

Earlier today, the European Commission (EC) announced it had fined GOOG €4.34 billion (or ~5BN) for breaching EU antitrust rules relating to the company's use of the Android mobile operating system to strengthen its market dominant position in Search. In addition to the fine, GOOG has 90 days to cease from engaging in the 3 types of practices in question detailed below, essentially i) Mobile app bundling, ii) Incentives around pre-installed Mobile Search and finally iii) Blocking forked versions of Android. If GOOG fails to comply with the EC's ruling, it could be fined up to an additional 5% of GOOG's avg daily global revenue.

Today's announcement was largely as expected (see our 1/24/2018 note on European Policy Concerns, LINK) in our view and we believe the impact will be muted given that the EC's findings are a much delayed response to activities from as far back as '11/'12. Also, while Android's entrenchment in mobile may not have been assured several years ago, issues like pre-installation of Google apps are much less relevant now given Android's clear lead in Mobile. Given the reaction in GOOG shares, or lack thereof, following today's announcement, investors seemingly agree that the impact to GOOG's overall biz will likely be minimal. That said, GOOG announced it would report a 1x opex charge of $5.07BN in its 2Q results which will reduce GAAP net income and GAAP EPS by the full amount.

Long Pending EC Decision Targets Google's Mobile Practices

In reaching a decision in a case that was opened back in April '15, the EC Competition Policy Commissioner Margrethe Vestager affirmed Google's "dominance" (as defined by EU antitrust rules) in Search, Mobile OS, and Android App Stores as a basis for finding that Google circumvented competition rules in order to cement its position. The EC highlighted 3 practices that the Commissioner described as "restrictions that Google has imposed on Android device manufacturers and network operators" in order to drive search traffic, stating that Google acted illegally to cement its search dominance and essentially deprived European consumers of the benefits of competition.

Tying of apps: The EC found that GOOG required handset manufacturers to pre-install Google Search app and Chrome as a condition for accessing the Google Play Store. GOOG had argued that bundling Search & Browser apps was necessary to monetize its Android investment, which the EC felt was an unfounded argument. The Commission stated that the tying was illegal as of 2011, the date they determined Google became dominant in the Android app store market.

Incentives payments: The Commission also found that GOOG made payments to both device manufacturers and mobile network operators in return for exclusively pre-installing Google Search apps across their portfolio of Android devices (We note that GOOG actually ended this practice in '14, essentially rendering today's decision a moot point).

Please see pages 9 to 13 of this report for important disclosures.

AT A GLANCE

Our Investment Thesis

Our Outperform rating is founded on Google successfully extending its dominant desktop advertising position to mobile. Google is the best-positioned mobile advertising company, in our view, due to its leading mobile advertising revenue position, robust capabilities and traffic advantage relative to peers. Digital advertising is in the midst of a structural shift with traffic migrating from desktop to mobile devices; we expect ad dollars to soon follow. GOOG's mobile offering combined with its existing desktop advertising franchise results in a digital advertising powerhouse and yields a forecast of double-digit annual top-line growth and similar double-digit annual EBITDA growth over time.

Forthcoming Catalysts

We think earnings and evidence that recent product innovations have impacted financials could serve as a driver for the stock.

Base Case Assumptions

We currently forecast ~13% annual gross revenue growth '18-'23 and 13% annual net revenue growth '18-'23 and EBITDA growth of ~13% during that time as well.

Upside Scenario

Our forecast will be too conservative if GOOG gains meaningful market share, especially internationally, during the shift to mobile.

Downside Scenario

Our forecast will be too high if CPCs continue their year-on-year decline and are not offset by high paid clicks growth.

Price Performance

Source: Bloomberg

Company Description

Google's business is primarily focused around search, advertising, operating systems and platforms, enterprise and hardware products. The company generates revenue primarily by delivering online advertising. The company provides its products and services in more than 100 languages and in more than 50 countries, regions, and territories.

Analyst Top Picks

	Ticker	Price (07/17/2018)	Price Target	Rating
Amazon.com	AMZN	$1,843.93	$2,100.00	Outperform
Facebook	FB	$209.99	$235.00	Outperform

Obstruction of competing Android OS's: Google also prevented manufacturers from selling devices loaded with forked (non-approved) versions of Android, according to EC findings. The Commission focused on GOOG's efforts to prevent several large manufacturers from promoting devices based on Amazon's Fire OS, a version of Android that Amazon has customized for its own line of hardware products (particularly tablets). Google in turn argued to the EC that the OS restrictions were designed to prevent fragmentation of Android, which would introduce technical problems like software bugs.

Google Response: Android Offers Consumers Lower Cost iPhone Alternative

Following the EC's decision, CEO Sundar Pichai posted a response on the company's blog, highlighting GOOG's view that the EC ruling and fine largely ignore several market dynamics, such as iOS competition, affordability of handsets, or need to recoup Android investment. Specifically, Google underscored that Android provides "billions of consumers" with a lower cost smartphone option relative to Apple's iPhone handsets given the typically lower ASP of Android phones, and CEO Pichai also stated that the pre-installed apps on Android phones can simply be deleted by end users if they choose. Finally, in defense of Android's compatibility rules, the blog post notes that open-source platforms have to balance openness against the risk of fragmentation, which they argued hurts users, developers, and phone manufacturers. CEO Pichai announced the company's intentions to appeal the ruling.

European Regulatory Overhang Likely to Persist, In Our View

Despite the minimal impact of today's ruling, we believe the regulatory environment in Europe could remain an overhang for the foreseeable future given the ongoing antitrust investigations. As a reminder, the EC previously levied a ~$2.7BN fine related to Google Shopping last summer and continues to explore wrongdoing in other verticals such as Travel and Local, though we are unlikely to see other rulings this year, as we wrote in our Brussels meetings recap (LINK). EC Commissioner Vestager has made GOOG a priority since taking the helm in late '14.

GOOG Company Model

Figure 1 GOOG: Quarterly P&L 2017-2018E ($, MM)

	2017					2018E				
	1Q	**2Q**	**3Q**	**4Q**	**2017**	**1Q**	**2Q**	**3Q**	**4Q**	**2018E**
Google O&O Websites	$17,403.0	$18,425.0	$19,723.0	$22,237.0	$77,788.0	$21,998.0	$22,989.1	$24,278.6	$26,913.4	$96,179.2
+ Google Network Members' Websites	$4,008.0	$4,247.0	$4,342.0	$4,990.0	$17,587.0	$4,644.0	$4,742.5	$4,818.9	$5,386.8	$19,592.3
= Total Advertising Revenue	**$21,411.0**	**$22,672.0**	**$24,065.0**	**$27,227.0**	**$95,375.0**	**$26,642.0**	**$27,731.7**	**$29,097.5**	**$32,300.2**	**$115,771.4**
+ Other Revenue	$3,207.0	$3,241.0	$3,590.0	$4,965.0	$15,003.0	$4,354.0	$4,213.3	$4,577.3	$6,206.3	$19,350.8
= Total Google Revenue (Adv/Other)	**$24,618.0**	**$25,913.0**	**$27,655.0**	**$32,192.0**	**$110,378.0**	**$30,996.0**	**$31,945.0**	**$33,674.8**	**$38,506.5**	**$135,122.2**
+ Other Bets Revenue	$132.0	$97.0	$117.0	$131.0	$477.0	$150.0	$106.7	$128.7	$144.1	$529.5
= Total Consolidated Google Revenue	**$24,750.0**	**$26,010.0**	**$27,772.0**	**$32,323.0**	**$110,855.0**	**$31,146.0**	**$32,051.7**	**$33,803.5**	**$38,650.6**	**$135,651.7**
-TAC	$4,629.0	$5,091.0	$5,502.0	$6,450.0	$21,672.0	$6,288.0	$6,638.0	$7,027.0	$7,900.6	$27,853.6
= Net Revenues	**$20,121.0**	**$20,919.0**	**$22,270.0**	**$25,873.0**	**$89,183.0**	**$24,858.0**	**$25,413.6**	**$26,776.5**	**$30,750.0**	**$107,798.1**
- Other Cost of Revenue (x-TAC)	$4,841.9	$4,924.6	$5,327.5	$7,490.5	$22,584.6	$6,757.7	$6,891.1	$7,436.8	$9,662.6	$30,748.2
- Research & Development	$2,948.3	$3,221.7	$3,301.4	$3,379.9	$12,851.3	$3,747.1	$4,013.7	$4,116.2	$4,078.1	$15,955.1
- Sales & Marketing	$2,318.6	$2,560.5	$2,750.9	$4,011.7	$11,641.6	$3,181.0	$3,306.4	$3,636.6	$4,829.9	$14,953.9
- General & Administrative	$1,435.2	$1,341.2	$1,288.1	$1,479.9	$5,544.5	$1,714.2	$867.0	$875.0	$911.7	$4,368.0
= Operating Income Adjusted	**$8,577.0**	**$8,871.0**	**$9,602.0**	**$9,511.0**	**$36,561.0**	**$9,458.0**	**$10,335.5**	**$10,711.8**	**$11,267.6**	**$41,772.8**
- Stock-based Compensation	$2,009.0	$2,003.0	$1,820.0	$1,847.0	$7,679.0	$2,457.0	$2,253.4	$1,956.5	$1,985.5	$8,652.4
- European Commission Fine		$2,736.0			$2,736.0	$0.0	$0.0	$0.0	$0.0	$0.0
= Operating Income Reported	**$6,568.0**	**$4,132.0**	**$7,782.0**	**$7,664.0**	**$26,146.0**	**$7,001.0**	**$8,082.1**	**$8,755.3**	**$9,282.0**	**$33,120.4**
+ Interest (Expense) Income	$251.0	$245.0	$197.0	$354.0	$1,047.0	$3,542.0	$160.2	$150.2	$153.6	$4,006.1
= Pretax Income	**$6,819.0**	**$4,377.0**	**$7,979.0**	**$8,018.0**	**$27,193.0**	**$10,543.0**	**$8,242.3**	**$8,905.5**	**$9,435.7**	**$37,126.5**
- Adjusted Income Taxes	$1,995.7	$1,453.9	$1,793.0	$11,592.1	$16,834.7	$1,879.1	$1,953.6	$1,967.3	$2,058.2	$7,858.2
+ Stock-Based Compensation	$2,009.0	$2,003.0	$1,820.0	$1,847.0	$7,679.0	$2,457.0	$2,253.4	$1,956.5	$1,985.5	$8,652.4
= Net Income fom Cont. Ops	**$6,832.3**	**$4,926.1**	**$8,006.0**	**($1,727.1)**	**$18,037.3**	**$11,120.9**	**$8,542.1**	**$8,894.7**	**$9,363.0**	**$37,920.8**
+ Provision for Tax Adjustments	$602.7	$600.9	$546.0	$554.1	$2,303.7	$737.1	$676.0	$587.0	$595.7	$2,595.7
- Stock Based Compensation	$2,009.0	$2,003.0	$1,820.0	$1,847.0	$7,679.0	$2,457.0	$2,253.4	$1,956.5	$1,985.5	$8,652.4
= Net Income After Extraordinary Items	**$5,426.0**	**$3,524.0**	**$6,732.0**	**($3,020.0)**	**$12,662.0**	**$9,401.0**	**$6,964.8**	**$7,525.2**	**$7,973.1**	**$31,864.1**
- Discontinued Ops	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
= Net Income	**$5,426.0**	**$3,524.0**	**$6,732.0**	**($3,020.0)**	**$12,662.0**	**$9,401.0**	**$6,964.8**	**$7,525.2**	**$7,973.1**	**$31,864.1**
/ Diluted Shares Outstanding	702.0	703.5	703.7	694.6	701.0	705.1	706.1	707.1	708.1	706.6
= Diluted EPS (GAAP) Reported	**$7.73**	**$5.01**	**$9.57**	**($4.35)**	**$18.06**	**$13.33**	**$9.86**	**$10.64**	**$11.26**	**$45.09**
Proforma EPS x-Stock Comp	**$9.73**	**$7.00**	**$11.38**	**($2.49)**	**$25.73**	**$15.77**	**$12.10**	**$12.58**	**$13.22**	**$53.66**
Adjusted EBITDA	**$10,080.0**	**$10,496.0**	**$11,363.0**	**$11,537.0**	**$43,476.0**	**$11,444.0**	**$12,192.0**	**$12,727.5**	**$13,585.2**	**$49,948.6**
Adjusted EBITDA Margin	50.1%	50.2%	51.0%	44.6%	48.7%	46.0%	48.0%	47.5%	44.2%	46.3%
Y/Y % Change										
Google O&O Websites	21.5%	19.6%	22.6%	23.8%	22.0%	26.4%	24.8%	23.1%	21.0%	23.6%
+ Google Network Members' Websites	8.6%	13.5%	16.3%	12.6%	12.8%	15.9%	11.7%	11.0%	8.0%	11.4%
= Total Advertising Revenue	**18.8%**	**18.4%**	**21.4%**	**21.6%**	**20.1%**	**24.4%**	**22.3%**	**20.9%**	**18.6%**	**21.4%**
+ Other Revenue	54.9%	49.2%	47.6%	45.9%	48.9%	35.8%	30.0%	27.5%	25.0%	29.0%
= Total Google Revenue (Adv/Other)	**22.5%**	**21.6%**	**24.3%**	**24.8%**	**23.4%**	**25.9%**	**23.3%**	**21.8%**	**19.6%**	**22.4%**
+ Other Bets Revenue	(20.5)%	(47.6)%	(40.6)%	(50.0)%	(41.1)%	13.6%	10.0%	10.0%	10.0%	11.0%
= Total Consolidated Google Revenue	**22.2%**	**21.0%**	**23.7%**	**24.0%**	**22.8%**	**25.8%**	**23.2%**	**21.7%**	**19.6%**	**22.4%**
***memo:* Total Revenue Growth (x-FX)**	***24.0%***	***22.7%***	***23.7%***	***24.0%***	***23.7%***	***22.8%***	***0.0%***	***0.0%***	***0.0%***	
-TAC	22.2%	28.1%	31.6%	33.0%	29.1%	35.8%	30.4%	27.7%	22.5%	28.5%
= Net Revenues	**22.2%**	**19.4%**	**21.9%**	**22.0%**	**21.4%**	**23.5%**	**21.5%**	**20.2%**	**18.8%**	**20.9%**
Other Cost of Revenue (x-TAC)	33.8%	26.3%	27.1%	36.8%	31.4%	39.6%	39.9%	39.6%	29.0%	36.1%
Research & Development	12.2%	22.8%	23.5%	24.5%	20.8%	27.1%	24.6%	24.7%	20.7%	24.2%
Sales & Marketing	8.1%	17.6%	21.3%	42.4%	23.8%	37.2%	29.1%	32.2%	20.4%	28.5%
General & Administrative	15.7%	(0.9)%	(14.6)%	(14.1)%	(4.8)%	19.4%	(35.4)%	(32.1)%	(38.4)%	(21.2)%
Operating Income (Excl. Stock Comp)	**25.5%**	**18.7%**	**25.9%**	**12.1%**	**20.2%**	**10.3%**	**16.5%**	**11.6%**	**18.5%**	**14.3%**
Stock-based Compensation	34.5%	33.3%	(2.2)%	0.1%	14.6%	22.3%	12.5%	7.5%	7.5%	12.7%
Operating Income (Incl. Stock Comp)	**23.0%**	**(30.8)%**	**34.9%**	**15.4%**	**10.2%**	**6.6%**	**95.6%**	**12.5%**	**21.1%**	**26.7%**
Non-GAAP Net Income	30.2%	(16.0)%	26.6%	(126.2)%	(24.9)%	62.8%	73.4%	11.1%	(642.1)%	110.2%
Diluted Shares Outstanding	0.4%	1.0%	0.8%	(0.8)%	0.3%	0.4%	0.4%	0.5%	1.9%	0.8%
Proforma EPS (x-Stock Comp)	**29.7%**	**(16.8)%**	**25.6%**	**(126.6)%**	**(25.2)%**	**62.1%**	**72.8%**	**10.6%**	**(631.8)%**	**108.5%**
Adjusted EBITDA	**22.8%**	**17.1%**	**23.2%**	**13.4%**	**19.2%**	**13.5%**	**16.2%**	**12.0%**	**17.8%**	**14.9%**

Source: Company reports; Cowen and Company

Figure 2 GOOG: Annual P&L 2017-2023E ($, MM)

	2017	2018E	2019E	2020E	2021E	2022E	2023E	CAGR '18-23
Google O&O Websites	$77,788.0	$96,179.2	$114,367.7	$133,094.1	$151,858.9	$170,097.7	$187,778.0	14.3%
+ Google Network Members' Websites	$17,587.0	$19,592.3	$21,479.9	$23,262.2	$25,040.9	$26,599.0	$28,070.6	7.5%
= Total Advertising Revenue	**$95,375.0**	**$115,771.4**	**$135,847.5**	**$156,356.3**	**$176,899.8**	**$196,696.6**	**$215,848.6**	**13.3%**
+ Other Revenue	$15,003.0	$19,350.8	$24,117.4	$28,870.0	$33,421.3	$37,768.1	$41,820.6	16.7%
= Total Google Revenue (Adv/Other)	**$110,378.0**	**$135,122.2**	**$159,964.9**	**$185,226.3**	**$210,321.1**	**$234,464.7**	**$257,669.2**	**13.8%**
+ Other Bets Revenue	$477.0	$529.5	$582.0	$633.8	$684.7	$734.1	$781.8	8.1%
= Total Consolidated Google Revenue	**$110,855.0**	**$135,651.7**	**$160,546.9**	**$185,860.1**	**$211,005.8**	**$235,198.9**	**$258,451.0**	**13.8%**
-TAC	$21,672.0	$27,853.6	$34,027.6	$40,565.7	$47,562.1	$54,596.3	$61,752.9	17.3%
= Net Revenues	**$89,183.0**	**$107,798.1**	**$126,519.3**	**$145,294.5**	**$163,443.8**	**$180,602.6**	**$196,698.1**	**12.8%**
- Other Cost of Revenue (x-TAC)	$22,584.6	$30,748.2	$36,524.4	$40,424.6	$45,366.3	$49,979.8	$54,274.7	12.0%
- Research & Development	$12,851.3	$15,955.1	$18,537.2	$21,402.0	$23,666.4	$26,027.6	$28,098.5	12.0%
- Sales & Marketing	$11,641.6	$14,953.9	$17,995.8	$21,067.4	$24,107.4	$27,048.9	$29,868.8	14.8%
- General & Administrative	$5,544.5	$4,368.0	$5,730.7	$6,617.2	$7,443.7	$8,186.0	$8,836.7	15.1%
= Operating Income Adjusted	**$36,561.0**	**$41,772.8**	**$47,731.2**	**$55,783.2**	**$62,860.0**	**$69,360.3**	**$75,619.5**	**12.6%**
- Stock-based Compensation	$7,679.0	$8,652.4	$9,771.9	$10,993.4	$12,367.5	$13,913.5	$15,652.6	12.6%
- European Commission Fine	$2,736.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	
= Operating Income Reported	**$26,146.0**	**$33,120.4**	**$37,959.3**	**$44,789.9**	**$50,492.5**	**$55,446.9**	**$59,966.8**	**12.6%**
+ Interest (Expense) Income	$1,047.0	$4,006.1	$1,297.4	$1,871.8	$2,244.2	$2,704.7	$3,251.2	(4.1)%
= Pretax Income	**$27,193.0**	**$37,126.5**	**$39,256.7**	**$46,661.7**	**$52,736.7**	**$58,151.5**	**$63,218.0**	**11.2%**
- Adjusted Income Taxes	$16,834.7	$7,858.2	$9,016.3	$10,530.6	$11,884.4	$13,187.5	$14,494.6	13.0%
+ Stock-Based Compensation	$7,679.0	$8,652.4	$9,771.9	$10,993.4	$12,367.5	$13,913.5	$15,652.6	12.6%
= Net Income fom Cont. Ops	**$18,037.3**	**$37,920.8**	**$40,012.2**	**$47,124.5**	**$53,219.8**	**$58,877.5**	**$64,376.1**	**11.2%**
+ Provision for Tax Adjustments	$2,303.7	$2,595.7	$2,931.6	$3,298.0	$3,710.3	$4,174.0	$4,695.8	12.6%
- Stock Based Compensation	$7,679.0	$8,652.4	$9,771.9	$10,993.4	$12,367.5	$13,913.5	$15,652.6	12.6%
= Net Income After Extraordinary Items	**$12,662.0**	**$31,864.1**	**$33,171.9**	**$39,429.1**	**$44,562.5**	**$49,138.1**	**$53,419.2**	**10.9%**
- Discontinued Ops	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	
= Net Income	**$12,662.0**	**$31,864.1**	**$33,171.9**	**$39,429.1**	**$44,562.5**	**$49,138.1**	**$53,419.2**	**10.9%**
/ Diluted Shares Outstanding	701.0	706.6	709.2	712.1	715.2	718.4	722.0	0.4%
= Diluted EPS (GAAP) Reported	**$18.06**	**$45.09**	**$46.77**	**$55.37**	**$62.31**	**$68.39**	**$73.99**	**10.4%**
Proforma EPS x-Stock Comp	**$25.73**	**$53.66**	**$56.42**	**$66.18**	**$74.42**	**$81.95**	**$89.17**	**10.7%**
Adjusted EBITDA	**$43,476.0**	**$49,948.6**	**$57,285.9**	**$66,780.5**	**$75,661.5**	**$83,921.3**	**$92,236.1**	**13.1%**
Adjusted EBITDA Margin	48.7%	46.3%	45.3%	46.0%	46.3%	46.5%	46.9%	
Y/Y % Change								
Google O&O Websites	22.0%	23.6%	18.9%	16.4%	14.1%	12.0%	10.4%	
+ Google Network Members' Websites	12.8%	11.4%	9.6%	8.3%	7.6%	6.2%	5.5%	
= Total Advertising Revenue	**20.1%**	**21.4%**	**17.3%**	**15.1%**	**13.1%**	**11.2%**	**9.7%**	
+ Other Revenue	48.9%	29.0%	24.6%	19.7%	15.8%	13.0%	10.7%	
= Total Google Revenue (Adv/Other)	**23.4%**	**22.4%**	**18.4%**	**15.8%**	**13.5%**	**11.5%**	**9.9%**	
+ Other Bets Revenue	(41.1)%	11.0%	9.9%	8.9%	8.0%	7.2%	6.5%	
= Total Consolidated Google Revenue	**22.8%**	**22.4%**	**18.4%**	**15.8%**	**13.5%**	**11.5%**	**9.9%**	
***memo:* Total Revenue Growth (x-FX)**	***23.7%***							
-TAC	29.1%	28.5%	22.2%	19.2%	17.2%	14.8%	13.1%	
= Net Revenues	**21.4%**	**20.9%**	**17.4%**	**14.8%**	**12.5%**	**10.5%**	**8.9%**	
Other Cost of Revenue (x-TAC)	31.4%	36.1%	18.8%	10.7%	12.2%	10.2%	8.6%	
Research & Development	20.8%	24.2%	16.2%	15.5%	10.6%	10.0%	8.0%	
Sales & Marketing	23.8%	28.5%	20.3%	17.1%	14.4%	12.2%	10.4%	
General & Administrative	(4.8)%	(21.2)%	31.2%	15.5%	12.5%	10.0%	7.9%	
Operating Income (Excl. Stock Comp)	**20.2%**	**14.3%**	**14.3%**	**16.9%**	**12.7%**	**10.3%**	**9.0%**	
Stock-based Compensation	14.6%	12.7%	12.9%	12.5%	12.5%	12.5%	12.5%	
Operating Income (Incl. Stock Comp)	**10.2%**	**26.7%**	**14.6%**	**18.0%**	**12.7%**	**9.8%**	**8.2%**	
Non-GAAP Net Income	(24.9)%	110.2%	5.5%	17.8%	12.9%	10.6%	9.3%	
Diluted Shares Outstanding	0.3%	0.8%	0.4%	0.4%	0.4%	0.5%	0.5%	
Proforma EPS (x-Stock Comp)	**(25.2)%**	**108.5%**	**5.1%**	**17.3%**	**12.4%**	**10.1%**	**8.8%**	
Adjusted EBITDA	**19.2%**	**14.9%**	**14.7%**	**16.6%**	**13.3%**	**10.9%**	**9.9%**	

Source: Company reports; Cowen and Company

Figure 3 GOOG: Quarterly Segments 2017-2018E ($, MM)

	2017					2018E				
	1Q	2Q	3Q	4Q	2017	1Q	2Q	3Q	4Q	2018E
Revenues:										
Google	$24,618.0	$25,913.0	$27,655.0	$32,192.0	$110,378.0	$30,996.0	$31,945.0	$33,674.8	$38,506.5	$135,122.2
Other Bets	132.0	97.0	117.0	131.0	477.0	150.0	106.7	128.7	144.1	529.5
Total Revenues	**$24,750.0**	**$26,010.0**	**$27,772.0**	**$32,323.0**	**$110,855.0**	**$31,146.0**	**$32,051.7**	**$33,803.5**	**$38,650.6**	**$135,651.7**
% Change - Y/Y										
Google	22.5%	21.6%	24.3%	24.8%	23.4%	25.9%	23.3%	21.8%	19.6%	22.4%
Other Bets	(20.5)%	(47.6)%	(40.6)%	(50.0)%	(41.1)%	13.6%	10.0%	10.0%	10.0%	11.0%
Total Revenues	**22.2%**	**21.0%**	**23.7%**	**24.0%**	**22.8%**	**25.8%**	**23.2%**	**21.7%**	**19.6%**	**22.4%**
Segment Operating Income / (Loss) ex-SBC										
Google	$9,328.0	$9,548.0	$10,272.0	$10,307.0	$39,455.0	$10,672.0	$11,075.7	$11,966.9	$11,956.1	$45,670.7
Other Bets	(617.0)	(552.0)	(556.0)	(646.0)	(2,371.0)	(459.0)	(590.2)	(1,105.1)	(538.6)	(2,692.8)
Reconciling items	(134.0)	(2,861.0)	(114.0)	(150.0)	(3,259.0)	(755.0)	(150.0)	(150.0)	(150.0)	(1,205.0)
Total Operating Income	**$8,577.0**	**$8,871.0**	**$9,602.0**	**$9,511.0**	**$36,561.0**	**$9,458.0**	**$10,335.5**	**$10,711.8**	**$11,267.6**	**$41,772.8**
memo: Check	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*					*0.00*
Y/Y % Change										
Google	23.3%	14.8%	22.2%	8.1%	16.6%	14.4%	16.0%	16.5%	16.0%	15.8%
Other Bets	(3.0)%	(22.1)%	(16.4)%	(30.3)%	(19.3)%	(25.6)%	6.9%	98.8%	(16.6)%	13.6%
Reconciling items	39.6%	2035.1%	0.0%	21.0%	596.4%	463.4%	(94.8)%	31.6%	0.0%	(63.0)%
Total Operating Income	**25.5%**	**18.7%**	**25.9%**	**12.1%**	**20.2%**	**10.3%**	**16.5%**	**11.6%**	**18.5%**	**14.3%**
% of Revenue (Op Inc Margin)										
Google	37.9%	36.8%	37.1%	32.0%	35.7%	34.4%	34.7%	35.5%	31.0%	33.8%
Other Bets	(467.4%)	(569.1%)	(475.2%)	(493.1%)	(497.1%)	(306.0%)	(553.1%)	(858.6%)	(373.7%)	(508.6%)
Total Operating Income Margin	**34.7%**	**34.1%**	**34.6%**	**29.4%**	**33.0%**	**30.4%**	**32.2%**	**31.7%**	**29.2%**	**30.8%**

Source: Company reports; Cowen and Company

Figure 4 GOOG: Annual Segments 2017-2023E ($, MM)

	2017	2018E	2019E	2020E	2021E	2022E	2023E	CAGR 18-23
Revenues:								
Google	$110,378.0	$135,122.2	$159,964.9	$185,226.3	$210,321.1	$234,464.7	$257,669.2	13.8%
Other Bets	477.0	529.5	582.0	633.8	684.7	734.1	781.8	8.1%
Total Revenues	**$110,855.0**	**$135,651.7**	**$160,546.9**	**$185,860.1**	**$211,005.8**	**$235,198.9**	**$258,451.0**	**13.8%**
% Change - Y/Y								
Google	23.4%	22.4%	18.4%	15.8%	13.5%	11.5%	9.9%	
Other Bets	(41.1)%	11.0%	9.9%	8.9%	8.0%	7.2%	6.5%	
Total Revenues	**22.8%**	**22.4%**	**18.4%**	**15.8%**	**13.5%**	**11.5%**	**9.9%**	
Segment Operating Income / (Loss) ex-SBC								
Google	$39,455.0	$45,670.7	$52,064.6	$58,312.3	$64,143.6	$69,916.5	$75,509.8	10.6%
Other Bets	(2,371.0)	(2,692.8)	(3,007.9)	(1,137.3)	177.9	978.3	1,720.8	(191.4)%
Reconciling items	(3,259.0)	(1,205.0)	(1,325.5)	(1,391.8)	(1,461.4)	(1,534.4)	(1,611.2)	6.0%
Total Operating Income	**$36,561.0**	**$41,772.8**	**$47,731.2**	**$55,783.2**	**$62,860.0**	**$69,360.3**	**$75,619.5**	**12.6%**
memo: Check	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	
Y/Y % Change								
Google	16.6%	15.8%	14.0%	12.0%	10.0%	9.0%	8.0%	
Other Bets	(19.3)%	13.6%	11.7%	(62.2)%	(115.6)%	450.0%	75.9%	
Reconciling items	596.4%	(63.0)%	10.0%	5.0%	5.0%	5.0%	5.0%	
Total Operating Income	**20.2%**	**14.3%**	**14.3%**	**16.9%**	**12.7%**	**10.3%**	**9.0%**	
% of Revenue (Op Inc Margin)								
Google	35.7%	33.8%	32.5%	31.5%	30.5%	29.8%	29.3%	
Other Bets	(497.1%)	(508.6%)	(516.9%)	(179.4%)	26.0%	133.3%	220.1%	
Total Operating Income Margin	**33.0%**	**30.8%**	**29.7%**	**30.0%**	**29.8%**	**29.5%**	**29.3%**	

Source: Company reports; Cowen and Company;

Figure 5 GOOG: Annual Balance Sheet 2017-2023E ($, MM)

	2017	2018E	2019E	2020E	2021E	2022E	2023E
ASSETS							
Cash & Equivalents	$10,715.0	$19,397.6	$36,698.6	$60,937.9	$92,352.4	$130,343.5	$174,962.5
Marketable Securities	91,156.0	100,172.5	109,189.0	118,205.5	127,222.0	136,238.5	145,255.0
Accounts Rec., Net	18,336.0	21,893.8	25,379.7	28,782.8	31,969.6	34,874.3	37,490.6
Current Prepaid Expenses & Other Assets	4,101.0	3,060.6	3,186.8	3,114.0	2,934.9	2,626.3	2,185.5
Total Current Assets	**$124,308.0**	**$144,524.4**	**$174,454.1**	**$211,040.3**	**$254,478.9**	**$304,082.6**	**$359,893.6**
Prepaid Expenses & Other Assets	2,672.0	3,165.4	3,753.9	4,260.2	4,787.8	5,305.1	5,795.7
Deferred Inc. Taxes, Net	680.0	954.9	1,309.6	1,687.2	2,122.1	2,601.7	3,115.7
Non-Marketable Equity Securities	7,813.0	9,558.0	11,303.0	13,048.0	14,793.0	16,538.0	18,283.0
PP&E, Net	42,383.0	55,998.5	67,631.3	79,300.6	90,749.6	102,004.4	112,783.5
Intangible Assets, Net	2,692.0	2,692.0	2,692.0	2,692.0	2,692.0	2,692.0	2,692.0
Goodwill	16,747.0	16,872.0	16,997.0	17,122.0	17,247.0	17,372.0	17,497.0
Total Assets	**$197,295.0**	**$233,765.3**	**$278,140.8**	**$329,150.2**	**$386,870.3**	**$450,595.8**	**$520,060.7**
LIABILITIES & STOCKHOLDERS' EQUITY							
Accounts Payable	$3,137.0	$3,716.3	$4,407.1	$5,001.6	$5,621.0	$6,228.3	$6,804.4
Short-term debt	$0.0	$1,329.0	$0.0	$0.0	$0.0	$0.0	$0.0
Accrued Compensation & Benefits	4,581.0	5,426.9	5,993.0	6,298.8	6,514.1	6,592.2	6,518.2
Accrued Expenses & Other Current Liab.	10,177.0	12,429.7	15,183.2	17,733.5	20,494.4	23,334.6	26,176.5
Accrued Revenue Share	3,975.0	4,709.0	5,363.0	5,835.1	6,275.4	6,640.5	6,912.9
Securities Lending Payable	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred Revenue	1,432.0	1,696.4	2,011.8	2,283.1	2,565.9	2,843.1	3,106.1
Income Taxes Payable	881.0	1,043.7	1,237.7	1,404.6	1,578.6	1,749.2	1,910.9
Current Portion of Equipment Leases	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Current Liabilities	**$24,183.0**	**$30,351.1**	**$34,195.8**	**$38,556.8**	**$43,049.3**	**$47,387.9**	**$51,429.0**
Long-term Debt	3,969.0	3,969.0	3,969.0	3,969.0	3,969.0	3,969.0	3,969.0
Deferred Revenue	340.0	402.8	477.7	542.1	609.2	675.0	737.5
Deferred Income Taxes, Net	12,812.0	12,190.8	14,457.0	16,406.9	18,438.8	20,431.1	22,320.8
Income Taxes Payable, Long-Term	430.0	509.4	604.1	685.6	770.5	853.7	932.7
Liabilities for Stock Options Excercised Early, Lon	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Long-Term Liabilities	3,059.0	1,176.1	5,299.2	9,622.7	15,303.8	22,611.2	31,784.8
Redeemable Convertible Preferred Stock Warran	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Liabilities	**$44,793.0**	**$48,599.2**	**$59,002.8**	**$69,783.1**	**$82,140.7**	**$95,928.1**	**$111,173.8**
Stockholders' Equity							
Additional Paid-In Capital	40,247.0	41,047.0	41,847.0	42,647.0	43,447.0	44,247.0	45,047.0
Accumulated Other Comprehensive Income	(992.0)	(992.0)	(992.0)	(992.0)	(992.0)	(992.0)	(992.0)
Retained Earnings	113,247.0	145,111.1	178,283.0	217,712.1	262,274.6	311,412.7	364,831.9
Total Stockholders' Equity	**$152,502.0**	**$185,166.1**	**$219,138.0**	**$259,367.1**	**$304,729.6**	**$354,667.7**	**$408,886.9**
Total Liab. & Stockholders' Equity	**$197,295.0**	**$233,765.3**	**$278,140.8**	**$329,150.2**	**$386,870.3**	**$450,595.8**	**$520,060.7**
Book Value Per Share	$217.56	$262.04	$308.98	$364.24	$426.10	$493.66	$566.36
Net Debt (Cash)	(97,902.0)	(115,601.1)	(141,918.6)	(175,174.4)	(215,605.4)	(262,613.0)	(316,248.5)
Net Debt (Cash) per Share	($139.67)	($163.59)	($200.10)	($246.00)	($301.48)	($365.53)	($438.04)
Return on Equity	12%	20%	18%	18%	17%	17%	16%
Gross Debt-to-Total Book Cap	3%	3%	2%	2%	1%	1%	1%
Net Debt-to-Total Book Cap	NM	NM	NM	NM	NM	NM	NM

Source: Company reports; Cowen and Company

Figure 6 GOOG: Annual Cash Flow Statement 2017-2023E ($, MM)

	2017	2018E	2019E	2020E	2021E	2022E	2023E
OPERATING ACTVITIES							
Net Income	**$12,662.0**	**$31,864.1**	**$33,171.9**	**$39,429.1**	**$44,562.5**	**$49,138.1**	**$53,419.2**
Depreciation & Amortization of PP&E	6,103.0	7,449.8	8,939.8	10,504.2	12,342.5	14,193.8	16,322.9
Amortization of Intangibles & Warrants	812.0	726.0	615.0	493.0	459.0	367.2	293.8
Stock-Based Compensation	7,679.0	8,652.4	9,771.9	10,993.4	12,367.5	13,913.5	15,652.6
Deferred Income Taxes	258.0	(250.0)	(250.0)	(250.0)	(250.0)	(250.0)	(250.0)
Other	331.0	0.0	0.0	0.0	0.0	0.0	0.0
Changes in Asset & Liabilities	9,246.0	6,159.1	5,367.6	4,863.6	5,311.0	5,572.0	5,703.7
Net Cash Provided by Operating Activities	**$37,091.0**	**$54,601.4**	**$57,616.1**	**$66,033.3**	**$74,792.4**	**$82,934.5**	**$91,142.2**
INVESTING ACTIVITIES							
Purchases of PP&E	($13,184.0)	($21,541.3)	($20,937.5)	($22,416.5)	($24,000.5)	($25,565.9)	($27,145.8)
Purchases of Marketable Securities	(92,195.0)	(82,975.5)	(82,975.5)	(82,975.5)	(82,975.5)	(82,975.5)	(82,975.5)
Maturities & Sales of Marketable Securities	73,959.0	73,959.0	73,959.0	73,959.0	73,959.0	73,959.0	73,959.0
Investments in Non-Mktable Securities	(1,745.0)	(1,745.0)	(1,745.0)	(1,745.0)	(1,745.0)	(1,745.0)	(1,745.0)
Acquisitions, Net Cash	1,764.0	(250.0)	(250.0)	(250.0)	(250.0)	(250.0)	(250.0)
Net Cash Used in Investing Activities	**($31,401.0)**	**($32,552.8)**	**($31,949.0)**	**($33,428.0)**	**($35,012.0)**	**($36,577.4)**	**($38,157.3)**
FINANCING ACTIVITIES							
Net Proceeds from Stock-Based Award Activity	($4,166.0)	($4,166.0)	($4,166.0)	($4,166.0)	($4,166.0)	($4,166.0)	($4,166.0)
Repurchase of Common Stock	(4,846.0)	(5,000.0)	(5,000.0)	(5,000.0)	(5,000.0)	(5,000.0)	(5,000.0)
Proceeds from issuance of debt	4,291.0	0.0	0.0	0.0	0.0	0.0	0.0
Repayments of debt	(4,377.0)	(5,000.0)	0.0	0.0	0.0	0.0	0.0
Excess Tax Benefits from Stock-Based Award Activity	800.0	800.0	800.0	800.0	800.0	800.0	800.0
Net Cash Provided by Financing Activities	**($8,298.0)**	**($13,366.0)**	**($8,366.0)**	**($8,366.0)**	**($8,366.0)**	**($8,366.0)**	**($8,366.0)**
Effect of Exchange Rates	405.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Increase (Decrease) in Cash	**($2,203.0)**	**$8,682.6**	**$17,301.1**	**$24,239.3**	**$31,414.5**	**$37,991.1**	**$44,619.0**
Cash @ BOP	12,918.0	10,715.0	19,397.6	36,698.6	60,937.9	92,352.4	130,343.5
Cash @ EOP	**$10,715.0**	**$19,397.6**	**$36,698.6**	**$60,937.9**	**$92,352.4**	**$130,343.5**	**$174,962.5**
Operating Cash Flow Per Share	$54.74	$79.47	$83.15	$94.51	$106.70	$117.37	$128.51
Y/Y % Change	3.6%	45.2%	4.6%	13.7%	12.9%	10.0%	9.5%
Free Cash Flow	$23,907.0	$33,060.1	$36,678.6	$43,616.8	$50,792.0	$57,368.6	$63,996.5
Y/Y % Change	(7.4)%	38.3%	10.9%	18.9%	16.5%	12.9%	11.6%
Free Cash Flow Per Share	$34.11	$46.79	$51.72	$61.25	$71.02	$79.85	$88.64
Y/Y % Change	(7.7)%	37.2%	10.5%	18.4%	16.0%	12.4%	11.0%
FCF % of EBITDA	55.0%	66.2%	64.0%	65.3%	67.1%	68.4%	69.4%
CAPEX % of Net Sales	14.8%	20.0%	16.5%	15.4%	14.7%	14.2%	13.8%

Source: Company reports; Cowen and Company

VALUATION METHODOLOGY AND RISKS

Valuation Methodology

Internet:

Our valuation methodology is primarily based on Discounted Cash Flow analysis, comparable company multiples such as EV/FCF, EV/EBITDA, and P/E, and sum-of-the-parts analysis (for companies with ownership stakes in other equities or significant assets such as patents/IP). However, this varies by company; for instance, we will often use EV/Revenue for high-growth companies that have recently entered the public equity markets.

Investment Risks

Internet & New Media:

The industry in which our companies operate is fiercely competitive and technological change is rapid. All of our companies face the risk that they are unable to keep pace with new innovations or that new innovations impact competitive positioning. Additionally, our companies are international operators and are therefore exposed to currency fluctuations and other factors associated with operating in a foreign territory. Finally, our names sit within the advertising industry more broadly and are exposed to the same seasonality and macro trends as the rest of the group, including competition from TV and other offline channels.

Risks To The Price Target

Google's business has faced increased regulatory scrutiny, which is ongoing, but may ultimately result in changes to business practices which are difficult to quantify.

ADDENDUM

Stocks Mentioned In Important Disclosures

Ticker	Company Name
GOOG	Alphabet
AMZN	Amazon.com
FB	Facebook

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The recommendation contained in this report was produced at July 18, 2018, 16:15 ET. and disseminated at July 18, 2018, 16:15 ET.

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Outperform (1): The stock is expected to achieve a total positive return of at least 15% over the next 12 months

Market Perform (2): The stock is expected to have a total return that falls between the parameters of an Outperform and Underperform over the next 12 months

Underperform (3): Stock is expected to achieve a total negative return of at least 10% over the next 12 months

Assumption: The expected total return calculation includes anticipated dividend yield

Cowen and Company Equity Research Rating Distribution

Distribution of Ratings/Investment Banking Services (IB) as of 07/02/18

Rating	Count	Ratings Distribution	Count	IB Services/Past 12 Months
Buy (a)	476	63.55%	113	23.79%
Hold (b)	266	35.51%	18	6.74%
Sell (c)	7	0.93%	0	0.00%

(a) Corresponds to "Outperform" rated stocks as defined in Cowen and Company, LLC's equity research rating definitions. (b) Corresponds to "Market Perform" as defined in Cowen and Company, LLC's equity research ratings definitions. (c) Corresponds to "Underperform" as defined in Cowen and Company, LLC's equity research ratings definitions. Cowen and Company Equity Research Rating Distribution Table does not include any company for which the equity research rating is currently suspended or any debt security followed by Cowen Credit Research and Trading.

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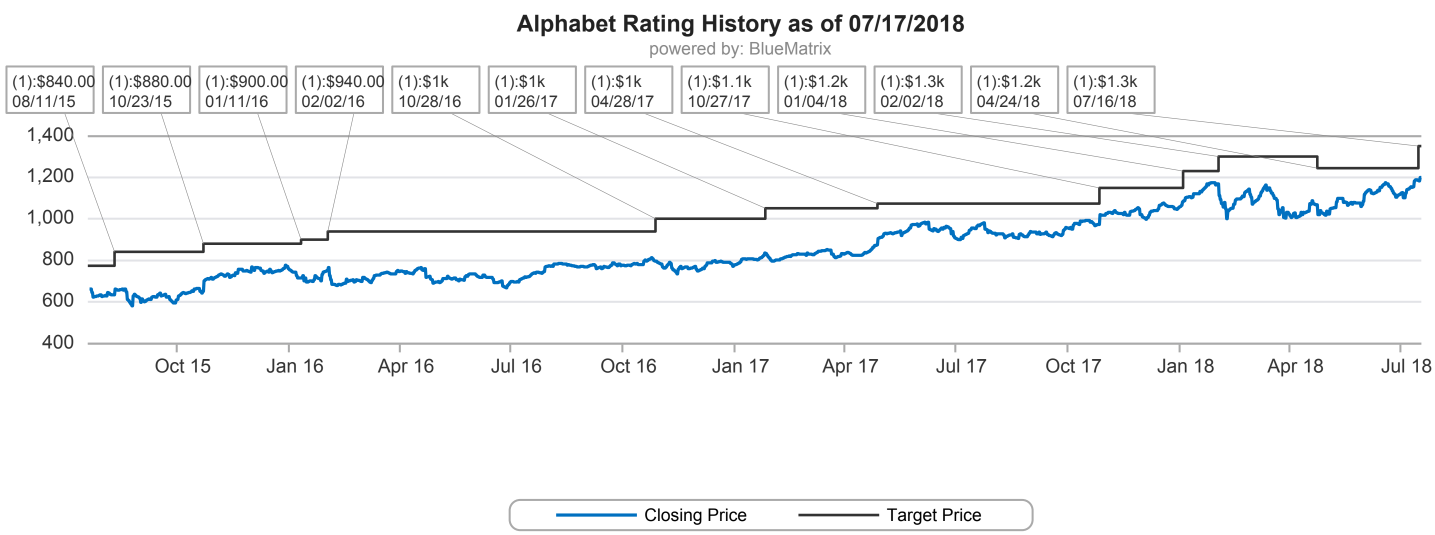

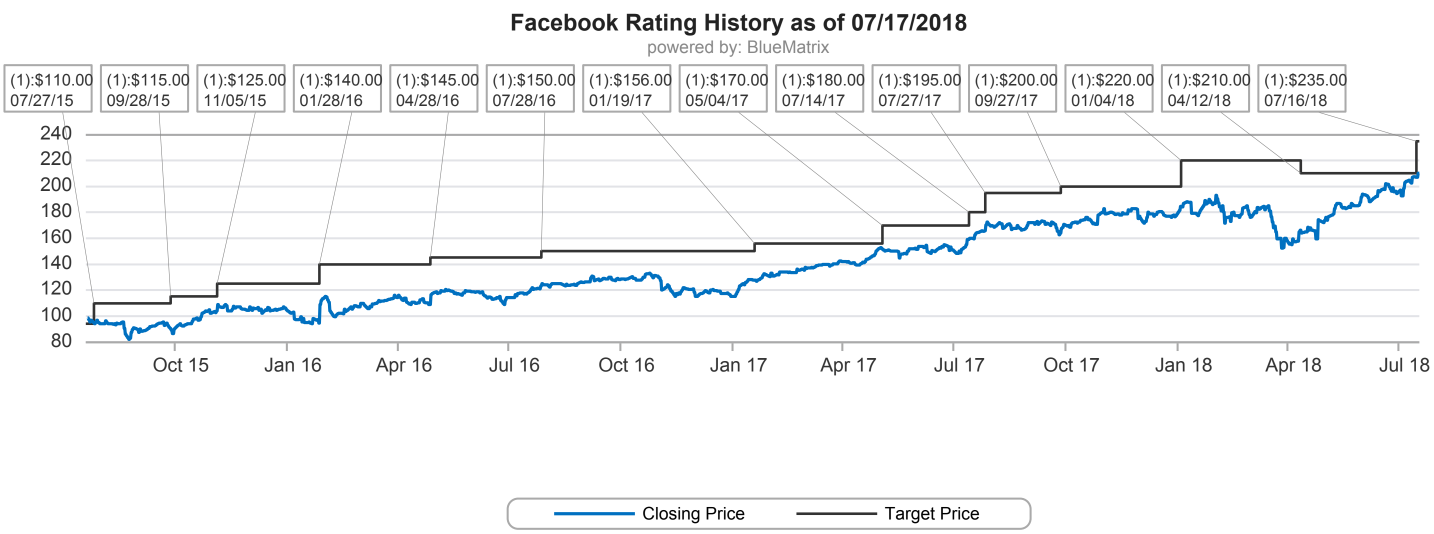

Legend for Price Chart:

I = Initiation | 1 = Outperform | 2 = Market Perform | 3 = Underperform | UR = Price Target Under Review | T = Terminated Coverage | $xx = Price Target | NA = Not Available | S=Suspended

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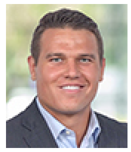

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COWEN INC.

First Read

Alphabet Inc.

EU Finished Its Android Download

Equities

Americas
Internet Services

12-month rating	**Buy**
12m price target	**US$1,360.00**
Price	**US$1,198.80**

RIC: GOOG.O **BBG:** GOOG US

Trading data and key metrics

52-wk range	US$1,198.80-906.66
Market cap.	US$845bn
Shares o/s	705m (COM)
Free float	79%
Avg. daily volume ('000)	1,532
Avg. daily value (m)	US$1,680.7
Common s/h equity (12/18E)	US$178bn
P/BV (12/18E)	4.7x
Net debt / EBITDA (12/18E)	NM

EPS (UBS, diluted) (US$)

	12/18E	
	UBS	Cons.
Q1	13.33	13.33
Q2E	9.58	9.57
Q3E	10.63	10.42
Q4E	10.12	10.92
12/18E	43.66	43.92
12/19E	45.76	47.46
12/20E	51.48	55.63

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EU Reaches a Decision on Android Investigation

This morning, the European Commission has fined Alphabet €4.34bn for breaching EU antitrust rules by "*imposing illegal restrictions on Android device manufacturers and mobile network operators to cement its dominant position in general internet search*" (link). The company is compelled to end the conduct within 90 days or face penalty payments of up to 5% of average daily worldwide turnover of Alphabet.

Three Types of Violations – Alphabet to Appeal EC's Decision

Specifically, the EC determined that Alphabet has engaged in 3 practices that violate current antitrust laws: a) tying of the Google Search app & Google Chrome browser; b) payments to device manufacturers & mobile network operators conditional on exclusive pre-installation of Google Search; and c) obstruction of development & distribution of competing Android OS. We note that Alphabet has already announced that they will appeal the ruling. Alphabet expects that it will accrue the fine in Q2'18.

What is Our Read?

Our key takeaways are as follows: 1) while a large headline fine, the actual amount is small in relation to GOOG's current net cash balance (~$98bn as of Q1'18) & annual FCF generation (UBSe ~$28bn in'18); 2) while the ruling contains a # of restrictions on pre-installed apps, we think it is unlikely to slow/deter the download/usage of Google's mobile app ecosystem (e.g., in the Apple App Store, Google has 9 of the top 50 apps despite no relationship with the underlying OS); 3) this will focus investors back on Google's hardware strategy - we have long maintained a view that this ruling was a component of the offense/defense mix in that pivot; 4) Android OEMs will still develop devices for success & scale and the use of the Google Play Store (app & media consumption) and the key Google mobile utility apps (Search, Gmail, Chrome, Maps, YouTube, Drive, Photos) remain as front of mind for consumer usage as ever. In general, we think investors will react neutral to positive to this outcome (removal of an overhang + outcome unlikely to have a material impact on forward operating ests). For addl. details on the investigation timeline, pls refer to our regulatory deep-dive (link).

Valuation: Maintain Buy Rating & PT of $1,360

Our PT is based on an equal blend of EV/GAAP EBITDA & EV/(FCF-SBC) multiples.

Highlights (US$m)	12/15	12/16	12/17	12/18E	12/19E	12/20E	12/21E	12/22E
Revenues	60,646	73,479	89,183	108,868	129,636	147,616	165,548	185,944
EBIT (UBS)	19,360	23,716	26,146	31,461	36,919	41,760	46,595	52,111
Net earnings (UBS)	15,826	19,478	12,662	30,829	32,503	37,060	41,642	46,862
EPS (UBS, diluted) (US$)	22.84	27.88	18.06	43.66	45.76	51.48	57.00	63.19
DPS (US$)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net (debt) / cash	67,846	82,398	97,902	114,300	147,688	188,466	232,617	282,306

Profitability/valuation	12/15	12/16	12/17	12/18E	12/19E	12/20E	12/21E	12/22E
EBIT margin %	31.9	32.3	29.3	28.9	28.5	28.3	28.1	28.0
ROIC (EBIT) %	39.8	43.5	47.0	53.0	56.2	58.8	58.4	57.7
EV/EBITDA (core) x	14.3	14.6	16.6	18.3	15.6	13.8	12.4	11.1
P/E (UBS, diluted) x	26.4	26.7	51.0	27.5	26.2	23.3	21.0	19.0
Equity FCF (UBS) yield %	3.9	5.0	3.7	3.3	4.6	5.1	5.6	6.3
Net dividend yield %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Company accounts, Thomson Reuters, UBS estimates. UBS adjusted EPS is stated before goodwill-related charges and other adjustments for abnormal and economic items at the analysts' judgement. Valuations: based on an average share price that year, (E): based on a share price of US$1,198.80 on 17 Jul 2018 19:37 EDT

www.ubs.com/investmentresearch

Forecast returns

Forecast price appreciation	+13.4%
Forecast dividend yield	0.0%
Forecast stock return	+13.4%
Market return assumption	7.6%
Forecast excess return	+5.8%

Valuation Method and Risk Statement

The rapid pace of evolution in the Internet and Technology sectors, including the emergence of new competition and new form factors of hardware devices, could cause a shift in user behavior that diverts traffic away from Alphabet. Additional key risks include regulatory scrutiny over anti-competitive practices, intellectual property claims, a failure to effectively integrate and manage acquisitions, macroeconomic impacts on global advertising budgets, currency fluctuations, interruption of information technology and communications systems (i.e., natural disasters, terrorism, denial of service attacks, etc.), damage to the Google brand, concentrated voting control, and regulatory risks (particularly ongoing antitrust investigations in the EU).

We use an equal blend of EV/GAAP EBITDA multiple and EV/(FCF-SBC) multiple to value Alphabet.

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12-Month Rating	**Definition**	**Coverage**[1]	**IB Services**[2]
Buy	FSR is > 6% above the MRA.	48%	25%
Neutral	FSR is between -6% and 6% of the MRA.	37%	21%
Sell	FSR is > 6% below the MRA.	15%	13%
Short-Term Rating	**Definition**	**Coverage**[3]	**IB Services**[4]
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 30 June 2018.
1:Percentage of companies under coverage globally within the 12-month rating category.
2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.
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UBS Securities LLC: Eric J. Sheridan; Alexandra Kasper; Bridget Han.

Company Disclosures

Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
Alphabet Inc.[6a, 6b, 7, 16, 22, 26]	GOOG.O	Buy	N/A	US$1,198.80	17 Jul 2018

Source: UBS. All prices as of local market close.
Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date

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26. A U.S.-based global equity strategist, a member of his team, or one of their household members has a position in Alphabet Inc.

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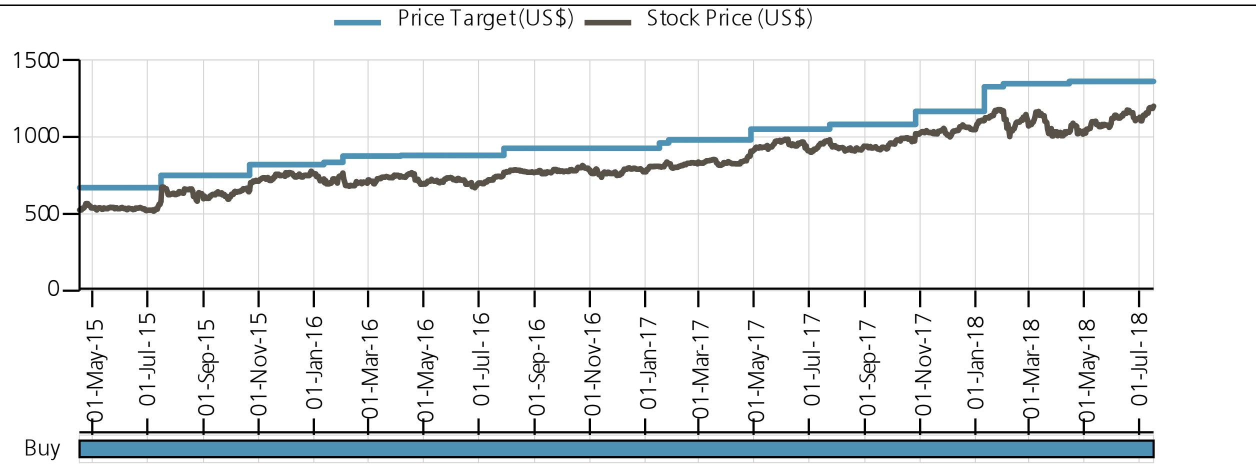
Alphabet Inc. (US$)



Date	Stock Price (US$)	Price Target (US$)	Rating
2015-04-17	524.05	670.0	Buy
2015-07-16	579.85	750.0	Buy
2015-10-22	651.79	820.0	Buy
2016-01-12	726.07	835.0	Buy
2016-02-02	764.65	875.0	Buy
2016-04-06	745.69	880.0	Buy
2016-07-29	768.79	925.0	Buy
2017-01-17	804.61	960.0	Buy
2017-01-27	823.31	980.0	Buy
2017-04-28	905.96	1050.0	Buy
2017-07-24	980.34	1080.0	Buy
2017-10-27	1019.27	1165.0	Buy
2018-01-11	1105.52	1325.0	Buy
2018-02-01	1167.7	1345.0	Buy
2018-04-15	1029.27	1360.0	Buy

Source: UBS; as of 17 Jul 2018

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Alphabet Inc.

Thoughts on EC Android Ruling: Fine In-Line to Less Than Expected & Overhang Eased; Search Share Impact Likely Limited - ALERT

The European Commission's ruling (here) was largely anticipated, and the €4.34B (~$5.0B) fine, while greater than the €2.42B ($2.7B) Google Shopping fine in June 2017 (here), was in-line to less than expected. The EC argues that Google is dominant in the markets for general internet search services, licensable smart mobile operating systems, and app stores for the Android mobile operating system, and that Google's Android restrictions illegally protect its internet search dominance. Importantly, the EC based its decision on the licensable smart mobile operating system, rather than the overall mobile OS market, and therefore does not view Apple's iOS as an Android competitor. Google disagrees with the EC's decision and it intends to appeal, but it still needs to implement a remedy in 90 days or risk additional fines of ~5% of the avg. daily worldwide turnover of Alphabet. We think Google's remedy could unbundle Google Search & Chrome from Android in European markets and provide users a set of alternative services to choose from. While this could create some risk to Search revenue, we believe the impact to market share and financials would be limited given the popularity of Google Search & Chrome and the ease with which users can download these apps directly. We also believe TAC would come down in Europe, offset some by higher marketing spend.

- **Basis for the EC ruling.** The EC found Google to be involved in illegal practices by placing 3 restrictions around Android ecosystem to cement its leadership position in Search: **1)** requiring manufacturers to pre-install Google Search app and Chrome as a condition for licensing Google Play Store; **2)** making payments to certain large manufacturers and mobile network operators for pre-installing Google Search app on their devices; and **3)** preventing manufacturers wishing to pre-install Google apps from selling even a single smart mobile device running an alternative version of Android that is not approved by Google.
- **Remedy likely unbundles Search & Chrome from Android in Europe and offers alternative services to choose from.** We believe the remedy could be similar to what was implemented in Russia in 2017. Google products are well penetrated in Europe, especially Google Search at ~90% share in most EEA Member States, and have become integral part of consumers' lives. Therefore, consumers will likely choose Google Search & Chrome even if unbundled. Since Google funds Android development by distributing Google products with it, Google could seek an alternative method of funding Android development, incl. through upfront licensing fees. On the cost side, unbundling could potentially reduce TAC paid to OEMs, which could be offset by more marketing to promote downloads of Google products. We also think this could incentivize Google to push Pixel phones harder in Europe.
- **Negative $7.14 impact to 2Q GAAP EPS.** The Commission is imposing a €4.34B fine on Google, or ~$5.0B using latest FX. Alphabet expects to accrue the fine in 2Q18, see 8-K. We expect the fine to not be tax deductible, just like the Google Shopping fine, and all of the ~$5B should weigh on Net Income, resulting in a negative $7.14 per share impact to GAAP EPS—we currently model $9.52 in 2Q without the fine.

Internet

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GOOGL, GOOGL US
Overweight
Price: $1,213.08
17 Jul 2018

GOOG, GOOG US
Overweight
Price: $1,198.80
17 Jul 2018

- **AdSense investigation still ongoing, and the EC also looking at vertical search.** With Google Shopping and Android rulings behind, the EC has just the AdSense investigation remaining. The commission has already come to the preliminary conclusion that Google has abused a dominant position with AdSense for Search and was concerned that Google has reduced choice by preventing third-party websites from sourcing search ads from Google's competitors. We think the potential fine for AdSense likely will be lower than Shopping or Android since revenue exposure should be lower.

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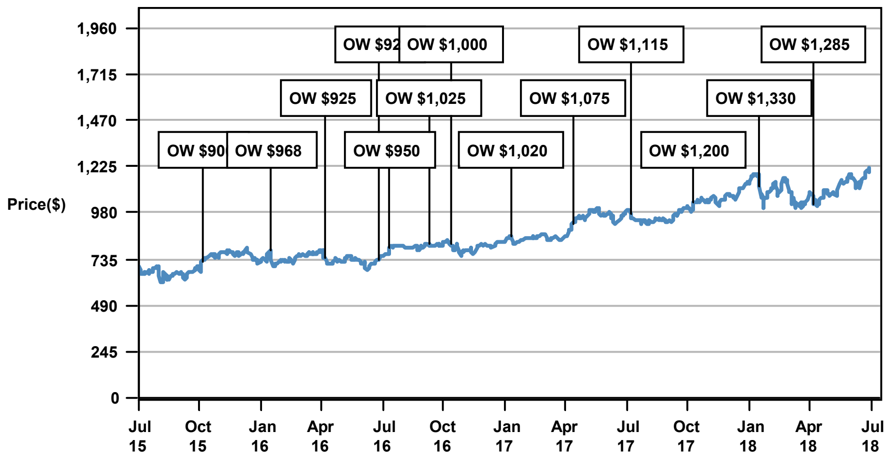
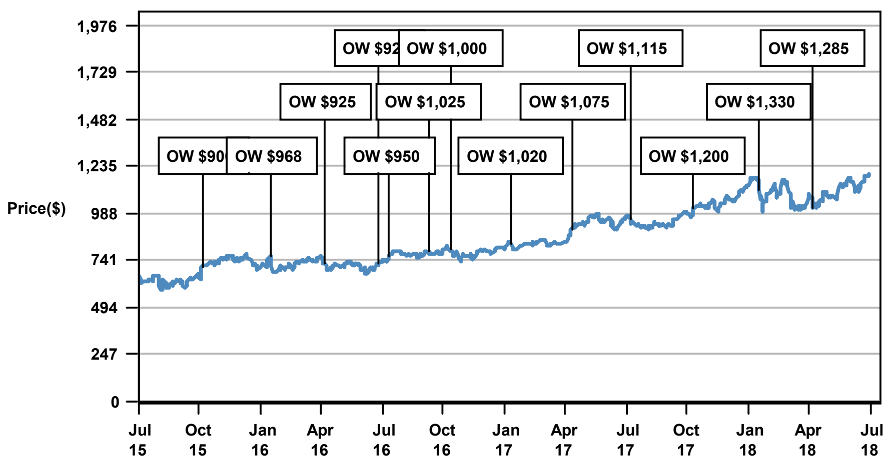
Alphabet Inc. (GOOGL, GOOGL US) Price Chart



Date	Rating	Share Price ($)	Price Target ($)
23-Oct-15	OW	719.33	900.00
02-Feb-16	OW	780.91	968.00
22-Apr-16	OW	737.77	925.00
12-Jul-16	OW	732.51	920.00
29-Jul-16	OW	791.34	950.00
27-Sep-16	OW	810.73	1025.00
28-Oct-16	OW	819.56	1000.00
27-Jan-17	OW	856.98	1020.00
28-Apr-17	OW	924.52	1075.00
25-Jul-17	OW	969.03	1115.00
27-Oct-17	OW	1033.67	1200.00
02-Feb-18	OW	1119.20	1330.00
24-Apr-18	OW	1022.64	1285.00

Source: Bloomberg and J.P. Morgan; price data adjusted for stock splits and dividends.
Initiated coverage Jul 17, 2015.

Alphabet (GOOG, GOOG US) Price Chart



Date	Rating	Share Price ($)	Price Target ($)
23-Oct-15	OW	702.00	900.00
02-Feb-16	OW	764.65	968.00
22-Apr-16	OW	718.77	925.00
12-Jul-16	OW	720.64	920.00
29-Jul-16	OW	768.79	950.00
27-Sep-16	OW	783.01	1025.00
28-Oct-16	OW	795.37	1000.00
27-Jan-17	OW	832.15	1020.00
28-Apr-17	OW	905.96	1075.00
25-Jul-17	OW	950.70	1115.00
27-Oct-17	OW	1019.27	1200.00
02-Feb-18	OW	1111.90	1330.00
24-Apr-18	OW	1019.98	1285.00

Source: Bloomberg and J.P. Morgan; price data adjusted for stock splits and dividends.
Initiated coverage Sep 28, 2004.

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Research

Rating
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North America
United States

TMT
Internet

Company
Alphabet Inc.

Reuters	Bloomberg	Exchange	Ticker
GOOG.OQ	GOOG UW	NMS	GOOG

Date
17 July 2018

Company Update

Price at 16 Jul 2018 (USD)	1,196.51
Price target	1,225.00
52-week range	1,188.82 - 906.66

EU v Google/Android and the Russia Case Study

Key takeaway

We expect the EU to announce a large fine against Google and seek to force changes to Android business practices. We see a modest likely impact to Alphabet financials, and expect it to play out over a long time horizon. We see limited risk to market share and only modest risk that TAC rates rise on the estimated $7B gross search revenue stream in the EU exposed on Android. In this note we review the case, the future path of potential outcomes and look at the Russian FAS case against Google as a template for potential parallels in the EU. **We see a far more limited impact in the EU than what Google experienced in Russia**, as Google is relatively uncontested in EU search, with no Yandex equivalent. Further, we see Google's key mobile apps (Maps, YouTube, Chrome) broadly as best-in-class and likely to stand on their own, even with more limited pre-installation / bundling, similar to Google Maps in iOS and Google Search within Firefox after its deal with Yahoo Search. We would use any dip associated with regulatory issues to add to long-term positions in Alphabet shares.

The Russia case study - a similar outcome in the EU would have a very different impact

We cover Yandex (YNDX, Buy rated, USD 37.55) in Russia, where the Federal Antimonopoly Service (FAS) took action against Google and forced an onerous settlement last year. If the EU follows a similar path, we see a far more limited impact in the EU than what Google has seen in Russia. In Russia, Yandex had over 60% market share in desktop search prior to the implementation of the “choice box”, whereas Google has a clear consumer preference in the EU with over 86% desktop search share. Google has seen limited Chrome browser share erosion in Russia post the ruling. In this note, we review the highlights of the Russian antitrust case and the key differences to what is going on in Europe starting on pg.11.

Google Maps / YouTube history in iOS and Search history in Firefox suggest durability

Google Apps are best-in-class and likely to stand on their own even outside the bundle, in our view. Google Maps has more users in iOS than Apple Maps despite losing the pre-installation deal in 2012. YouTube also lost its pre-installation status in iOS 6 in 2012 and given the strength of the app has seen its audience grow meaningfully since then. We also look at how Google Search was able to quickly regain market share in Firefox after its deal with Yahoo Search. We believe modest changes to how Android operates in the EU may have no discernable change in market share. We see more risk to TAC but even there the outcome is broadly

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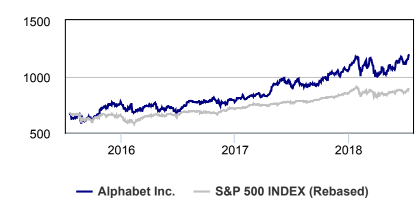
Price/price relative



Performance (%)	1m	3m	12m
Absolute	2.7	14.1	23.8
S&P 500 INDEX	0.7	4.5	13.8

Source: Deutsche Bank

uncertain and we can envision scenarios where TAC rates fall if app bundles are prohibited in the EU.

Quantifying the risk on back of the envelope basis

We see Google Search revenue on Android in the EU of an estimated $8.4B, and excluding a hypothetical ~20% navigating directly to Google.com, an exposure of ~$6.7B, or 5.9% of gross revenue. Every **marginal 1% increase/decrease in TAC rates applied to this equates to ~$54M of incremental tax effected expense or 0.18% of our 2018 GAAP net income estimate**. We see slightly more risk that TAC rates rise to further incentiveize app distribution absent the ability to force a bundle, though we see scenarios where TAC rates could actually fall if the bundle collapses. In addition to a potentially lengthy appeal process before any hypothetical implementation of business practice changes, we see changes in share subject to the handset replacement cycle further reducing the risk of any step function change to financials. Net net, we see minimal risk to Alphabet fundamentals over the intermediate term beyond a potential fine.

Valuation/risks

Our target price of $1,225 is based on a blended average 25x GAAP EPS (unchanged), 14x EBITDA (unchanged) and a 4% FCF yield on 2019E. Downside risks include competition, reliance on partners for distribution (especially in mobile), regulatory scrutiny, GDPR regulation taking effect, ongoing margin declines, faster growth from lower margin businesses, product failure potential, and macroeconomic slowing.

Forecasts and ratios

Year End Dec 31	2017A	2018E
1Q EPS	9.68	12.37A
2Q EPS	11.09	11.99
3Q EPS	11.31	12.41
4Q EPS	9.70	13.24
FY EPS (USD)	41.78	50.00
P/E (x)	22.1	23.9
DPS (USD)	0.00	0.00
Dividend yield (%)	0.0	0.0
Revenue (USDm)	89,183.0	106,475.8

Source: Deutsche Bank estimates, company data

Key indicators (FY1)

ROE (%)	18.3
ROA (%)	14.3
Net debt/equity (%)	-17.7
Book value/share (USD)	131.58
Price/book (x)	9.1
Net interest cover (x)	–
EBIT margin (%)	29.1

Source: Deutsche Bank

Stock & option liquidity data

Market Cap (USDm)	844,218.3
Shares outstanding (m)	1,411.1
Free float (%)	–
Volume (16 Jul 2018)	361,167
Option volume (und. shrs., 1M avg.)	4,086,868

Source: Deutsche Bank

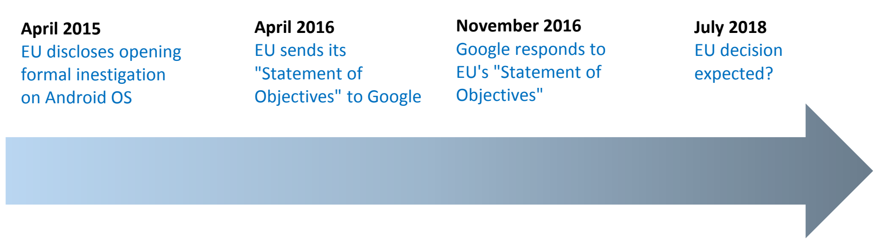
EU Case on Android OS

In April 2015, the European Commission (EC) disclosed it had formally opened proceedings against Google to investigate whether it breached EU antitrust rules on its conduct in relation to 1) the Android OS, and 2) applications and services for smartphones and tablets. Per its press release , "*The Commission will assess if, by entering into anticompetitive agreements and/or by abusing a possible dominant position, Google has illegally hindered the development and market access of rival mobile operating systems, mobile communication applications and services in the European Economic Area (EEA)*."

This investigation is separate from the other cases the EU is pursuing against Google, such as the one on Comparison Shopping where Google was fined €2.4B in late-July 2017, or just over 2.5% of Google's 2016 revenue, much less than the maximum 10% of annual revenue that it can impose. Google has filed an appeal against that decision, but still has to comply with the EU restrictions until the case is finally adjudicated.

The WSJ recently reported (link) that the EU is likely to – imminently – find that "Google illegally abused the dominance of its Android operating system for mobile phones" and that the "fine could surpass the €2.4 billion ($2.82 billion) that the EU levied against Google last year," but "the penalty isn't likely to reach into the double-digit billions range." **Given Google's ~$103B in cash and equivalents on the balance sheet at 1Q-end, we are not concerned about the amount of the fine the EU may impose; rather, we think it is the change in practices that could have much larger ramifications on Google's mobile business model, and impact both revenues and profitability. Additionally, if regulators in other large markets seek to impose similar remedial measures, the impact to Google's financials could be more significant.In this note, we discuss the EU investigation, a case study from Russia, and the potential impact to Google if the EU rules against the company. While there could be business implications long-term, we expect Google to continue challenging the EC findings.**

Figure 1: Timeline of EU's Investigation into Android OS



Source: EU; Deutsche Bank Securities, Inc.

Scope of EU's Formal Investigation

The EU launched its formal investigation following the receipt of two complaints and has completed an initial investigation into the complaints on its own initiative. The formal investigation is intended to **"assess if certain conditions in Google's agreements associated with the use of Android and Google's proprietary**

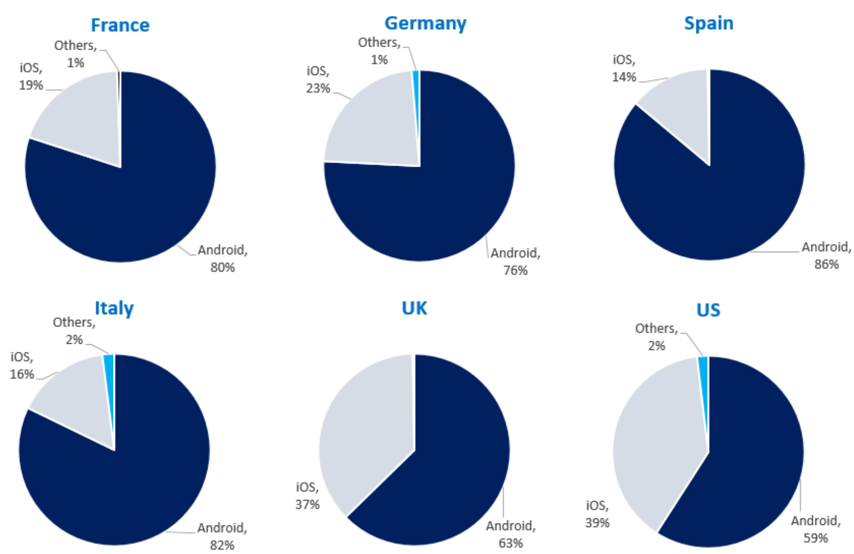
applications and services breach EU antitrust rules." The EU has been focusing specifically on the following three allegations.

- **Exclusivity on pre-installation:** Google has illegally hindered the development and market access of rival mobile applications or services by requiring or incentivising smartphone and tablet manufacturers to exclusively pre-install Google's own applications or services;
- **Deterring forks:** Google has prevented smartphone and tablet manufacturers who wish to install Google's applications and services on some of their Android devices from developing and marketing modified and potentially competing versions of Android (so-called "Android forks") on other devices, thereby illegally hindering the development and market access of rival mobile operating systems and mobile applications or services;
- **Application bundling:** Whether Google has illegally hindered the development and market access of rival applications and services by tying or bundling certain Google applications and services distributed on Android devices with other Google applications, services and/or application programming interfaces of Google.

Android OS Dominates Europe

According to Google, there are nearly 1,300 brands that have manufactured more than 24,000 distinct Android devices. Not surprising, therefore, that in Europe, a significant majority of smartphones and tablets use the Android OS. Per Kantar WorldPanel data on Smartphone sales in the five European countries it tracks, **Android OS holds a dominant market share in France, Spain, Germany, and Italy. In the UK, Android OS has 63% share in 1Q18, about in line with the market share in the US.**

Figure 2: Smartphone Sales Market Share for Select Countries by OS, 1Q18 – Android Has Much Smaller Share in the US



Source: Kantar WorldPanel; Deutsche Bank Securities, Inc.

So how many non-forked Android units are in the EU?

According to the European Union, the total population of the region is 508M and eMarketer estimates smartphone penetration of 62% in 2017 within the region which puts the region's smartphone population at 315M units. Assuming Stat Counter's estimate for Android market share within the region of 74%, this implies Android European user base is 233M - almost 12% of Android's 2B global devices. We believe this estimate is reasonable given that it implies a 2.3 year replacement cycle for the phones.

Figure 3: EU's Android Install Base

		Comments
EU Population (M)	508	Per EU official site
(*) Smartphone Penetration	62%	eMarketer
EU Smartphone population (M)	315	
(*) Android Marketshare	74%	Stat Counter
EU's Android Install Base (M)	**233**	

Source: europa.eu; eMarketer; statcounter.com; Deutsche Bank Securities, Inc.

EU's Preliminary View: Google Has Abused its Dominant Position

In April 2016, the EU sent its "Statement of Objectives" (link) to Google with a **preliminary view that Google has, in breach of EU antitrust rules, abused its dominant position** by imposing restrictions on Android device manufacturers and mobile network operators.

EU Considered Several Factors

In arriving at its preliminary view, the EU Commission considered a number of factors, including the following.

- *General internet search services:* Google has market shares of 90% and above in most Member States.
- *Licensable smart mobile operating systems:* 1) Google's market shares in the European Economic Area (EEA) for licensable mobile operating systems exceed 90%. Android is used on virtually all smartphones and tablets in the lower price range, which are bought by the majority of customers. 2) There are a number of barriers to entry that protect Google's position, including so-called network effects (that is, the more consumers adopt an operating system, the more developers write apps for that system). 3) Finally, Android users who wish to switch to other operating systems would face significant switching costs, such as losing their apps, data and contacts.
- *App stores for the Android mobile operating system:* 1) The Play Store accounts for more than 90% of apps downloaded on Android devices in the EEA. 2) Manufacturers find it commercially important to pre-install the Play Store on their devices. It is pre-installed on the large majority of Android devices in the EEA and is not available for download by end

users. Also, end users cannot download other app stores from the Play Store. 3) Android users would generally not switch to app stores for other operating systems as they would have to purchase a new device and would face significant switching costs.

Statement of Objectives Highlight EU's Concerns

The Commission also broadly outlined its concerns under the following three heads, which we quote verbatim below.

- **Licensing of Google's proprietary apps.** *"The Commission's investigation showed that Google obliges manufacturers, who wish to pre-install Google's app store for Android, Play Store, on their devices, to also pre-install Google Search, and set it as the default search provider on those devices. In addition, manufacturers who wish to pre-install Google's Play Store or Search, also have to pre-install Google's Chrome browser. Thereby, Google has ensured that Google Search and Google Chrome are pre-installed on the significant majority of devices sold in the EEA. Smartphone and tablet manufacturers should of course be able to provide consumers with an 'out-of-box' experience by selling their devices with a bundle of apps pre-installed. The Commission seeks to ensure that manufacturers are free to choose which apps they pre-install on their devices. This is especially important since the Commission's analysis has shown that consumers rarely download applications that would provide the same functionality as an app that is already pre-installed (unless the pre-installed app is of particularly poor quality). In this context, the Commission's preliminary conclusion is that by imposing the above-mentioned conditions on manufacturers, Google limits manufacturers' freedom to choose the most appropriate apps to pre-install. This strategy appears to protect and strengthen Google's dominant position in general internet search, and adversely affect competition in the market for mobile browsers. The Commission has evidence that smartphone manufacturers would wish to source at least some of the apps that they pre-install from other parties than Google."*

- **Anti-fragmentation.** *"Android is an open-source system, meaning that it can be freely used and developed by anyone to create a modified mobile operating system (a so-called "Android fork"). The open-source model of course does not raise competition concerns – on the contrary. The Commission's concerns relate to the conditions for use of Google's proprietary apps and services on Android devices, which are not open source. In particular, if a manufacturer wishes to pre-install Google proprietary apps, including Google Play Store and Google Search, on any of its devices, Google requires it to enter into an "Anti-Fragmentation Agreement" that commits it not to sell devices running on Android forks. EU antitrust rules allow dominant companies to put in place restrictions only when they are objectively justified. However, to date, Google has not been able to show this in relation to the restrictions in the "Anti-Fragmentation Agreements". Google's conduct has had a direct impact on consumers, as it has denied them access to innovative smart mobile devices based on alternative, potentially superior, versions of the Android operating system. The Commission has found evidence that Google's conduct prevented manufacturers from selling smart mobile devices based on a competing Android fork which had the potential of becoming a credible alternative to the Google Android operating system. In doing so, Google has also closed off an important way for its competitors to* *introduce apps and services, in particular general search services, which could be pre-installed on Android forks."*

- **Exclusivity.** *"Google has granted significant financial incentives to some of the largest smartphone and tablet manufacturers as well as mobile network operators on condition that they exclusively pre-install Google Search on their devices. The Commission takes issue not with financial incentives in general but with the conditions associated with Google's financial incentives, in particular with the condition that the financial incentive is not paid if any other search provider than Google Search is pre-installed on smart mobile devices."*

Android OS is Open Source, But Does It Come with Strings Attached?

As the EU pointed out in its release, "the majority of smartphone and tablet manufacturers … use the Android operating system in combination with a range of Google's proprietary applications and services. **In order to obtain the right to install these applications and services on their Android devices, manufacturers need to enter into certain agreements with Google**." This agreement, known as the Mobile Application Distribution Agreement (MADA), was used as an exhibit during the Oracle America v. Google in 2014 and provided a clear picture of what Android expected from manufacturers if they want to offer the Google Play store.

- **Devices may only be distributed if all Google Applications are pre-installed on the Device.** According to The Information, the number of pre-installed apps on a device can be as high as 20.
- **In addition to the MADA Google requires manufacturers to sign "anti-fragmentation" agreements so that devices aren't distributed with an Android version that isn't compatible with what is distributed by Google.** This is important because many other apps that are embedded in other Google apps such as Google Maps might not function properly if the device is running on a forked version of Android.
- **Google Search and the Google Play icon must be at least on the panel immediately adjacent to the default home screen.** Again, according to The Information which gained access to more recent MADA's than the 2011 one featured in the Oracle case, placement requirements ballooned from nine to almost twenty from 2011 to 2014. Per the newer agreement, the search widget and the Google Play app store must be on the default home screen, while an icon on the home screen labeled "Google" must provide access to a collection of 13 Google apps.
- **Google Search must be set as the default search provider for all web search access points.** The newer MADA agreements viewed by The Information include language for one manufacturer related to assistants and voice search.
- **If manufacturers wish to generate a revenue share from Google Play/ search activities, they must sign deals that prohibit them from pre-installing other search apps and app stores.**

We are not legal experts, and thus, do not have an opinion on whether or not Google may have infringed EU's antitrust rules. However, we point to three "facts" that Google has posted on its site (link) which seem to reinforce the fact that Google does have agreements that require manufacturers to adhere to a minimum set of standards in order to ensure optimal user experience with Google's proprietary apps and support much of the reporting on the MADA requirements.

- Android fact #20: **Google Mobile Services is a proprietary collection of 11 user-facing apps and several background apps** including Search, Chrome, Play Store, Play Music, Play Movies, Drive, Photos, Maps, Gmail, Hangouts, and YouTube. Device makers can use this free service to ensure their phones provide a useful user experience right out of the box.
- Android fact #16: **If device makers want to preinstall Google apps, they must install the full Google Mobile Services (GMS) suite**, as they were designed to work together to provide a baseline functionality for users —like the ability to save a photo from Gmail to Photos or open a Gmail attachment in Drive.
- Android fact #17: **Google doesn't require manufacturers to sign an anti-fragmentation requirement. This is an entirely voluntary step taken by device makers to prevent incompatibility—a problem that drives up development costs and harms the user experiences**.

Google's Response Highlighted Competition and "Choice"

In a blog post *Android: Choice at every turn* (link), Google detailed its counter-arguments. The key takeaways include the following.

- As a free and open-source operating system, Android OS has stimulated innovation and increased choice for consumers, which has resulted in dramatically lower prices for smartphones.
- Android OS competes with Apple's iOS. Google stated – "In fact, 89% of respondents to the Commission's own market survey confirmed that Android and Apple compete."
- Voluntary compliance by manufacturers with minimum compatibility standards ensures the Android OS is not fragmented, similar to previous operating systems like Unix and Symbian. The ensures not only that developers (including the 1.3M in Europe in 2015) are able to develop apps that run consistently across all phones, but also that there is robust competition among the Android smartphone manufacturers as well as with Apple iPhones. Per Google "Ninety-four percent of respondents who answered questions on fragmentation in a Commission market survey said that it harms the Android platform… The Commission's proposal risks making fragmentation worse, hurting the Android platform and mobile phone competition."
- On the question of choice regarding pre-installed apps, Google noted "No manufacturer is obliged to preload any Google apps on an Android phone. But we do offer manufacturers a suite of apps so that when you buy a new phone you can access a familiar set of basic services. Android's competitors, including Apple's iPhone and Microsoft's Windows phone, not only do the same, but they allow much less choice in the apps that come with their phones. On Android,

Google's apps typically account for less than one-third of the preloaded apps on the device (and only a small fraction of device memory). A consumer can swipe away any of our apps at any time. And, uniquely, hardware makers and carriers can pre-install rival apps right next to ours." On the Microsoft Lumia 550 phone, for instance, 39 out of 47 pre-installed apps are from Microsoft. On the Apple iPhone 7, 39 out of 39 pre-installed apps are from Apple. In contrast, on the Samsing Galaxy S7, only 11 out of 38 pre-installed apps are from Google.

- Google also highlighted the fact that the average Android user in Europe downloads an additional 50 apps over the lifetime of their device. Google stated – "Many pre-installed apps don't succeed, and many have been extremely successful through user downloads — think of Spotify or Snapchat. Our apps suite approach explicitly preserves users' freedom to choose the apps they want on their phones."
- In closing, Google said open-source platforms are fragile, and "distributing products like Google Search together with Google Play permits us to offer our entire suite for free — as opposed to, for example, charging upfront licensing fees. This free distribution is an efficient solution for everyone — it lowers prices for phone makers and consumers, while still letting us sustain our substantial investment in Android and Play."

When Should We Expect Closure?

The EU is quite clear in that there "is no legal deadline to complete inquiries into anti-competitive conduct. The duration of an antitrust investigation depends on a number of factors, including the complexity of the case, the extent to which the undertaking concerned cooperates with the Commission and the exercise of the rights of defence." In the comparison shopping case, the EU sent its Statement of Objections to Google in April 2015, around the same time as it was opening its investigation into the Android OS. The decision was disclosed in June 2017. This case, therefore, likely is a year behind the comparison shopping, where the decision was disclosed in June 2017. Per Bloomberg, the EU decision may come in mid-July (link), and possibly on July 18.

At this time, it is unclear as to how the EU may decide, and if it finds Google in infringement of EU's rules, what the fine and the remedies could be. We understand that the maximum fine that can be imposed is 10% of consolidated annual sales in the previous year – for 2017, we note Google reported GAAP revenue of $108.5B.

In the case of an adverse ruling, Google can appeal the decision with the EU General Court. Under the "Rules of Procedure" of the court, there are two phases during the appellate stage, written and oral. Under the written phase, the court will send a copy of the appeal to the EU Commission, which then has two months to respond. The oral phase of the proceedings is conducted via a public hearing, after which the judges deliberate, before delivering the decision at a public hearing (link). There is an option to process the case on an expedited basis, but the timing remains uncertain. Judgments of the General Court can be appealed before the European Court of Justice (ECJ), but that is limited to questions of law only, much like the Supreme Court in the U.S. In Intel's case, which was recently decided by the ECJ, the EU Antitrust Commission had delivered its judgment in 2009 levying a €1.06B fine (link). Intel filed an appeal, and the EU General

Court upheld the EU Antitrust Commission’s order in 2014. Intel then appealed the decision before the ECJ, which took another three years to give its decision, which was to refer the case back to the lower court – i.e. the EU General Court – for a final decision. Net-net, given the case hasn't been finally decided almost nine years after the initial EU Antitrust Commission's order, we think any appellate process could be protracted.

Case Study: Russia

Currently, there are very few cases in which anti-trust regulators have successfully gone after Google for exploiting their dominant position to restrict competition. However, Russia did just that. We have covered yandex since its 2011 IPO, giving us a front row seat for the anti-trust case against Google in Russia and the impact of the 2017 settlement. As such, we will review the suit against Google in Russia to develop a framework for how the pending Europe suit could impact Google's search business in Europe, then we will highlight the key differences. While we ultimately believe that Google's search business in Europe is not as at risk as it was in Russia given that consumers have shown a clear preference for Google and Europe lacks the presence of a competitor at Yandex's scale, we believe the ECC has tools in their bag to make Google feel pain. At the most extreme, we believe that the ECC could seek to remediate the issue by trying to separate Android from Google. However, we view a move that drastic and legally complex as highly unlikely, and see a more plausible scenario where Google is more limited in the conditions it puts around app pre-installations, bundling and conditions around Android Forks in the region.

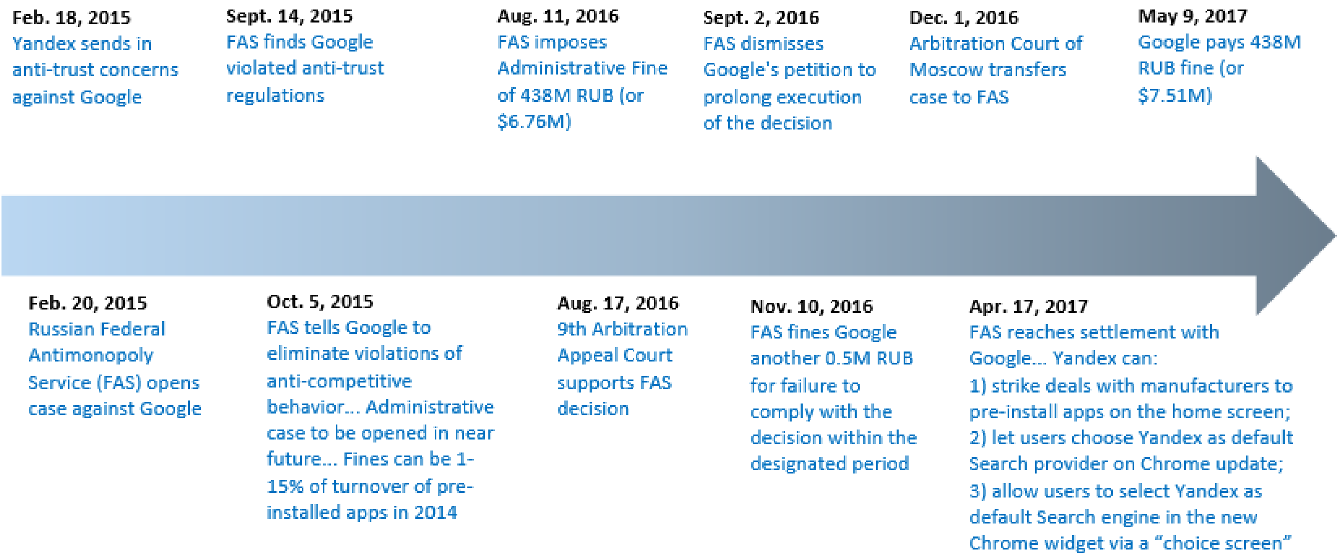
Russia Case Background

In February 2015, the Russian Federal Anti-monopoly Service (FAS) acknowledged Yandex's concerns that Google was in violation of Part 1 Article 14 of No. 135-FZ Federal Law (prohibition of unfair competition), and by September 2015, the FAS ruled that Google had in fact abused its dominant position. The case centered around the Google Play application store. Specifically, Google was offering mobile device OEMs their marquee applications for pre-install under contingencies such as (1) the OEMs must pre-install other Google applications, (2) the pre-installed applications must be on the 1st screen, (3) Google search had to be the default search engine on the phone, (4) and applications/browsers from other companies like Yandex that directly competed with Google were prohibited from being pre-installed on the hardware.

Unsatisfied with the accusations, Google filed an appeal with the Moscow Arbitration Court on the premise that its Android partners are free to opt for different apps and are not forced to use Google's applications. However, the Moscow Arbitration Court believed that the Google Play Store was too integral to the Android ecosystem and that a partner cannot simply not have the Play Store. Ultimately, in March 2016, the Moscow Arbitration Court issued a press release fully supporting the Russian FAS' decision that Google was in violation of anti-trust law.

In May 2016, the official administrative case (state vs. a party) against Google started and eventually resulted in the Russian FAS imposing an administrative fine of 438 million RUB (~ $6.76 million at the time). Six days later, the 9th Arbitration Appeal Court dubbed the FAS' decision as legitimate and reasonable. From there, Google tried to prolong the execution process by petitioning the timeline, but this was dismissed by the FAS. Finally, on April 17, 2017 Google reached a settlement with the FAS including an immaterial fine (438 million RUB = $7.5 million), and agreeing to change its business practices in Android in Russia.

Figure 4: Timeline of FAS case and settlement



Source: Yandex; Deutsche Bank Securities, Inc.

Key Terms of the Russia Settlement

On top of the minor fine, there were three key changes to how Google was able to operate in Russia:

1. Yandex and other app developers are now able to strike deals with OEMs to pre-install their apps and be set as the default search engine.
2. New Android handset users in Russia were prompted to choose their default search engine across the Google Chrome browser and search widget, and provide a list of potential options including Yandex Search. Previously the Chrome browser defaulted to Google search in Russia.
3. Existing Android handset users in Russia were served a "choice box" pop-up that showed them they can change their default search options in the Google Chrome browser that ships with Android; the choice box included a list of other search providers including Yandex. the choice box only activated for users who had not switched their default search option away from Google.

Yandex has Historically been the Preferred Search Provider in Russia

Yandex has historically been the search provider of preference in Russia based on market share trends. The company had almost 65% of search share in desktop prior to the Android settlement, and has had over 62.9% share on desktop over the past three years.

When Google first rolled out its Chrome browser in Russia, supported by an aggressive advertising campaign (around the time of the Yandex IPO), **Google rolled out unique code on its Chrome browser in Russia that made it more difficult for users to select non-Google default search options**. Specifically, in every country around the world, except Russia, when a user booted up the

Chrome browser for the first time, it gives end users a choice screen where they can select from a number of alternative default search providers. In Russia, Google Chrome did not include this choice box. Ultimately, Yandex was able to create a workaround, whereby users navigating to Yandex.ru were promoted to click a button to switch their default search option, after which Yandex was able to grow its market share in the Chrome browser to over 50% when Chrome browser was predominantly desktop, and the rise of mobile drove down their share of overall Chrome browser given the significant amount of Chrome browser pre-installation on Android mobile devices.

We provide some historical context here (1) to show the historical preference for Yandex search in Russia ahead of the FAS settlement and (2) to remind investors that Google's control of Android provides it with unprecedented power around search distribution that gives it a formidable advantage that could endure any regulatory oversight.

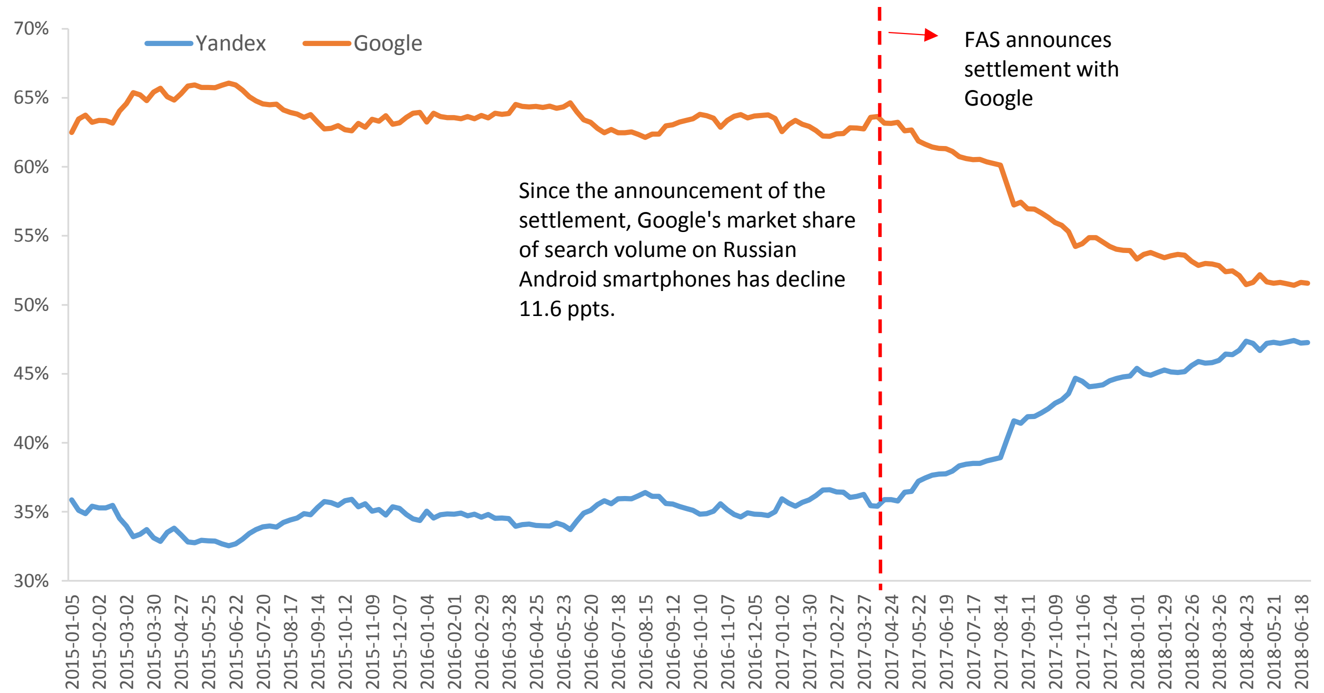
How the FAS Ruling Shaped the Russian Search Landscape

Now that over a year has elapsed since the settlement was announced, and we are approaching the 1-year mark of when Google began rolling out the choice box, we wanted to take a look at how the Android search landscape in Russia has changed. We will start by looking at search share on Android devices, then move on to Google Chrome browser share on Android devices.

Post the FAS settlement, we understand that Google started rolling out the "choice box" that would prompt users to select which search engine they wanted as their default on their Chrome Browser in August. Google then slowly rolled out the choice box throughout the country with Yandex noting on their 3Q17 earnings call (11/24/17) that share gains should slow as their internal data showed that the majority of users had updated their browsers by that point. However, Yandex also noted that they expected their search share gains to continue as selected new phones were shipped in late-2017-early-2018 with Yandex search defaulted on the Android search widget, per agreements the company struck with OEMs.

In our original note addressing the FAS settlement (link), we estimated that the FAS ruling could, over time, drive an incremental 18 ppts of search market share to Yandex on Android mobile devices, almost exclusively at the expense of Google's market share. Yandex management has reinforced this, indicating that they believe it is possible for Yandex to reach 50% search share on Android by the end of 2018. We believe that our original base case estimate for Yandex's search share reaching 56% is reasonable given that Yandex's search share on desktop in Russia is ~66% - well ahead of Google's 28% desktop share.

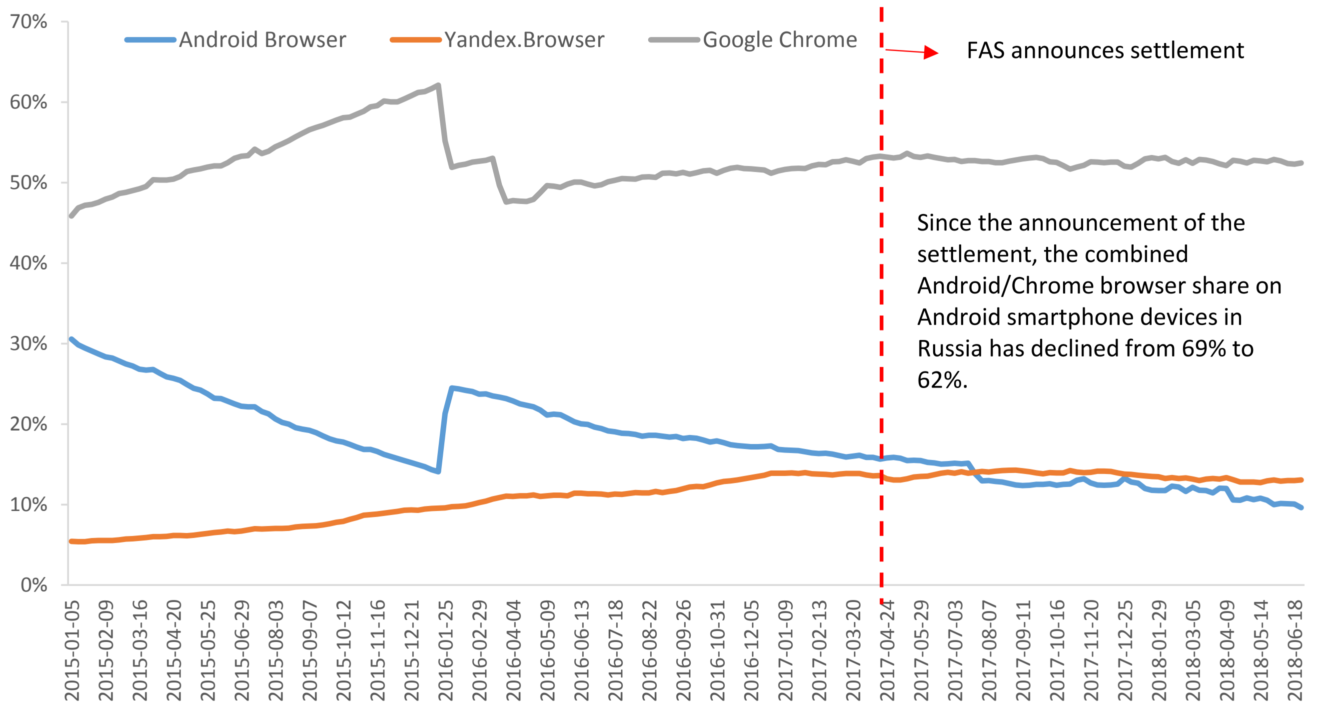
Figure 5:Search share on Android smartphone devices in Russia



Source: Yandex.Radar; Deutsche Bank Securities, Inc.

While the combined Android/Chrome share of Russian browsers on Android devices has declined 7ppts since the settlement was announced, this has primarily come at the expense of the Android browser market share which has lost slightly over 6ppts. Over the same time frame, Yandex browser lost 55bps of market share. We expect the shift in browser market share away from Google's offerings will continue at a slow clip and will likely be a function of the smartphone replacement cycle as new phones are offered with various pre-installed browsers.

Figure 6: Browser share on Android smartphone devices in Russia



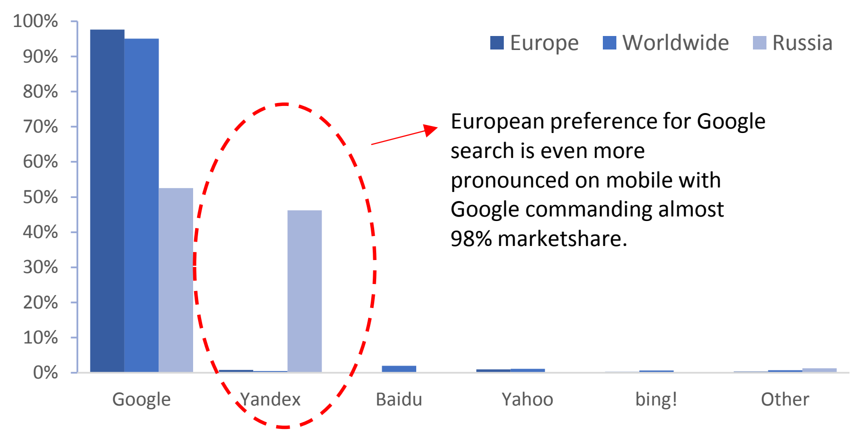
Source: Yandex.Radar; Deutsche Bank Securities, Inc.

Why Europe is Different

We think the situation in Europe is quite different from Russia, given that the competitive landscape in Europe no way resembles Russia where there was a strong local alternative search engine. We are skeptical that a "choice box" would drive a material share shift given no alternative in the EU with comparable loyalty to Yandex search in Russia. The same applies for the Google Search app, Google Maps, YouTube, and at least for now, Google Play.

Starting with search share, European preference for Google search is very pronounced with Google commanding 98% and 86% on mobile and desktop, respectively. Given that Google has such a commanding search position in Europe, in a competitive browser environment, it is unlikely that other search providers would be able to change such engrained consumer behavior to meaningfully alter the search market landscape in the region. Every 1% of EU Android search share equates to $86M of revenue, or .07% of 2018 global gross revenue for Google, by our estimates.

Figure 7: Mobile search query market share - Europe vs Russia



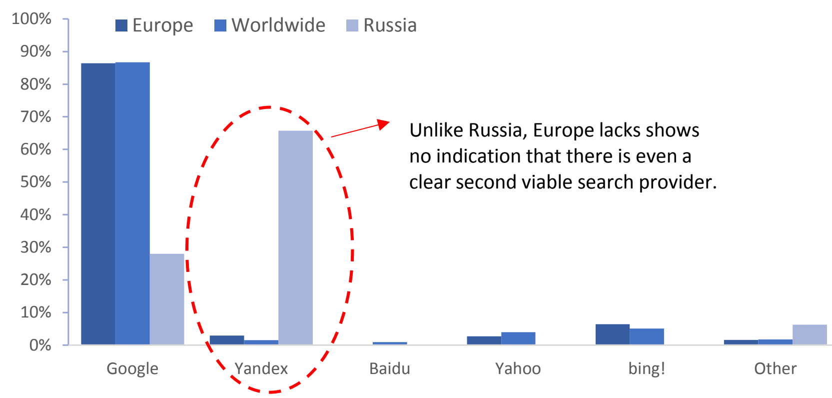
Source: Statcounter.com; Deutsche Bank Securities, Inc.

In addition to consumer brand preference in Russia, Yandex monetizes its search activity in Russia well, even commanding a higher revenue per search than Google. This has allowed Yandex to (1) bid for default search on handsets and win given it can ultimately help make handset OEMs more money in Russia than Google can and (2) justify spending considerable sums advertising Yandex throughout Russia alongside the choice box rollout. We think the ability to economically run broad ad campaigns and to buy default search placement is unique to Yandex in Russia. We think a search competitor in the EU (e.g. Bing) would find it quite difficult to justify launching a broad ad campaign. In addition, with vastly inferior monetization capabilities (fewer advertisers, lack of historical data for targeting, etc), we think it would be difficult for Bing to bid for default search in the EU in a way that would make economic sense for a handset maker.

For example, if Yahoo/Bing paid out 100% of revenue in TAC to a handset maker, but monetized at 50% the rate of Google in the EU, it would immediately be the equivalent of a 50% TAC deal from Google. But more problematically, we estimate that over 50% of users would switch back to Google, further diluting the effective benefits of such a deal even at a hypothetical higher TAC rate from Bing.

As seen in the following exhibit, the Russian population's preference for Yandex search is well established on desktop. While we did not anticipate that Yandex would be able to reach search market share levels on mobile in line with their desktop share, we believe that a preference for the UX accompanied with an easy means for users to switch search engines created a very attractive set-up for meaningful market share gains. We do not see this sort of dynamic in Europe.

Figure 8: Desktop search query market share - Europe vs Russia

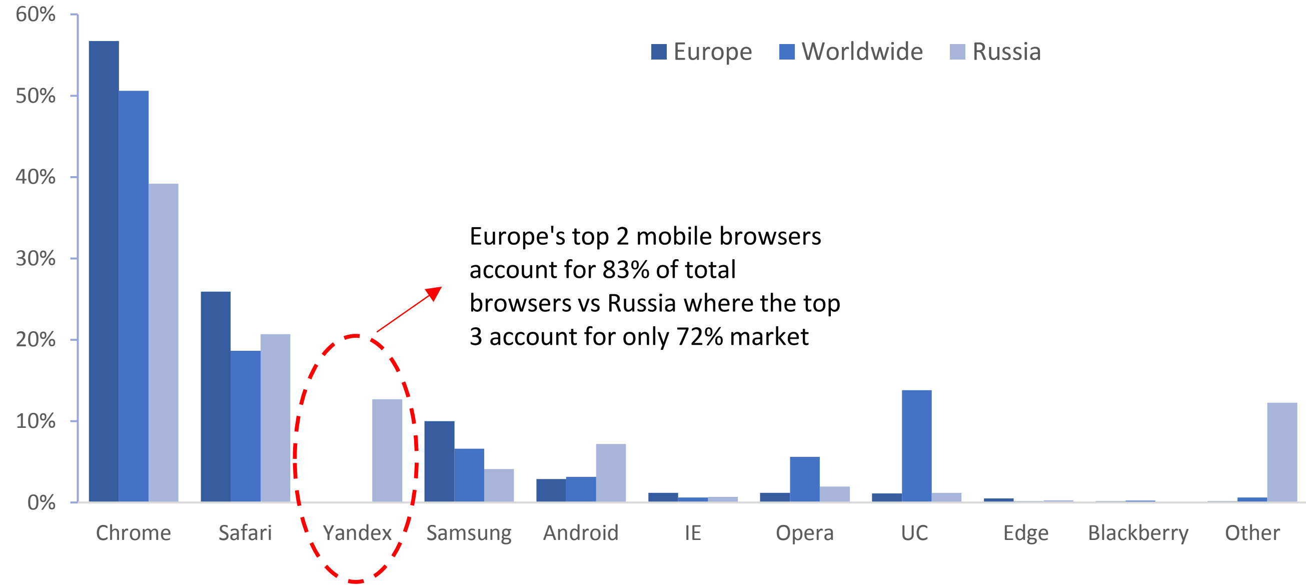


Source: Statcounter.com; Deutsche Bank Securities, Inc., Time period is last ~3 years

Finally, given Google's strong relationship with Apple we do not anticipate that any other search provider will be able to negotiate their search engine as the default on iOS devices. Furthermore, because iOS devices fall outside of the scope of the case, other search engines will not have the same benefit on Chrome browsers as they will have on Android devices.

Turning to mobile browsers, it is clear that the Yandex.Browser is a meaningful alternative to both Chrome and Safari in Russia - and we know this was the case well before the FAS ruling. However, in Europe, the third largest browser (Samsung) is a very distant third. Furthermore, we believe that this concentration in browser usage would be even more pronounced for browser market share in European Android devices and would likely resemble the distribution in European desktop browser market share.

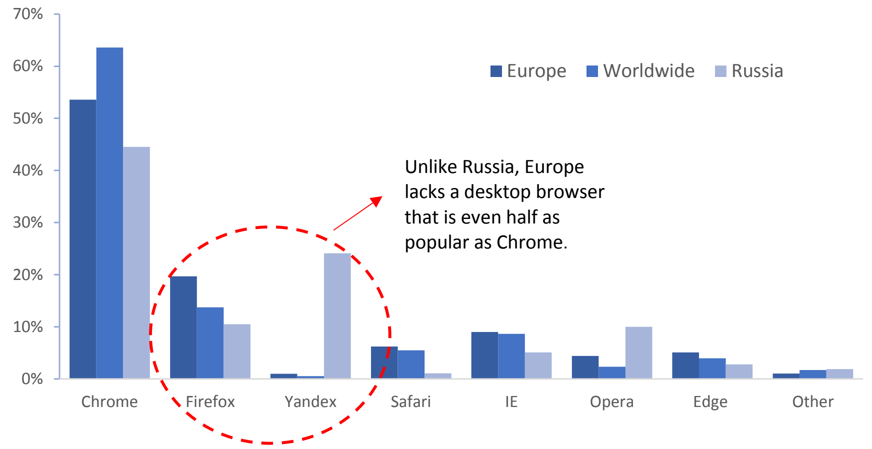
Figure 9: Mobile Browser Share - Europe vs. Russia



Source: Statcounter.com; Deutsche Bank Securities, Inc., Time period is last ~3 years

We believe that European preference for the Chrome browser is likely a function of user preference vs being an entirely pre-install story given the extreme concentration on both desktop and mobile. According to statcounter.com, Google's Chrome browser commands over 50% market share on both desktop and mobile devices in Europe. For mobile, the top three browsers control almost 93% of the market share compared to the top three browsers worldwide controlling 83% of the browser market. With regards to the mobile Chrome browser, it has 57% market share in Europe – above its worldwide market share of 51%. For desktop, the European browser share is slightly less concentrated amongst the top three browsers at 82% vs the worldwide concentration of 86%. With regards to the desktop Chrome browser, it has 54% market share in Europe – notably below the worldwide market share of 64%.

Figure 10: Desktop Browser Share - Europe vs. Russia

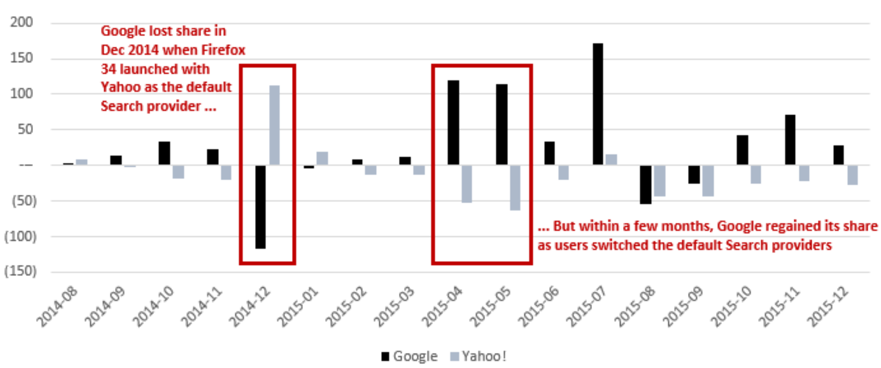


Source: Statcounter.com; Deutsche Bank Securities, Inc., Time period is last ~3 years

The Firefox Case Study

In 2014 Mozilla struck a 5-year deal with Yahoo to have Yahoo search set as the default search provider on their Firefox browsers - previously Firefox defaulted to Google search. This update was rolled out in early December 2014 in North America (with the launch of the Firefox browser version 34) and initially drove search market share to Yahoo. However, after a few months, Google regained the share it lost initially as users switched their default search provider back to Google. In late 2017, Mozilla ended up terminating the deal early citing the need to do what was best for their brand and user experience.

Figure 11: Google & Yahoo market share changes (bps) in the US post Mozilla/Yahoo default deal



Source: Statcounter.com; Deutsche Bank Securities, Inc.

We see this as solid precedent that consumer preference for Google search is stickier than pre-install agreements with other search providers. As such, we struggle to see a scenario where another Google controls 90%+ of a search market and another search provider is able to leverage pre-install agreements that materially change the region's search landscape.

What-If Scenarios for Europe

Clearly, the outcome is uncertain – however, if media reports are true, and the EU finds that Google has infringed the EU antitrust regulations, in addition to any fines, the EU is likely to prescribe solutions that they believe could "cure" the infringements. Although in all certainty, we think Google may appeal the decision, it necessarily may be required to implement the "cures" while the appellate decision is pending. We think the range of outcomes is quite wide, and we can see multiple ways in which this plays out, depending on the "cure."

Net-net, we see a far more limited impact in the EU than what Google experienced in Russia, primarily due to the lack of an alternative at Yandex's scale. However, we expect a large fine and some effort to change business practices in Android to make search, the app store, and mobile operating systems more competitive. The EU may leave Google to interpret how to impart a more competitive market structure, similar to how it did in the Google Shopping case - make it easier for comparison shopping engines to participate, but with limited negative impact to Google. With regards to apps, Google's apps are best in class and will like stand on their own even outside the bundle. If we assume the EU is 75% of EMEA ex-Youtube revenue, and within the region revenue is 50% mobile at a 75%/25% Android/iOS split, this equates to about $8.4B of aggregate exposure. Within Android, if 20% of search activity is navigated to Google.com, it further reduces the exposure to $6.7B, or 5.9% of gross revenue. Every marginal 1% increase/ decrease in TAC applied to this equates to $54M of incremental tax effected expense or .18% of our 2018 GAAP net income estimate.

Figure 12: GOOG revenue exposed to EU ruling

	A	B	C	Comments
Gross Ad Revenue	$114,614	$114,614	$114,614	DB Est - 2018
(-) YouTube	$14,316	$14,316	$14,316	DB Est - 2018
Gross Ad Rev - Ex YouTube	$100,298	$100,298	$100,298	
(*) Mobile % of Revenue	50%	50%	50%	DB Est
Mobile Ad Rev - Ex YouTube	$50,149	$50,149	$50,149	
(*) EMEA %	34%	34%	34%	DB Est
EMEA Mobile Ad Rev - Ex YouTube	$16,843	$16,843	$16,843	
(*) Europe as a % of EMEA	70%	75%	80%	DB Est
Europe Mobile Ad Rev - Ex YouTube	$11,790	$12,632	$13,475	
(*) Android market share in Europe	74%	74%	74%	Statcounter.com
Europe Android Ad Rev - Ex YouTube - assuming no gap to iOS	**$8,725**	**$9,348**	**$9,971**	
(*) Monetization Discount to iOS	10%	10%	10%	
EU Android Ad Rev - Ex YouTube	**$7,852**	**$8,413**	**$8,974**	
% of Gross Ad revenue exposed to EU ruling	**6.85%**	**7.34%**	**7.83%**	

Source: Statcounter.com; Deutsche Bank Securities, Inc.

Most Extreme Case: EU Asks Google to "Separate" Android

The most draconian outcome, in our view, would be for the EU to ask Google to completely separate Android from the corporate structure for Europe. We think this is very unlikely. In such a case, Google might feel compelled to more aggressively focus on its Pixel phone hardware like any other manufacturer. Given the global nature of the business, and how closely Google is tied to the Android ecosystem, **we think it may be challenging for Google to separate Android purely for Europe, and as such, this scenario is likely to be a non-starter from the get-go.** In the event that Google is required to separate Android, we believe that Android would license the OS to manufacturers as its primary revenue source and the business could easily be worth $300B ($150/user @ 2B users) given some comps are trading in excess of $500/user.

Google app bundling likely to be reduced

We see the EU potentially looking for Google to stop requiring OEMs to bundle its apps. This could lead OEMs to push their own or alternative apps (e.g. search, browser) where they get a higher revenue share. In reality, for this to make sense for the OEMs, other search providers and apps will have to offer substantially higher TAC rates given Google's vastly superior monetization, and even here it is a struggle to see how others could compete. As we noted above, a Bing search deal with a 100% TAC rate could quickly look less appealing than a Google deal at a much lower TAC rate if (1) Bing monetized at a fraction of Google given fewer advertisers and less data, (2) if most users switched back to Google Search and/ or download other Google apps which would then carry no TAC revenue share payments if they were not the default. Given user's clear preference for Google in the region, we believe this option is impractical for the parties involved, and could result in users switching to the more user-friendly iOS ecosystem which ultimately defaults to Google search. Net-net, we see this outcome potentially benefitting Google as they would no longer be paying pre-install TAC rates to the Android-based OEMs.

We do think its possible that Google cannot force bundling but could incent bundling with higher TAC rates for OEMs that include all of Google's core apps (or the key apps) in their entirety. Google could be restricted in forcing an all-or-nothing bundle, but able to incentivize the OEMs to pre-install other apps through higher overall take rates. While this outcome could result in marginally higher TAC rates for Google within the region, we believe that this outcome would likely fail to meaningfully change which apps are pre-installed on Android devices and have a limited impact on overall Alphabet earnings power, in our view.

Google could potentially offset any reductions in market share or increase in TAC by charging OEMs licensing fees for Android, which could be quite a significant revenue stream in and of itself.

Appendix

Google's Case for Android Being an Open Source Platform

Android is an open-source platform, and according Google (link), the Android source code "is free for anyone to download, customize, and distribute, meaning that it can be freely used and developed by anyone." Google further states – "Android's open-source model encourages innovation by giving device makers the freedom to customize their phones and the Android OS, as well as preinstall any apps they choose. So consumers get more choices when it comes to devices and apps." The Google Play store offers over 1 million apps for Android devices, and manufacturers can use Android without having to install Google apps.

On its site (link), Google highlights a number of "facts" that support its case that "Android is for everyone," including the following.

- Android fact #04: **No one is ever required to pre-install Google's suite of proprietary apps to access, use, or distribute the Android** operating system. For example, the Amazon Fire tablet runs on an operating system that was built using Android, yet ships with no Google apps pre-installed.
- Android fact #06: Even if a phone has Google's suite of proprietary apps pre-installed, **device makers and mobile operators often choose to pre-install similar apps on a device-by-device basis**—such as email, messaging, browsers, and media players.
- Android fact #07: **Among 2016 flagship phones in the UK, Germany, and France, only 29% of pre-installed apps are from Google**. The remaining 71% are from device makers, mobile operators, and other companies, like Facebook.
- Android fact #08: Android apps have more distribution opportunities than on any other mobile platform. **In addition to the Play Store, there are dozens of other app stores on Android, such as GetJar, Yandex, LG's Smart World, and Samsung's Galaxy Apps store**.
- Android fact #09: While users on other platforms can't download alternative app stores without "jailbreaking" their phones, **Google doesn't restrict other stores from Android**—making it the only major mobile OS to enable multiple app stores.
- Android fact #10: **Android users can completely customize their homescreens with launchers and widgets, and reskin their devices**. Even pre-installed apps can be removed from the homescreen or disabled entirely.
- Android fact #11: **Device makers and mobile operators often preload other app stores** onto their phones in addition to Google Play, such as Samsung's Galaxy Apps store or Xiaomi's MiMarket.
- Android fact #13: **Most major Android device makers choose to customize the look and feel** of their phones as a way of differentiating their devices.
- Android fact #14: **A pre-installed app doesn't prevent similar or competing apps from being more successful**. Hangouts is part of

Google's suite of proprietary apps, yet WhatsApp, another messaging service, has over one billion users (¾ of which are on Android) and Facebook Messenger has one billion active monthly users.

- Android fact #15: 90% of Android apps on Google Play use **Android's "intents" system**, which allows developers to designate other apps to perform certain actions. This **lets Android users set any app they want as the default for tasks** like search or web browsing including UC Browser, Opera, or Chrome.
- Android fact #23: **Even with Google apps pre-installed on certain Android devices, many third-party apps thrive on Android**. For example, in high-growth markets like India, 98% of people surveyed use Facebook's WhatsApp at least once a month for messaging, while only 32% use Google Hangouts.

Valuation

Buy rated with $1,225 price target (unchanged)

Our target price of $1,225 is based on a blended average 25x GAAP EPS (unchanged), 14x EBITDA (unchanged) and a 4% FCF yield on 2019E.

Figure 13: Valuation ($ in Millions, excluding per share data)

Alphabet Inc. -- Valuation Worksheet
(in millions except per share amounts)

Current Price	$1,196.51
Shares Outstanding	705.1
Current Market Cap	843,700
Net debt (cash)	(97,902)
Adj. Enterprise Value	745,798

Price to Earnings	**2017**	**2018E**	**2019E**
GAAP EPS	$32.00	$43.30	$45.15
Current P/E multiple	37.4x	27.6x	26.5x
Target Multiple	**25.0x**	**25.0x**	**25.0x**
Implied Stock Price on fwd. EPS	**$801**	**$1,084**	**$1,130**

EV to EBITDA	**2017**	**2018E**	**2019E**
Adjusted EBITDA	43,476	49,108	56,478
Current EV/EBITDA Multiple	17.2x	15.2x	13.2x
Target Multiple	**14.0x**	**14.0x**	**14.0x**
Enterprise Value	608,664	687,514	790,699
Plus FY End Net Cash	97,902	120,504	154,943
Equity Value	706,566	808,018	945,642
FY End Projected Sharecount	703.5	705.6	709.3
Implied Stock Price on fwd. EBITDA	**$1,004**	**$1,145**	**$1,333**

FCF Yield	**2017**	**2018E**	**2019E**
FCF per Share (ex MMI post split)	$33.98	$36.66	$48.47
P/FCF Multiple	35.2x	32.6x	24.7x
Current FCF Yield	2.8%	3.1%	4.1%
Target Yield	**4.0%**	**4.0%**	**4.0%**
Implied Stock Price on FCF yield	**$848**	**$915**	**$1,210**
Target			**$1,225**

Source: Company reports; Deutsche Bank Securities, Inc.

Risks

Downside risks include competition, reliance on partners for distribution (especially in mobile), regulatory scrutiny, GDPR regulation taking effect, ongoing margin declines, faster growth from lower margin businesses, product failure potential, and macroeconomic slowing.

Figure 14: Income Statement ($ in Millions)

	FY2015A	FY2016A	1Q17A	2Q17A	3Q17A	4Q17A	FY2017A	1Q18A	2Q18E	3Q18E	4Q18E	FY2018E	1Q19E	2Q19E	3Q19E	4Q19E	FY2019E
Consolidated Net Revenue	**60,646**	**73,479**	**20,121**	**20,919**	**22,270**	**25,873**	**89,183**	**24,858**	**25,181**	**26,371**	**30,066**	**106,476**	**28,321**	**29,270**	**30,617**	**34,931**	**123,139**
Gross Revenue	74,989	90,272	24,750	26,010	27,772	32,323	110,855	31,146	31,610	33,197	37,994	133,948	35,775	36,883	38,687	44,270	155,615
Google Web Sites Revenue	52,357	63,785	17,403	18,425	19,723	22,237	77,788	21,998	22,774	23,847	26,566	95,185	25,838	26,646	27,792	30,957	111,233
Google Network Web Sites Revenue	15,033	15,598	4,008	4,247	4,342	4,990	17,587	4,644	4,520	4,726	5,540	19,429	4,962	4,815	5,037	5,904	20,718
TAC	14,343	16,793	4,629	5,091	5,502	6,450	21,672	6,288	6,430	6,826	7,929	27,472	7,454	7,613	8,069	9,339	32,475
Licensing & Other Revenue	7,599	10,889	3,339	3,338	3,707	5,096	15,480	4,504	4,317	4,625	5,889	19,334	4,975	5,422	5,858	7,409	23,664
Alphabet Net Revenue	60,646	73,479	20,121	20,919	22,270	25,873	89,183	24,858	25,181	26,371	30,066	106,476	28,321	29,270	30,617	34,931	123,139
Cost of Net Revenues	13,015	17,188	4,842	4,942	5,328	7,481	22,593	6,783	6,754	6,893	9,039	29,468	8,084	8,212	8,409	10,958	35,664
Gross Profit	47,631	56,291	15,279	15,977	16,942	18,392	66,590	18,075	18,427	19,479	21,027	77,008	20,237	21,058	22,209	23,972	87,475
Operating Expenses:																	
Product Development	9,604	10,641	2,948	3,187	3,303	3,399	12,837	3,824	4,002	4,071	4,044	15,941	4,405	4,676	4,748	4,714	18,543
Sales and Marketing	8,156	9,407	2,319	2,580	2,751	4,009	11,659	3,206	3,483	3,917	4,658	15,265	3,582	3,976	4,472	5,325	17,354
General and Administrative	5,308	5,824	1,435	1,339	1,286	1,474	5,534	1,201	1,108	1,391	1,562	5,262	1,226	1,142	1,462	1,640	5,470
Stock Based Compensation	5,203	6,703	2,009	2,003	1,820	1,847	7,679	2,457	2,468	2,242	2,345	9,511	2,728	2,795	2,526	2,637	10,687
Other																	
Operating Expenses (ex. COGS, Stock Comp)	23,068	25,872	6,702	7,106	7,340	8,881	30,029	8,230	8,594	9,379	10,265	36,468	9,213	9,793	10,682	11,679	41,367
Total Operating Expenses	41,286	49,763	13,553	16,787	14,488	18,209	63,037	17,857	17,815	18,513	21,648	75,834	20,026	20,801	21,616	25,275	87,718
Income from Operations (GAAP)	19,360	23,716	6,568	4,132	7,782	7,664	26,146	7,001	7,365	7,858	8,417	30,642	8,295	8,470	9,001	9,656	35,422
Non -GAAP operating income	24,563	30,419	8,577	8,871	9,602	9,511	36,561	9,845	9,833	10,100	10,762	40,540	11,024	11,265	11,527	12,293	46,109
Depreciation & Amortization	5,063	6,144	1,503	1,625	1,761	2,026	6,915	1,986	2,085	2,193	2,304	8,568	2,415	2,528	2,650	2,777	10,370
EBITDA (inc SBC)	24,423	29,860	8,071	8,493	9,543	9,690	35,797	9,374	9,451	10,051	10,721	39,597	10,710	10,998	11,651	12,432	45,791
Net Income Continuing Operations (GAAP)	16,348	19,478	5,426	3,524	6,732	6,837	22,519	9,401	6,580	7,030	7,539	30,550	7,487	7,660	8,148	8,730	32,025
Net Income (GAAP)	**15,826**	**19,478**	**5,426**	**3,524**	**6,732**	**6,837**	**22,519**	**9,401**	**6,580**	**7,030**	**7,539**	**30,550**	**7,487**	**7,660**	**8,148**	**8,730**	**32,025**
EPS (GAAP)	$22.83	$27.88	$7.73	$5.01	$9.57	$9.70	$32.00	$13.33	$9.33	$9.96	$10.68	$43.30	$10.59	$10.81	$11.48	$12.27	$45.15
Diluted Shares Outstanding	693	699	702	704	704	705	704	705	705	706	706	706	707	709	710	711	709
Adjusted Net Income	20,435	24,031	6,797	7,802	7,957	6,837	29,394	8,723	8,480	8,756	9,344	35,303	9,588	9,812	10,093	10,761	40,254
Adjusted EPS	**$29.48**	**$34.39**	**$9.68**	**$11.09**	**$11.31**	**$9.70**	**$41.78**	**$12.37**	**$12.02**	**$12.41**	**$13.24**	**$50.03**	**$13.56**	**$13.85**	**$14.22**	**$15.13**	**$56.75**
Adjusted EBITDA (ex SBC)	29,626	36,563	10,080	10,496	11,363	11,537	43,476	11,831	11,918	12,293	13,066	49,108	13,439	13,793	14,177	15,070	56,478
Adjusted EBITDA - Core Google	**32,811**	**39,644**	**10,848**	**11,200**	**12,065**	**12,353**	**46,466**	**12,960**	**12,603**	**12,978**	**13,951**	**52,492**	**14,124**	**14,478**	**14,862**	**15,955**	**59,418**
Adjusted EBITDA - Consolidated	**29,626**	**36,563**	**10,080**	**10,496**	**11,363**	**11,537**	**43,476**	**11,831**	**11,918**	**12,293**	**13,066**	**49,108**	**13,439**	**13,793**	**14,177**	**15,070**	**56,478**
Adjusted Income from Operations	**24,563**	**30,419**	**8,577**	**6,135**	**9,602**	**9,511**	**33,825**	**9,458**	**9,833**	**10,100**	**10,762**	**40,153**	**11,024**	**11,265**	**11,527**	**12,293**	**46,109**
Free Cash Metrics																	
Free Cash Flow	16,109	25,853	7,040	4,572	6,334	5,961	23,907	4,343	5,317	10,443	5,765	25,869	8,008	9,947	6,970	9,453	34,378
FCF per share	**$23.25**	**$37.01**	**$10.03**	**$6.50**	**$9.00**	**$8.46**	**$33.98**	**$6.16**	**$7.54**	**$14.80**	**$8.17**	**$36.66**	**$11.32**	**$14.04**	**$9.82**	**$13.29**	**$48.47**
Margin Analysis																	
Gross Margin	78.5%	76.6%	75.9%	76.4%	76.1%	71.1%	74.7%	72.7%	73.2%	73.9%	69.9%	72.3%	71.5%	71.9%	72.5%	68.6%	71.0%
Sales and Marketing as % of Net Revenue	13.4%	12.8%	11.5%	12.3%	12.4%	15.5%	13.1%	12.9%	13.8%	14.9%	15.5%	14.3%	12.6%	13.6%	14.6%	15.2%	14.1%
Product Development as % of Net Revenue	15.8%	14.5%	14.7%	15.2%	14.8%	13.1%	14.4%	15.4%	15.9%	15.4%	13.5%	15.0%	15.6%	16.0%	15.5%	13.5%	15.1%
General and Administrative as % of Net Revenue	8.8%	7.9%	7.1%	6.4%	5.8%	5.7%	6.2%	4.8%	4.4%	5.3%	5.2%	4.9%	4.3%	3.9%	4.8%	4.7%	4.4%
Operating Margin (GAAP)	31.9%	32.3%	32.6%	19.8%	34.9%	29.6%	29.3%	28.2%	29.3%	29.8%	28.0%	28.8%	29.3%	28.9%	29.4%	27.6%	28.8%
Operating Margin (Non GAAP)	40.5%	41.4%	42.6%	42.4%	43.1%	36.8%	41.0%	39.6%	39.1%	38.3%	35.8%	38.1%	38.9%	38.5%	37.6%	35.2%	37.4%
EBITDA Margin - Core Google to Core Google Net Revs	**54.5%**	**54.6%**	**54.6%**	**54.2%**	**54.9%**	**48.5%**	**52.8%**	**52.5%**	**50.7%**	**49.9%**	**47.2%**	**49.9%**	**50.2%**	**50.1%**	**49.3%**	**46.5%**	**48.9%**
Net Income (GAAP)	27.0%	26.5%	27.0%	16.8%	30.2%	26.4%	25.3%	37.8%	26.1%	26.7%	25.1%	28.7%	26.4%	26.2%	26.6%	25.0%	26.0%
Adjusted Net Income	33.7%	32.7%	33.8%	37.3%	35.7%	26.4%	33.0%	35.1%	33.7%	33.2%	31.1%	33.2%	33.9%	33.5%	33.0%	30.8%	32.7%
Adjusted EBITDA Margin	48.9%	49.8%	50.1%	50.2%	51.0%	44.6%	48.7%	47.6%	47.3%	46.6%	43.5%	46.1%	47.5%	47.1%	46.3%	43.1%	45.9%
Effective Tax Rate	16.8%	19.3%	20.4%	19.5%	15.6%	14.7%	17.2%	10.8%	15.3%	15.3%	15.3%	14.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Pretax Income	32.4%	32.9%	33.9%	20.9%	35.8%	31.0%	30.5%	42.4%	30.9%	31.5%	29.6%	33.4%	31.1%	30.8%	31.3%	29.4%	30.6%
Year Over Year Growth																	
Net Revenue	15.5%	21.2%	22.2%	19.4%	21.9%	22.0%	21.4%	23.5%	20.4%	18.4%	16.2%	19.4%	13.9%	16.2%	16.1%	16.2%	15.7%
Gross Profit	16.6%	18.2%	18.9%	17.3%	20.4%	16.9%	18.3%	18.3%	15.3%	15.0%	14.3%	15.6%	12.0%	14.3%	14.0%	14.0%	13.6%
Product Development	25.8%	10.8%	12.2%	21.5%	23.5%	25.2%	20.6%	29.7%	25.6%	23.3%	19.0%	24.2%	15.2%	16.8%	16.6%	16.6%	16.3%
Sales and Marketing	10.0%	15.3%	8.1%	18.5%	21.3%	42.3%	23.9%	38.3%	35.0%	42.4%	16.2%	30.9%	11.7%	14.1%	14.1%	14.3%	13.7%
General and Administrative	3.6%	9.7%	15.7%	-1.0%	-14.7%	-14.4%	-5.0%	-16.3%	-17.2%	8.2%	6.0%	-4.9%	2.1%	3.0%	5.1%	5.0%	4.0%
Operating Expenses (ex. COGS, Stock Comp)	14.3%	12.2%	11.4%	15.5%	13.8%	22.4%	16.1%	22.8%	20.9%	27.8%	15.6%	21.4%	11.9%	14.0%	13.9%	13.8%	13.4%
Operating Income (GAAP)	17.4%	22.5%	23.0%	-30.8%	34.9%	15.4%	10.2%	6.6%	78.3%	1.0%	9.8%	17.2%	18.5%	15.0%	14.5%	14.7%	15.6%
Adjusted Net Income	18.3%	17.6%	29.5%	33.1%	25.8%	3.7%	22.3%	28.3%	8.7%	10.0%	36.7%	20.1%	9.9%	15.7%	15.3%	15.2%	14.0%
Adjusted EPS	17.2%	16.7%	29.0%	31.8%	24.8%	3.0%	21.5%	27.8%	8.4%	9.7%	36.5%	19.8%	9.6%	15.2%	14.6%	14.3%	13.4%
Adjusted Operating Margin	18.8%	23.8%	25.5%	-17.9%	25.9%	12.1%	11.2%	10.3%	60.3%	5.2%	13.2%	18.7%	16.6%	14.6%	14.1%	14.2%	14.8%
FCF	45.0%	60.5%	34.6%	-34.7%	-13.1%	-5.9%	-7.5%	-38.3%	16.3%	64.9%	-3.3%	8.2%	84.4%	87.1%	-33.3%	64.0%	32.9%
Gross Revenue Breakdown by Geography																	
Domestic	34,810	42,781	11,769	12,322	12,930	15,428	52,449	14,144	14,588	15,104	17,227	61,063	15,936	16,969	17,464	19,889	70,258
International	40,179	47,491	12,981	13,688	14,842	16,895	58,406	17,002	17,022	18,093	20,767	72,885	19,838	19,914	21,223	24,381	85,356

Source: Company reports; Deutsche Bank Securities, Inc.

Appendix 1

Important Disclosures

*Other information available upon request

Disclosure checklist

Company	Ticker	Recent price*	Disclosure
Alphabet Inc.	GOOG.OQ	1183.86 (USD) 16 Jul 2018	2, 8, 14, 15

*Prices are current as of the end of the previous trading session unless otherwise indicated and are sourced from local exchanges via Reuters, Bloomberg and other vendors . Other information is sourced from Deutsche Bank, subject companies, and other sources. For disclosures pertaining to recommendations or estimates made on securities other than the primary subject of this research, please see the most recently published company report or visit our global disclosure look-up page on our website at https://research.db.com/Research/Disclosures/CompanySearch. Aside from within this report, important risk and conflict disclosures can also be found at https://research.db.com/Research/Topics/Equities?topicId=RB0002. Investors are strongly encouraged to review this information before investing.

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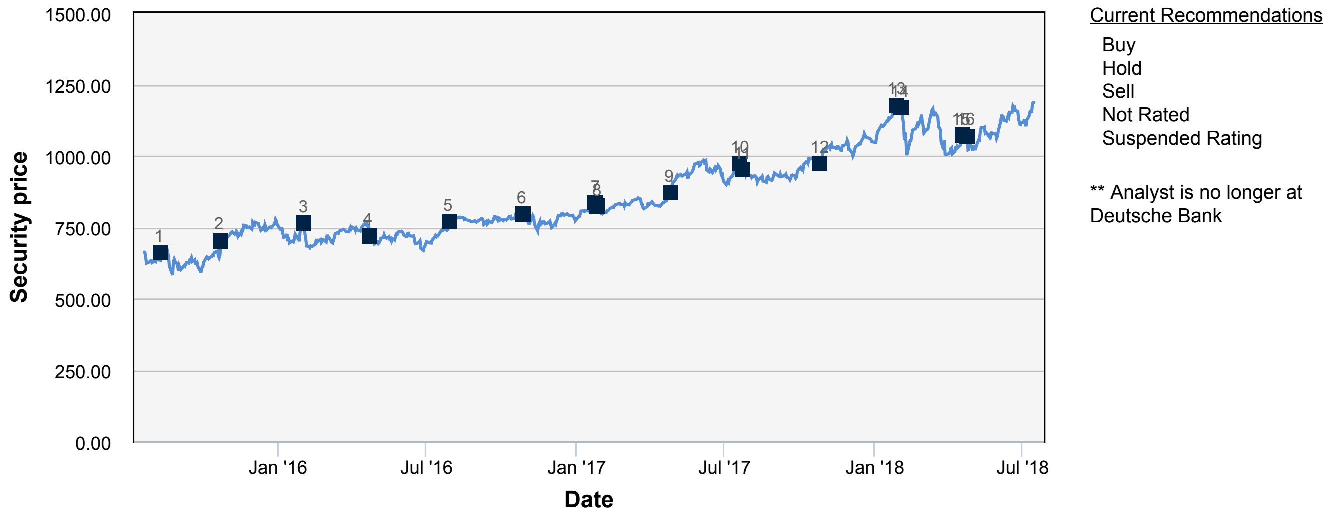
Historical recommendations and target price. Alphabet Inc. (GOOG.OQ)

(as of 07/16/2018)



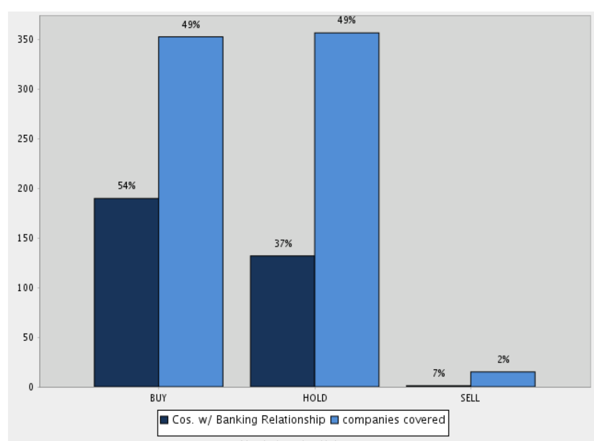
1.	08/11/2015	Buy, Target Price Change USD 840.00 Jay Samani**
2.	10/23/2015	Buy, Target Price Change USD 900.00 Jay Samani**
3.	02/02/2016	Buy, Target Price Change USD 1080.00 Jay Samani**
4.	04/22/2016	Buy, Target Price Change USD 1100.00 Jay Samani**
5.	07/29/2016	Buy, Target Price Change USD 1050.00 Jay Samani**
6.	10/28/2016	Buy, Target Price Change USD 1080.00 Jay Samani**
7.	01/25/2017	Buy, Target Price Change USD 1090.00 Lloyd Walmsley
8.	01/27/2017	Buy, Target Price Change USD 1100.00 Lloyd Walmsley
9.	04/26/2017	Buy, Target Price Change USD 1250.00 Lloyd Walmsley
10.	07/21/2017	Buy, Target Price Change USD 1258.00 Lloyd Walmsley
11.	07/25/2017	Buy, Target Price Change USD 1220.00 Lloyd Walmsley
12.	10/27/2017	Buy, Target Price Change USD 1225.00 Lloyd Walmsley
13.	01/29/2018	Buy, Target Price Change USD 1400.00 Lloyd Walmsley
14.	02/02/2018	Buy, Target Price Change USD 1375.00 Lloyd Walmsley
15.	04/19/2018	Buy, Target Price Change USD 1350.00 Lloyd Walmsley
16.	04/24/2018	Buy, Target Price Change USD 1225.00 Lloyd Walmsley

Equity Rating Key

Buy: Based on a current 12- month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus pro-jected dividend yield) , we recommend that investors buy the stock.
Sell: Based on a current 12-month view of total share-holder return, we recommend that investors sell the stock.
Hold: We take a neutral view on the stock 12-months out and, based on this time horizon, do not recommend either a Buy or Sell.

Newly issued research recommendations and target prices supersede previously published research.

Equity rating dispersion and banking relationships



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16 July 2018
Americas/United States
Equity Research
Consumer Internet

Alphabet (GOOGL)

DECREASE TARGET PRICE

Rating	**OUTPERFORM**
Price (13-Jul-18, US$)	1204.42
Target price (US$) (from 1350.00)	1330.00
52-week price range (US$)	1204.42 - 920.87
Market cap(US$ m)	831,085
Enterprise value (US$ m)	801,065

Target price is for 12 months.

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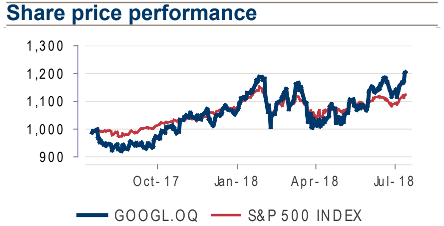
Improving Ad Budget Growth Environment in 2Q, Expecting Even Better in 2H

- **Event:** We preview Alphabet's 2Q18 results which it will report on 23 July 2018 – our FY18 adj. EPS estimate is now $52.08 vs. prior $52.65 – our price target decreases modestly to $1330 from $1350.
- **Investment Case:** Near term, our conversations with advertisers suggest a sequentially improving ad budget/spend environment - whereas feedback for 1Q18 unanimously signaled deceleration across search and YouTube, 2Q18 budgets for some advertisers/agencies were showing acceleration with potential for further acceleration heading into 2H18. As our current Website revenue reflects a ~241bp decel to the FX-neutral growth rate, we think there is a higher likelihood for revenue upside. Google also announced at Marketing Next a series of important product updates (pg. 4 of this note) that fit squarely with a theme we called out in our 2018 Outlook, which will see the company make greater use of AI to democratize advertising for the SMBs to expand the addressable market. We maintain our Outperform rating based on the following investment points: 1) ongoing monetization improvements in Search through product updates, 2) larger-than-expected contribution from Google's larger non-Search businesses, namely YouTube, Play and Cloud, 3) optionality for value creation from new monetization initiatives such as Maps as well as the eventual commercialization of Google's Other Bets (Waymo, Life Sciences).
- **Valuation:** Our DCF-derived end-of-2018 price target, which uses a 10.5% weighted average cost of capital and 3% terminal growth rate suggests $1330. Slower-than-expected advertiser adoption of any of Google's new ad units is a risk to our price target and estimates.

Share price performance



On 13-Jul-2018 the S&P 500 INDEX closed at 2801.31
Daily Jul14, 2017 - Jul13, 2018, 07/14/17 = US$976.91

Quarterly EPS	Q1	Q2	Q3	Q4
2017A	9.81	10.11	11.14	11.19
2018E	12.34	12.56	13.17	14.01
2019E	13.93	15.02	16.07	17.29

Financial and valuation metrics

Year	12/17A	12/18E	12/19E	12/20E
EPS (Excl. ESO) (US$)	50.00	63.01	75.04	89.87
EPS (CS adj.,)	42.25	52.08	62.31	75.21
Prev. EPS (CS adj., US$)	-	52.65	63.32	76.10
P/E (CS adj.) (x)	28.5	23.1	19.3	16.0
P/E rel. (CS adj., %)	133.0	131.8	121.0	110.6
Revenue (US$ m)	89,183.0	106,212.0	123,994.6	142,430.1
EBITDA (US$ m)	33,061.0	41,523.3	49,561.3	58,060.0
Net Debt (US$ m)	-6,746	-30,020	-68,610	-117,570
OCFPS (US$)	52.72	69.48	79.70	95.58
P/OCF (x)	22.8	17.3	15.1	12.6

Number of shares (m)	690.03	Price/Sales (x)	8.64
BV/share (Next Qtr., US$)	232.4	P/BVPS (x)	4.8
Net debt (Next Qtr., US$ m)	-7,356.0	Dividend (current, US$)	-
Dividend yield (%)	-		

Source: Company data, Thomson Reuters, Credit Suisse estimates

Alphabet (GOOGL)

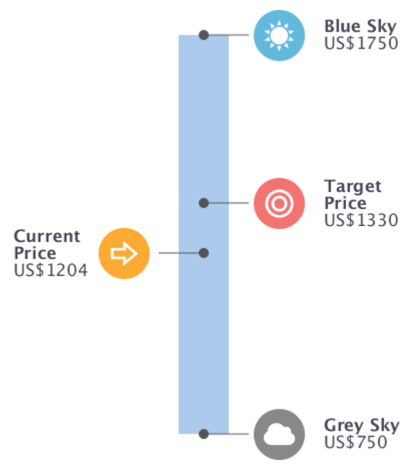
Price (13 Jul 2018): **US$1204.42**; Rating: **OUTPERFORM**; Target Price: **(from 1350.00) 1330.00**; Analyst: **Stephen Ju**

Income Statement	**12/17A**	**12/18E**	**12/19E**	**12/20E**
Revenue (US$ m)	**89,183.0**	**106,212.0**	**123,994.6**	**142,430.1**
Sales	**89,183.0**	**106,212.0**	**123,994.6**	**142,430.1**
EBITDA	**33,061.0**	**41,523.3**	**49,561.3**	**58,060.0**
Operating profit	**26,146.0**	**32,792.3**	**38,855.5**	**45,369.3**
Recurring profit	**27,193.0**	**34,249.6**	**42,394.6**	**52,283.0**
Cash Flow	**12/17A**	**12/18E**	**12/19E**	**12/20E**
Cash flow from operations	**37,091**	**49,142**	**56,821**	**68,689**
CAPEX	0	0	0	0
Free cashflow to the firm	**37,091**	**49,142**	**56,821**	**68,689**
Cash flow from investments	**(31,401)**	**(22,683)**	**(18,231)**	**(19,729)**
Net share issue(/repurchase)	-	-	-	-
Dividends paid	0	0	0	0
Issuance (retirement) of debt	(86)	1,287	6	6
Other	(8,212)	(3,331)	0	0
Cashflow from financing activities	(8,298)	(2,044)	6	6
Effect of exchange rates	405	165	0	0
Changes in Net Cash/Debt	**(2,237)**	**23,274**	**38,590**	**48,960**
Net debt at end	(6,746)	(30,020)	(68,610)	(117,570)
Balance Sheet ($US)	**12/17A**	**12/18E**	**12/19E**	**12/20E**
Assets				
Other current assets	94,508	94,074	94,674	95,318
Total current assets	**124,308**	**150,938**	**193,662**	**247,057**
Total assets	**197,295**	**243,895**	**294,144**	**354,578**
Liabilities				
Short-term debt	0	1,329	1,329	1,329
Total current liabilities	24,183	31,193	33,547	37,473
Long-term debt	3,969	3,947	3,953	3,959
Total liabilities	44,793	51,883	54,243	58,175
Shareholder equity	152,502	192,012	239,901	296,403
Total liabilities and equity	**197,295**	**243,895**	**294,144**	**354,578**
Net debt	(6,746)	(30,020)	(68,610)	(117,570)
Per share	**12/17A**	**12/18E**	**12/19E**	**12/20E**
No. of shares (wtd avg)	704	707	713	719
CS adj. EPS	42.25	52.08	62.31	75.21
Prev. EPS (US$)	-	52.65	63.32	76.10
Dividend (US$)	0.00	0.00	0.00	0.00
Free cash flow per share	52.72	69.48	79.70	95.58
Earnings	**12/17A**	**12/18E**	**12/19E**	**12/20E**
Sales growth (%)	21.4	19.1	16.7	14.9
EBIT growth (%)	10.2	25.4	18.5	16.8
Net profit growth (%)	23.5	23.9	20.6	21.7
EPS growth (%)	22.6	23.3	19.7	20.7
EBIT margin (%)	29.3	30.9	31.3	31.9
Valuation	**12/17A**	**12/18E**	**12/19E**	**12/20E**
EV/Sales (x)	9.24	7.54	6.15	5.01
EV/EBIT (x)	31.5	24.4	19.6	15.7
P/E (x)	28.5	23.1	19.3	16.0
Quarterly EPS	**Q1**	**Q2**	**Q3**	**Q4**
2017A	9.81	10.11	11.14	11.19
2018E	12.34	12.56	13.17	14.01
2019E	13.93	15.02	16.07	17.29

Company Background

Google operates the leading Internet search engine, offering targeted search results from billions of Web pages. It generates nearly all of its revenue through ad sales.Google subsidiaries include YouTube & DoubleClick.

Blue/Grey Sky Scenario



Our Blue Sky Scenario (US$) **(from 1780.00) 1750.00**

We leverage historic P/E multiples on next twelve month earnings estimates. Alphabet historically traded in a range of ~12x-28x with an average of ~19x and a standard deviation of ~3.7x during the past decade. As we think about where we are going to be at the end of 2018, we apply an upper bound (average plus one standard deviation) 28x multiple to our 2019 Non-GAAP EPS estimate of $62.31 and derive a blue sky scenario of $1750.

Our Grey Sky Scenario (US$) **(from 755.00) 750.00**

In terms of downside potential, we apply a low end P/E multiple of 12x to our 2019 EPS estimate of $62.31, and derive a grey sky scenario of $750.

Share price performance

On 13-Jul-2018 the S&P 500 INDEX closed at 2801.31
Daily Jul14, 2017 - Jul13, 2018, 07/14/17 = US$976.91

Source: Company data, Thomson Reuters, Credit Suisse estimates

Alphabet Inc. – (GOOGL) – Improving Ad Budget Growth Environment in 2Q, Expecting Even Better in 2H

Google is set to report its 2Q18 results on 23 July 2018 after market close. We have modestly reduced our price target from $1350 to $1330 as we factor in recent currency movements relative to the USD and our FX-neutral estimates remain essentially unchanged.

First of all on the near-term results, our conversations with advertisers suggest a sequentially improving ad budget/spend environment. Whereas feedback for our checks for 1Q18 indicated a unanimously decelerating budget growth expectation among advertisers across both search and YouTube for ~100-200bps, feedback for 2Q18 budgets were more even with some advertisers/agencies indicating acceleration. Given Google's sprawling footprint for its advertising franchise, we do realize that our checks will become increasingly anecdotal over time. That said the feedback gives us additional cause for expecting Websites revenue upside versus downside. Our current Website revenue reflects a 241bp slowdown to the FX-neutral growth rate relative to 1Q18. Overall we believe the underlying assumptions for owned and operated search, YouTube (both advertising and subscription), network/affiliate search, programmatic display, Play, hardware, and other segments remain conservative for 2Q18 and beyond – we isolate below the changes to our model due to FX:

Figure 1: Alphabet Inc. – CS Estimate Revisions
US$ in millions, unless otherwise stated

	2Q18 Prior	2Q18 FX Only	% Δ	2Q18 Current	% Δ	2018 Prior	2018 FX Only	% Δ	2018 Current	% Δ	2019 Prior	2019 FX Only	% Δ	2019 Current	% Δ
Google Web Sites	22828.5	21622.6	-5.3%	21339.5	-6.5%	94607.8	91865.3	-2.9%	91061.3	-3.7%	110519.1	107158.2	-3.0%	105501.2	-4.5%
Google Network Sites	4853.4	4652.4	-4.1%	4621.9	-4.8%	20072.3	19612.9	-2.3%	19567.2	-2.5%	22351.8	22000.7	-1.6%	21921.0	-1.9%
Licensing and Other	4661.0	4610.6	-1.1%	5135.0	10.2%	21269.8	21130.1	-0.7%	21798.5	2.5%	27489.5	27434.5	-0.2%	28008.4	1.9%
Other Bets	265.6	265.6	0.0%	265.6	0.0%	1166.1	1166.1	0.0%	1166.1	0.0%	1501.6	1501.6	0.0%	1501.6	0.0%
Gross Revenue	32608.5	31151.3	-4.5%	31362.1	-3.8%	137115.9	133774.4	-2.4%	133593.0	-2.6%	161861.9	158094.9	-2.3%	156932.1	-3.0%
Traffic Acquisition Costs	6777.1	6450.6	-4.8%	6387.3	-5.8%	28288.1	27532.0	-2.7%	27381.0	-3.2%	34058.9	33256.8	-2.4%	32937.5	-3.3%
Net Revenue	25831.4	24700.7	-4.4%	24974.7	-3.3%	108827.8	106242.4	-2.4%	106212.0	-2.4%	127803.0	124838.1	-2.3%	123994.6	-3.0%
GAAP Operating Income	8235.9	7713.9	-6.3%	8210.0	-0.3%	33079.4	31913.9	-3.5%	32792.3	-0.9%	39293.7	37922.6	-3.5%	38855.5	-1.1%
Adjusted EBITDA	**13140.0**	**12499.2**	**-4.9%**	**12758.4**	**-2.9%**	**53266.8**	**51823.5**	**-2.7%**	**51937.8**	**-2.5%**	**63427.1**	**61694.5**	**-2.7%**	**61343.8**	**-3.3%**
GAAP EPS	$9.77	$9.16	-6.2%	$9.74	-0.3%	$44.56	$43.20	-3.1%	$44.29	-0.6%	$49.34	$47.66	-3.4%	$48.76	-1.2%
Pro Forma EPS	**$12.70**	**$11.96**	**-5.8%**	**$12.56**	**-1.1%**	**$52.65**	**$51.00**	**-3.1%**	**$52.08**	**-1.1%**	**$63.32**	**$61.32**	**-3.2%**	**$62.31**	**-1.6%**

Source: Company data, Credit Suisse estimates

As per our usual practice we have listed below the fundamental changes we have made in the model – our FX-neutral growth rates for O&O search, YouTube, Network, and other segments remain relatively unchanged:

- Increased Capital Expenditures through the end of 2018 to account for the purchase of an additional 62,000 Fiat Chrysler Pacifica hybrid minivans at an estimated $40,000 per car.
- Reallocated YouTube TV subscription and YouTube Red subscription revenue from Websites into Licensing and Other based on company disclosures.

The case for owning GOOGL shares for us remains rooted in the anticipation of benefits to be seen from the company's product release cycle as we summarize below:

- Ongoing monetization improvements in Search advertising through product updates such as Expanded Text Ads and Individual Bid Adjustments
- Greater-than-expected revenue contribution and margin expansion within Google's larger non-Search businesses – namely YouTube (Bumper Ads) and Google Play (App Install, Sponsored Ads), and GCP

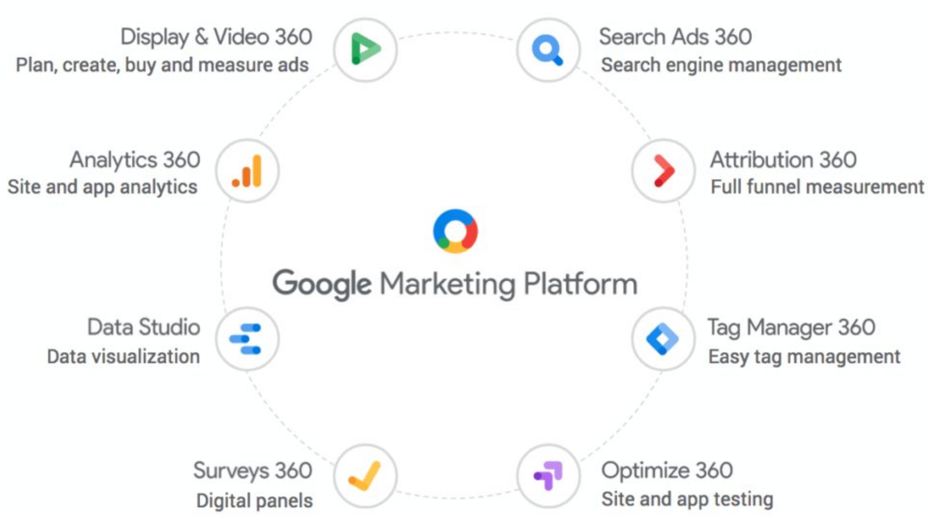
- Optionality, upward bias to estimates, and long-term shareholder value creation from new monetization initiatives such as Maps as well as the eventual commercialization of Google's Other Bets (Waymo, life sciences)

Takeaways from Google Marketing Next – Google Takes Incremental Steps to Use AI to Democratize Advertising

Prior to Google's Marketing Next Presentation the company announced the integration of DoubleClick and Google Analytics 360 Suite into the newly branded Google Marketing Platform which provides all the functionality of both individual platforms in one simple and efficient option.

While our conversations with advertisers do not indicate material changes of perspective for now, we feel that the integrated product suite should encourage usage of other ad/analytics/attribution products over time:

Figure 2: Google Inc. – Newly Rebranded Google Marketing Platform



Source: Company data, Credit Suisse estimates

New Ad Enhancements Announced at Google Marketing Next

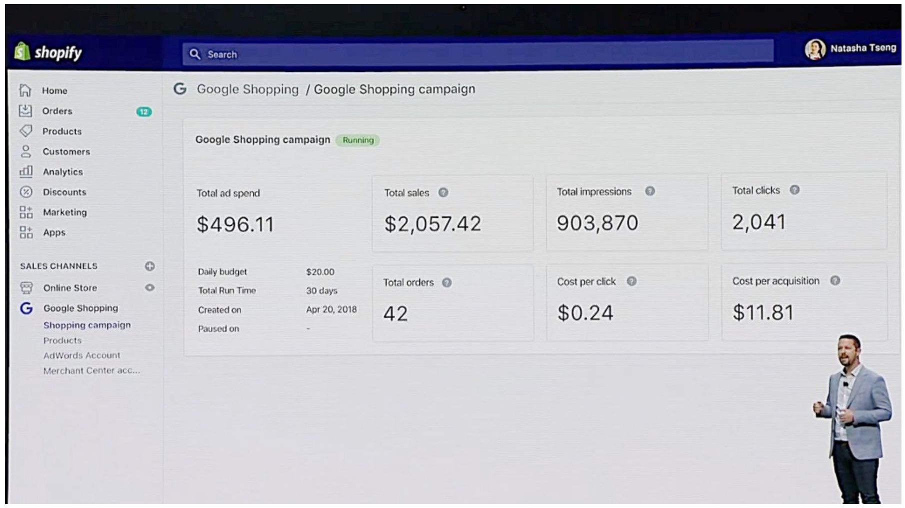
Google also announced new enhancements and additions to its ads product suite targeted towards increasing utility and ease of use for new businesses to come aboard, while also making it easier for existing advertisers to continue using the platform.

Smart Campaigns – Should help SMBs just getting started with online advertising: Smart campaigns easily creates ads by scanning a merchant's website and automatically creating sample ads that are capable of running across Google's platform while using machine learning to optimize campaigns to either increase click through rates, find new customers or bring potential customers into the store. While this is something that may not necessarily create incremental utility for some of the larger merchants, we view this product as fitting squarely in the theme democratizing advertising and helping the SMB find additional leads/business.

And for those small businesses that do not yet have a website, Google will assist in the creation of landing pages that are optimized for ads, as another way to help onboard SMBs.

Smart Shopping Campaigns – Should help retailers looking to optimize online revenue or looking to increase store visits and new customers: Google also introduced Smart Shopping Campaigns – thematically we believe this serves the same purpose as the aforementioned Smart Campaigns, but with a retail use case.

Figure 3: Google Inc. – Integration with Shopify

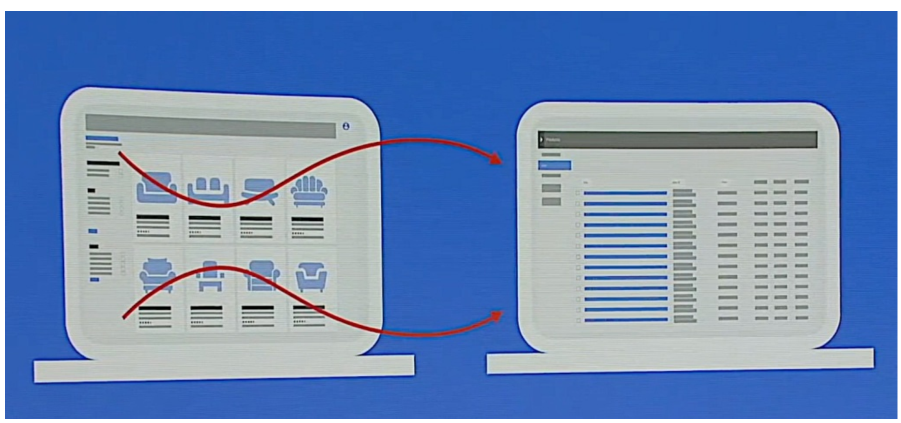


Source: Company data, Credit Suisse estimates

While Google rolled out an integration of Analytics 360 with Shopify late last year, the company added an incremental ability to directly manage campaigns in Shopify, which should provide a more seamless experience for advertisers.

Google also introduced an automated feed feature for shopping ads which creates a feed from merchandise that is for sale online.

Figure 4: Google Inc. – Automated Feeds Scans Website to Build Inventory Feed

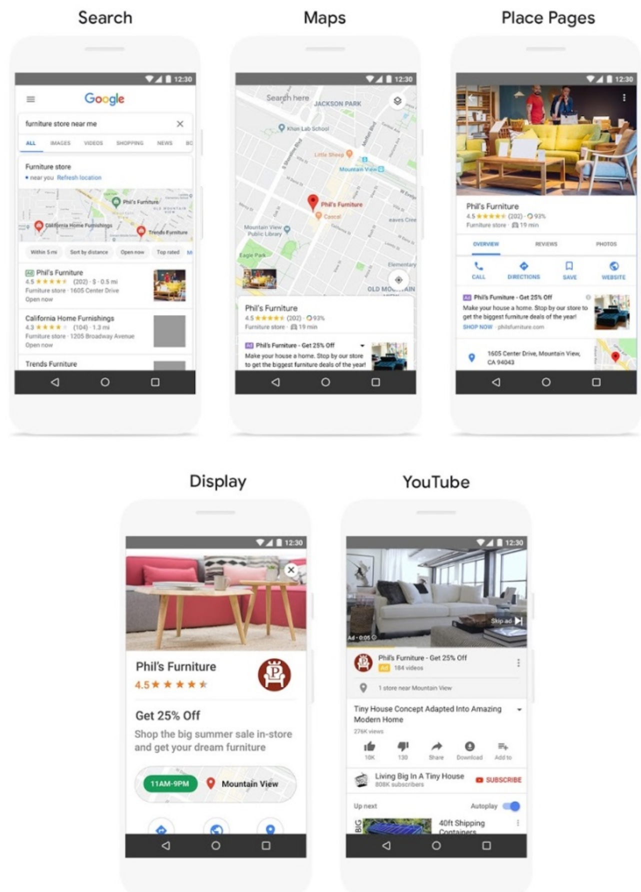


Source: Company data, Credit Suisse estimates

For SMBs who do not have the time or ability to upload their entire merchandise, this feature could break down a significant road block and bring more budgets to the platform.

Local Campaigns – Should help the brick and mortar local merchant looking to drive more store visits: Local Campaigns provide another relatively simple way for small businesses to create ads without a meaningful amount of back end work. This simplified process requires the advertisers to link their business location, input a daily budget and upload creative assets (i.e. text, logos and videos) and Google will automatically create a campaign that can be displayed over multiple ad units on different platforms.

Figure 5: Google Inc. – Local Campaigns across multiple platforms



Source: Company data, Credit Suisse estimates

Similar to our thoughts on the above two products, Local Campaigns fit in with Google's more explicit attempts to onboard SMBs and hence serves as a directly competitive product versus that of Yelp, Groupon, and other local operators.

Responsive Search Ads – Expands text, mix/match headlines and descriptions to deliver best creative

Google also announced the beta tests for Responsive Search Ads – it requires the advertiser to input fifteen headlines and four descriptions, which will subsequently be assembled via AI in different combinations to deliver the best ad creative depending on the searcher's needs.

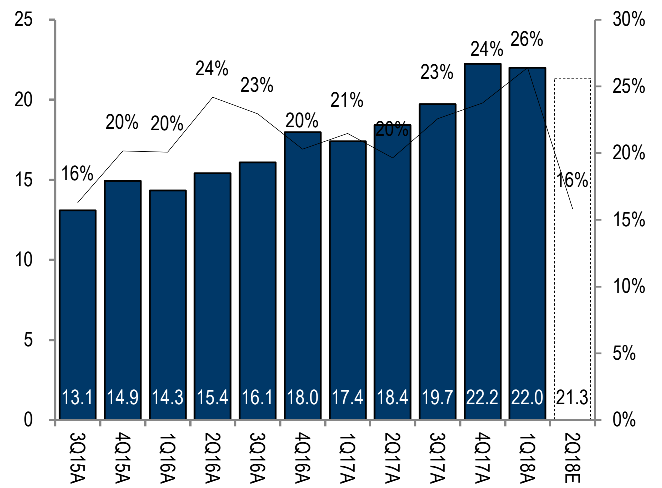
From a product perspective, this reminds us of YouTube's Director Mix which helps advertisers automatically generate multiple versions of the creative to improve targeting.

While we have not yet received specific feedback on this product from advertisers, we expect it to improve click thru rates as well as inflate CPCs.

Changes to Estimates

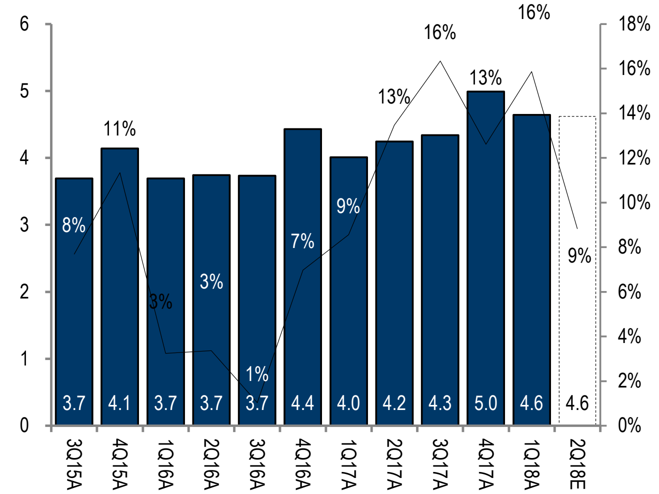
Our quarterly estimates for Google's disclosed revenue lines are as shown below:

Figure 6: Alphabet Inc. – Quarterly Website Revenue and Year Over Year Growth
US $ in billions



Source: Company data, Credit Suisse estimates

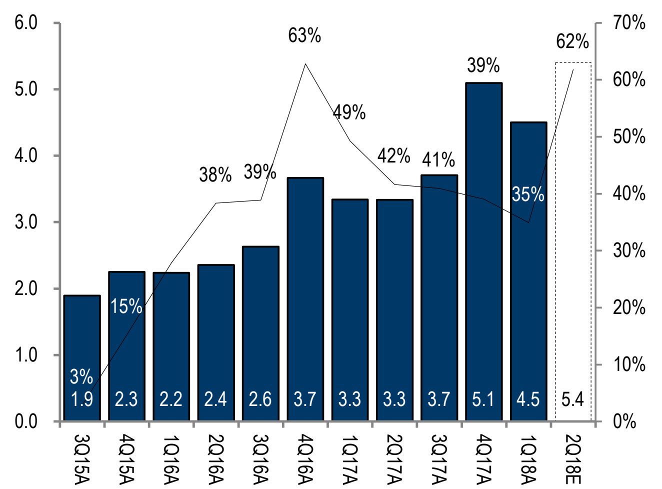
Figure 7: Alphabet Inc. – Quarterly Network Revenue and Year Over Year Growth
US $ in billions



Source: Company data, Credit Suisse estimates

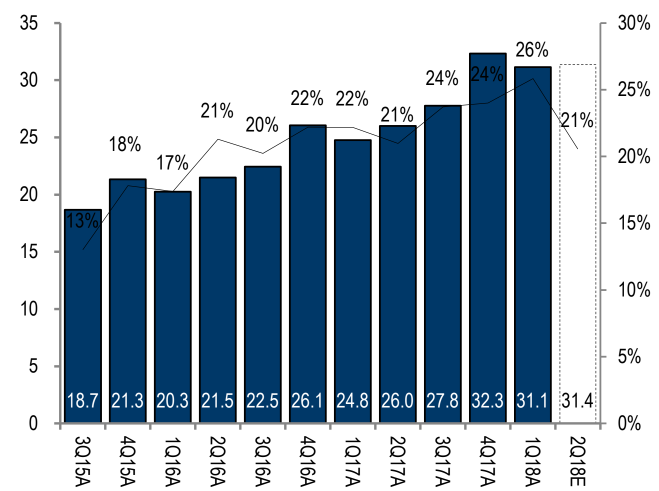
Our Google Website revenue is at $21.3 billion for 2Q18 vs. $22.0 billion in 1Q18 which reflects a 15.8% YoY growth rate on a reported basis – this is a 1058 basis point deceleration versus what we believe was a 26.4% YoY growth for 1Q18. As for Network, we have modeled what we believe is an ongoing structural decline in network/affiliate search offset by ongoing robust growth in programmatic to arrive at $4.6 billion in revenue reflecting 8.8% year over year growth on a reported basis.

Figure 8: Alphabet Inc. – Quarterly Licensing and Other Revenue and Year Over Year Growth
US$ in billions



Source: Company data, Credit Suisse estimates

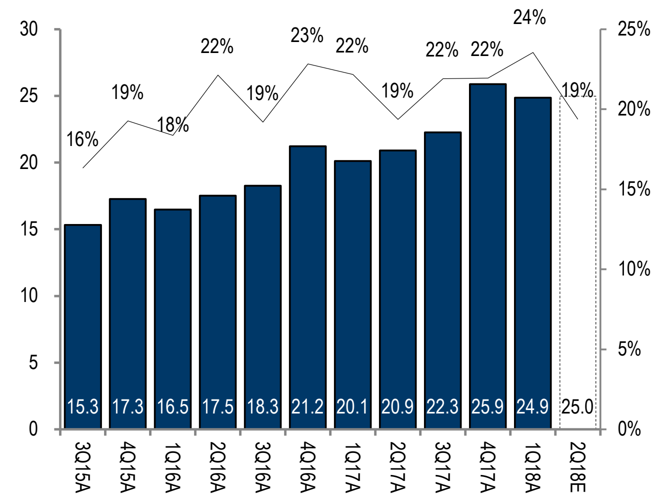
Figure 9: Alphabet Inc. – Quarterly Gross Revenue and Year Over Year Growth
US$ in billions



Source: Company data, Credit Suisse estimates

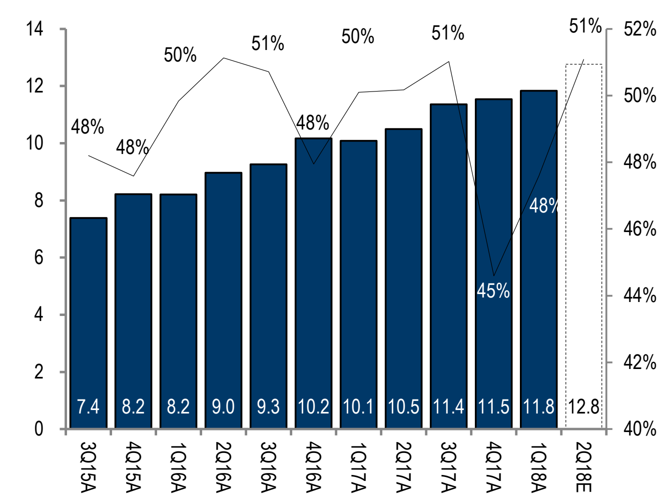
As for Google's L&O line, we believe Google Play to grew ~35% in 1Q18 on an FX-neutral basis and our estimate for 2Q18 reflects that rate to increase to ~61.8% as we have also now included revenue from YouTube TV subscription and YouTube Red. As for Google Cloud (+ Gsuite) we have modeled 130% year over year growth in revenue to reach $1.47 billion, which is likely conservative given the disclosure for $1 billion in revenue for 4Q17. All of the above adds up to Gross Revenue of $30.4 billion for 2Q18.

Figure 10: Alphabet Inc. – Quarterly Net Revenue and Year Over Year Growth
US $ in billions



Source: Company data, Credit Suisse estimates

Figure 11: Alphabet Inc. – Quarterly Adjusted EBITDA and Margin
US $ in billions



Source: Company data, Credit Suisse estimates

And lastly our estimate for Net Revenue stands at $25.0 billion and Adjusted EBITDA is $12.8 billion.

CS estimates versus consensus for revenue, adjusted EBITDA, and adjusted EPS are as shown below for 2Q18, FY18, FY19.

Figure 12: Alphabet Inc. – Credit Suisse vs. Consensus Estimates
US$ in millions, unless otherwise stated

	2Q18			FY18			FY19		
	CS	Consensus	% Diff	CS	Consensus	% Diff	CS	Consensus	% Diff
Revenue	24974.7	25655.0	-2.7%	106212.0	108658.0	-2.3%	123994.6	129009.0	-3.9%
Adjusted EBITDA	12758.4	12305.0	3.7%	51937.8	50531.0	2.8%	61343.8	59827.0	2.5%
Adjusted EPS	$12.56	$12.29	2.1%	$52.08	$52.79	-1.4%	$62.31	$58.33	6.8%

Source: Company data, Credit Suisse estimates, the BLOOMBERG PROFESSIONAL™ service

Valuation

Our price target which uses a 10.5% weighted average cost of capital and 3% terminal growth rate remains at $1330.

Figure 13: Alphabet Inc. – Discounted Cash Flow Analysis

US$ in millions, unless otherwise stated

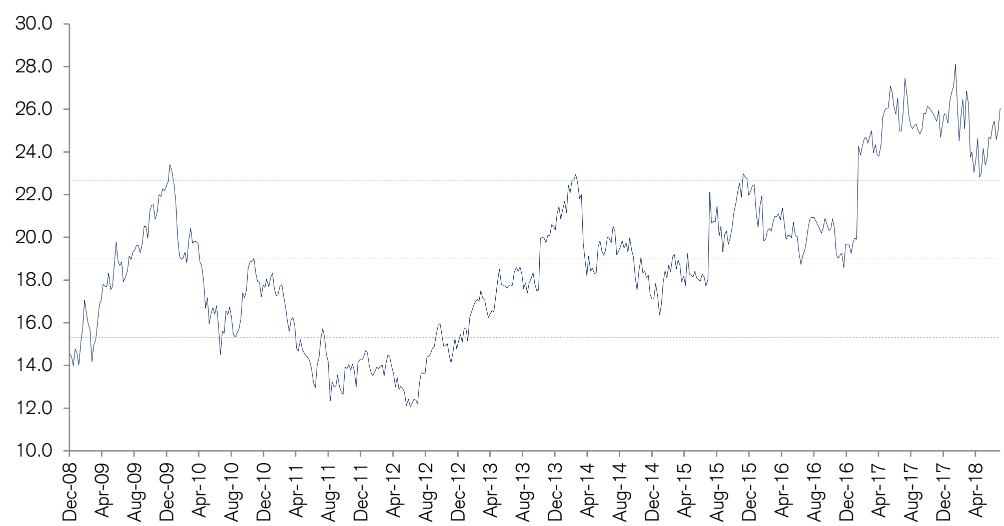
	2018E	2019E	2020E	2021E	2022E	2023E	CAGR '18-'23
EBITDA	51937.8	61343.8	71689.6	84292.7	99608.2	115304.5	17.3%
Net Income	31325.9	34763.6	42872.0	53414.8	67042.7	81604.9	21.1%
Depreciation & Amortization	8731.0	10705.8	12690.7	14629.7	16519.4	18933.2	16.7%
Other Non-Cash Charges (Benefits)	6760.5	11782.5	13629.6	15661.3	17814.5	20101.4	24.4%
Interest Expense (Income)	(1457.3)	(3539.1)	(6913.6)	(11138.3)	(16485.1)	(23248.1)	
Changes in Operating Assets & Liabilities	2325.1	(431.0)	(503.0)	(947.5)	(1158.1)	(1196.1)	
Unlevered Cash Flows	**47685.1**	**53281.7**	**61775.6**	**71620.0**	**83733.4**	**96195.2**	**15.1%**
Capital Expenditures	22135.6	18231.1	19728.8	21107.3	22232.4	23082.2	0.8%
Unlevered Free Cash Flows	**25549.6**	**35050.7**	**42046.8**	**50512.8**	**61501.0**	**73113.0**	**23.4%**
Y/Y % Change	11.8%	37.2%	20.0%	20.1%	21.8%	18.9%	
Weighted Average Cost of Capital	10.5%						
Perpetual UFCF Growth Rate ("G")	**3.0%**						
	2018E						
NPV of Unlevered Free Cash Flows	214774						
Present Value of Terminal Value	609480						
Enterprise Value	**824254**						
Off-Balance Sheet Assets	0						
Adjusted Enterprise Value	**824254**						
Year End Net Debt (Cash)	(120247)						
Equity Value	**944500**						
Diluted Shares Outstanding	707.3						
Equity Value Per Share	**$1335**						

Source: Company data, Credit Suisse estimates

We have also elected to run a Blue Sky and Grey Sky scenario for GOOGL shares leveraging historic P/E multiples on next twelve month earnings estimates. Alphabet historically traded in a range of ~12x-28x with an average of ~19.0x and a standard deviation of ~3.7x over the past decade. As we apply a trough P/E multiple of 12x to our 2019 Non-GAAP EPS estimate of $62.31, we derive a grey sky scenario of $750. In terms of upside potential, we apply an upper bound (average plus one standard deviation) 28x peak multiple to our 2019 Non-GAAP EPS estimate and derive a blue sky scenario of $1750.

Figure 14: Alphabet Inc. – Historical P/E Multiple

US$ in millions, unless otherwise stated



Source: Credit Suisse estimates, Thomson Reuters DataStream, the BLOOMBERG PROFESSIONAL™ service

Risks to our price target for GOOGL shares include the following factors:

- Slower-than-expected advertiser adoption of any of Google's new ad units, particularly TrueView for YouTube
- Greater-than-expected adoption of non-Android smart phones, which could adversely affect Google Play growth
- Appreciation of the US Dollar versus the major global currencies may exert a headwind on our estimates

Figure 15: Alphabet Inc. – Quarterly Income Statement
US$ in millions, unless otherwise stated

	2017A				2018E				2019E			
	1Q17A	2Q17A	3Q17A	4Q17A	1Q18A	2Q18E	3Q18E	4Q18E	1Q19E	2Q19E	3Q19E	4Q19E
Gross Revenue	**24750.0**	**26010.0**	**27772.0**	**32323.0**	**31146.0**	**31362.1**	**32799.3**	**38285.7**	**37266.5**	**36498.8**	**38469.3**	**44697.4**
TAC	4629.0	5091.0	5502.0	6450.0	6288.0	6387.3	6764.7	7941.0	7777.4	7646.9	8067.0	9446.2
Net Revenue	20121.0	20919.0	22270.0	25873.0	24858.0	24974.7	26034.6	30344.7	29489.1	28851.9	30402.4	35251.3
Other Cost of Revenue	5166.0	5282.0	5646.0	7817.0	7179.0	6946.8	7256.9	9158.8	8988.4	8123.6	8487.9	10460.5
Research and Development	3942.0	4172.0	4205.0	4306.0	5039.0	4951.9	5082.0	5410.0	6040.4	5791.2	5952.3	6282.1
Sales and Marketing	2644.0	2897.0	3042.0	4310.0	3604.0	3151.2	3270.0	4708.4	4087.6	3616.4	3784.1	5434.1
General and Administrative	1801.0	1700.0	1595.0	1776.0	2035.0	1714.9	1820.3	2091.6	1869.4	1895.4	2029.1	2296.6
Other	0.0	2736.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Operating Expenses	8387.0	11505.0	8842.0	10392.0	10678.0	9817.9	10172.2	12210.0	11997.4	11303.0	11765.5	14012.7
Operating Income	**6568.0**	**4132.0**	**7782.0**	**7664.0**	**7001.0**	**8210.0**	**8605.5**	**8975.8**	**8503.3**	**9425.3**	**10148.9**	**10778.0**
Interest Income and Other, Net	251.0	245.0	197.0	354.0	3542.0	178.2	304.8	463.4	630.9	791.2	947.8	1169.2
Pretax Income	6819.0	4377.0	7979.0	8018.0	10543.0	8388.2	8910.3	9439.2	9134.2	10216.5	11096.8	11947.2
Income Tax Expense (Benefit)	1393.0	853.0	1247.0	11038.0	1142.0	1509.9	1603.8	1699.0	1644.1	1839.0	1997.4	2150.5
Net Income	5426.0	3524.0	6732.0	(3020.0)	9401.0	6878.3	7306.4	7740.1	7490.0	8377.5	9099.3	9796.7
Basic EPS to Common	$7.93	$5.09	$9.71	($4.35)	$13.53	$9.88	$10.47	$11.07	$10.69	$11.94	$12.94	$13.90
Basic Shares Outstanding	684.6	692.6	693.5	694.8	694.9	696.3	697.7	699.1	700.5	701.9	703.3	704.7
Diluted EPS	**$7.73**	**$5.01**	**$9.57**	**($4.28)**	**$13.33**	**$9.74**	**$10.32**	**$10.91**	**$10.54**	**$11.76**	**$12.75**	**$13.70**
Shares Outstanding	702.0	703.5	703.7	705.1	705.1	706.5	708.0	709.4	710.8	712.2	713.6	715.1
EBITDA Reconciliation												
Operating Income	6568.0	4132.0	7782.0	7664.0	7001.0	8210.0	8605.5	8975.8	8503.3	9425.3	10148.9	10778.0
Nonrecurring Items	0.0	2736.0	0.0	0.0	387.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stock-Based Compensation	2009.0	2003.0	1820.0	1847.0	2457.0	2430.6	2459.9	2680.0	2939.8	2828.7	2885.2	3128.8
Pro Forma Operating Income	**8577.0**	**8871.0**	**9602.0**	**9511.0**	**9845.0**	**10640.6**	**11065.5**	**11655.8**	**11443.1**	**12253.9**	**13034.1**	**13906.8**
Depreciation and Amortization	1503.0	1625.0	1761.0	2026.0	1986.0	2117.9	2247.8	2379.3	2502.3	2620.4	2737.9	2845.2
Adjusted EBITDA	**10080.0**	**10496.0**	**11363.0**	**11537.0**	**11831.0**	**12758.4**	**13313.3**	**14035.1**	**13945.4**	**14874.4**	**15772.0**	**16752.1**
Pro forma Net Income Reconciliation												
Pro Forma Operating Income	8577.0	8871.0	9602.0	9511.0	9845.0	10640.6	11065.5	11655.8	11443.1	12253.9	13034.1	13906.8
Other Income, Net	251.0	245.0	197.0	354.0	511.0	178.2	304.8	463.4	630.9	791.2	947.8	1169.2
Pretax Income	8828.0	9116.0	9799.0	9865.0	10356.0	10818.8	11370.2	12119.2	12074.0	13045.2	13982.0	15076.0
GAAP Income Tax Expense (Benefit)	1393.0	853.0	1247.0	11038.0	1142.0	1509.9	1603.8	1699.0	1644.1	1839.0	1997.4	2150.5
Total Taxes	1942.2	2005.5	1959.8	1973.0	1657.0	1947.4	2046.6	2181.4	2173.3	2348.1	2516.8	2713.7
Pro Forma Net Income	**6885.8**	**7110.5**	**7839.2**	**7892.0**	**8699.0**	**8871.4**	**9323.6**	**9937.7**	**9900.7**	**10697.0**	**11465.2**	**12362.3**
Adjusted EPS - Diluted	**$9.81**	**$10.11**	**$11.14**	**$11.19**	**$12.34**	**$12.56**	**$13.17**	**$14.01**	**$13.93**	**$15.02**	**$16.07**	**$17.29**
Y/Y % Change												
Gross Revenue	22.2%	21.0%	23.7%	24.0%	25.8%	20.6%	18.1%	18.4%	19.7%	16.4%	17.3%	16.7%
Net Revenue	22.2%	19.4%	21.9%	22.0%	23.5%	19.4%	16.9%	17.3%	18.6%	15.5%	16.8%	16.2%
TAC	22.2%	28.1%	31.6%	33.0%	35.8%	25.5%	22.9%	23.1%	23.7%	19.7%	19.3%	19.0%
COGS	33.8%	27.1%	25.0%	34.5%	39.0%	31.5%	28.5%	17.2%	25.2%	16.9%	17.0%	14.2%
Research and Development	17.1%	24.1%	16.9%	18.9%	27.8%	18.7%	20.9%	25.6%	19.9%	16.9%	17.1%	16.1%
Sales and Marketing	10.8%	20.0%	18.6%	38.2%	36.3%	8.8%	7.5%	9.2%	13.4%	14.8%	15.7%	15.4%
General and Administrative	19.0%	4.7%	-12.6%	-12.3%	13.0%	0.9%	14.1%	17.8%	-8.1%	10.5%	11.5%	9.8%
Operating Income	23.0%	-30.8%	34.9%	15.4%	6.6%	98.7%	10.6%	17.1%	21.5%	14.8%	17.9%	20.1%
Net Income	29.0%	-27.7%	33.0%	-156.6%	73.3%	95.2%	8.5%	356.3%	-20.3%	21.8%	24.5%	26.6%
Adjusted EBITDA	22.8%	17.1%	22.6%	13.4%	17.4%	21.6%	17.2%	21.7%	17.9%	16.6%	18.5%	19.4%
Pro Forma Net Income	31.2%	21.3%	23.1%	19.7%	26.3%	24.8%	18.9%	25.9%	13.8%	20.6%	23.0%	24.4%
Adjusted EPS - Diluted	30.7%	20.1%	22.2%	19.5%	25.8%	24.2%	18.2%	25.2%	12.9%	19.6%	22.0%	23.4%
Margins (on Net Revenue)												
Gross Margin	74.3%	74.8%	74.6%	69.8%	71.1%	72.2%	72.1%	69.8%	69.5%	71.8%	72.1%	70.3%
GAAP Operating Margin	32.6%	19.8%	34.9%	29.6%	28.2%	32.9%	33.1%	29.6%	28.8%	32.7%	33.4%	30.6%
Pro Forma Operating Margin	42.6%	42.4%	43.1%	36.8%	39.6%	42.6%	42.5%	38.4%	38.8%	42.5%	42.9%	39.5%
Adjusted EBITDA Margin	50.1%	50.2%	51.0%	44.6%	47.6%	51.1%	51.1%	46.3%	47.3%	51.6%	51.9%	47.5%
Net Income Margin	27.0%	16.8%	30.2%	-11.7%	37.8%	27.5%	28.1%	25.5%	25.4%	29.0%	29.9%	27.8%
Adjusted Net Income Margin	34.2%	34.0%	35.2%	30.5%	35.0%	35.5%	35.8%	32.7%	33.6%	37.1%	37.7%	35.1%

Source: Company data, Credit Suisse estimates

Figure 16: Alphabet Inc. – Annual Income Statement
US$ in millions, unless otherwise stated

	2016A	2017A	2018E	2019E	2020E	2021E	2022E	2023E	CAGR '18 - '23
Gross Revenue	**90272.0**	**110855.0**	**133593.0**	**156932.1**	**181515.8**	**208551.7**	**237196.2**	**267612.4**	14.9%
TAC	16793.0	21672.0	27381.0	32937.5	39085.6	45149.2	50907.8	57147.3	15.9%
Net Revenue	73479.0	89183.0	106212.0	123994.6	142430.1	163402.5	186288.4	210465.1	14.7%
Other Cost of Revenue	18345.0	23911.0	30541.5	36060.5	41378.4	46837.5	51433.5	57594.3	13.5%
Research and Development	13948.0	16625.0	20482.9	24065.9	27691.1	31556.6	35541.6	39632.7	14.1%
Sales and Marketing	10485.0	12893.0	14733.6	16922.3	19178.3	21507.3	23947.0	26385.6	12.4%
General and Administrative	6985.0	6872.0	7661.7	8090.4	8812.9	9499.5	10092.1	10582.6	6.7%
Other	0.0	2736.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Operating Expenses	31418.0	39126.0	42878.2	49078.6	55682.4	62563.4	69580.6	76600.8	12.3%
Operating Income	**23716.0**	**26146.0**	**32792.3**	**38855.5**	**45369.3**	**54001.7**	**65274.2**	**76270.0**	18.4%
Interest Income and Other, Net	434.0	1047.0	4488.3	3539.1	6913.6	11138.3	16485.1	23248.1	39.0%
Pretax Income	24150.0	27193.0	37280.6	42394.6	52283.0	65140.0	81759.4	99518.1	21.7%
Income Tax Expense (Benefit)	4672.0	14531.0	5954.8	7631.0	9410.9	11725.2	14716.7	17913.3	24.6%
Net Income	19478.0	12662.0	31325.9	34763.6	42872.0	53414.8	67042.7	81604.9	21.1%
Basic EPS to Common	$28.31	$18.31	$44.94	$49.48	$60.53	$74.82	$93.16	$112.49	20.1%
Basic Shares Outstanding	688.0	691.4	697.0	702.6	708.3	713.9	719.7	725.5	0.8%
Diluted EPS	**$27.88**	**$18.00**	**$44.29**	**$48.76**	**$59.66**	**$73.74**	**$91.81**	**$110.86**	20.1%
Shares Outstanding	698.7	703.6	707.3	712.9	718.6	724.4	730.2	736.1	0.8%
EBITDA Reconciliation									
Operating Income	23716.0	26146.0	32792.3	38855.5	45369.3	54001.7	65274.2	16326.0	-13.0%
Nonrecurring Items	0.0	2736.0	387.0	0.0	0.0	0.0	0.0	0.0	
Stock-Based Compensation	6745.0	7679.0	10027.5	11782.5	13629.6	15661.3	17814.5	20101.4	14.9%
Pro Forma Operating Income	**30461.0**	**36561.0**	**43206.8**	**50638.0**	**58998.9**	**69663.0**	**83088.7**	**96371.4**	17.4%
Depreciation and Amortization	6144.0	6915.0	8731.0	10705.8	12690.7	14629.7	16519.4	18933.2	16.7%
Adjusted EBITDA	**36605.0**	**43476.0**	**51937.8**	**61343.8**	**71689.6**	**84292.7**	**99608.2**	**115304.5**	17.3%
Pro forma Net Income Reconciliation									
Pro Forma Operating Income	30461.0	36561.0	43206.8	50638.0	58998.9	69663.0	83088.7	96371.4	17.4%
Other Income, Net	434.0	1047.0	1457.3	3539.1	6913.6	11138.3	16485.1	23248.1	74.0%
Pretax Income	30895.0	37608.0	44664.1	54177.1	65912.5	80801.3	99573.9	119619.5	21.8%
GAAP Income Tax Expense (Benefit)	4672.0	14531.0	5954.8	7631.0	9410.9	11725.2	14716.7	17913.3	24.6%
Total Taxes	6822.0	7880.5	7832.4	9751.9	11864.3	14544.2	17923.3	21531.5	22.4%
Pro Forma Net Income	**24073.0**	**29727.5**	**36831.7**	**44425.2**	**54048.3**	**66257.1**	**81650.6**	**98088.0**	21.6%
Adjusted EPS - Diluted	**$34.45**	**$42.25**	**$52.08**	**$62.31**	**$75.21**	**$91.46**	**$111.82**	**$133.26**	20.7%
Y/Y % Change									
Gross Revenue	20.4%	22.8%	20.5%	17.5%	15.7%	14.9%	13.7%	12.8%	
Net Revenue	20.7%	21.4%	19.1%	16.7%	14.9%	14.7%	14.0%	13.0%	
TAC	18.9%	29.1%	26.3%	20.3%	18.7%	15.5%	12.8%	12.3%	
COGS	30.7%	30.3%	27.7%	18.1%	14.7%	13.2%	9.8%	12.0%	
Research and Development	13.6%	19.2%	23.2%	17.5%	15.1%	14.0%	12.6%	11.5%	
Sales and Marketing	15.9%	23.0%	14.3%	14.9%	13.3%	12.1%	11.3%	10.2%	
General and Administrative	13.8%	-1.6%	11.5%	5.6%	8.9%	7.8%	6.2%	4.9%	
Operating Income	22.5%	10.2%	25.4%	18.5%	16.8%	19.0%	20.9%	16.8%	
Net Income	18.6%	-35.0%	147.4%	11.0%	23.3%	24.6%	25.5%	21.7%	
Adjusted EBITDA	23.6%	18.8%	19.5%	18.1%	16.9%	17.6%	18.2%	15.8%	
Pro Forma Net Income	17.4%	23.5%	23.9%	20.6%	21.7%	22.6%	23.2%	20.1%	
Adjusted EPS - Diluted	16.4%	22.6%	23.3%	19.7%	20.7%	21.6%	22.3%	19.2%	
Margins									
Gross Margin	75.0%	73.2%	71.2%	70.9%	70.9%	71.3%	72.4%	72.6%	
GAAP Operating Margin	32.3%	29.3%	30.9%	31.3%	31.9%	33.0%	35.0%	36.2%	
Pro Forma Operating Margin	41.5%	41.0%	40.7%	40.8%	41.4%	42.6%	44.6%	45.8%	
Adjusted EBITDA Margin	49.8%	48.7%	48.9%	49.5%	50.3%	51.6%	53.5%	54.8%	
Net Income Margin	26.5%	14.2%	29.5%	28.0%	30.1%	32.7%	36.0%	38.8%	
Adjusted Net Income Margin	32.8%	33.3%	34.7%	35.8%	37.9%	40.5%	43.8%	46.6%	

Source: Company data, Credit Suisse estimates

Figure 17: Alphabet Inc. – Cash Flow Statement
US$ in millions, unless otherwise stated

	2016A	2017A	2018E	2019E	2020E	2021E	2022E	2023E
Operating Activities								
Net Income	19478.0	12662.0	31325.9	34763.6	42872.0	53414.8	67042.7	81604.9
Depreciation and Amortization of Property and Equipment	5267.0	6103.0	7946.8	9938.0	11967.9	14149.3	16461.0	18874.7
Amortization of Intangible and Other Assets	877.0	812.0	784.1	767.8	722.8	480.4	58.5	58.5
Stock-based Compensation Expense	6703.0	7679.0	10027.5	11782.5	13629.6	15661.3	17814.5	20101.4
Excess Tax Benefits from Stock-based Award Activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred Income Taxes	(38.0)	258.0	(18.0)	0.0	0.0	0.0	0.0	0.0
Other	449.0	331.0	(3249.0)	0.0	0.0	0.0	0.0	0.0
Accounts Receivable	(2578.0)	(3768.0)	(2559.1)	(3522.9)	(3778.2)	(4136.4)	(4358.6)	(4605.8)
Income Taxes, Net	3125.0	8211.0	782.0	0.0	0.0	0.0	0.0	0.0
Inventories	0.0	0.0	104.5	(6.0)	(6.3)	(6.6)	(6.9)	(7.3)
Prepaid Revenue Share, Expenses and Other Assets	312.0	(2164.0)	(625.3)	(599.2)	(644.7)	(613.1)	(613.8)	(669.8)
Accounts Payable	110.0	731.0	588.0	579.9	607.8	604.0	595.6	657.6
Accrued Expenses and Other Liabilities	1515.0	4891.0	3114.5	2207.5	2287.4	2308.3	2298.9	2442.8
Accrued Revenue Share	593.0	955.0	790.5	909.7	1030.9	896.3	926.7	986.2
Deferred Revenue	223.0	390.0	130.0	0.0	0.0	0.0	0.0	0.0
Net Cash from Operating Activities	**36036.0**	**37091.0**	**49142.4**	**56820.9**	**68689.2**	**82758.4**	**100218.5**	**119443.3**
Investing Activities								
Purchases of Property and Equipment	(10183.0)	(13184.0)	(22135.6)	(18231.1)	(19728.8)	(21107.3)	(22232.4)	(23082.2)
Purchases of Marketable Securities	(84509.0)	(92195.0)	(8849.0)	0.0	0.0	0.0	0.0	0.0
Maturities and Sales of Marketable Securities	66895.0	74174.0	9351.0	0.0	0.0	0.0	0.0	0.0
Investments in Non-Marketable Equity Securities	(615.0)	(1427.0)	171.0	0.0	0.0	0.0	0.0	0.0
Cash Collateral Received from Securities Lending	(2428.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investments in Reverse Repurchase Agreements	450.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acquisitions, Net of Cash Acquired	(986.0)	(287.0)	(1250.0)	0.0	0.0	0.0	0.0	0.0
Other	211.0	1518.0	30.0	0.0	0.0	0.0	0.0	0.0
Net Cash Used in Investing Activities	**(31165.0)**	**(31401.0)**	**(22682.6)**	**(18231.1)**	**(19728.8)**	**(21107.3)**	**(22232.4)**	**(23082.2)**
Financing Activities								
Net Proceeds (Payments) from Stock-Based Award Activities	(3304.0)	(4166.0)	(1158.0)	0.0	0.0	0.0	0.0	0.0
Excess Tax Benefits From Stock-Based Award Activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Repurchase of Common Stock in Connection With Acquisitions	(3693.0)	(4846.0)	(2173.0)	0.0	0.0	0.0	0.0	0.0
Proceeds from Issuance of Short-Term Debt	8716.0	4291.0	4664.9	5.9	6.0	(994.1)	5.9	6.0
Repayment of Short-Term Debt	(10051.0)	(4377.0)	(3378.0)	0.0	0.0	0.0	0.0	0.0
Other	0.0	800.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Used in Financing Activities	**(8332.0)**	**(8298.0)**	**(2044.1)**	**5.9**	**6.0**	**(994.1)**	**5.9**	**6.0**
Effect of Exchange rate	(170.0)	405.0	165.0	0.0	0.0	0.0	0.0	0.0
Net Increase (Decrease) in Cash and Equivalents	(3631.0)	(2203.0)	24580.8	38595.8	48966.4	60657.0	77992.1	96367.1
Cash and Equivalents, Beginning of Period	16549.0	12918.0	10715.0	35295.8	73891.5	122857.9	183514.9	261507.0
Cash and Equivalents, End of Period	**12918.0**	**10715.0**	**35295.8**	**73891.5**	**122857.9**	**183514.9**	**261507.0**	**357874.1**

Source: Company data, Credit Suisse estimates

Figure 18: Alphabet Inc. – Balance Sheet

US$ in millions, unless otherwise stated

	2016A	2017A	2018E	2019E	2020E	2021E	2022E	2023E
Assets:								
Cash and Cash Equivalents	12918.0	10715.0	35295.8	73891.5	122857.9	183514.9	261507.0	357874.1
Marketable Securities	73415.0	91156.0	90227.0	90227.0	90227.0	90227.0	90227.0	90227.0
Accounts Receivable, Net of Allowance	14137.0	18336.0	21036.1	24559.0	28337.2	32473.6	36832.2	41438.0
Inventories	268.0	749.0	531.5	537.5	543.8	550.3	557.2	564.5
Receivable Under Reverse Repurchase Agreements	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred Income Taxes, Net	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income Taxes Receivable, Net	95.0	369.0	37.0	37.0	37.0	37.0	37.0	37.0
Prepaid Revenue Share, Expenses and Other	4575.0	2983.0	3810.3	4409.5	5054.2	5667.3	6281.1	6950.8
Total Current Assets	**105408.0**	**124308.0**	**150937.6**	**193661.6**	**247057.1**	**312470.2**	**395441.6**	**497091.4**
Prepaid Revenue Share, Expenses, and Other	1819.0	2672.0	2004.0	2004.0	2004.0	2004.0	2004.0	2004.0
Deferred Income Taxes, Net	383.0	680.0	678.0	678.0	678.0	678.0	678.0	678.0
Non-Marketable Equity Securities	5878.0	7813.0	10976.0	10976.0	10976.0	10976.0	10976.0	10976.0
Property and Equipment, net	34234.0	42383.0	59217.7	67510.8	75271.7	82229.7	88001.1	92208.5
Intangible Assets, Net	3307.0	2692.0	2219.9	1452.0	729.2	248.8	190.3	131.9
Goodwill	16468.0	16747.0	17862.0	17862.0	17862.0	17862.0	17862.0	17862.0
Total Assets	**167497.0**	**197295.0**	**243895.2**	**294144.4**	**354578.0**	**426468.7**	**515153.0**	**620951.9**
Liabilities:								
Accounts Payable	2041.0	3137.0	3992.0	4571.9	5179.7	5783.7	6379.3	7036.9
Short-Term Debt	0.0	0.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0
Accrued Compensation and Benefits	3976.0	4581.0	5501.2	6313.4	7138.6	7993.7	8859.7	9720.4
Accrued Expenses and Other Current Liabilities	6144.0	10177.0	12632.2	14027.5	15489.7	16942.9	18375.8	19958.0
Accrued Revenue Share	2942.0	3975.0	4799.5	5709.2	6740.1	7636.4	8563.1	9549.3
Securities Lending Payable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred Revenue	1099.0	1432.0	1596.0	1596.0	1596.0	1596.0	1596.0	1596.0
Income Taxes Payable, Net	554.0	881.0	1343.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Current Liabilities	**16756.0**	**24183.0**	**31193.0**	**33547.1**	**37473.2**	**41281.8**	**45103.0**	**49189.6**
Long-Term Debt	3935.0	3969.0	3946.9	3952.9	3958.8	2964.8	2970.7	2976.7
Deferred Revenue, Non-Current	4677.0	12812.0	12885.0	12885.0	12885.0	12885.0	12885.0	12885.0
Income Taxes Payable, Non-Current	226.0	430.0	394.0	394.0	394.0	394.0	394.0	394.0
Deferred Income Taxes, Non-Current	2665.0	3059.0	3149.0	3149.0	3149.0	3149.0	3149.0	3149.0
Other Long-Term Liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Liabilities	**28461.0**	**44793.0**	**51882.9**	**54242.9**	**58175.0**	**60989.5**	**64816.7**	**68909.3**
Shareholder's Equity:								
Convertible Preferred Stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Additional Paid-In Capital	36307.0	40247.0	50749.5	63875.0	77504.6	93165.9	110980.4	131081.8
Accumulated Other Comprehensive Loss	(2402.0)	(992.0)	(670.0)	(670.0)	(670.0)	(670.0)	(670.0)	(670.0)
Retained Earnings	105131.0	113247.0	141932.9	176696.4	219568.5	272983.2	340025.9	421630.8
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Shareholder's Equity	139036.0	152502.0	192012.4	239901.4	296403.1	365479.2	450336.3	552042.6
Total Liabilities and Shareholder's Equity	**167497.0**	**197295.0**	**243895.2**	**294144.4**	**354578.0**	**426468.7**	**515153.0**	**620951.9**

Source: Company data, Credit Suisse estimates

Companies Mentioned *(Price as of 15-Jul-2018)*
Alphabet (GOOGL.OQ, $1204.42, OUTPERFORM, TP $1330.0)
Groupon Inc. (GRPN.OQ, $4.67)
Shopify Inc. (SHOP.N, $166.18)
Yelp (YELP.N, $39.79)

Disclosure Appendix

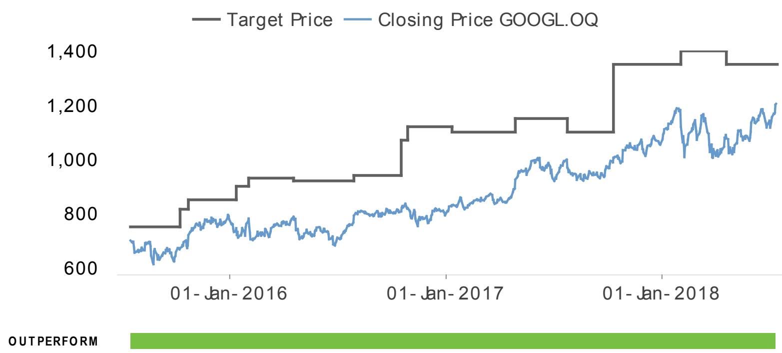
Analyst Certification

I, Stephen Ju, certify that (1) the views expressed in this report accurately reflect my personal views about all of the subject companies and securities and (2) no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this report.

3-Year Price and Rating History for Alphabet (GOOGL.OQ)

GOOGL.OQ Date	Closing Price (US$)	Target Price (US$)	Rating
17-Jul-15	699.62	750.00	O
09-Oct-15	671.24	815.00	
23-Oct-15	719.33	850.00	
12-Jan-16	745.34	900.00	
02-Feb-16	780.91	930.00	
18-Apr-16	787.68	920.00	
29-Jul-16	791.34	940.00	
17-Oct-16	806.84	1070.00	
28-Oct-16	819.56	1120.00	
11-Jan-17	829.86	1100.00	
28-Apr-17	924.52	1150.00	
25-Jul-17	969.03	1100.00	
11-Oct-17	1005.65	1350.00	
02-Feb-18	1119.20	1400.00	
20-Apr-18	1077.32	1350.00	

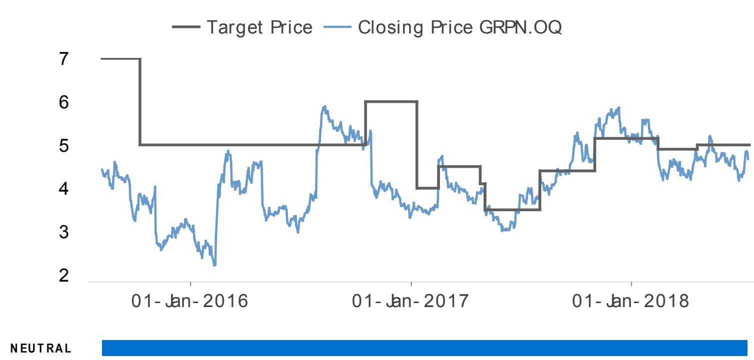
** Asterisk signifies initiation or assumption of coverage.*



3-Year Price and Rating History for Groupon Inc. (GRPN.OQ)

GRPN.OQ Date	Closing Price (US$)	Target Price (US$)	Rating
07-Aug-15	4.43	7.00	N
09-Oct-15	3.86	5.00	
17-Oct-16	5.09	6.00	
10-Jan-17	3.52	4.00	*
15-Feb-17	4.64	4.50	
25-Apr-17	3.91	4.10	
03-May-17	3.47	3.50	
02-Aug-17	4.23	4.40	
01-Nov-17	5.12	5.15	
14-Feb-18	4.71	4.90	
08-Mar-18	4.57	4.90	*
20-Apr-18	4.64	5.00	

** Asterisk signifies initiation or assumption of coverage.*



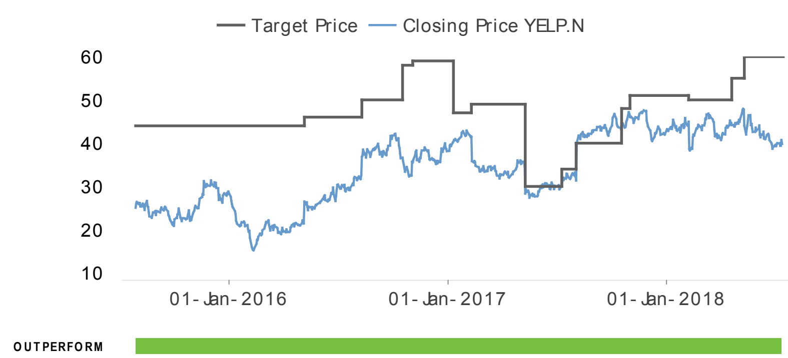
3-Year Price and Rating History for Shopify Inc. (SHOP.N)

SHOP.N Date	Closing Price (US$)	Target Price (US$)	Rating
30-Jul-15	38.13	40.00	O
18-Feb-16	20.59	34.00	
03-Aug-16	36.79	46.00	
15-Aug-16	39.08		R
18-Aug-16	40.25	46.00	O
03-Nov-16	40.41	50.00	
15-Feb-17	60.61	70.00	
02-May-17	82.98	90.00	
09-May-17	89.15	95.00	
18-May-17	92.11		R
22-May-17	89.60	95.00	O
01-Aug-17	104.08	110.00	
31-Oct-17	99.49	120.00	
15-Feb-18	137.95	149.00	
20-Feb-18	142.78		R
23-Feb-18	137.00	149.00	O
10-May-18	146.23	149.00	*

** Asterisk signifies initiation or assumption of coverage.*

3-Year Price and Rating History for Yelp (YELP.N)

YELP.N Date	Closing Price (US$)	Target Price (US$)	Rating
29-Jul-15	25.06	44.00	O
06-May-16	26.50	46.00	
10-Aug-16	36.83	50.00	
17-Oct-16	36.64	58.00	
03-Nov-16	35.56	59.00	
10-Jan-17	40.40	47.00	*
09-Feb-17	41.49	49.00	
10-May-17	28.33	30.00	
10-Jul-17	30.16	34.00	
03-Aug-17	31.37	40.00	
18-Oct-17	44.58	48.00	
01-Nov-17	46.03	51.00	
07-Feb-18	44.94	50.00	
08-Mar-18	45.57	50.00	*
20-Apr-18	44.17	55.00	
11-May-18	44.02	60.00	



** Asterisk signifies initiation or assumption of coverage.*

As of December 10, 2012 Analysts' stock rating are defined as follows:

Outperform (O) : The stock's total return is expected to outperform the relevant benchmark* over the next 12 months.
Neutral (N) : The stock's total return is expected to be in line with the relevant benchmark* over the next 12 months.
Underperform (U) : The stock's total return is expected to underperform the relevant benchmark* over the next 12 months.

**Relevant benchmark by region: As of 10th December 2012, Japanese ratings are based on a stock's total return relative to the analyst's coverage universe which consists of all companies covered by the analyst within the relevant sector, with Outperforms representing the most attractive, Neutrals the less attractive, and Underperforms the least attractive investment opportunities. As of 2nd October 2012, U.S. and Canadian as well as European ratings are based on a stock's total return relative to the analyst's coverage universe which consists of all companies covered by the analyst within the relevant sector, with Outperforms representing the most attractive, Neutrals the less attractive, and Underperforms the least attractive investment opportunities. For Latin American and Asia stocks (excluding Japan and Australia), ratings are based on a stock's total return relative to the average total return of the relevant country or regional benchmark (India - S&P BSE Sensex Index); prior to 2nd October 2012 U.S. and Canadian ratings were based on (1) a stock's absolute total return potential to its current share price and (2) the relative attractiveness of a stock's total return potential within an analyst's coverage universe. For Australian and New Zealand stocks, the expected total return (ETR) calculation includes 12-month rolling dividend yield. An Outperform rating is assigned where an ETR is greater than or equal to 7.5%; Underperform where an ETR less than or equal to 5%. A Neutral may be assigned where the ETR is between -5% and 15%. The overlapping rating range allows analysts to assign a rating that puts ETR in the context of associated risks. Prior to 18 May 2015, ETR ranges for Outperform and Underperform ratings did not overlap with Neutral thresholds between 15% and 7.5%, which was in operation from 7 July 2011.*

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Analysts' sector weightings are distinct from analysts' stock ratings and are based on the analyst's expectations for the fundamentals and/or valuation of the sector* relative to the group's historic fundamentals and/or valuation:
Overweight : The analyst's expectation for the sector's fundamentals and/or valuation is favorable over the next 12 months.
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Underweight : The analyst's expectation for the sector's fundamentals and/or valuation is cautious over the next 12 months.
**An analyst's coverage sector consists of all companies covered by the analyst within the relevant sector. An analyst may cover multiple sectors.*

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Global Ratings Distribution

Rating	Versus universe (%)	Of which banking clients (%)
Outperform/Buy*	49%	(62% banking clients)
Neutral/Hold*	37%	(58% banking clients)
Underperform/Sell*	13%	(50% banking clients)
Restricted	2%	

**For purposes of the NYSE and FINRA ratings distribution disclosure requirements, our stock ratings of Outperform, Neutral, and Underperform most closely correspond to Buy, Hold, and Sell, respectively; however, the meanings are not the same, as our stock ratings are determined on a relative basis. (Please refer to definitions above.) An investor's decision to buy or sell a security should be based on investment objectives, current holdings, and other individual factors.*

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Target Price and Rating
Valuation Methodology and Risks: (12 months) for Alphabet (GOOGL.OQ)

Method: We use the discounted cash flow (DCF) method to calculate our $1330 target price for Google. Our five-year DCF uses a 3% terminal growth rate and a market-implied discount rate derived by discounting our unlevered FCF (free cash flow) estimates from 2018 through 2023 to arrive at the stock's current trading price. We then applied this discount rate to our 2018-2023 unlevered free cash flow estimates for GOOG. While we maintain our Outperform rating, factors that can potentially drive material increases to our current estimates and hence share appreciation include: 1) monetization improvements in Search through product updates such as Expanded Text Ads and Individual Bid Adjustments, 2) larger-than-expected contribution from Google's larger non-search businesses, namely YouTube, Play and Cloud, and 3) optionality for value creation from new monetization initiatives such as Maps as well as the eventual commercialization of Google's Other Bets (Waymo).

Risk: Risks to our $1330 target price and Outperform rating for GOOG include: 1) Slower-than-expected advertiser adoption of any of Google's new ad units, particularly Trueview for YouTube, 2) Greater-than-expected adoption of non-Android smart phones, which could adversely affect Google Play growth, and 3) Appreciation of the US Dollar versus the major global currencies may exert a headwind on our estimates.

Please refer to the firm's disclosure website at https://rave.credit-suisse.com/disclosures/view/selectArchive for the definitions of abbreviations typically used in the target price method and risk sections.

See the Companies Mentioned section for full company names
Credit Suisse currently has, or had within the past 12 months, the following as investment banking client(s): GOOGL.OQ, YELP.N, SHOP.N, GRPN.OQ
Credit Suisse provided investment banking services to the subject company (GOOGL.OQ, SHOP.N) within the past 12 months.
Credit Suisse currently has, or had within the past 12 months, the following issuer(s) as client(s), and the services provided were non-investment-banking, securities-related: GOOGL.OQ
Credit Suisse has managed or co-managed a public offering of securities for the subject company (SHOP.N) within the past 12 months.
Within the past 12 months, Credit Suisse has received compensation for investment banking services from the following issuer(s): GOOGL.OQ, SHOP.N
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Within the last 12 months, Credit Suisse has received compensation for non-investment banking services or products from the following issuer(s): GOOGL.OQ
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A member of the Credit Suisse Group is party to an agreement with, or may have provided services set out in sections A and B of Annex I of Directive 2014/65/EU of the European Parliament and Council ("MiFID Services") to, the subject issuer (GOOGL.OQ, YELP.N, SHOP.N, GRPN.OQ) within the past 12 months.

For date and time of production, dissemination and history of recommendation for the subject company(ies) featured in this report, disseminated within the past 12 months, please refer to the link: https://rave.credit-suisse.com/disclosures/view/report?i=358143&v=-1299lrcslqjec84tjazgf3ugb .

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Principal is not guaranteed in the case of equities because equity prices are variable.
Commission is the commission rate or the amount agreed with a customer when setting up an account or at any time after that.
This research report is authored by:
Credit Suisse Securities (USA) LLC..Stephen Ju ; Philip Wang, Ph.D. ; Nicole D'Souza ; Yoni Yadgaran

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Guru Stock Report

ALPHABET INC (NASD: GOOGL)

Based on 7/12/2018 Close Price of $1,201.26

INDUSTRY: Computer Services | **SECTOR: Technology**

Current Rating: Hold

Reiterate C on 7/13/2018.

VALIDEA RATING (OVERALL STRENGTH GRADE): : A : B : C : D : F :

OVERVIEW

• This stock receives a fundamental grade of "C" based on Validea's Guru Analysis system. "C" rated stocks pass most of the fundamental tests of at least one of our guru strategies, although they typically do not meet all the criteria. Stocks that receive this grade typically have some favorable fundamental attributes, but also have some significant flaws. For further details on our scoring system, please see the FAQ section at the end of this report.

• Validea's Guru System classifies this stock as neither a growth or value stock given its low historical EPS growth rate of 13.9% and its above market PE ratio of 31.9.

ANALYSIS SUMMARY

Strategy Name	Based On Book By/About	Score
Contrarian Investor	David Dreman	57%
Book/Market Investor	Joseph Piotroski	0%
Growth Investor	Martin Zweig	62%
Growth/Value Investor	James O'Shaughnessy	80%
Low PE Investor	John Neff	62%
P/E Growth Investor	Peter Lynch	0%
Value Investor	Benjamin Graham	57%
Price/Sales Investor	Kenneth Fisher	30%
Patient Investor	Warren Buffett	49%
Momentum Investor	Validea	71%

* Overall fundamental grade is based on a weighted scoring system in which the strategies at the top of the table are more significant than those at the bottom (the strategies used to determine our "A" rated stocks are above the dividing line in the table and the strategies used to determine the "B" rated stocks are below). Although all the strategies used in this report have exhibited market outperformance on a risk-adjusted basis, strategies at the top of the table have displayed superior historical risk-adjusted performance in our testing to those at the bottom.

COMPANY PROFILE

Alphabet Inc. is a holding company. The Company's businesses include Google Inc. (Google) and its Internet products, such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo and X. The Company's segments include Google and Other Bets. The Google segment includes its Internet products, such as Search, Ads, Commerce, Maps, YouTube, Google Cloud, Android, Chrome and Google Play, as well as its hardware initiatives. The Google segment is engaged in advertising, sales of digital content, applications and cloud offerings, and sales of hardware products. The Other Bets segment is engaged in the sales of Internet and television services through Google Fiber, sales of Nest products and services, and licensing and research and development (R&D) services through Verily. It offers Google Assistant, which allows users to type or talk with Google; Google Maps, which helps users navigate to a store, and Google Photos, which helps users store and organize all of their photos.

RATING HISTORY

Date	Action	Old Rating	New Rating
10/23/2015	Initiate		C

METHODOLOGY

This report provides a detailed analysis of GOOGL based on the publicly disclosed methodologies of Wall Street legends. Validea is a premier online independent research provider. The firm's Guru Stock Report unites the quantitative strategies of the world's most successful investors, including names like Peter Lynch, Warren Buffett, Ben Graham, Martin Zweig and many others. Rooted in fundamental analysis and built on core investing principles, each report contains an in-depth description of the guru methodologies, as interpreted by Validea, and examines the stock using multiple approaches (i.e. value, growth, momentum).

Using these strategies, Validea has created a ratings scale that is dynamic and weights more heavily the best performing approaches as identified and tracked by Validea. Each stock is scored using a five point rating system that assesses the security's investment prospects. Ratings range from A to F (correlates to Strong Buy to Sell), with A and B stocks having the best potential for long-term market outperformance. Stocks that score highly based on the best performing risk-adjusted guru strategies or are favored by multiple top performing guru strategies are given a higher rating versus their counterparts. Validea's ratings are limited to companies that exhibit profitability. Reports are updated every two weeks, or sooner in the event of an earnings report, other significant news, or a major stock price change, in an effort to provide timely and valuable analysis and coverage.

GURU ANALYSIS OF: ALPHABET INC (GOOGL)

GROWTH/VALUE INVESTOR

SCORE: 80%

BASED ON: James P. O'Shaughnessy | STYLE: Growth/Value

Strategy Overview

The Growth/Value Investor strategy is based on the book "What Works on Wall Street" by James P. O'Shaughnessy. In the book, O'Shaughnessy back-tested 44 years of stock market data from the comprehensive Standard & Poor's Compustat database to find out which strategies work and which don't. To the surprise of many, he concluded that price-to-earnings ratios aren't the best indicator of a stock's value, and that small-company stocks, contrary to popular wisdom, don't as a group have an edge on large-company stocks. Based on his research, O'Shaughnessy developed two key investment strategies: "Cornerstone Growth" and "Cornerstone Value", both of which are combined to form this strategy.

Detailed Analysis

MARKET CAP: [PASS]

The Cornerstone Value Strategy looks for large, well known companies whose market cap is greater than $1 billion. These companies exhibit solid and stable earnings. **GOOGL's** market cap of **$807,508** million passes this test.

CASH FLOW PER SHARE: [PASS]

The second criterion requires that the company exhibit strong cash flows. Companies with strong cash flow are typically the value oriented investments that this strategy looks for. The company's cash flow per share must be greater than the mean of the market cash flow per share **($1.94)**. **GOOGL's** cash flow per share of **$50.37** passes this test.

SHARES OUTSTANDING: [PASS]

This particular strategy looks for companies whose total number of outstanding shares are in excess of the market average **(615 million shares)**. These are the more well known and highly traded companies. **GOOGL**, who has **705 million** shares outstanding, passes this test.

TRAILING 12 MONTH SALES: [PASS]

A company's trailing 12 month sales **($117,251 million)** are required to be 1.5 times greater than the mean of the market's trailing 12 month sales **($22,640 million)**. **GOOGL** passes this test.

DIVIDEND: [FAIL]

The final step in the Cornerstone Value strategy is to select the 50 companies from the market leaders group (those that have passed the previous four criteria) that have the highest dividend yield. **GOOGL's** dividend yield of **N/A%** fails this final criterion. Even though it did pass the previous four criteria it would fail the overall methodology.

MOMENTUM INVESTOR

SCORE: 71%

BASED ON: Validea | STYLE: Growth/Momentum

Strategy Overview

The Momentum Investor strategy is based on the book "How To Make Money In Stocks". In that book, a massive study was described that identified the common fundamental, technical and chart pattern characteristics of the 500 best growth stocks over the past 30 years. The Momentum Investor strategy seeks to identify the "very best" companies that have high Relative Strength and buy them at the "right" time. This methodology is based on the general principal that stocks are priced at what they are worth at the time. Low priced stocks and stocks selling at their low are low for a reason, and you want to avoid them. Instead, you want to pick stocks that are selling near or at their high.

Detailed Analysis

QUARTERLY EPS CHANGE (THIS QUARTER VS. SAME QUARTER LAST YEAR): [PASS]

The EPS growth for this quarter relative to the same quarter a year earlier for **GOOGL** (**72.89%**) is above the minimum 18% that this methodology likes to see for a "good" growth company. Furthermore, EPS have been growing in excess of 100% in the latest 3 quarters. **GOOGL** passes the first requirement.

ANNUAL EARNINGS GROWTH: [FAIL]

This methodology looks for annual earnings growth above 18%, but prefers higher than 25%. **GOOGL's** annual earnings growth rate over the past five years of **11.50%** fails this test.

EARNINGS CONSISTENCY: [PASS]

According to this methodology, each year's EPS numbers should be better than the previous year's. One dip is allowed, but the following year's earnings should be a new high. **GOOGL**, whose annual EPS before extraordinary items for the last 5 years (from earliest to the most recent fiscal year) were **17.38, 17.86, 19.82, 22.84, 27.88**, passes this criterion, as EPS have continually increased.

CURRENT PRICE LEVEL: [PASS]

Investors should keep an eye open for stocks that are trading within 15% of their 52-week highs, as the stock price is potentially close to breaking out to a new high on above average volume. **GOOGL's** current stock price **($1201.26)** is within 15% of the 52-week high **($1201.99)**. This a positive sign.

4 MONTH S&P RELATIVE STRENGTH LINE: [PASS]

This methodology likes to see confirmation from this indicator when buying as a sign of a company's recently strong momentum. It shows a company's weekly performance in comparison to the overall market, as measured by the S&P 500. Look for a general upward trend in weekly relative strength, as the best stocks usually act better than the overall market. **GOOGL's** relative strength trend has been increasing over the last 4 months. This type of price action is favorable.

PRICE PERFORMANCE COMPARED TO ALL OTHER STOCKS: [FAIL]

A company's weighted relative strength, which is the stock's price performance compared with the overall market over the past year, should be no less than 80, although above 90 is preferred. As long as all the other numbers are in check, these companies should continue to perform well over the next 3 months. **GOOGL's** relative strength of **70** is too low to pass the test.

CONFIRM AT LEAST ONE OTHER LEADING STOCK IN THE INDUSTRY: [PASS]

Make sure that a company's industry is attractive by confirming that at least one other company in the industry has a relative strength above 80. There is confirmation in **GOOGL's** industry **(Computer Services)**, as there are **42** companies that have a relative strength at or above 80.

LOOK FOR LEADING INDUSTRIES: [PASS]

Investors should consider stocks in top performing industries. Look at the number of companies within an industry that have a weighted relative strength above 80, and choose only the top 30% of those industries from which to select stocks. In another method, look for industries with the most stocks making new 52-week highs. **GOOGL's** industry **(Computer Services)** is currently one of the top performing industries, thus passing the criterion.

DECREASING LONG-TERM DEBT/EQUITY: [PASS]

Companies who have consistently cut debt over the last 3 years, or who have a Debt/Equity ratio less than 2, are looked at favorably. **GOOGL**, which has a Debt/Equity ratio of **0.02**, passes this test.

RETURN ON EQUITY: [PASS]

Preferred companies must have a ROE of at least 17%. **GOOGL's** ROE of **17.3%** is above the minimum 17% that this methodology likes to see, and therefore passes the criterion.

SHARES OUTSTANDING: [NEUTRAL]

Shares outstanding should be less than 30 million, as fewer shares mean bigger price jumps when demand surges. However, there is no penalty for a large number of shares outstanding as long as all the other parameters are met. Although **GOOGL** exceeds the preferred level with shares outstanding of **705** million, the stock still passes the test.

INSIDER OWNERSHIP: [FAIL]

Companies with the best prospects have strong insider ownership, which we define as 15% or more. When there is strong insider ownership, management is more likely to act in the best interest of the company, as their interests are right in line with that of the shareholders. The data is not available for **GOOGL**. Hence, an opinion cannot be rendered.

INSTITUTIONAL OWNERSHIP: [FAIL]

Some institutional ownership is preferred, but there is no indication that a large number of institutions is too many. This data is not available for **GOOGL**. Hence, this criterion cannot be evaluated currently.

LOW P/E INVESTOR

SCORE: **62%**

BASED ON: John Neff

STYLE: Value

Strategy Overview

The Low PE Investor strategy is based on the book "John Neff on Investing" by John Neff. While known as the manager with whom many top managers entrusted their own money, Neff was far from the smooth-talking, high-profile Wall Streeter you might expect. He was mild-mannered and low-key, and the same might be said of the Windsor Fund that he managed for more than three decades. In fact, Neff himself described the fund as "relatively prosaic, dull, [and] conservative." There was nothing dull about his results, however. From 1964 to 1995, Neff guided Windsor to a 13.7 percent average annual return, easily outpacing the S&P 500's 10.6 percent return during that time. That 3.1 percentage point difference is huge over time -- a $10,000 investment in Windsor (with dividends reinvested) at the start of Neff's tenure would have ended up as more than $564,000 by the time he retired, more than twice what the same investment in the S&P would have yielded (about $233,000). Considering the length of his tenure, that track record may be the best ever for a manager of such a large fund. Neff's approach was "relatively prosaic" and "dull" because it focused on the market's unloved. Neff identified these stocks using the price/earnings ratio, seeking stocks with P/Es that were between 40 to 60 percent of the market average. From this group, he looked for firms with steady, sustainable EPS growth (between 7 percent and 20 percent per year, and driven by sales growth), as well as positive free cash flows.

Detailed Analysis

P/E RATIO: [FAIL]

The P/E Ratio for non-cyclical companies must between 40% and 60% below the Market PE. The current market PE is **37.00** so the acceptable PE range for this criteria is from **14.80** to **22.20**. The current PE Ratio for **GOOGL** is **31.86**, therefore, it fails this criterion.

EPS GROWTH: [PASS]

For companies that do not pay dividends, this strategy likes to see a historical earnings growth rate between 12% and 20%. The historical EPS growth rate for **GOOGL** is **13.9%**, based on the average of the 3, 4 and 5 year historical eps growth rates, therefore, it passes this criterion.

FUTURE EPS GROWTH: [PASS]

The historical growth rate should be confirmed by the consensus future growth estimate of analysts for both the current fiscal year and the long term. As a result, both growth rates must be greater than 12% for stocks that do not pay dividends. The projected future EPS growth rate for **GOOGL** is **58.7%** for the current year and **17.3%** for the long term, therefore, it passes this criterion.

SALES GROWTH: [PASS]

This methodology requires that earnings growth be fueled by a corresponding growth in sales. As a result, sales growth must be either greater than 12% or at least 70% of EPS growth. The sales growth rate for **GOOGL** is **18.2%**, based on the average of the 3, 4 and 5 year historical sales growth rates, therefore, it passes this criterion.

TOTAL RETURN/PE: [FAIL]

This strategy prefers stocks whose total return (eps growth + yield) divided by the PE ratio is at least double that of the market or of its industry. This methodology would consider the Total Return/PE ratio for **GOOGL** of **0.44**, based on the average of the 3, 4 and 5 year historical eps growth rates, to be unacceptable because it is less than double the market average Total Return/PE ratio of **0.48** and the industry Total Return/PE Ratio of **0.67**.

The following criteria are minor criteria and count for substantially less points than the major criteria above. Failing these criteria will not prevent a stock from receiving strong interest.

FREE CASH FLOW: [PASS]

Positive Free Cash Flow gives a company many options to pay dividends, buy back stock, or acquire other companies. As a result, this methodology likes to see positive Free Cash Flow. The Free Cash Flow for **GOOGL** is **$31.84**, thus it passes this criterion.

EPS PERSISTENCE: [PASS]

Neff likes companies to have persistent quarterly earnings. Earnings in each of the past 4 quarters should have increased from the quarter a year before. One dip in earnings is allowed, but the growth for the current quarter must be positive. Quarterly earnings per share for the most recent 8 quarters from earliest to most recent were **6.02, 7.00, 7.25, 7.71, 7.73, 5.01, 9.57, 13.33**. Earnings for **GOOGL** have increased over each of these one year periods, so the company passes this criterion.

GROWTH INVESTOR

SCORE: **62%**

BASED ON: Martin Zweig | **STYLE: Growth**

Strategy Overview

The Growth Investor strategy is based on the book "Winning on Wall Street", by Martin Zweig. Zweig is a renowned money manager, newsletter writer and frequent guest on the PBS television series "Wall Street Week." The strategy searches for stocks that meet a long host of earnings criteria. Quarterly earnings, for example, should be positive and growing faster than they were (a) a year ago, (b) in the preceding three quarters, and (c) over the preceding three years. Annual earnings should be up for at least the past five years. And sales should be growing as fast as or faster than earnings, since cost-cutting and other non-revenue-producing measures alone can't support earnings growth forever.

Detailed Analysis

P/E RATIO: [PASS]

The P/E of a company must be greater than 5 to eliminate weak companies, but not more than 3 times the current Market P/E because the situation is much too risky, and never greater than 43. **GOOGL's** P/E is **31.86**, based on trailing 12 month earnings, while the current market PE is **37.00**. Therefore, it passes the first test.

REVENUE GROWTH IN RELATION TO EPS GROWTH: [PASS]

Revenue Growth must not be substantially less than earnings growth. For earnings to continue to grow over time they must be supported by a comparable or better sales growth rate and not just by cost cutting or other non-sales measures. **GOOGL's** revenue growth is **18.23%**, while it's earnings growth rate is **13.92%**, based on the average of the 3, 4 and 5 year historical eps growth rates. Therefore, **GOOGL** passes this criterion.

SALES GROWTH RATE: [FAIL]

Another important issue regarding sales growth is that the rate of quarterly sales growth is rising. To evaluate this, the change from this quarter last year to the present quarter (**19.5**%) must be examined, and then compared to the previous quarter last year compared to the previous quarter (**23.7**%) of the current year. Sales growth for the prior must be greater than the latter. For **GOOGL** this criterion has not been met and fails this test.

The earnings numbers of a company should be examined from various different angles. Three of these angles are stability in the trend of earnings, earnings persistence, and earnings acceleration. To evaluate stability, the stock has to pass the following four criteria.

CURRENT QUARTER EARNINGS: [PASS]

The first of these criteria is that the current EPS be positive. **GOOGL's** EPS (**$13.33**) pass this test.

QUARTERLY EARNINGS ONE YEAR AGO: [PASS]

The EPS for the quarter one year ago must be positive. **GOOGL's** EPS for this quarter last year (**$7.71**) pass this test.

POSITIVE EARNINGS GROWTH RATE FOR CURRENT QUARTER: [PASS]

The growth rate of the current quarter's earnings compared to the same quarter a year ago must also be positive. **GOOGL's** growth rate of **72.89%** passes this test.

EARNINGS GROWTH RATE FOR THE PAST SEVERAL QUARTERS: [FAIL]

Compare the earnings growth rate of the previous three quarters with long-term EPS growth rate. Earnings growth in the previous 3 quarters should be at least half of the long-term EPS growth rate. Half of the long-term EPS growth rate for **GOOGL** is **6.96%**. This should be less than the growth rates for the 3 previous quarters which are **28.41%, -28.43%** and **32.00%**. **GOOGL** does not pass this test, which means that it does not have good, reasonably steady earnings.

This strategy looks at the rate which earnings grow and evaluates this rate of growth from different angles. The 4 tests immediately following are detailed below.

EPS GROWTH FOR CURRENT QUARTER MUST BE GREATER THAN PRIOR 3 QUARTERS: [PASS]

If the growth rate of the prior three quarter's earnings, **10.06%**, (versus the same three quarters a year earlier) is less than the growth rate of the current quarter earnings, **72.89%**, (versus the same quarter one year ago) then the stock passes.

EPS GROWTH FOR CURRENT QUARTER MUST BE GREATER THAN THE HISTORICAL GROWTH RATE: [PASS]

The EPS growth rate for the current quarter, **72.89%** must be greater than or equal to the historical growth which is **13.92%**. **GOOGL** would therefore pass this test.

EARNINGS PERSISTENCE: [PASS]

Companies must show persistent yearly earnings growth. To fulfill this requirement a company's earnings must increase each year for a five year period. **GOOGL**, whose annual EPS growth before extraordinary items for the previous 5 years (from the earliest to the most recent fiscal year) were **17.38, 17.86, 19.82, 22.84 and 27.88**, passes this test.

LONG-TERM EPS GROWTH: [FAIL]

The final important criterion in this approach is that Earnings Growth be at least 15% per year. **GOOGL's** long-term growth rate of **13.92%**, based on the average of the 3, 4 and 5 year historical eps growth rates, fails the minimum required.

TOTAL DEBT/EQUITY RATIO: [PASS]

A final criterion is that a company must not have a high level of debt. A high level of total debt, due to high interest expenses, can have a very negative effect on earnings if business moderately turns down. If a company does have a high level, an investor may want to avoid this stock altogether. **GOOGL's** Debt/Equity **(3.30%)** is not considered high relative to its industry (**118.78%**) and passes this test.

CONTRARIAN INVESTOR

SCORE: **57%**

BASED ON: David Dreman

STYLE: Contrarian

Strategy Overview

The Contrarian Investor strategy is based on the book "Contrarian Investment Strategies" by David Dreman. If you relish going against the crowd, David Dreman's contrarian investment style should suit you well. Dreman is manager of the Kemper-Dreman High-Return Equity Fund and an investment columnist for Forbes magazine. This strategy passes large, fundamentally sound companies (good earnings growth, good return on equity, low debt-to-equity ratio) that are out of favor due to public apathy, delirium or naivete. Such companies can be recognized by their low price relative to their earnings, cash flow, book value or dividends.

Detailed Analysis

MARKET CAP: [PASS]

Medium to large-sized companies (the largest 1500 companies) should be chosen, because they are more in the public eye. Furthermore, the investor is exposed to less risk of "accounting gimmickry", and companies of this size have more staying power. **GOOGL** has a market cap of **$807,508** million, therefore passing the test.

EARNINGS TREND: [PASS]

A company should show a rising trend in the reported earnings for the most recent quarters. **GOOGL's** EPS for the past 2 quarters, (from earliest to most recent quarter) **9.57, 13.33** have been increasing, and therefore the company passes this test.

EPS GROWTH RATE IN THE IMMEDIATE PAST AND FUTURE: [PASS]

This methodology likes to see companies with an EPS growth rate higher than the S&P in the immediate past and a likelihood that this trend will continue in the near future. **GOOGL** passes this test as its EPS growth rate over the past 6 months **(166.06%)** has beaten that of the S&P **(5.12%)**. **GOOGL's** estimated EPS growth for the current year is **(58.72%)**, which indicates the company is expected to experience positive earnings growth. As a result, **GOOGL** passes this test.

This methodology would utilize four separate criteria to determine if GOOGL is a contrarian stock. In order to eliminate weak companies we have stipulated that the stock should pass at least two of the following four

major criteria in order to receive "Some Interest".

P/E RATIO: [FAIL]

The P/E of a company should be in the bottom 20% of the overall market. **GOOGL's** P/E of **31.86**, based on trailing 12 month earnings, is higher than the bottom 20% criterion (below 12.32), and therefore fails this test.

PRICE/CASH FLOW (P/CF) RATIO: [FAIL]

The P/CF of a company should be in the bottom 20% of the overall market. **GOOGL's** P/CF of **23.85** does not meet the bottom 20% criterion (below 7.13), and therefore fails this test.

PRICE/BOOK (P/B) VALUE: [FAIL]

The P/B value of a company should be in the bottom 20% of the overall market. **GOOGL's** P/B is currently **5.19**, which does not meet the bottom 20% criterion (below 1.13), and it therefore fails this test.

PRICE/DIVIDEND (P/D) RATIO: [FAIL]

The P/D ratio for a company should be in the bottom 20% of the overall market (that is the yield should be in the top 20%). **GOOGL's** P/D is not available, and hence an opinion cannot be rendered at this time.

This methodology maintains that investors should look for as many healthy financial ratios as possible to ascertain the financial strength of the company. These criteria are detailed below.

CURRENT RATIO: [PASS]

A prospective company must have a strong Current Ratio (greater than or equal to the average of it's industry [**3.66**] or greater than 2). This is one identifier of financially strong companies, according to this methodology. **GOOGL's** current ratio of **4.87** passes the test.

PAYOUT RATIO: [PASS]

A good indicator that a company has the ability to raise its dividend is a low payout ratio. The payout ratio for **GOOGL** is **0.00%**. Unfortunately, its historical payout ratio is not available. Nonetheless it passes the payout criterion, as this is a very low payout.

RETURN ON EQUITY: [FAIL]

The company should have a high ROE, as this helps to ensure that there are no structural flaws in the company. This methodology feels that the ROE should be greater than the top one third of ROE from among the top 1500 largest cap stocks, which is **17.82%**, and would consider anything over 27% to be staggering. The ROE for **GOOGL** of **17.31%** is not high enough to pass this criterion.

PRE-TAX PROFIT MARGINS: [PASS]

This methodology looks for pre-tax profit margins of at least 8%, and considers anything over 22% to be phenomenal. **GOOGL's** pre-tax profit margin is **26.37%**, thus passing this criterion.

YIELD: [FAIL]

The company in question should have a yield that is high and that can be maintained or increased. **GOOGL's** current yield is not available (or one is not paid) at the present time, while the market yield is **2.53%**. Hence, this criterion cannot be evaluated.

LOOK AT THE TOTAL DEBT/EQUITY: [PASS]

The company must have a low Debt/Equity ratio, which indicates a strong balance sheet. The Debt/Equity ratio should not be greater than 20% or should be less than the average Debt/Equity for its industry of **118.78%**. **GOOGL's** Total Debt/Equity of **3.30%** is considered acceptable.

Frequently Asked Questions

What is Validea's Guru Analysis?

Guru Analysis provides an in depth analysis of any stock using Validea's interpretation of published writings by or about 10 of history's best investors including Peter Lynch, Benjamin Graham, Warren Buffett, James P. O'Shaughnessy, the Motley Fool, David Dreman, John Neff, Kenneth Fisher and Martin Zweig. With Guru Analysis you can analyze any stock step by step using any one of these strategies and can see exactly why the stock passes or fails each methodology.

What type of investors can use Validea's Guru Stock Reports?

Validea's Guru Stock reports are geared toward long and medium-term investors. The vast majority of the investors that our guru strategies are based upon were long term investors. The reports can be utilized by both value and growth investors because there are multiple methodologies within the report that appeal to each investment style and several that combine both.

What does the Validea Rating overall letter grade indicate?

The Validea Rating indicates how well the stock meets the investment criteria of the 10 strategies in this report. The strategies with the best historical risk-adjusted performance are weighted more heavily in determining the letter grade. The letter grades are determined as follows.

A - "A" rated stocks receive a score of 90% from at least one of our top tier guru strategies. Our top tier strategies are based on our interpretation of the published writings of David Dreman, Joseph Piotroski, James P. O'Shaughnessy, John Neff and Martin Zweig. Stocks in this category exhibit the fundamental criteria that have proven most predictive of future stock performance in our historical testing.

B - "B" rated stocks receive a score of 90% from at least one of our second tier guru strategies. Our second tier strategies are based on our interpretation of the published writings of Peter Lynch, Warren Buffett, Kenneth Fisher and Benjamin Graham. Stocks in this category exhibit the fundamental criteria that is sought by these strategies. These strategies have all exhibited strong risk-adjusted performance in our historical testing.

C - "C" rated stocks have an average score from all of our strategies of at least 25%. Stocks in this category typically exhibit elements of fundamental strength, but also have some noticeable weaknesses.

D - "D" rated stocks have an average score from all of our strategies between 20% and 25%. Stocks in this grouping typically have several major fundamental weaknesses that would not be looked upon favorably by both value and growth investors.

F - "F" rated stocks have an average guru score from all of our strategies below 20%. Stocks in this grouping typically have many major fundamental weaknesses that would eliminate them from any consideration by our guru strategies.

What do the individual guru scores mean?

The scores for each strategy represent a weighted percentage of how well a particular stock meets a guru's criteria. Not all criteria are weighted equally and some of our strategies have criteria that are important enough to automatically result in a 0% score if they are failed. For example, in the Patient Investor strategy based on Warren Buffett, a stock will automatically fail if it does not meet the requirement of consistent earnings over the past 10 years.

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Fundamental data provided by Reuters

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Equity Research
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13 July 2018

TOP PICK Alphabet Inc.

Stars To Align For Google In 2Q?

The Key Take-Away: We would add to positions into 2Q, full stop. The recipe for GOOGL upside is simple: beat consensus for sites revenue, TAC, and operating margin. Historically, when the company hits a trifecta like we think may happen in 2Q, against a muted sentiment backdrop, shares respond positively. Stepping back from the print, we made GOOGL our Top Pick in May coming off the 1Q earnings disappointment, and continue to view the risk/reward as attractive.

Key Metrics For 2Q

Revenue: Our ad checks continue to point to solid trends for both Search and YouTube in 2Q. Search continues to benefit from mobile query and RPS growth, increasing marketer adoption of machine learning and automation campaign tools, and new formats. YouTube is lapping the initial stages of advertiser pullback around objectionable content, hence could see accelerating growth, and continues to benefit from mix shift to Google Preferred. We are modelling Sites Revenue growth of 22.7% ex-fx to $23B and $32.2B for Alphabet overall, which should be do-able.

EPS and Operating Margins: Google strives to hit a stable TTM operating profit dollar growth rate, and the last two quarters have been well below the prior cadence, hence we think 2Q could potentially be slightly better than current consensus thinking. 2Q last year was the peak growth rate for core Google expenses (excluding the EU fine), so the comp is somewhat easier. We think margins are likely down over the medium to long term on mix shift, but as witnessed in 2017 the quarterly cadence moves around a bit. We are modelling EPS of $9.68, a 160bps decline for core Google operating margin, and an overall 50bps decline in operating income excluding the EU fine for Alphabet.

Sites TAC: Management has stated that the pace of deleverage will be less-bad in 2Q than the previously guided 280bps as a % of sites revenue, while telegraphed, should be a slight positive. The magnitude of the deceleration is still TBD, but we expect a further drop off in 3Q as the company laps the partner rate changes (at Apple) for a full quarter (see: *The Sites TAC Relief Trade Is Back On*, 5/31/18).

GOOGL: Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	7.73A	13.33E	13.33E	13.33A	10.51E	10.30E	10.55E	72%	-23%
Q2	5.01A	9.83E	9.68E	9.64E	11.67E	11.40E	11.48E	93%	18%
Q3	9.57A	10.89E	10.77E	10.51E	12.83E	12.63E	12.40E	13%	17%
Q4	-4.35A	10.96E	10.92E	10.97E	12.69E	12.60E	12.71E	351%	15%
Year	17.96A	45.02E	44.71E	44.28E	47.70E	46.92E	47.69E	149%	5%
P/E	66.9		26.9			25.6			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 12-Jul-2018; 13:35 GMT

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PLEASE SEE ANALYST CERTIFICATION(S) AND IMPORTANT DISCLOSURES BEGINNING ON PAGE 7.

Stock Rating	OVERWEIGHT
	Unchanged
Industry View	POSITIVE
	Unchanged
Price Target	USD 1350.00
	raised 8% from USD 1250.00

Price (12-Jul-2018)	USD 1201.26
Potential Upside/Downside	+12.4%
Tickers	GOOGL

Market Cap (USD mn)	816408
Shares Outstanding (mn)	694.55
Free Float (%)	99.84
52 Wk Avg Daily Volume (mn)	1.8
52 Wk Avg Daily Value (USD mn)	N/A
Dividend Yield (%)	N/A
Return on Equity TTM (%)	17.31
Current BVPS (USD)	231.42

Source: Thomson Reuters

Price Performance	Exchange-Nasdaq
52 Week range	USD 1201.99-918.60

Link to Barclays Live for interactive charting

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U.S. Internet — **Industry View: POSITIVE**

Alphabet Inc. (GOOGL)

Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	89,183	108,824	130,402	156,640	20.7%
EBITDA (adj)	43,476	51,276	60,770	72,185	18.4%
EBIT (adj)	36,561	42,899	50,857	56,789	15.8%
Pre-tax income (adj)	34,872	47,637	52,896	59,466	19.5%
Net income (adj)	18,805	39,076	42,317	47,573	36.3%
EPS (adj) ($)	17.96	44.71	46.92	51.55	42.1%
Diluted shares (mn)	701.0	708.3	716.9	725.5	1.2%
DPS ($)	0.00	0.00	0.00	0.00	N/A

Margin and return data					Average
EBITDA (adj) margin (%)	48.7	47.1	46.6	46.1	47.1
EBIT (adj) margin (%)	41.0	39.4	39.0	36.3	38.9
Pre-tax (adj) margin (%)	39.1	43.8	40.6	38.0	40.4
Net (adj) margin (%)	21.1	35.9	32.5	30.4	30.0
ROIC (%)	8.1	17.6	17.7	15.4	14.7
ROE (%)	8.7	20.7	19.1	16.8	16.3

Balance sheet and cash flow ($mn)					CAGR
Tangible fixed assets	42,383	11,702	20,570	23,954	-17.3%
Intangible fixed assets	2,692	9,187	8,407	7,627	41.5%
Cash and equivalents	10,657	33,461	69,541	116,815	122.1%
Total assets	197,295	204,846	255,328	312,823	16.6%
Short and long-term debt	3,969	5,302	5,302	5,302	10.1%
Other long-term liabilities	3,059	3,149	3,149	3,149	1.0%
Total liabilities	44,793	51,282	57,179	64,459	12.9%
Shareholders' equity	152,502	153,564	198,149	248,364	17.7%
Net debt/(funds)	-6,688	-28,159	-64,239	-111,513	N/A
Change in working capital	9,246	-1,621	-398	-333	N/A
Cash flow from operations	37,091	44,418	53,999	65,178	20.7%
Capital expenditure	-13,184	-19,299	-18,000	-18,000	N/A
Free cash flow	23,907	25,119	35,999	47,178	25.4%

Valuation and leverage metrics					Average
P/E (adj) (x)	66.9	26.9	25.6	23.3	35.7
EV/sales (x)	9.4	7.5	6.0	4.7	6.9
EV/EBITDA (adj) (x)	19.3	15.9	12.9	10.2	14.6
FCF yield (%)	2.9	3.1	4.6	6.4	4.2
Dividend yield (%)	0.0	0.0	0.0	0.0	0.0
Net debt/EBITDA (adj) (x)	-0.2	-0.5	-1.1	-1.5	-0.8

Selected operating metrics				
Google sites net revenue ($mn)	77,788	96,714	117,265	142,196
Network sites net revenue ($mn)	17,587	19,871	21,858	24,044
TAC/gross revenue (%)	123.2	142.1	157.0	173.0
Paid click growth (%)	46.5	37.5	25.0	25.0
Cost per click growth (%)	N/A	N/A	N/A	N/A

Price (12-Jul-2018)	USD 1,201.26
Price Target	USD 1,350.00

Why Overweight? Google continues to grow revenue & EPS at ~20% CAGR and trades at 20x FY18E EPS. The company continues to innovate its product, and its machine learning capabilities should help advertisers get higher ROI, causing them to continue to allocate their advertising budgets to Google.

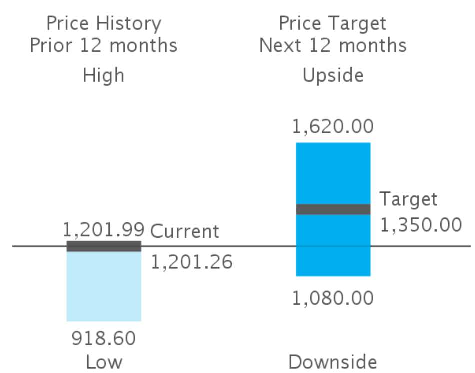
Upside case — **USD 1,620.00**

We expect Google to continue to take share from other channels in mobile advertising, and 50% of every incremental dollar going forward. Reduction of losses in "Other Bets" could be a source of upside to estimates.

Downside case — **USD 1,080.00**

Google is migrating towards lower-margin businesses and, having benefited from the substantial improvement in mobile monetization, growth rate may decelerate going forward.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

2Q18 Preview (Continued)

Outlook For 2018: The primary reason we went to Top Pick on GOOGL is the pace of innovation around AI/ML is starting to really proliferate across many of Google's services, a shift that we believe is under-appreciated by the investment community. The TAC improvement trend should be structural from 2Q onwards now that most of the mobile-related inflation is in the base, and last time the company experienced this trend it set the stage for a 50% move in shares. Regulatory change remains a big risk, and FX in 2H18 to a lesser degree, but at 24x 2019E P/E we are willing to stomach it.

Estimate Changes

We have updated our model for FX. Our updated estimates are shown below.

FIGURE 1 **Summary of Estimate Changes**

	2Q18E			2018E			2019E		
	New Est.	Old	Delta	New	Old Est.	Delta	New	Old Est.	Delta
Google Web Sites	$22,991	$23,289	-1.3%	$96,714	$97,233	-0.5%	$117,265	$118,940	-1.4%
Google Network	$4,771	4770.8	0.0%	$19,871	$19,871	0.0%	$21,858	$21,858	0.0%
Total Gross Ad Revenue	$27,762	**28060.0**	-1.1%	$116,584	$117,104	-0.4%	$139,123	$140,798	-1.2%
y/y growth	*22.4%*	*23.8%*	-1.3%	*22.2%*	*22.8%*	-0.5%	*19.3%*	*20.2%*	-0.9%
TAC	$6,661	$6,632	0.4%	$28,245	$28,093	0.5%	$34,326	$34,226	0.3%
Net Ad Revs ex TAC	**$21,101**	**$21,428**	**-1.5%**	**$88,339**	**$89,011**	-0.8%	**$104,797**	**$106,572**	**-1.7%**
Licensing & Other Revs	$4,424	$4,424	0.0%	$20,484	$20,484	0.0%	$25,605	$25,605	0.0%
Core Google Net Revs (ex TAC)	**$25,375**	**$25,702**	**-1.3%**	**$108,224**	**$108,896**	**-0.6%**	**$129,802**	**$131,577**	**-1.3%**
Other Bets	$150	$150	0.0%	$600	$600	0.0%	$600	$600	0.0%
Total Alphabet Gross Revs	**$32,185**	**$32,484**	**-0.9%**	**$137,069**	**$137,588**	**-0.4%**	**$164,728**	**$166,404**	**-1.0%**
Total Alphabet Net Revs (ex TAC)	**$25,525**	**$25,852**	**-1.3%**	**$108,824**	**$109,496**	**-0.6%**	**$130,402**	**$132,177**	**-1.3%**
Alphabet COGS	$6,901	$6,976	-1.1%	$31,507	$31,666	-0.5%	$39,467	$39,922	-1.1%
Alphabet Gross Profit	$18,624	$18,876	-1.3%	$77,317	$77,830	-0.7%	$90,935	$92,255	-1.4%
Margins	*73.0%*	*73.0%*	*-05 bps*	*71.0%*	*71.1%*	*-03 bps*	*69.7%*	*69.8%*	*-06 bps*
Total Operating Expense	$17,337	$17,533	-1.1%	$75,192	$75,592	-0.5%	$90,385	$91,471	-1.2%
Alphabet GAAP EBIT	$8,188	$8,320	-1.6%	$33,632	$33,903	-0.8%	$40,017	$40,706	-1.7%
Alphabet PF EBIT	**$10,606**	**$10,769**	**-1.5%**	**$42,899**	**$43,229**	**-0.8%**	**$50,857**	**$51,702**	**-1.6%**
Core GOOG PF EBIT	$11,283	$11,446	-1.4%	$46,206	$46,536	-0.7%	$53,664	$54,509	-1.5%
Core GOOG EBITDA Margin	*44.5%*	*44.5%*	*-07 bps*	*42.7%*	*42.7%*	*-04 bps*	*41.3%*	*41.4%*	*-08 bps*
Other Bets PF EBIT	-$677	-$677	0.0%	-$3,307	-$3,307	0.0%	-$2,807	-$2,807	0.0%
Alphabet EBITDA (ex SBC)	**$12,685**	**$12,847**	**-1.3%**	**$51,276**	**$51,605**	**-0.6%**	**$60,770**	**$61,614**	**-1.4%**
Core GOOG PF EBITDA	$13,212	$13,374	-1.2%	$54,048	$54,377	-0.6%	$62,977	$63,821	-1.3%
Core GOOG EBITDA Margin	*52.1%*	*52.0%*	*03 bps*	*49.9%*	*49.9%*	*01 bps*	*48.5%*	*48.5%*	*01 bps*
Other Bets PF EBITDA	-$527	-$527	0.0%	-$2,772	-$2,772	0.0%	-$2,207	-$2,207	0.0%
Interest & Other Income, net	$373	$373	0.0%	$4,737	$4,739	0.0%	$2,038	$2,047	-0.4%
Tax Rate	20.0%	20.0%	00 bps	17.5%	17.5%	-02 bps	20.0%	20.0%	00 bps
Proforma EPS	**$12.42**	**$12.60**	**-1.5%**	**$55.18**	**$55.55**	**-0.7%**	**$59.02**	**$59.97**	**-1.6%**
GAAP EPS	$9.68	$9.83	-1.5%	$44.71	$45.02	-0.7%	$46.92	$47.70	-1.6%

Source: Company Reports, Barclays Research

Valuation

Our new $1350 price target (up from $1250) is based on 20X EPS, 12X EV/EBITDA and 4% FCF Yield on our blended FY19/FY20 estimates (vs. just FY19 previously).

FIGURE 2 **Alphabet Valuation**

Google Inc. -- Valuation Worksheet
(in millions except per share amounts)

Current Price	$1,201.26			
Shares Outstanding	694.6			
Current Market Cap	834,400			
Less Cash	101,871			
Adj. Enterprise Value	732,529			
Price to Earnings		2018E	2019E	2020E
GAAP EPS		$44.71	$46.92	$51.55
Current P/E multiple		26.9x	25.6x	23.3x
Adjusted EPS		$55.18	$59.02	$65.56
Current P/E multiple		21.8x	20.4x	18.3x
Target Multiple		**20.0x**	**20.0x**	**20.0x**
Implied Stock Price on fwd. EPS		**$1,104**	**$1,180**	**$1,311**
EV to EBITDA		2018E	2019E	2020E
Adjusted EBITDA		51,276	60,770	72,185
Current EV/EBITDA Multiple		14.3x	12.1x	10.1x
Target Multiple		**12.0x**	**12.0x**	**12.0x**
Enterprise Value		615,313	729,237	866,219
Plus FY End Cash		123,688	159,768	207,042
Equity Value		739,001	889,004	1,073,261
FY End Projected Sharecount		708.3	716.9	725.5
Implied Stock Price on fwd. EBITDA		**$1,043**	**$1,240**	**$1,479**
FCF Yield		2018E	2019E	2020E
FCF per Share		$35.46	$50.22	$65.03
Current FCF Yield		3.0%	4.2%	5.4%
Target Yield		**4.0%**	**4.0%**	**4.0%**
Implied Stock Price on FCF yield		**$887**	**$1,255**	**$1,626**
Average		**$1,011**	**$1,225**	**$1,472**
Target Price			**$1,350**	

Source: Barclays Research, Company Reports

Income Statement

FIGURE 3 **Income Statement**

Google -- Quarterly Income Statement	FY2016A	FY2017A	FY2018E				FY2018E	FY2019E	FY2020E
($ in Millions, except per share amounts)			Mar A	Jun E	Sep E	Dec E			
FY Dec	FY2016A	FY2017A	1QA	2QE	3QE	4QE	FY2018E	FY2019E	FY2020E
Consolidated Net Revenue	**73,479**	**89,183**	**24,858**	**25,525**	**26,908**	**31,533**	**108,824**	**130,402**	**156,640**
Gross Revenue	90,272	110,855	31,146	32,185	34,052	39,685	137,069	164,728	198,246
Google Web Sites Revenue	63,785	77,788	21,998	22,991	24,307	27,418	96,714	117,265	142,196
Google Network Web Sites Revenue	15,598	17,587	4,644	4,771	4,867	5,589	19,871	21,858	24,044
TAC	16,793	21,672	6,288	6,661	7,144	8,152	28,245	34,326	41,606
Licensing & Other Revenue	10,889	15,480	4,504	4,424	4,879	6,678	20,484	25,605	32,007
Alphabet Net Revenue	73,479	89,183	24,858	25,525	26,908	31,533	108,824	130,402	156,640
		124.3%					126.0%		
Cost of Net Revenues	18,345	23,911	7,179	6,901	7,242	10,185	31,507	39,467	51,268
Gross Profit	55,134	65,272	17,679	18,624	19,665	21,349	77,317	90,935	105,371
Operating Expenses:									
Product Development	13,948	16,625	5,039	5,011	5,232	4,800	20,081	23,788	30,085
Sales and Marketing	10,485	12,893	3,604	3,586	3,649	5,316	16,154	19,036	22,480
General and Administrative	6,985	9,608	2,035	1,839	1,631	1,944	7,449	8,094	8,726
Stock Based Compensation	6,703	7,679	2,457	2,418	2,172	2,220	9,267	10,841	12,708
Other									
Operating Expenses (ex. COGS, Stock Comp)	31,418	39,126	10,678	10,436	10,512	12,059	43,685	50,918	61,291
Total Operating Expenses	49,763	63,037	17,857	17,337	17,754	22,244	75,192	90,385	112,559
Income from Operations (GAAP)	23,716	26,146	7,001	8,188	9,154	9,289	33,632	40,017	44,081
Non -GAAP operating income	30,419	36,561	9,458	10,606	11,326	11,509	42,899	50,857	56,789
Depreciation & Amortization	6,144	6,915	1,986	2,078	2,107	2,205	8,377	9,912	15,396
EBITDA (inc SBC)	29,860	33,061	8,987	10,266	11,261	11,495	42,009	49,929	59,476
Net Income Continuing Operations (GAAP)	19,478	12,662	9,401	6,849	7,640	7,772	31,662	33,644	37,406
Net Income (GAAP)	**19,478**	**12,662**	**9,401**	**6,849**	**7,640**	**7,772**	**31,662**	**33,644**	**37,406**
EPS (GAAP)	$27.88	$17.96	$13.33	$9.68	$10.77	$10.92	$44.71	$46.92	$51.55
Diluted Shares Outstanding	699	701	705	707	709	711	708	717	725
Adjusted Net Income	24,031	18,805	11,367	8,784	9,378	9,547	39,076	42,317	47,573
Adjusted EPS	**$34.39**	**$44.80**	**$16.12**	**$12.42**	**$13.22**	**$13.42**	**$55.18**	**$59.02**	**$65.56**
Adjusted EBITDA (ex SBC)	36,563	43,476	11,444	12,685	13,433	13,714	51,276	60,770	72,185
Adjusted Income from Operations	**30,419**	**33,825**	**9,458**	**10,606**	**11,326**	**11,509**	**42,899**	**50,857**	**56,789**
Free Cash Metrics									
Free Cash Flow	25,867	23,907	4,343	6,003	7,383	7,391	25,119	35,999	47,178
FCF per share	**$37.03**	**$34.11**	**$6.16**	**$8.49**	**$10.41**	**$10.39**	**$35.44**	**$50.23**	**$65.05**
Margin Analysis									
Gross Margin	75.0%	73.2%	71.1%	73.0%	73.1%	67.7%	71.0%	69.7%	67.3%
Sales and Marketing as % of Net Revenue	14.3%	14.5%	14.5%	14.0%	13.6%	16.9%	14.8%	14.6%	14.4%
Product Development as % of Net Revenue	19.0%	18.6%	20.3%	19.6%	19.4%	15.2%	18.5%	18.2%	19.2%
General and Administrative as % of Net Revenue	9.5%	10.8%	8.2%	7.2%	6.1%	6.2%	6.8%	6.2%	5.6%
Operating Margin (GAAP)	32.3%	29.3%	28.2%	32.1%	34.0%	29.5%	30.9%	30.7%	28.1%
Operating Margin (Non GAAP)	41.4%	41.0%	38.0%	41.6%	42.1%	36.5%	39.4%	39.0%	36.3%
EBITDA Margin	40.6%	37.1%	36.2%	40.2%	41.9%	36.5%	38.6%	38.3%	38.0%
Net Income (GAAP)	26.5%	14.2%	37.8%	26.8%	28.4%	24.6%	29.1%	25.8%	23.9%
Adjusted Net Income	32.7%	21.1%	45.7%	34.4%	34.9%	30.3%	35.9%	32.5%	30.4%
Adjusted EBITDA Margin	49.8%	48.7%	46.0%	49.7%	49.9%	43.5%	47.1%	46.6%	46.1%
Effective Tax Rate	19.3%	53.4%	10.8%	20.0%	20.0%	20.0%	17.5%	20.0%	20.0%
Pretax Income	32.9%	30.5%	42.4%	33.5%	35.5%	30.8%	35.3%	32.3%	29.9%
Year Over Year Growth									
Net Revenue	21.2%	21.4%	23.5%	22.0%	20.8%	21.9%	22.0%	19.8%	20.1%
Gross Profit	17.7%	18.4%	18.2%	19.1%	18.3%	18.2%	18.5%	17.6%	15.9%
Product Development	13.6%	19.2%	27.8%	20.1%	24.4%	11.5%	20.8%	18.5%	26.5%
Sales and Marketing	15.9%	23.0%	36.3%	23.8%	19.9%	23.3%	25.3%	17.8%	18.1%
General and Administrative	13.8%	37.6%	13.0%	-58.5%	2.3%	9.4%	-22.5%	8.7%	7.8%
Operating Expenses (ex. COGS, Stock Comp)	14.4%	24.5%	27.3%	-9.3%	18.9%	16.0%	11.7%	16.6%	20.4%
Operating Income (GAAP)	22.5%	10.2%	6.6%	98.2%	17.6%	21.2%	28.6%	19.0%	10.2%
Adjusted Net Income	17.6%	-21.7%	61.6%	11.7%	14.5%	14.8%	107.8%	8.3%	12.4%
Adjusted EPS	16.7%	30.3%	60.9%	11.1%	13.6%	12.1%	23.2%	7.0%	11.1%
Adjusted Operating Margin	23.8%	11.2%	10.3%	72.9%	18.0%	21.0%	26.8%	18.6%	11.7%
FCF	60.6%	-7.6%	-38.3%	31.3%	16.6%	24.0%	5.1%	43.3%	31.1%
Gross Revenue Breakdown by Geography									
Domestic	42,781	52,449	14,144	14,834	15,523	18,458	62,959	74,952	89,355
International	47,491	58,406	17,002	17,351	18,529	21,227	74,110	89,776	108,891

Source: Barclays Research, Company Reports

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Primary Stocks (Ticker, Date, Price)

Alphabet Inc. (GOOGL, 12-Jul-2018, USD 1201.26), Overweight/Positive, CD/CE/J/K/M/N

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GoDaddy Inc. (GDDY)	Groupon, Inc. (GRPN)	GrubHub, Inc. (GRUB)
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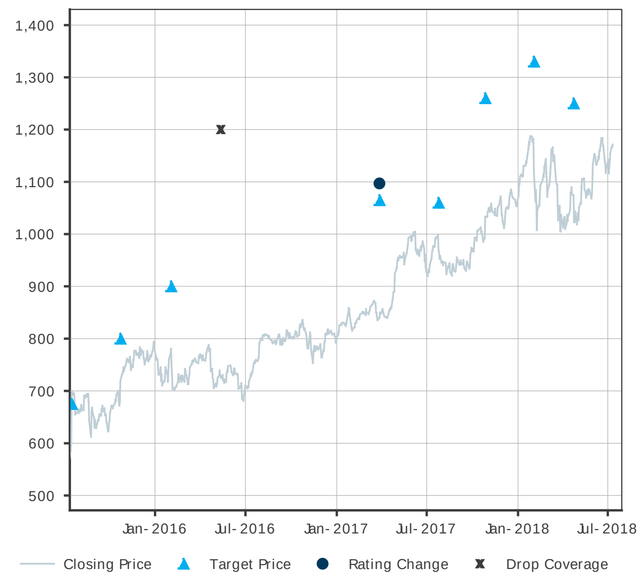
USD 1201.26 (12-Jul-2018)

Stock Rating **OVERWEIGHT**

Industry View **POSITIVE**

Rating and Price Target Chart - USD (as of 12-Jul-2018)



Source: IDC, Barclays Research

Currency=USD

Publication Date	Closing Price	Rating	Adjusted Price Target
23-Apr-2018	1073.81		1250.00
02-Feb-2018	1119.20		1330.00
27-Oct-2017	1033.67		1260.00
25-Jul-2017	969.03		1060.00
28-Mar-2017	840.63	Overweight	1065.00
06-May-2016	725.18	Coverage Dropped	
02-Feb-2016	780.91		900.00
23-Oct-2015	719.33		800.00
17-Jul-2015	699.62		675.00

On 12-Jul-2015, prior to any intra-day change that may have been published, the rating for this security was Overweight, and the adjusted price target was 620.00.

Source: Thomson Reuters, Barclays Research

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Valuation Methodology: Our price target of $1,350 is based on 20x EPS, 12x EV/EBITDA and 4% FCF Yield on our FY19/FY20 estimates, consistent with prior methodology.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Increasing competition and regulatory issues could cause multiple compression and downward estimate revision, while continued innovation, successful product launches and an uptick in GCP adoption could cause upside to our current estimates. Below, we discuss in detail where we could get upside/downside to current estimates.

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O'Neil Market View

EQUITY RESEARCH WILLIAM O'NEIL+CO.

July 13, 2018

United States

The U.S. market is in a Confirmed Uptrend. The S&P 500 is now trading just 2% off highs, while the Nasdaq made a new all-time high after finding strong support at the 50-DMA last week. Distribution stands at five days on the S&P 500 and four on the Nasdaq, with one day expiring on the S&P 500 at the close next Wednesday. Leading ideas showed very strong price action this week, with more than 25% of the U.S. Focus List hitting a new all-time high. We recommend buying high relative strength ideas across leading and/or improving industry groups at risk-optimal entry points.

Stocks on our U.S. Focus List: Current Sentiment

Our USFL of 68 ideas gained 1.5% on average this week, in line with the S&P 500 (+1.5%) and underperforming the Nasdaq (+1.8%).

Actionable Focus List ideas: Activision Blizzard (**ATVI**), Alphabet (**GOOGL**), Arista Networks (**ANET**), Calavo Growers (**CVGW**), Diamondback Energy (**FANG**), Edwards Lifesciences (**EW**), Fleetcor Technologies (**FLT**), Global Payments (**GPN**), Home Depot (**HD**), Nextera Energy (**NEP**), Paypal (**PYPL**), PRA Health Sciences (**PRAH**), RingCentral (**RNG**), SS&C Technologies (**SSNC**), Vertex Pharmaceuticals (**VRTX**), Worldpay (**WP**)

USFL ideas weekly earnings line-up:
Monday: Close: **NFLX**
Tuesday: Open: **SCHW, UNH**
Wednesday: Close: **TCBI**
Thursday: Close: **WAL**

By Sector

Technology and Health Care ideas on the U.S. Focus List led this week. Within Technology, software led with **NOW**, **ATVI**, **CRM**, **TEAM**, and **ADBE** all moving back into new highs. **PAYC**, **RNG**, **TYL**, **VEEV**, and **ADSK** all regained their respective 50-DMA. Outside of software, **GOOGL** is actionable after breaking out of consolidation and back into all-time highs. Within Health Care, five of our nine ideas made new all-time highs. **ILMN**, **IDXX**, and **PRAH** continue to trend into higher highs, while **VRTX** just broke out on Friday from a 17-week cup. Payment Processors also continue to act well, with **PYPL**, **WP**, **GPN**, **MA**, **V**, and **FLT** all trading at or near new highs. Conversely, Banks remain weak. **WAL**, **ZION**, and **TCBI** are all testing the low end of near-term support ahead of their respective earnings announcements in the coming days. **SIVB** remains the leader, despite trading below its 50-DMA and ~10% off highs.

New Ideas or Deletions

We made no changes to the U.S. Focus List this week.

Developed Markets

Twenty-two developed markets gained 0.8% on average this week, aided by healthy gains across a majority of the indices. Nine markets are in a Confirmed Uptrend, including three in an Uptrend Under Pressure. Twelve markets are in a Rally Attempt, while one market is in a Downtrend.

The iShares Developed Market Index (EFA) rose 0.3% this week. The index is currently 2.3% and 3.5% below its 10-WMA and 40-WMA, respectively, and 10% off highs. On Monday, the index was moved to a Rally Attempt.

Key Developed Markets

EMEA

The Stoxx 600 gained 0.8%, adding to last week's gain of 0.6%. The index has regained some momentum since its recent bottom on June 26, and is attempting to rally. But it is still too early to turn bullish. We are looking for a follow-through day, rising volume, and leadership to emerge. We maintain a cautious approach toward European equities. Short-term momentum (over four weeks) has been somewhat led by defensive sectors, namely Utilities and Health Care.

Sixteen markets in the region added 0.7% on average. Denmark (+2.9%), Switzerland (+1.7%), Sweden (+1.7%), and Israel (+1.6%) led the rally, while Spain (-1.8%), Norway (-0.3%), and Italy (-0.3%) lagged.

- The eurozone's industrial production for May increased 1.3% m/m, compared with a decline of 0.8% in April, and was above consensus estimates of 1.2% rise. On a year-over-year basis, industrial production was up 2.4%, more than April's gain of 1.7% and estimates of 2.1%.
- The U.K.'s GDP growth in May was 0.3% m/m (+0.2% q/q), in line with consensus estimates and slightly above April's 0.2%. This was primarily due to solid growth in the services sector. For Q3, consensus expects 0.5% q/q growth, driven by recovery in the manufacturing and construction sectors.
- Consumer prices in Germany rose 2.1% y/y (+0.1% m/m) in June, a tad slower than May's 2.2% y/y increase and in line with flash estimates published June 28. The pickup was primarily driven by a 6.4% y/y rise in the price of energy products.
- The Bank of Israel left its benchmark interest rate unchanged at 0.1% on July 9, in line with consensus. The bank attributed the status quo to gradually rising inflation, which is approaching the bank's target of 1–3% and solid GDP growth expected for the year.

APAC

Similarly, developed Asian markets posted sizeable gains this week. Japan, Singapore, and Hong Kong gained +3.7%, +2.1%, and +0.7% respectively. Meanwhile, New Zealand and Australia lost -0.6% and -0.1%, respectively.

- Japan's WPI increased 2.8% y/y in June, matching consensus expectations.
- Singapore's GDP grew 3.8% y/y in the second quarter, less than consensus estimates of 4.0%.
- Singapore's retail sales were up 0.1% y/y in May, but this was below consensus expectations of 0.5%.

Stocks on our Global Focus List for Developed Markets: Current Sentiment

For the trailing five-day period through Thursday, the 65 ideas (one removal) on our GFL DM gained 1.2% on average, outperforming the EFA benchmark.

Weekly outperformers included Hong Kong – 13 stocks gained 6.6% on average; France – six stocks gained 4.7% on average; Switzerland – five stocks gained 3.1% on average; and Germany – five stocks gained 2.4% on average. Underperformers included Italy – three stocks lost 1.4% on average and the U.K. – four stocks gained 0.8% on average.

Stock Leaders included:

- Yihai International (YIHA.HK): 23.4% gain, all-time high weekly close
- 3sbio (SBIL.HK): 10.9% gain, bounced off its 40-WMA
- China Gas Holdings (IWAI.HK): 10% gain, 7% off highs
- Sunny Optical Tech. (SOPT.HK): 9.9% gain, retook its 10-WMA
- Constellation Software (CSU.CA): 9.8% gain, extended further into all-time highs
- Li Ning (LNIN.HK): 8.5% gain, reclaimed its 10-WMA
- Pigeon (PIGC.JP): 8% gain, all-time high weekly close

Actionable Developed Market Focus List ideas: Ashtead (AHT.GB), Cochlear (COH.AU), Homeserve (HSV.GB), Ipsen (IPN.FR), Nemetschek (NEMX.DE), Swedish Orphan Biovitrum (SOBI.SE), Thales (CSF.FR)

Stock Laggards included:

- Aeon Fantasy (AEFA.JP): 5.4% loss, 24% off highs
- Smart Metering Systems (SMS.GB): 4.5% loss, broke below its 40-WMA
- Synlait Milk (SMLZ.NZ): 3.2% loss, 3% off highs
- Amplifon (AMP.IT): 3.2% loss, 4% off highs

By Sector

Our GFL DM versus the iShares Developed Market Index is:

- Overweight – Technology, Consumer Cyclical/Retail, Health Care, and Utility.
- Underweight – Capital Equipment, Consumer Staple, Financial, Energy, and Basic Material.

New Ideas or Deletions

This week we removed Stabilus (STMX.DE) from the Focus List.

Emerging Markets

Twenty-four emerging markets gained 0.6% on average. Thirteen markets are in a Confirmed Uptrend, including five in an Uptrend Under Pressure. Ten markets are in a Rally Attempt, while one market is in Downtrend.

The iShares Emerging Market Index (EEM) advanced 1% this week. The index extended gains from last week to inch closer to its 10-WMA (+3%). It is currently 16% off highs. Following its positive momentum, the index was moved to a Rally Attempt.

Key Emerging Markets

APAC

Markets in APAC recovered sharply this week, as nine indices gained 2.6% on average. Barring Pakistan which remained flat, all other markets advanced more than 1.5%. China (+4.5%), Indonesia (+4.4%), and Malaysia (+3.5%) were the top three gainers.

- China's CPI rose 1.9% y/y in June, in line with consensus estimates and above the 1.8% y/y increase in May.
- China's trade surplus for June was down 2.76% y/y to $41.61B, beating consensus of $27.9B, despite the trade war with the U.S. Imports increased 14.1% y/y, while exports grew 11.3% y/y.
- Malaysia's industrial production increased 3.0% y/y in May, in line with consensus estimates but lower than the 4.6% y/y rise in April.
- In May, the Philippines' exports decreased 3.8% y/y while imports rose 11.4% y/y, taking the trade deficit to $3.7B.
- South Korea's seasonally adjusted unemployment rate fell to 3.7% in June 2018, down 0.1% compared with 3.8% in June 2017.
- South Korea's central bank kept its benchmark interest rate unchanged at 1.5%. The rate remained unchanged for the past eight months.
- In June, Taiwan's exports increased 9.4% y/y while imports rose 15.4% y/y, taking the trade surplus to $5.2B.

- India's CPI inflation rate increased to a five-month high of 5% y/y in June, beating the medium target of 4% set by the central bank. The rate was above the 4.87% y/y recorded in May, but missed market expectations of 5.3% y/y.

EMEA

Ten EMEA markets declined 0.7% on average, weighed down by a slump in Turkey (-9.1%). Other laggards included South Africa (-1.7%) and Egypt (-1.5%). On the positive end, Saudi Arabia and Greece gained 2.3% and 1.9%, respectively.

- Egypt's annual inflation rose to 14.4% in June, from the downwardly revised 11.4% in May. The country raised gasoline prices by up to 50% in mid-June, the third hike since it started allowing the pound to float freely in November 2016.
- Turkey's current account deficit widened to $5.89B in May, from $5.37B the corresponding month last year. The deficit was worse than market expectations of a $5.45B shortfall.
- South Africa's manufacturing production in May increased 2.3% y/y, after a downwardly revised 1% growth in April and ahead of market expectations of a 0.6% decline.

Americas

Emerging Americas markets traded mixed this week. Brazil (+1.1%) and Chile (+0.1%) closed in the green, while Peru (-1.2%), Colombia (-0.7%), and Mexico (-0.6%) declined.

- Brazil's government will cut its forecast for 2018 GDP growth to 1.6% from 2.5% after a truckers' strike and weaker sentiment among consumers and corporations, a government source told Reuters. Truckers protesting high diesel prices blocked key roadways in late May and nearly paralyzed the economy, triggering a round of downward revisions to growth estimates among economists. Last month, the central bank cut its 2018 growth forecast to 1.6% from 2.6%.
- Consumer prices tracked by the benchmark IPCA index increased 4.39% in the 12 months through June, slightly below the median 4.42% forecast in a Reuters poll of economists. The reading brings the inflation rate close to the 4.5% center of the central bank's 2018 target range. However, that should not be enough to trigger interest rate hikes anytime soon. According to economists, stubborn high unemployment and a slow economic recovery is expected to keep a lid on price pressures. The central bank last month held the benchmark Selic rate at an all-time low of 6.50%, as expected, but refrained from signaling future rate moves. Economic indicators for May and June are likely to play a key role in determining policy changes, the bank said.
- Mexico's President-elect Andres Manuel Lopez Obrador will meet with U.S. President Donald Trump's son-in-law Jared Kushner, U.S. Treasury Secretary Steven Mnuchin, and other U.S. officials on Friday, July 13. Lopez Obrador stated the discussions at the meeting would include the renegotiation of NAFTA and immigration.
- Mexico's retailers association ANTAD said that sales at stores that had been open for at least a year increased 7.9% in June compared with the same month last year. Total sales in Mexico were up 11.2% from June 2017. ANTAD includes chains such as Wal-Mart de Mexico and Soriana.

Stocks on our Global Focus List for Emerging Markets: Current Sentiment

For the trailing five-day period through Thursday, the 28 ideas (one removal) on our GFL EM gained 2.5% on average, well ahead of the EEM benchmark index performance (based on Thursday's prices).

Weekly outperformers included South Korea – six stocks gained 8.5% on average, India – 16 stocks gained 2.6% on average. Underperformers included Malaysia – two stocks lost 12.9% on average and Taiwan – two stocks gained 0.7% on average.

Stock Leaders included:

- Jejuair (JJU.KR): 12.3% gain, bounced off its 40-WMA
- Reliance Industries (REL.IN): 12.2% gain, extended further into all time highs
- Samsung Elto.Mechanics (SEM.KR): 9.1% gain, all time high weekly close
- L & F (LAF.KR): 8.9% gain, new all time high weekly close
- Samsung Sdi (SCT.KR): 8.6% gain, broke out of a 28-week consolidation
- SKC Kolon Pi (SKJ.KR): 8.6% gain, trading near all-time highs
- Chroma Ate (CMA.TW): 7.9% gain, bounced off its 40-WMA

Actionable Emerging Markets Focus List ideas: Asian Paints (API.IN), Berger Paints (BPI.IN), Banco Del Bajio (BJI.MX), GRUH Finance (GRU.IN), HDFC Bank (HFC.IN), Indusind Bank (IBK.IN), Ipca Laboratories (LAB.IN), JSW Steel (JVS.IN), Kotak Mahindra Bank (KOK.IN), Maruti Suzuki (MUD.IN), Silergy (SGY.TW), Sundram Fasteners (SMF.IN)

Stock Laggards included:

- Top Glove (TOGL.MY): 25.77% loss, the stock was removed after it gapped down more than 20%
- Silergy (SGY.TW): 6.5% loss, breached 10-WMA
- Clicks Group (CLSJ.ZA): 3.9% loss, 7% off highs
- Indusind Bank (IBK.IN): 1.3% loss, 3% off highs

By Sector

Our GFL EM versus the iShares Emerging Market Index is:

- Overweight – Financial, Basic Materials, Retail/Consumer Cyclical, Consumer Staple, Capital Equipment/Transportation, and Health Care.
- Underweight – Technology and Energy.

New Ideas or Deletions

This week we removed Top Glove (TOGL.MY) from the Focus List.

NO. 2243

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ALPHABET (NASDAQ: GOOG)

April 23, 2018

Contents

- Latest Financial Announcement
- Company Profile
- Competitors
- The Industry

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LATEST FINANCIAL ANNOUNCEMENT

Alphabet Announces First Quarter 2018 Results

MOUNTAIN VIEW, Calif. – April 23, 2018 – Alphabet Inc. (NASDAQ: GOOG, GOOGL) today announced financial results for the quarter ended March 31, 2018.

"Our ongoing strong revenue growth reflects our momentum globally, up 26% versus the first quarter of 2017 and 23% on a constant currency basis to $31.1 billion. We have a clear set of exciting opportunities ahead, and our strong growth enables us to invest in them with confidence," said Ruth Porat, CFO of Alphabet and Google.

Q1 2018 financial highlights

The following summarizes our consolidated financial results for the quarters ended March 31, 2017 and 2018 (in millions, except for per share information, percentages, and number of employees; unaudited) with results for the quarter ended March 31, 2018 affected by gains on equity securities reflected in other income (expense), net (OI&E):

Q1 2018 impact from equity securities*

Our Q1 2018 financial results were affected by a new accounting standard (ASU 2016-01) that changes the way companies account for equity security investments. As a result, all gains and losses, unrealized and realized, on equity security investments are recognized in OI&E on the income statement. Performance fees related to the equity security gains in Q1 2018 were accrued in the period. Income tax expense on the equity security gains was offset by the release of a deferred tax asset valuation allowance. The following summarizes the impact to our Q1 2018 results (in millions, except for EPS and percentages; unaudited):

Q1 2018 supplemental information (in millions, except percentages; unaudited) Segment revenues and operating results In Q1 2018, Nest joined forces with Google's hardware team. Consequently, the financial results of Nest have been reported in the Google segment, with Nest revenues reflected in Google other revenues. Prior period segment information has been recast to conform to the current period segment presentation. Consolidated financial results are not affected.

Traffic acquisition costs (TAC) to Google Network Members and distribution partners

Monetization metrics information

In Q1 2018, we changed our monetization metrics for Google Network Members' properties revenues from the percentage change in the number of paid clicks and cost-per-click to the percentage change in the number of impressions and cost-per-impression. The monetization metrics for Google properties revenues remain unchanged.

https://abc.xyz/investor/pdf/2018Q1_alphabet_earnings_release.pdf

https://www.facebook.com/acquisdata/
https://twitter.com/acquisdata

COMPANY PROFILE

Alphabet (NASDAQ: GOOG)

Google, founded in 1998, is a global technology leader focused on improving the ways people connect with information. Google's innovations in web search and advertising have made its website a top internet property and its brand one of the most recognized in the world. Its stock is traded on NASDAQ.

Headquarters: Mountain View, California

https://www.google.com/intl/en/about/company/

COMPETITORS

Adobe Systems (NASDAQ: ADBE)

Adobe, one of the largest software companies in the world, is the global leader in digital marketing and digital media solutions. Its tools and services allow users to create groundbreaking digital content, deploy it across media and devices, measure and optimize it over time.

Headquarters: San Jose, California

http://www.adobe.com/company.html

Amazon.com (NASDAQ: AMZN)

Amazon.com, founded in 1995, strives to be the world's most customer-centric company where people can find and discover virtually anything they want to buy online. By giving customers more of what they want — low prices, vast selection, and convenience — Amazon.com continues to grow and evolve as a world-class e-commerce platform. Its stock is traded on NASDAQ.

Headquarters: Seattle, Washington

http://phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-mediaKit

Apple (NASDAQ: AAPL)

Apple designs, develops, and sells consumer electronics, computer software and personal computers. Its best-known hardware products are the Mac line of computers, the iPod media player, the iPhone smartphone, and the iPad tablet computer. Its consumer software includes the OS X and iOS operating systems, the iTunes media browser, the Safari web browser, and the iLife and iWork creativity and productivity suites. Its stock is traded on NASDAQ.

Headquarters: Cupertino, California

http://www.apple.com/

CA Technologies (NASDAQ: CA)

CA Technologies delivers software and solutions across the complete service lifecycle — from pre-production portfolio planning and service modeling, to service assembly, automation, and assurance and production management — with solutions that work across its customers' choice of platforms, technologies and vendors. Its stock is traded on NASDAQ.

Headquarters: Islandia, New York

http://www.ca.com

Dell EMC (NYSE: EMC)

Dell EMC, a part of Dell Technologies, enables organizations to modernize, automate and transform their data center using industry-leading converged infrastructure, servers, storage and data protection technologies. This provides a trusted foundation for businesses to transform IT, through the creation of a hybrid cloud, and transform their business through the creation of cloud-native applications and big data solutions. Dell EMC services its customers – including 98 percent of the Fortune 500 – with the industry's broadest, most innovative infrastructure portfolio from edge to core to cloud.

Headquarters: Hopkinton, Massachusetts, United States

http://www.dell.com

Fiserv (NASDAQ: FISV)

Fiserv, Inc. is a leading global provider of information management and electronic commerce systems for the financial services industry. It has more than 22,000 associates worldwide are driving quality and innovation in Payments, Processing Services, Risk & Compliance, Customer & Channel Management, and Insights & Optimization with one thing in mind: to provide integrated technology and services solutions that enable best-in-class results for the company clients. Its stock is traded on NASDAQ.

Headquarters: Brookfield, Wisconsin

https://www.fiserv.com/about.aspx?_ga=1.73583440.374102108.1485316649

HP (NYSE: HPQ)

HP has a broad technology portfolio spanning printing, personal systems, software, services and IT infrastructure, and makes these solutions available in every region of the world. HP continues to drive product innovation in its core markets, with a focus on cloud, security, and big data. Its stock is traded on NYSE.

Headquarters: Palo Alto, California

http://www8.hp.com/us/en/hp-information/index.html

IBM (NYSE: IBM)

International Business Machines Corporation (IBM), incorporated on June 16, 1911, is a technology company. The Company operates through five segments: Global Technology Services (GTS), Global Business Services (GBS), Software, Systems Hardware and Global Financing. Its stock is traded on NYSE.

Headquarters: Armonk, New York

http://www.ibm.com/ibm/us/en/

Microsoft (NASDAQ: MSFT)

Microsoft, founded in 1975, is the worldwide leader in software, services, and solutions. Its best known software products are the Microsoft Windows line of operating systems, Microsoft Office suite and Internet Explorer web browser. Its flagship hardware products are the Xbox game console and the Microsoft Surface series of tablets. Microsoft is the world's largest software maker measured by revenues. It is also one of the world's most valuable companies. Its stock is traded on NASDAQ.

Headquarters: Redmond, Washington

http://www.microsoft.com/en-us/news/inside_ms.aspx#About

Oracle Corporation (NYSE: ORCL)

Oracle is shifting the complexity from IT, moving it out of the enterprise by engineering hardware and software to work together in the cloud and in the data center, enabling its more than 420,000 customers in 145 countries to accelerate innovation and create added value for their customers. Its stock is traded on NYSE.

Headquarters: Redwood City, California

https://www.oracle.com/corporate/index.html

Pivotal

Pivotal’s Cloud Native platform drives software innovation for many of the world’s most admired brands. With millions of developers in communities around the world, Pivotal technology touches billions of users every day. After shaping the software development culture of Silicon Valley's most valuable companies for over a decade, today Pivotal leads a global technology movement transforming how the world builds software.

Headquarters: San Francisco, Palo Alto

https://pivotal.io/about

Rackspace (NYSE: RAX)

Rackspace, the #1 managed cloud company, helps businesses tap the power of cloud computing without the complexity and cost of managing it all on their own. Rackspace engineers deliver specialized expertise, easy-to-use tools, and Fanatical Support® for leading technologies including AWS, Google, Microsoft, OpenStack and VMware. The company serves customers in 150 countries, including more than half of the FORTUNE 100. Rackspace was named a leader in the 2017 Gartner Magic Quadrant for Public Cloud Infrastructure Managed Service Providers, Worldwide, and has been honored by Fortune, Forbes, and others as one of the best companies to work for.

Headquarters: Windcrest, Texas, United States

https://www.rackspace.com/about/history

Salesforce (NASDAQ: CRM)

Salesforce, the Customer Success Platform and world's #1 CRM company, empowers companies to connect with their customers in a whole new way. Salesforce has headquarters in San Francisco, with offices in Europe and Asia, and trades on the New York Stock Exchange under the ticker symbol “CRM.”

Salesforce pioneered a new technology model with our cloud platform, a new pay-as-you-go business model focused on customer success, and a new integrated corporate philanthropy model, called the 1-1-1 model, by which we donate 1% of our equity, 1% of our employee time, and 1% of our product to improve communities around the world.

This vision has fueled our incredible growth, made us the global leader in CRM, defined the era of enterprise cloud computing, and inspired a new philanthropic model for all companies to follow. Today, Salesforce’s Customer Success Platform provides groundbreaking cloud services for sales, service, marketing, community, analytics, apps and the Internet of Things.

Headquarters: San Francisco, California, United States

http://www.salesforce.com/company/

Symantec Corporation (NASDAQ: SYMC)

Symantec, founded in 1982, has evolved to become one of the world's largest software companies with more than 11,000 employees in more than 35 countries. It provides security, storage and systems management solutions to help its customers – from consumers and small businesses to the largest global organizations – secure and manage their information against risks. Its stock is traded on NASDAQ.

Headquarters: Mountain View, California

https://www.symantec.com/about/corporate-profile

VM Ware (NYSE: VMW)

VMware software powers the world's most complex digital infrastructure. The company's compute, cloud, mobility, networking and security offerings provide a dynamic and efficient digital foundation to over 500,000 customers globally, aided by an ecosystem of 75,000 partners. Headquartered in Palo Alto, California, this year VMware celebrates twenty years of breakthrough innovation benefiting business and society.

http://www.vmware.com/ap/company.html

https://www.facebook.com/acquisdata/
https://twitter.com/acquisdata

THE INDUSTRY

The United States has the most advanced software and information technology (IT) services industry in the world.

More than a quarter of the $3.8 trillion global IT market is in the United States. The industry accounts for 7.1 percent of U.S. GDP and 11.6 percent of U.S. private-sector employment. There are more than 100,000 software and IT services companies in the United States, and more than 99 percent are small and medium-sized firms (under 500 employees). This total includes software publishers, suppliers of custom computer programming services, computer systems design firms, and facilities management companies. The industry draws on a highly educated and skilled U.S. workforce of nearly two million people, a number which has continued to grow during the past decade.

U.S. software firms operate a mature, harmonized market and have a reputation for producing reliable and effective solutions that accelerate quickly to the marketplace. International companies in the industry have shown a keen interest in the U.S. market because of its strong intellectual property rights laws and enforcement. U.S. companies lead the world's packaged and custom-software markets, and are competitive in nearly all other market segments with a relatively stable overseas market share.

Software & IT Services Spotlight

Cloud Computing Services: According to Forrester's projections regarding global cloud adoption, businesses will spend about $191 billion on cloud services by 2020, compared to $72 billion in 2014. International Data Corporation predicts the market in 2017 will be worth $107 billion, over twice as much as its 2013 estimate of $47.4 billion. The United States is a market leader in the cloud computing market and has some of the largest companies in the sector. According to the U.S. Bureau of Economic Analysis, the United States imported approximately $34 billion worth of computing services in 2015, a 40 percent increase from 2010 import data. Software-as-a-service (SaaS) is expected to be the fastest-growing component of the cloud services market.

Entertainment Software: Combined revenues in entertainment software from computer and video games $15.4 billion in 2014. The subsector employs more than 146,000 people directly and indirectly.

Electronic Commerce: The McKinsey Global Institute estimates that by 2020, some 940 million online shoppers will spend almost $1 trillion on cross-border e-commerce transactions. According to the U.S. Census Bureau, e-commerce sales in the United States reached $341 billion in 2015, growing approximately 14 percent since 2014.

Source: Select USA
https://www.selectusa.gov/software-and-information-technology-services-industry-united-states

July 11, 2018

ALPHABET, INC.

GOOGL | 1,167.28

OUTPERFORM | TARGET PRICE: $1,300.00

Earnings Preview

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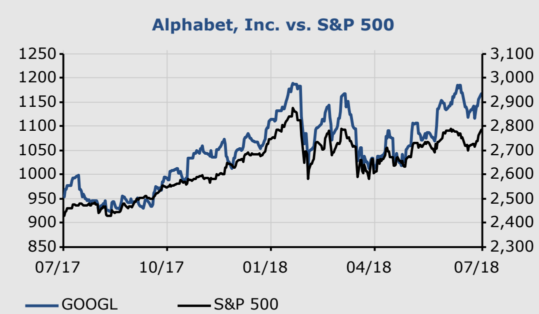
Company Statistics

Market Capitalization (M):	806,115
Enterprise Value (M):	$632,990
Average 10-Day Volume (000s):	1,470
52-Week Range:	$753.36 - $1,080.00
Fiscal Year End	Dec

Earnings Summary

	2017A	2018E	2019E
Revenue (M)	$110,855.0	$135,971.1	$160,829.2
EBITDA (M)	$33,061.0	$42,658.5	$49,039.0
EPS	$18.14	$45.91	$49.23

1 Year Price History



Source: FactSet

2Q18 Preview: Turning the Corner on TAC

Encouraging checks drive revenue estimates higher; TAC trends improving, but other expenses remain a focus

We anticipate that GOOGL 2Q18 results provide investors with another clear example of impressive and consistent revenue growth. Ahead of the 2Q print, our FX-neutral revenue growth estimates go slightly higher by ~100bps to 21.6%, following encouraging checks with search marketers; reported estimates go modestly lower given USD strength. While we expect the pace of TAC deleveraging to moderate, in this note, we revise higher our estimates for costs, leading our GAAP OI margins slightly lower. We are bullish on revenue trends, and believe our estimates to be slightly ahead of Street on revenue growth ex-FX, though now more in line on operating margins, leaving our EPS estimate of $9.51 modestly below the Street. **We are bullish on steady revenue trends for core Google driven by mobile search and YouTube, and we are hopeful that TAC and opex growth stabilize; we maintain our $1,300 Target Price, which implies 26x 2019 GAAP EPS of $49.**

Our checks with media buyers suggest a continuation of robust demand trends across Google's core ad businesses. Our checks suggest that Google mobile search continues to grow >30% YoY, driven by particularly strong trends in retail. Merkle saw 2Q spend slow by only 200bps; Wpromote saw acceleration. **YouTube momentum should further supplement mobile search strength**. **In sum, we estimate 2Q Google Properties revenue growing 23.2%,** decelerating 320bps on a reported basis, though less than half of that on an FX-neutral basis. Also, intra-quarter reports suggest that **GDPR may have proved a positive for Google's network business**, as rivals struggled to gain compliance.

We model total TAC (Traffic Acquisition Cost) growth slowing to 30% YoY, with further moderation to come in 2H18, driven by the expectation that the pace of YoY growth in Properties TAC, as a percentage of Properties revenue, will slow beginning in 2Q18. However, with the recent and ongoing investments in machine learning, cloud, and hardware, we revise lower our operating margin estimates.

Expecting on trend growth for Cloud. We expect Cloud trends to remain similar to the recent past, with growth rates likely above AWS and roughly in-line with Azure, off a much smaller base. Cloud should continue to rank behind mobile search and YouTube as a driver of absolute dollar growth for GOOGL. We expect Google Other revenue to remain stable at +35% YoY.

Capex growth mitigating FCF growth; looking for more detail on Waymo. Though we expect capex growth to slow vs a very strong 1Q capex quarter (which included the purchase of Chelsea Market) we believe capex growth should remain elevated, approaching 40% YoY growth. We hope for increasing granularity on investment in long-term initiatives, including Waymo, which we see commanding increased investor interest given the ramp in vehicle orders.

Valuation compelling despite slowdown in earnings growth. In our view, Google maintains defensible dominance in search advertising and should see increased benefits over time from emerging growth areas in non-advertising businesses. In a recent note, we highlighted the compelling nature of GOOGL on a SOTP basis. **Simply put, ex-Other**

Organic revenue growth estimates modestly higher; opex investments may offset improving TAC trajectory

Ahead of the 2Q18 report, we raise our estimates for FX-neutral revenue growth given encouraging checks with digital ad buyers. However, with the USD appreciating against other major currencies, our expectation around the magnitude of FX-related tailwind to reported estimates is cut in roughly half, leading our estimate of reported revenue growth slightly below that of our prior model. We continue to anticipate >30% growth in mobile search and YouTube in the 2Q, and believe there to be a possibility of Network revenue acceleration given reports that GDPR increased that businesses' market share in Europe.

As it relates to costs, we believe 2Q should start to show moderation in the trajectory of TAC growth, which has accelerated over the past year. We anticipate growth in Properties TAC will begin to moderate and should continue to moderate in the 3Q. In our view, this moderation should prove a positive to the broader GOOGL narrative, as investors have grown concerned around the company's ability to manage mobile search distribution costs.

While TAC trends should improve, we nevertheless lower our operating margin expectations, as we increase our estimate of other cost of revenue, primarily due to greater than expected infrastructure investment and increased hardware-related revenue mix. All-in, our OI estimates for the 2Q go lower by ~$750mn and our FY18 estimates see a ~$920mn downward revision. That said, our FY19 estimates remain effectively unchanged.

Figure 1. GOOGL Model Change Summary

	06/18E			2018E			2019E		
	Current	Prior	Δ	Current	Prior	Δ	Current	Prior	Δ
Revenue									
Google Properties	$22,700	$22,847	($147)	$95,024	$95,172	($147)	$112,604	$112,779	($175)
Google Network	$4,927	$4,842	$85	$20,066	$19,981	$85	$22,072	$21,979	$93
Google Other	$4,375	$4,375	$0	$20,279	$20,279	$0	$25,348	$25,348	$0
Other Bets	$110	$110	$0	$540	$540	$0	$723	$723	$0
Total Gross Revenue	**$32,111**	**$32,174**	**($62)**	**$135,909**	**$135,971**	**($62)**	**$160,748**	**$160,829**	**($81)**
YoY % Growth	23.5%	23.7%	(24 bps)	22.6%	22.7%	(06 bps)	18.3%	18.3%	(01 bps)
FX-neutral YoY Growth	21.6%	20.5%	+110 bps	21.5%	20.8%	+70 bps	18.3%	18.3%	(01 bps)
Total Traffic Acquistion Cost	**$6,617**	**$6,597**	**$20**	**$27,390**	**$27,369**	**$20**	**$31,716**	**$31,671**	**$45**
Net Revenue	**$25,494**	**$25,576**	**($83)**	**$108,519**	**$108,602**	**($83)**	**$129,032**	**$129,158**	**($126)**
GAAP Operating Income	**$7,699**	**$8,440**	**($741)**	**$32,614**	**$33,533**	**($919)**	**$40,000**	**$40,039**	**($39)**
YoY % Growth*	12.1%	22.9%	(1,080 bps)	24.7%	27.5%	(274 bps)	20.2%	17.7%	+247 bps
% Margin	24.0%	26.2%	(226 bps)	24.0%	24.7%	(66 bps)	24.9%	24.9%	(01 bps)
GAAP EPS	**$9.51**	**$10.40**	**($0.89)**	**$44.81**	**$45.91**	**($1.10)**	**$49.18**	**$49.23**	**($0.05)**
Free Cash Flow	**$6,783**	**$7,415**	**($632)**	**$24,825**	**$25,598**	**($773)**	**$35,934**	**$35,962**	**($28)**
Capex	**$3,824**	**$3,836**	**($12)**	**$21,458**	**$21,471**	**($12)**	**$20,645**	**$20,665**	**($20)**

***Excludes impact of 2Q17 EU fine**

Source: Company data, Evercore ISI Research

Figure 2. On a reported basis, our revenue estimates are slightly below the Street…

($mn except for per share data)		2Q18E	FY18E	FY19E	YoY %Chg 2Q18E	YoY %Chg FY18E	YoY %Chg FY19E
Net Sales	**EVRISI**	**25,494**	**108,519**	**129,032**	**21.9%**	**21.7%**	**18.9%**
	Consensus	25,846	108,451	128,616	23.6%	21.6%	18.6%
	Delta	*(352)*	*68*	*416*	*-168bps*	*8bps*	*31bps*
Google Properties Revenue	**EVRISI**	**22,700**	**95,024**	**112,604**	**23.2%**	**22.2%**	**18.5%**
	Consensus	22,942	95,696	113,827	24.5%	23.0%	18.9%
	Delta	*(242)*	*(672)*	*(1,223)*	*-131bps*	*-86bps*	*-45bps*
Google Network Revenue	**EVRISI**	**4,927**	**20,066**	**22,072**	**16.0%**	**14.1%**	**10.0%**
	Consensus	4,773	19,828	21,932	12.4%	12.7%	10.6%
	Delta	*153*	*238*	*140*	*361bps*	*135bps*	*-61bps*
Operating Income (GAAP)	**EVRISI**	**7,699**	**32,614**	**40,000**	**12.1%**	**24.7%**	**22.6%**
	Consensus	7,867	32,950	38,963	14.5%	26.0%	18.2%
	Delta	*(168)*	*(336)*	*1,037*	*-244bps*	*-128bps*	*440bps*
Operating Margin (GAAP)	**EVRISI**	**24.0%**	**24.0%**	**24.9%**	***-406bps***	***41bps***	***89bps***
	Consensus	24.4%	24.4%	24.4%	*-406bps*	*81bps*	*-2bps*
	Delta	*-41bps*	*-39bps*	*51bps*	*0bps*	*-39bps*	*91bps*
EPS (GAAP)	**EVRISI**	**$9.51**	**$44.81**	**$49.18**	**86.8%**	**40.0%**	**9.8%**
	Consensus	$9.68	$44.33	$47.81	93.2%	38.5%	7.8%
	Delta	*($0.17)*	*$0.48*	*$1.37*	*-642bps*	*150bps*	*191bps*

While on an FXN basis, we believe our estimates are above the Street, with many models yet to reflect strengthening in the USD late in 2Q, our reported estimates are below. While TAC trajectory should demonstrate clear improvement, infrastructure investments in cloud and mix shift to hardware should challenge margin, leaving us below the Street on OI and EPS.

Source: Company data, Evercore ISI Research

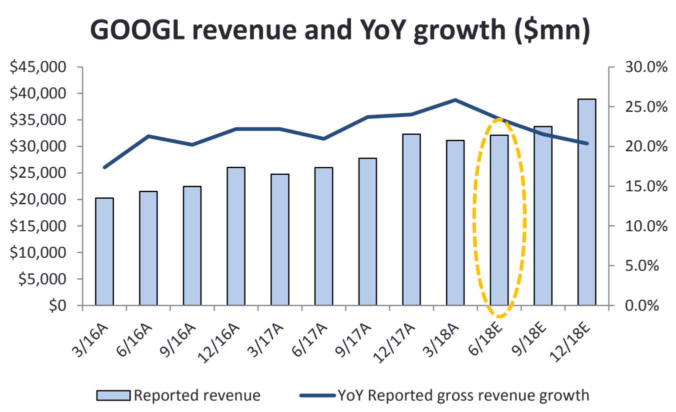
Figure 3. …as we continue to see >30% growth from mobile search and YouTube, and 75% in Cloud

	2017A	2018E	YoY Growth	Impact to 2018 Growth
Mobile search	**$33,446**	**$44,770**	***33.9%***	**+1,277 bps**
% of Properties gross revenue	*43%*	*47%*		
Less: Mobile TAC	($7,291)	($10,574)	*45.0%*	(370 bps)
% of gross revenue	*22%*	*24%*		
Mobile search net revenue	**$26,155**	**$34,196**	***30.7%***	**+906 bps**
% of net revenue	*38%*	*42%*		
YouTube	**$11,661**	**$14,965**	***28.3%***	**+373 bps**
Desktop search	**$32,681**	**$35,289**	***8.0%***	**+294 bps**
Less: Properties ex-mobile search TAC	($1,740)	($2,094)	*20.4%*	(40 bps)
% of gross revenue	*5%*			
Properties ex-mobile search net revenue	***$34,421***	***$37,383***	***8.6%***	**+627 bps**
Properties gross revenue	**$77,788**	**$95,024**	***22.2%***	**+1,943 bps**
Properties TAC	($9,031)	($12,669)	*40.3%*	(410 bps)
Properties net revenue	**$68,757**	**$82,356**	***19.8%***	**+1,533 bps**
% ex-TAC margin	*88%*	*87%*		
Network	**$17,587**	**$20,066**	***14.1%***	**+279 bps**
Less: Network TAC	($12,641)	($14,721)	*16.5%*	(234 bps)
Network net revenue	**$4,946**	**$5,345**	***8.1%***	**+45 bps**
Other Revenue				
Google Play	$5,330	$6,929	*30.0%*	+180 bps
Pixel	$725	$798	*10.0%*	+08 bps
Cloud	$3,900	$6,825	*75.0%*	+330 bps
All Other revenue	$5,048	$5,727	*13.5%*	+77 bps
Total Other revenue	**$15,003**	**$20,279**	***35.2%***	**+595 bps**
Google Net revenue	**$88,706**	**$107,979**	***21.7%***	**+2,173 bps**

Source: Company data, Evercore ISI Research

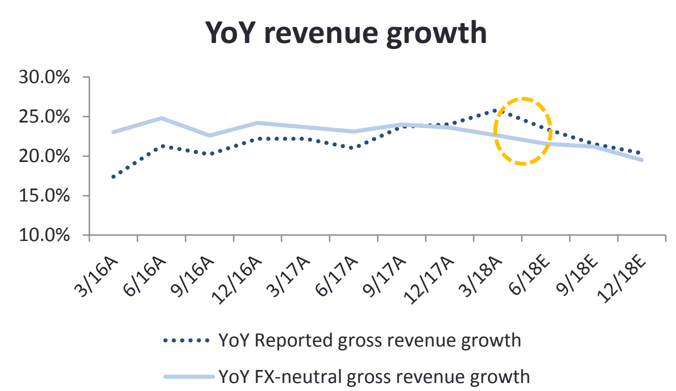
Our checks support a bullish outlook on reported revenue growth; USD appreciation limits FX tailwinds

Figure 4. We model reported revenue slowing ~300bps relative to the 1Q…



Source: Company data, Evercore ISI Research

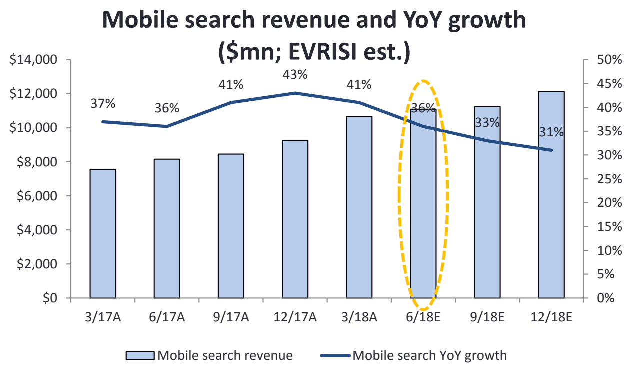
Figure 5. …much of this comes due to moderating FX tailwinds; we model FXN deceleration of just 100bps



Source: Company data, FactSet ,Evercore ISI Research

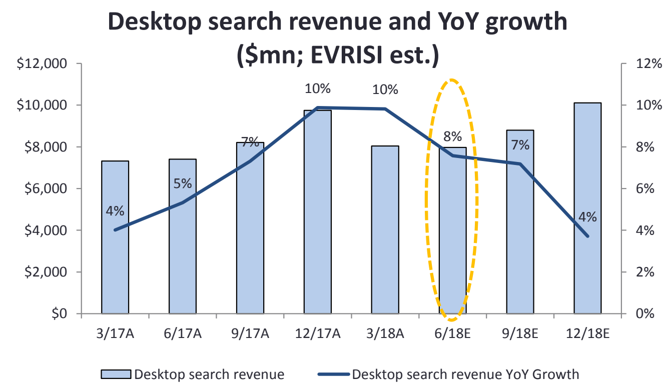
We conducted our usual check with ad buyers on 6/18. Conversations with agency buyers pointed to robust trends across retail and product marketing verticals driving ongoing strength in mobile search demand.

Figure 6. We model mobile search revenue remaining above 30% in the 2Q…



Source: Company data, Evercore ISI Research

Figure 7. …but expect desktop search decelerates as we anniversary the benefits of tablet segmentation



Source: Company data, Evercore ISI Research

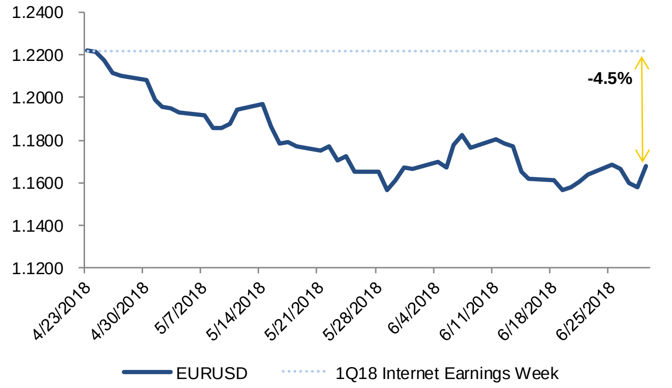
For YouTube, our check with Wpromote highlighted that growth should remain over 30%. Similar to mobile search, YouTube is benefiting from strong demand from product marketers, particularly those looking to drive product discovery.

Figure 8. We believe YouTube growth remains near 30% YoY, with our checks suggesting that demand from product marketers are driving growth

Source: Company data, Evercore ISI Research

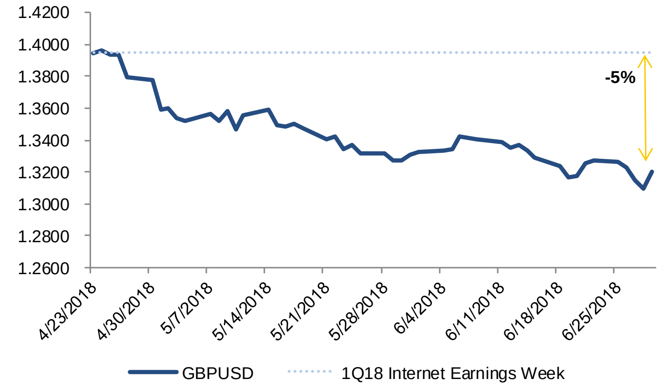
While we expect most investors to focus on organic trends, the intra-quarter strengthening of the USD is likely to weigh on reported results to a larger extent than had been expected by the Street when GOOGL reported its 1Q results. As such, reported revenue growth estimates are likely to be biased lower ahead of the print.

Figure 9. Intra-quarter, key currencies including the Euro have seen substantial depreciation…



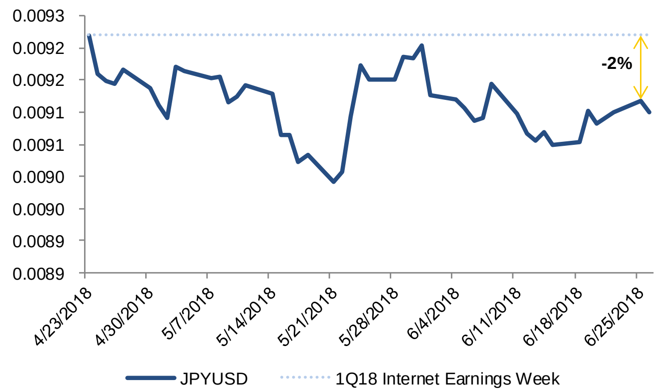
Source: FactSet ,Evercore ISI Research

Figure 10. … the British Pound has moved down 5% against the USD as well…



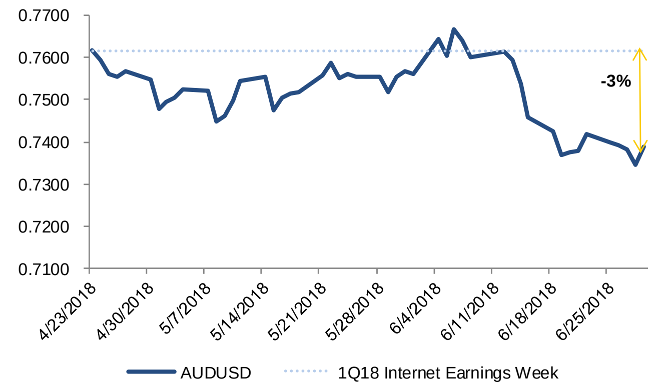
Source: FactSet ,Evercore ISI Research

Figure 11. …the Japanese Yen has moved lower by 2%...



Source: FactSet ,Evercore ISI Research

Figure 12. …while the AUD is down 3% vs the US Dollar

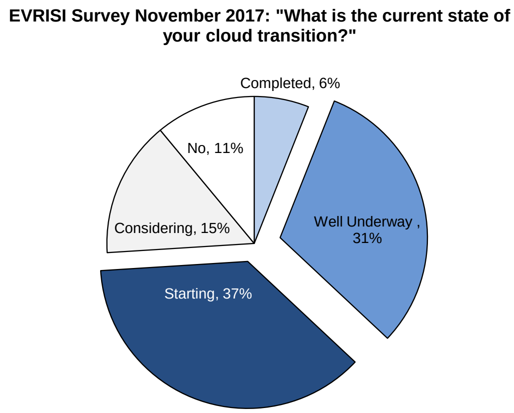


Source: FactSet ,Evercore ISI Research

We expect commentary on Google's cloud business to remain similar to the recent past

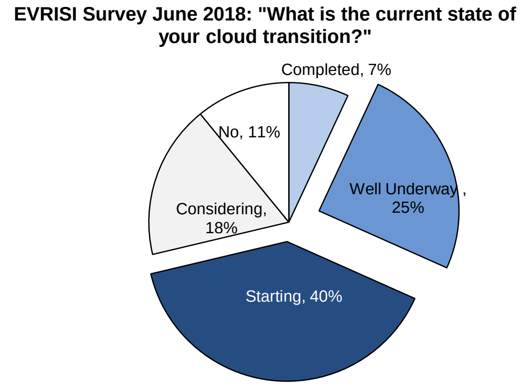
Though we would not expect to get any more quantitative granularity around Google Cloud or GCP than we have heard previously, we believe management will continue to provide qualitative highlights. Evercore ISI survey work continues to support the view that the industry-level dynamics related to cloud demand remain extremely strong. In a recent survey conducted by Oscar Sloterbeck, CIO survey respondents noted a further increase in the number of cloud transition projects characterized as either "Starting" or "Well underway." We believe that GCP continues to demonstrate growth levels similar to that of Microsoft Azure, though off a revenue base that is less than half the scale. In our view, Google Cloud is likely the third largest driver of revenue for Google after mobile search and YouTube.

Figure 13. Evercore ISI's proprietary survey work highlights strong underlying cloud demand trends…



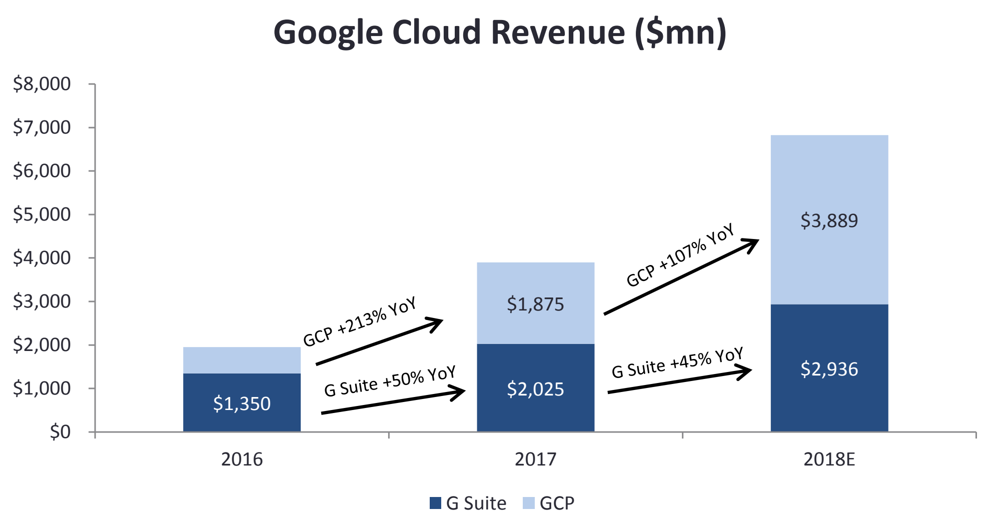
Source: Company data, Evercore ISI Research

Figure 14. …which should continue to be a key driver of Google's Cloud business



Source: Company data, Evercore ISI Research

Figure 15. We believe Google Cloud remains the third largest driver of Alphabet total revenue, and should approach $7bn this year

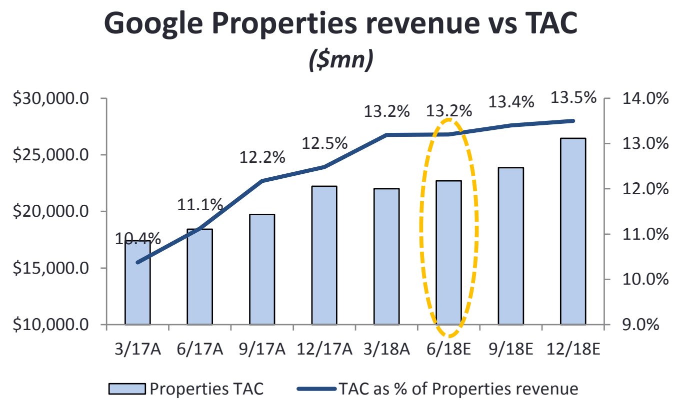


Source: Company data, Evercore ISI Research

2Q should see GOOGL turn the corner on TAC, but investments in cloud and hardware likely weigh on margins

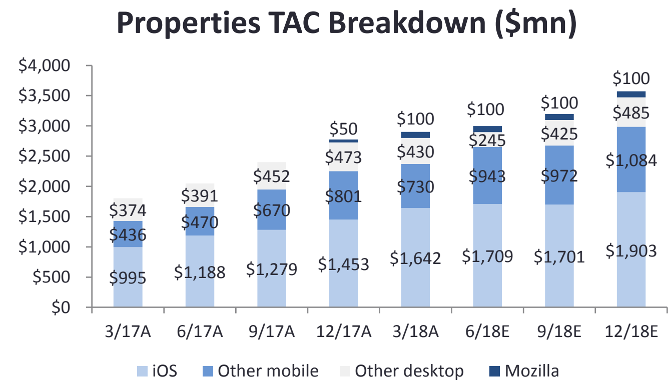
A key concern among GOOGL investors for the past year has been acceleration in the growth of traffic acquisition costs (TAC). We believe that in 2Q, we should begin to see these growth rates moderate, as we anniversary the outsized growth caused by a renegotiation of TAC rates paid to various distribution partners last year. We model a half quarter of benefit in the 2Q, with the full benefit occurring in 3Q. Our baseline assumption is that Properties TAC should organically grow at the rate of mobile search.

Figure 16. In line with management's comments, we model the growth in TAC as a percentage of Properties revenue to moderate in the 2Q



Source: Company data, Evercore ISI Research

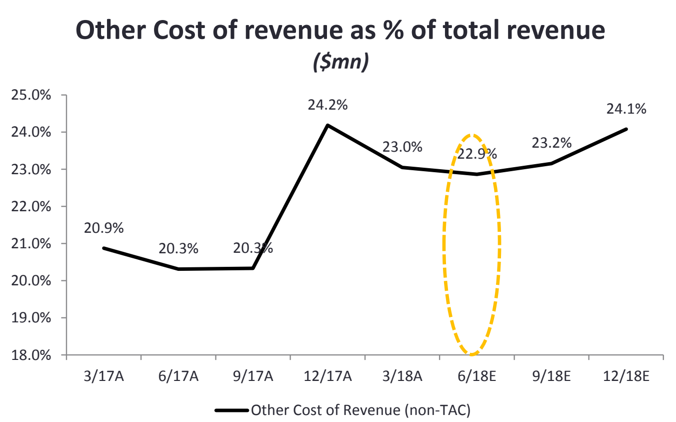
Figure 17. Going forward, we see TAC growth being largely in line with mobile search revenue growth



Source: Company data, Evercore ISI Research

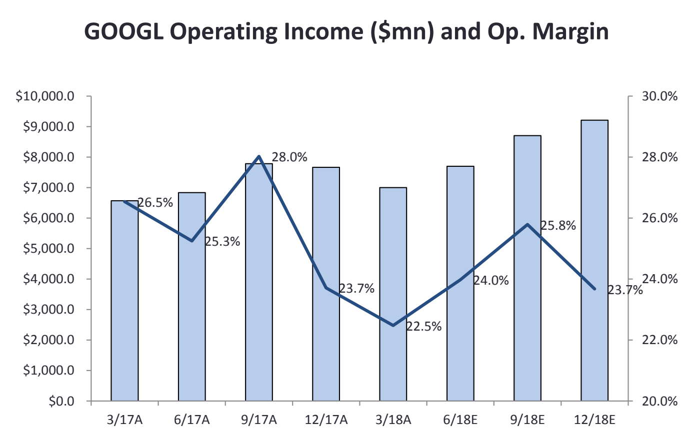
While we believe that the moderation of TAC growth should be a clear positive for the broader GOOGL narrative for the remainder of 2018, we believe that other operating expense lines, particularly Other Costs of Revenue, are likely to remain elevated. Higher operating expenses come as a function of ongoing investments in cloud infrastructure, YouTube content costs, and hardware production expenses.

Figure 18. We anticipate investments in cloud infrastructure and hardware to elevate Other Costs of Revenue…



Source: Company data, Evercore ISI Research

Figure 19. …which leads us to forecast operating margins compressing YoY

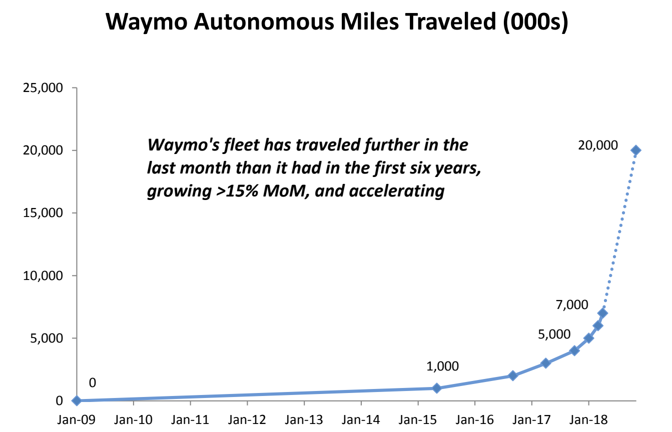


Source: Company data, Evercore ISI Research

Anticipate increased interest in nascent businesses, including Waymo, given pace of capex growth

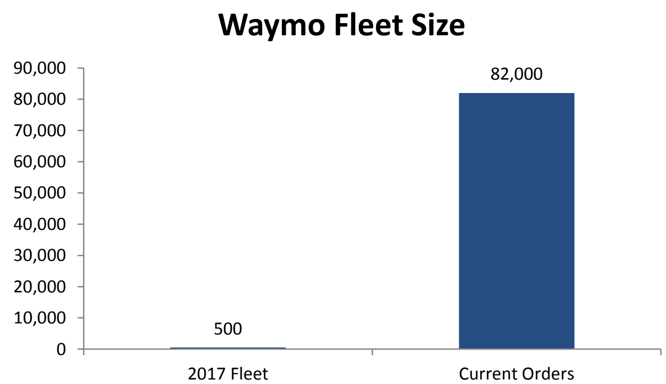
With costs likely remaining elevated in the 2Q, we expect analysts to increasingly focus on the possible return trajectory of related capital deployment. Cloud, as a primary driver of increased costs is certainly likely to garner a fair share of analysts' questions during the 2Q earnings call. In addition, we believe that analysts are also likely to inquire about the timeline of other businesses less far along with respect to commercialization. Waymo in particular should generate interest, with GOOGL having made commitments to purchase >80k vehicles from the likes of Chrysler and Jaguar over the coming years. We believe that investors are most interested in the pace of vehicle acquisition and how that is likely to impact capex trajectory. Further, we are curious to better understand the vehicle level costs. While it is easy enough to ascertain the list prices of the vehicles set to support Waymo's commercial efforts, it is far less certain to estimate the additional costs related to their autonomous systems. The range of related estimates is fairly wide, so granularity here would likely give clarity to initial attempts to build Waymo models.

Figure 20. Waymo is seeing an inflection in vehicle miles traveled...



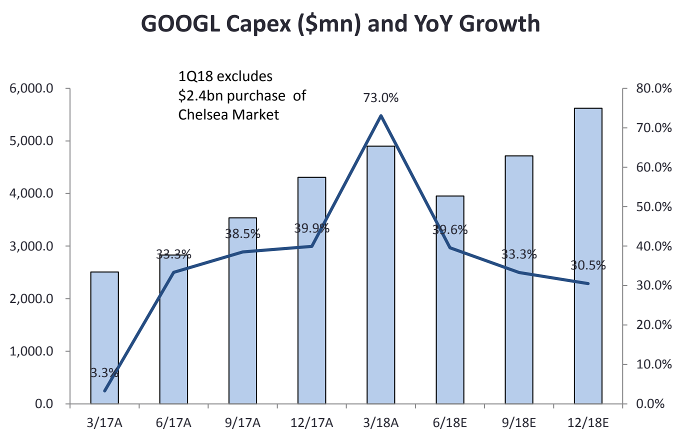
Source: Company data, Evercore ISI Research

Figure 21. ...with its fleet slated to increase 100x in the coming years we anticipate increased interest in related investment



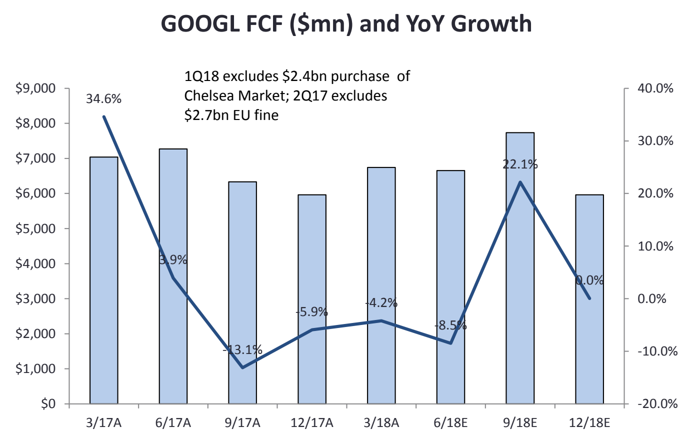
Source: Company data, Evercore ISI Research

Figure 22. We estimate that capex growth continues to outpace revenue…



Source: Company data, Evercore ISI Research

Figure 23. … leaving FCF down YoY



Source: Company data, Evercore ISI Research

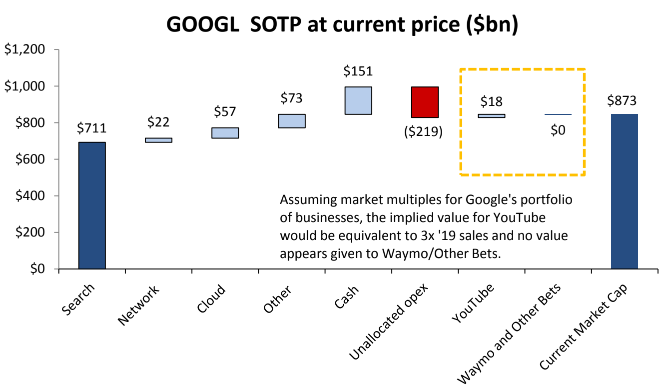
Valuation offers a lot to like, particularly in the context of a sum-of-parts analysis

We see GOOGL as a major beneficiary of structural expansion in the ad market and forecast compounded revenue growth to remain in the high teens through 2021E. As we look out past 2020, we believe the possibility for material returns on long running investments in other bets becomes an increasing possibility. We note that two of the more promising Other Bets portfolio companies, Waymo (autonomous vehicles) and Verily (healthcare), are attacking two of the world's largest addressable markets.

Valuation remains highly compelling, given dominance in search advertising and growth in non-advertising businesses, as we covered recently, we also believe that it is increasingly valuable to think about GOOGL on a sum-of-parts basis, and while underlying assumptions are certainly worthy of debate, our conclusion in our recent report on FANG valuation was that by ascribing market multiples to Google's search, network, and cloud business, one could argue that the market is valuating YouTube at 1x 2019 sales and is giving no value to Waymo or the rest of the Other Bets portfolio.

Our simple view is that GOOGL provides an attractive combination of market dominance, sustainable growth, disciplined resource allocation, and reasonable valuation suitable for a broad range of portfolios. In light of these qualities, we believe Alphabet should outperform the broader market, as we value shares at $1,300 based on 26x 2019 EPS of ~$49.

Figure 24. We believe its increasingly worth considering GOOGL on a sum-of-parts basis – as this analysis highlights underlying value



Source: Company data, Evercore ISI Research

Figure 25. Our $1,300 target price is based on 26x 2019 GAAP earnings

Year end (Dec), mn except per share data	2017A	2018E	2019E	2020E	2021E	2022E
EPS	$18.14	$44.81	$49.18	$55.41	$61.88	$66.77
P/E Multiple	72x	29x	26x	23x	21x	19x
Price Target	**$1,300**	**$1,300**	**$1,300**	**$1,300**	**$1,300**	**$1,300**
Current Price	$1,144	$1,144	$1,144	$1,144	$1,144	$1,144
Upside / (Downside)	13.7%	13.7%	13.7%	13.7%	13.7%	13.7%
Net revenues	89,183	108,519	129,032	147,782	168,186	188,175
EV/Sales Multiple	9.1x	7.4x	6.1x	5.2x	4.4x	3.8x
Implied Enterprise Value	809,547	806,402	787,176	766,736	743,211	718,454
Cash	101,871	118,740	149,674	184,110	224,074	267,595
Debt	3,969	5,302	5,302	5,302	5,302	5,302
Net Cash	97,902	113,438	144,372	178,808	218,772	262,293
Implied Equity Value	907,449	919,840	931,548	945,544	961,984	980,747
Diluted Shares Outstanding	698	708	717	727	740	754
Free Cash Flow	23,907	24,698	35,934	39,436	44,965	48,521
P/FCF Multiple	38.0x	37.2x	25.9x	24.0x	21.4x	20.2x
EBITDA	43,476	51,312	59,710	67,430	75,261	82,147
EV/EBITDA Multiple	18.6x	15.7x	13.2x	11.4x	9.9x	8.7x

Source: Company data, Evercore ISI Research

Figure 26. GOOGL Revenue Summary

	2016A	3/17A	6/17A	9/17A	12/17A	2017A	3/18A	6/18E	9/18E	12/18E	2018E	2019E	2020E	2021E
Total Gross Revenues	$90,272.0	$24,750.0	$26,010.0	$27,772.0	$32,323.0	$110,855.0	$31,146.0	$32,111.1	$33,750.0	$38,901.6	$135,908.7	$160,748.0	$183,742.6	$208,361.7
Google Properties	63,785.0	17,403.0	18,425.0	19,723.0	22,237.0	77,788.0	21,998.0	22,699.6	23,864.8	26,462.0	95,024.5	112,604.0	129,494.6	147,623.8
YoY growth	*21.8%*	*21.5%*	*19.6%*	*22.6%*	*23.8%*	*22.0%*	*26.4%*	*23.2%*	*21.0%*	*19.0%*	*22.2%*	*18.5%*	*15.0%*	*14.0%*
QoQ growth		*-3.1%*	*5.9%*	*7.0%*	*12.7%*		*-1.1%*	*3.2%*	*5.1%*	*10.9%*				
Google Network	15,598.0	4,008.0	4,247.0	4,342.0	4,990.0	17,587.0	4,644.0	4,926.5	4,906.5	5,588.8	20,065.8	22,072.4	23,396.7	24,566.5
YoY growth	*3.8%*	*8.6%*	*13.5%*	*16.3%*	*12.6%*	*12.8%*	*15.9%*	*16.0%*	*13.0%*	*12.0%*	*14.1%*	*10.0%*	*6.0%*	*5.0%*
QoQ growth		*-9.5%*	*6.0%*	*2.2%*	*14.9%*		*-6.9%*	*6.1%*	*-0.4%*	*13.9%*				
Google Advertising Revenue	**$79,383.0**	**$21,411.0**	**$22,672.0**	**$24,065.0**	**$27,227.0**	**$95,375.0**	**$26,642.0**	**$27,626.1**	**$28,771.3**	**$32,050.8**	**$115,090.2**	**$134,676.3**	**$152,891.3**	**$172,190.4**
YoY growth	*17.8%*	*18.8%*	*18.4%*	*21.4%*	*21.6%*	*20.1%*	*24.4%*	*21.9%*	*19.6%*	*17.7%*	*20.7%*	*17.0%*	*13.5%*	*12.6%*
QoQ growth		*-4.4%*	*5.9%*	*6.1%*	*13.1%*		*-2.1%*	*3.7%*	*4.1%*	*11.4%*				
Google Other Revenue	**$10,079.0**	**$3,207.0**	**$3,241.0**	**$3,590.0**	**$4,965.0**	**$15,003.0**	**$4,354.0**	**$4,375.4**	**$4,846.5**	**$6,702.8**	**$20,278.6**	**$25,348.3**	**$29,910.9**	**$34,995.8**
YoY growth	*40.9%*	*54.9%*	*49.2%*	*47.6%*	*45.9%*	*48.9%*	*35.8%*	*35.0%*	*35.0%*	*35.0%*	*35.2%*	*25.0%*	*18.0%*	*17.0%*
QoQ growth		*-5.8%*	*1.1%*	*10.8%*	*38.3%*		*-12.3%*	*0.5%*	*10.8%*	*38.3%*				
Google Segment Revenue	**$89,462.0**	**$24,618.0**	**$25,913.0**	**$27,655.0**	**$32,192.0**	**$110,378.0**	**$30,996.0**	**$32,001.5**	**$33,617.8**	**$38,753.6**	**$135,368.8**	**$160,024.6**	**$182,802.2**	**$207,186.2**
YoY growth	*20.0%*	*22.5%*	*21.6%*	*24.3%*	*24.8%*	*23.4%*	*25.9%*	*23.5%*	*21.6%*	*20.4%*	*22.6%*	*18.2%*	*14.2%*	*13.3%*
QoQ growth		*-4.6%*	*5.3%*	*6.7%*	*16.4%*		*-3.7%*	*3.2%*	*5.1%*	*15.3%*				
Other Bets Segment Revenue	**$810.0**	**$132.0**	**$97.0**	**$117.0**	**$131.0**	**$477.0**	**$150.0**	**$109.6**	**$132.2**	**$148.0**	**$539.9**	**$723.4**	**$940.4**	**$1,175.5**
YoY growth	*81.2%*					*-41.1%*	*13.6%*	*13.0%*	*13.0%*	*13.0%*	*13.2%*	*34.0%*	*30.0%*	*25.0%*
QoQ growth							*14.5%*	*-26.9%*	*20.6%*	*12.0%*				
Total Consolidated Revenue	**$90,272.0**	**$24,750.0**	**$26,010.0**	**$27,772.0**	**$32,323.0**	**$110,855.0**	**$31,146.0**	**$32,111.1**	**$33,750.0**	**$38,901.6**	**$135,908.7**	**$160,748.0**	**$183,742.6**	**$208,361.7**
YoY growth	*20.4%*	*22.2%*	*21.0%*	*23.7%*	*24.0%*	*22.8%*	*25.8%*	*23.5%*	*21.5%*	*20.4%*	*22.6%*	*18.3%*	*14.3%*	*13.4%*
QoQ growth		*-5.0%*	*5.1%*	*6.8%*	*16.4%*		*-3.6%*	*3.1%*	*5.1%*	*15.3%*				
TAC Analysis														
Google Properties- TAC	**5,894.0**	**1805.0**	**2049.0**	**2401.0**	**2776.0**	**9,031.0**	**2902.0**	**2,996.3**	**3,197.9**	**3,572.4**	**12,668.6**	**15,426.7**	**18,647.2**	**21,995.9**
TAC as % of Google Properties Gross Adv. Revenues	9.2%	10.4%	11.1%	12.2%	12.5%	11.6%	13.2%	13.2%	13.4%	13.5%	13.3%	13.7%	14.4%	14.9%
YoY growth	*43.7%*	*48.3%*	*51.6%*	*54.0%*	*57.2%*	*53.2%*	*60.8%*	*46.2%*	*33.2%*	*28.7%*	*40.3%*	*21.8%*	*20.9%*	*18.0%*
Google Network Members' - TAC	10,899.0	2,824.0	3,042.0	3,101.0	3,674.0	12,641.0	3,386.0	3,621.0	3,606.2	4,107.8	14,721.0	16,289.4	17,313.6	18,179.2
TAC as % of Google Network Gross Adv. Revenues	69.9%	70.5%	71.6%	71.4%	73.6%	71.9%	72.9%	73.5%	73.5%	73.5%	73.4%	73.8%	74.0%	74.0%
YoY growth	*6.4%*	*9.8%*	*16.0%*	*18.2%*	*19.2%*	*16.0%*	*19.9%*	*19.0%*	*16.3%*	*11.8%*	*16.5%*	*10.7%*	*6.3%*	*5.0%*
Total Traffic Acquisition Costs (TAC)	16,793.0	4,629.0	5,091.0	5,502.0	6,450.0	21,672.0	6,288.0	6,617.3	6,804.1	7,680.1	27,389.6	31,716.1	35,960.8	40,175.2
TAC as a % of Total Gross Adv. Revenues	21.2%	21.6%	22.5%	22.9%	23.7%	22.7%	23.6%	24.0%	23.6%	24.0%	23.8%	23.5%	23.5%	23.3%
YoY growth	*17.1%*	*22.2%*	*28.1%*	*31.6%*	*33.0%*	*29.1%*	*35.8%*	*30.0%*	*23.7%*	*19.1%*	*26.4%*	*15.8%*	*13.4%*	*11.7%*
Total Net Revenues	**$73,479.0**	**$20,121.0**	**$20,919.0**	**$22,270.0**	**$25,873.0**	**$89,183.0**	**$24,858.0**	**$25,493.7**	**$26,945.9**	**$31,221.5**	**$108,519.1**	**$129,031.8**	**$147,781.9**	**$168,186.5**
YoY growth	*21.2%*	*22.2%*	*19.4%*	*21.9%*	*22.0%*	*21.4%*	*23.5%*	*21.9%*	*21.0%*	*20.7%*	*21.7%*	*18.9%*	*14.5%*	*13.8%*
QoQ growth		*-5.2%*	*4.0%*	*6.5%*	*16.2%*		*-3.9%*	*2.6%*	*5.7%*	*15.9%*				
Net Revenue Segment Analysis														
Google Properties- Net Revenues	57,891.0	15,598.0	16,376.0	17,322.0	19,461.0	68,757.0	19,096.0	19,703.3	20,666.9	22,889.7	82,355.9	97,177.2	110,847.4	125,627.9
YoY growth	*20.0%*	*19.0%*	*16.6%*	*19.2%*	*20.1%*	*18.8%*	*22.4%*	*20.3%*	*19.3%*	*17.6%*	*19.8%*	*18.0%*	*14.1%*	*13.3%*
QoQ growth		*-3.7%*	*5.0%*	*5.8%*	*12.3%*		*-1.9%*	*3.2%*	*4.9%*	*10.8%*				
Google Network - Net Revenues	4,699.0	1,184.0	1,205.0	1,241.0	1,316.0	4,946.0	1,258.0	1,305.5	1,300.2	1,481.0	5,344.8	5,783.0	6,083.1	6,387.3
YoY growth	*-1.9%*	*5.6%*	*7.6%*	*11.9%*	*-2.4%*	*5.3%*	*6.3%*	*8.3%*	*4.8%*	*12.5%*	*8.1%*	*8.2%*	*5.2%*	*5.0%*
QoQ growth		*-12.2%*	*1.8%*	*3.0%*	*6.0%*		*-4.4%*	*3.8%*	*-0.4%*	*13.9%*				
Total Net Advertising Revenues	**$62,590.0**	**$16,782.0**	**$17,581.0**	**$18,563.0**	**$20,777.0**	**$73,703.0**	**$20,354.0**	**$21,008.8**	**$21,967.2**	**$24,370.7**	**$87,700.6**	**$102,960.2**	**$116,930.5**	**$132,015.2**
YoY growth	*18.0%*	*17.9%*	*15.9%*	*18.7%*	*18.4%*	*17.8%*	*21.3%*	*19.5%*	*18.3%*	*17.3%*	*19.0%*	*17.4%*	*13.6%*	*12.9%*
QoQ growth		*-4.4%*	*4.8%*	*5.6%*	*11.9%*		*-2.0%*	*3.2%*	*4.6%*	*10.9%*				
Other Net Revenues	**$10,079.0**	**$3,207.0**	**$3,241.0**	**$3,590.0**	**$4,965.0**	**$15,003.0**	**$4,354.0**	**$4,375.4**	**$4,846.5**	**$6,702.8**	**$20,278.6**	**$25,348.3**	**$29,910.9**	**$34,995.8**
YoY growth	*40.9%*	*54.9%*	*49.2%*	*47.6%*	*45.9%*	*48.9%*	*35.8%*	*35.0%*	*35.0%*	*35.0%*	*35.2%*	*25.0%*	*18.0%*	*17.0%*
QoQ growth		*-5.8%*	*1.1%*	*10.8%*	*38.3%*		*-12.3%*	*0.5%*	*10.8%*	*38.3%*				
Total Google Segment Net Revenues	**$72,669.0**	**$19,989.0**	**$20,822.0**	**$22,153.0**	**$25,742.0**	**$88,706.0**	**$24,708.0**	**$25,384.1**	**$26,813.7**	**$31,073.4**	**$107,979.2**	**$128,308.4**	**$146,841.4**	**$167,011.0**
YoY growth	*20.7%*	*22.6%*	*20.1%*	*22.6%*	*22.9%*	*22.1%*	*23.6%*	*21.9%*	*21.0%*	*20.7%*	*21.7%*	*18.8%*	*14.4%*	*13.7%*
QoQ growth		*-4.6%*	*4.2%*	*6.4%*	*16.2%*		*-4.0%*	*2.7%*	*5.6%*	*15.9%*				
Total Other Bet Segment Net Revenues	**$810.0**	**$132.0**	**$97.0**	**$117.0**	**$131.0**	**$477.0**	**$150.0**	**$109.6**	**$132.2**	**$148.0**	**$539.9**	**$723.4**	**$940.4**	**$1,175.5**
YoY growth	*81.2%*	*-20.5%*	*-47.6%*	*-40.6%*	*-50.0%*	*-41.1%*	*13.6%*	*13.0%*	*13.0%*	*13.0%*	*13.2%*	*34.0%*	*30.0%*	*25.0%*
QoQ growth		*-49.6%*	*-26.5%*	*20.6%*	*12.0%*		*14.5%*	*-26.9%*	*20.6%*	*12.0%*				
Total Consolidated Net Revenue	**$73,479.0**	**$20,121.0**	**$20,919.0**	**$22,270.0**	**$25,873.0**	**$89,183.0**	**$24,858.0**	**$25,493.7**	**$26,945.9**	**$31,221.5**	**$108,519.1**	**$129,031.8**	**$147,781.9**	**$168,186.5**
YoY growth	*21.2%*	*22.2%*	*19.4%*	*21.9%*	*22.0%*	*21.4%*	*23.5%*	*21.9%*	*21.0%*	*20.7%*	*21.7%*	*18.9%*	*14.5%*	*13.8%*
QoQ growth		*-5.2%*	*4.0%*	*6.5%*	*16.2%*		*-3.9%*	*2.6%*	*5.7%*	*15.9%*				

Source: Company data, Evercore ISI Research

Figure 27. GOOGL Income Statement Summary

	2016A	3/17A	6/17A	9/17A	12/17A	2017A	3/18A	6/18E	9/18E	12/18E	2018E	2019E	2020E	2021E	2022E
Google Gross Revenue	$90,272.0	$24,750.0	$26,010.0	$27,772.0	$32,323.0	$110,855.0	$31,146.0	$32,111.1	$33,750.0	$38,901.6	$135,908.7	$160,748.0	$183,742.6	$208,361.7	$232,543.7
Traffic Acquisition Costs (TAC)	$16,793.0	4,629.0	5,091.0	5,502.0	6,450.0	21,672.0	6,288.0	6,617.3	6,804.1	7,680.1	27,389.6	31,716.1	35,960.8	40,175.2	44,368.6
Google Net Revenues excluding TAC	$73,479.0	$20,121.0	$20,919.0	$22,270.0	$25,873.0	$89,183.0	$24,858.0	$25,493.7	$26,945.9	$31,221.5	$108,519.1	$129,031.8	$147,781.9	$168,186.5	$188,175.1
Total Company Revenue, Net	$73,479.0	$20,121.0	$20,919.0	$22,270.0	$25,873.0	$89,183.0	$24,858.0	$25,493.7	$26,945.9	$31,221.5	$108,519.1	$129,031.8	$147,781.9	$168,186.5	$188,175.1
Cost of Revenues	$18,345.0	5,166.0	5,282.0	5,646.0	7,817.0	23,911.0	7,179.0	7,342.2	7,814.3	9,366.4	31,701.9	38,709.6	45,073.5	52,137.8	59,275.2
Gross profit	$55,134.0	$14,955.0	$15,637.0	$16,624.0	$18,056.0	$65,272.0	$17,679.0	$18,151.5	$19,131.6	$21,855.0	$76,817.1	$90,322.3	$102,708.4	$116,048.7	$128,899.9
Operating expenses															
Research & Development	13,948.0	3,942.0	4,172.0	4,205.0	4,306.0	16,625.0	5,039.0	5,098.7	4,850.3	5,307.6	20,295.7	22,967.7	26,600.7	30,273.6	33,871.5
Sales & marketing	10,485.0	2,644.0	2,897.0	3,042.0	4,310.0	12,893.0	3,604.0	3,441.7	3,637.7	5,151.5	15,834.9	18,064.5	19,950.6	21,864.2	24,462.8
General and administrative	6,985.0	1,801.0	1,700.0	1,595.0	1,776.0	6,872.0	2,035.0	1,912.0	1,940.1	2,185.5	8,072.6	9,290.3	10,344.7	11,773.1	13,172.3
Other Non-Recurring Items	-	-	2,736.0	-	-	2,736.0	-	-	-	-	-	-	-	-	-
Total GAAP operating expenses	31,418.0	8,387.0	11,505.0	8,842.0	10,392.0	39,126.0	10,678.0	10,452.4	10,428.0	12,644.7	44,203.2	50,322.4	56,896.0	63,910.9	71,506.5
GAAP OI ex. EU fine						28,882.0									
Income from Operations	**$23,716.0**	**$6,568.0**	**$4,132.0**	**$7,782.0**	**$7,664.0**	**$26,146.0**	**$7,001.0**	**$7,699.1**	**$8,703.5**	**$9,210.3**	**$32,614.0**	**$39,999.9**	**$45,812.4**	**$52,137.8**	**$57,393.4**
Interest income	1,127.5	312.0	294.0	306.0	400.0	1,312.0	399.0	300.0	300.0	300.0	1,299.0	1,400.0	1,500.0	1,600.0	1,700.0
Interest expense	(160.4)	(25.0)	(21.0)	(27.0)	(36.0)	(109.0)	(30.0)	(50.0)	(50.0)	(50.0)	(180.0)	(198.7)	(198.7)	(198.7)	(198.7)
Realized gains on marketable securities, net	(186.0)	(25.0)	(15.0)	0.0	1.0	(39.0)	(39.0)	0.0	0.0	0.0	(39.0)	(39.0)	(39.0)	(39.0)	(39.0)
Foreign currency exchange losses, net	(551.0)	(2.0)	(46.0)	(53.0)	(20.0)	(121.0)	(24.0)	(50.0)	(50.0)	(50.0)	(174.0)	(174.0)	(174.0)	(174.0)	(174.0)
Realized gain on equity interest	(113.0)	6.0	(1.0)	(44.0)	44.0	5.0	3,031.0	0.0	0.0	0.0	3,031.0	0.0	0.0	0.0	0.0
Realized gain on non-marketable equity investments	(14.0)	(49.0)	0.0	(32.0)	(35.0)	(116.0)	(7.0)	0.0	0.0	0.0	(7.0)	(7.0)	(7.0)	(7.0)	(7.0)
Other income (expense), net	51.0	34.0	34.0	47.0	0.0	115.0	212.0	10.0	10.0	10.0	242.0	242.0	242.0	242.0	242.0
Other income, expense and other, net	154.1	251.0	245.0	197.0	354.0	1,047.0	3,542.0	210.0	210.0	210.0	4,172.0	1,223.4	1,323.4	1,423.4	1,523.4
Income before taxes	24,150.0	6,819.0	4,377.0	7,979.0	8,018.0	27,193.0	10,543.0	7,909.1	8,913.5	9,420.3	36,786.0	41,223.2	47,135.7	53,561.2	58,916.8
Provision for income taxes	4,672.0	1,393.0	853.0	1,247.0	11,038.0	14,531.0	1,142.0	1,186.4	1,337.0	1,413.0	5,078.4	5,977.4	6,834.7	7,766.4	8,542.9
Effective tax rate	*19.3%*	*20.4%*	*19.5%*	*15.6%*	*137.7%*	*53.4%*	*10.8%*	*15.0%*	*15.0%*	*15.0%*	*13.8%*	*14.5%*	*14.5%*	*14.5%*	*14.5%*
GAAP Net Income (loss)	**$19,478.0**	**$5,426.0**	**$3,524.0**	**$6,732.0**	**($3,020.0)**	**$12,662.0**	**$9,401.0**	**$6,722.7**	**$7,576.5**	**$8,007.3**	**$31,707.5**	**$35,245.9**	**$40,301.0**	**$45,794.8**	**$50,373.8**
GAAP Diluted Income (loss) per share	**$27.88**	**$7.73**	**$5.09**	**$9.57**	**($4.35)**	**$18.14**	**$13.33**	**$9.51**	**$10.69**	**$11.28**	**$44.81**	**$49.18**	**$55.41**	**$61.88**	**$66.77**
Diluted shares outstanding	698.7	702.0	692.0	703.7	694.6	698.1	705.1	706.8	708.4	710.1	707.6	716.6	727.4	740.0	754.5
	2016A	**3/17A**	**6/17A**	**9/17A**	**12/17A**	**2017A**	**3/18A**	**6/18E**	**9/18E**	**12/18E**	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
YoY Growth															
Total Company Revenues	21.2%	22.2%	19.4%	21.9%	22.0%	21.4%	23.5%	21.9%	21.0%	20.7%	21.7%	18.9%	14.5%	13.8%	11.9%
Gross profit	*18.4%*	*18.6%*	*17.0%*	*20.9%*	*17.2%*	*18.4%*	*18.2%*	*16.1%*	*15.1%*	*21.0%*	*17.7%*	*17.6%*	*13.7%*	*13.0%*	*11.1%*
Research & Development	*13.6%*	*17.1%*	*24.1%*	*16.9%*	*18.9%*	*19.2%*	*27.8%*	*22.2%*	*15.3%*	*23.3%*	*22.1%*	*13.2%*	*15.8%*	*13.8%*	*11.9%*
Selling and marketing	*15.9%*	*10.8%*	*20.0%*	*18.6%*	*38.2%*	*23.0%*	*36.3%*	*18.8%*	*19.6%*	*19.5%*	*22.8%*	*14.1%*	*10.4%*	*9.6%*	*11.9%*
General and administrative	*13.8%*	*19.0%*	*4.7%*	*-12.6%*	*-12.3%*	*-1.6%*	*13.0%*	*12.5%*	*21.6%*	*23.1%*	*17.5%*	*15.1%*	*11.3%*	*13.8%*	*11.9%*
Total operating expenses	*14.4%*	*15.4%*	*55.4%*	*10.7%*	*18.6%*	*24.5%*	*27.3%*	*-9.1%*	*17.9%*	*21.7%*	*13.0%*	*13.8%*	*13.1%*	*12.3%*	*11.9%*
Income from Operations	*24.2%*	*23.0%*	*-30.8%*	*34.9%*	*15.4%*	*10.2%*	*6.6%*	*86.3%*	*11.8%*	*20.2%*	*24.7%*	*22.6%*	*14.5%*	*13.8%*	*10.1%*
% Revenues															
Cost of Revenues	25.0%	25.7%	25.2%	25.4%	30.2%	26.8%	28.9%	28.8%	29.0%	30.0%	29.2%	30.0%	30.5%	31.0%	31.5%
Research & Development	19.0%	19.6%	19.9%	18.9%	16.6%	18.6%	20.3%	20.0%	18.0%	17.0%	18.7%	17.8%	18.0%	18.0%	18.0%
Selling and marketing	14.3%	13.1%	13.8%	13.7%	16.7%	14.5%	14.5%	13.5%	13.5%	16.5%	14.6%	14.0%	13.5%	13.0%	13.0%
General and administrative	9.5%	9.0%	8.1%	7.2%	6.9%	7.7%	8.2%	7.5%	7.2%	7.0%	7.4%	7.2%	7.0%	7.0%	7.0%
Stock Based Compensation Expense	9.1%	10.0%	9.6%	8.2%	7.1%	8.6%	9.9%	9.3%	8.8%	7.6%	8.8%	8.3%	8.2%	8.1%	8.0%
Margins as % of Revenues															
Operating Margin	26.3%	26.5%	15.9%	28.0%	23.7%	23.6%	22.5%	24.0%	25.8%	23.7%	24.0%	24.9%	24.9%	25.0%	24.7%

Source: Company data, Evercore ISI Research

Figure 28. GOOGL Balance Sheet Summary

	2016A	2017A	2018E	2019E	2020E	2021E
Assets						
Cash and equivalents	$12,918.0	$10,715.0	$28,512.8	$58,414.6	$92,850.3	$132,815.1
Marketable securities	73,415.0	91,156.0	90,227.0	90,227.0	90,227.0	90,227.0
Accounts receivable, net	14,137.0	18,336.0	20,529.2	18,877.5	21,620.7	24,605.9
Inventories	0.0	369.0	624.4	1,032.3	1,477.8	1,681.9
Receivables	95.0	-	37.0	37.0	37.0	37.0
Deferred income taxes	268.0	749.0	-	-	-	-
Prepaid revenue share, expenses and other assets	4,575.0	2,983.0	1,103.4	4,954.8	5,187.1	5,746.9
Other current asset	-	-	-	-	-	-
Total current assets	105,408.0	124,308.0	141,033.7	173,543.3	211,400.0	255,113.8
Prepaid revenue share, expenses and other assets, non-current	1,819.0	680.0	678.0	678.0	678.0	678.0
Non-marketable equity securities	5,878.0	7,813.0	10,976.0	10,976.0	10,976.0	10,976.0
Property and equipment, net	34,234.0	42,383.0	57,131.9	70,309.3	84,215.5	99,943.4
Intangible assets, net	3,307.0	2,692.0	1,669.0	1,169.0	669.0	669.0
Goodwill	16,468.0	16,747.0	17,862.0	17,862.0	17,862.0	17,862.0
Other assets	383.0	2,672.0	2,004.0	2,004.0	2,004.0	2,004.0
Total assets	**$167,497.0**	**$197,295.0**	**$231,354.7**	**$276,541.5**	**$327,804.4**	**$387,246.2**
Liabilities & Stockholders' Equity						
Accounts payable	2,041.0	3,137.0	3,746.6	6,451.6	7,389.1	8,409.3
Short term debt	-	-	1,329.0	1,329.0	1,329.0	1,329.0
Accrued compensation and benefits	3,976.0	4,581.0	4,464.7	5,161.3	5,911.3	6,727.5
Accrued expenses and other current liabilites	6,144.0	10,177.0	7,833.8	8,387.1	9,605.8	11,773.1
Accrued revenue share	2,942.0	3,975.0	3,365.2	3,871.0	4,433.5	5,045.6
Securities lending program (repo)	-	-	-	-	-	-
Deferred revenue	1,099.0	1,432.0	2,809.9	2,580.6	2,955.6	3,363.7
Income taxes payable	554.0	881.0	1,343.0	1,343.0	1,343.0	1,343.0
Total current liabilities	16,756.0	24,183.0	24,892.2	29,123.5	32,967.3	37,991.2
Long-term debt	3,935.0	3,969.0	3,973.0	3,973.0	3,973.0	3,973.0
Deferred revenue, non-current	202.0	340.0	315.0	315.0	315.0	315.0
Income taxes payable, non-current	4,677.0	12,812.0	12,885.0	12,885.0	12,885.0	12,885.0
Deferred income taxes, net, non-current	226.0	430.0	394.0	394.0	394.0	394.0
Other long-term liabilities	2,665.0	3,059.0	3,149.0	3,149.0	3,149.0	3,149.0
Total liabilities	**$28,461.0**	**$44,793.0**	**$45,608.2**	**$49,839.5**	**$53,683.3**	**$58,707.2**
Stockholders' Equity						
Class A&B&C common stock	36,307.0	40,247.0	41,487.0	41,487.0	41,487.0	41,487.0
Accumulated other comprehensive income	(2,402.0)	(992.0)	(670.0)	(670.0)	(670.0)	(670.0)
Retained earnings	105,131.0	113,247.0	144,929.5	185,885.0	233,304.2	287,722.1
Total stockholders' equity	139,036.0	152,502.0	185,746.5	226,702.0	274,121.2	328,539.1
Total liabilities & stockholders' equity	**$167,497.0**	**$197,295.0**	**$231,354.7**	**$276,541.5**	**$327,804.4**	**$387,246.2**
check	-	-	-	-	-	-

Source: Company data, Evercore ISI Research

Figure 29. GOOGL Cash Flow Statement Summary

	2016A	2017A	2018E	2019E	2020E	2021E
Cash flows from operating activities						
Net income	$19,478.0	$12,662.0	$31,707.5	$35,245.9	$40,301.0	$45,794.8
Adjustments						
Depreciation & amortization of PP&E	5,267.0	6,103.0	7,791.0	8,500.0	9,000.0	9,500.0
Amortization of intangibles & other assets	877.0	812.0	1,335.0	500.0	500.0	-
Stock-based compensation expense	6,703.0	7,679.0	9,572.0	10,709.6	12,118.1	13,623.1
Excess tax benefits from stock-based award activites	0.0	0.0	0.0	-	-	-
Deferred income taxes	(38.0)	258.0	(18.0)	-	-	-
Other	449.0	331.0	(3,249.0)	-	-	-
Changes in working capital	3,300.0	9,246.0	(854.8)	1,623.7	422.7	1,274.8
Cash flows from operations	$36,036.0	$37,091.0	$46,283.7	$56,579.2	$62,341.9	$70,192.7
YoY growth	*39.3%*	*2.9%*	*24.8%*	*22.2%*	*10.2%*	*12.6%*
Cash flows from investing activities						
Purchases of PP&E	(10,183.0)	(13,184.0)	(21,585.9)	(21,677.4)	(22,906.2)	(25,228.0)
Purchase of short-term investments	(86,664.0)	(92,195.0)	30.0	-	-	-
Maturities and sales of short-term investments	66,895.0	73,959.0	(8,849.0)	-	-	-
Acquisitions, net of cash acquired	(409.0)	(1,745.0)	9,351.0	-	-	-
Change in other assets	(804.0)	1,764.0	(1,079.0)	-	-	-
Net cash from investing activities	($31,165.0)	($31,401.0)	($22,132.9)	($21,677.4)	($22,906.2)	($25,228.0)
Cash flows from financing activities						
Net proceeds related to stock-based award activities	(3,304.0)	(4,100.0)	(1,158.0)	-	-	-
Excess tax benefits from stock-based award activities	-	-	-	-	-	-
Proceeds from issuance of debt, net of costs	8,729.0	4,273.0	4,691.0	-	-	-
Share repurchases	(3,693.0)	(4,846.0)	(6,673.0)	(5,000.0)	(5,000.0)	(5,000.0)
Repayment of debt	(10,064.0)	(4,321.0)	(3,378.0)	-	-	-
Other	-	762.0	-	-	-	-
Net cash from financing activities	($8,332.0)	($8,232.0)	($6,518.0)	($5,000.0)	($5,000.0)	($5,000.0)

	2016A	2017A	2018E	2019E	2020E	2021E
Capex Analysis:						
Consolidated Capex	10,183.0	13,184.0	21,585.9	21,677.4	22,906.2	25,228.0
YoY Capex Growth	*2.7%*	*29.5%*	*63.7%*	*0.4%*	*5.7%*	*10.1%*
Capex as % of net revenues	13.9%	14.8%	19.9%	16.8%	15.5%	15.0%
Capex as % of operating cash flow	28.3%	35.5%	46.6%	38.3%	36.7%	35.9%
Free Cash Flow Reconciliation						
Cash flow from operations	36,036.0	37,091.0	46,283.7	56,579.2	62,341.9	70,192.7
Capex	(10,183.0)	(13,184.0)	(21,585.9)	(21,677.4)	(22,906.2)	(25,228.0)
Excess tax benefits from stock-based award activity	-	-	-	-	-	-
Free Cash Flow	**25,853.0**	**23,907.0**	**24,697.8**	**34,901.9**	**39,435.7**	**44,964.7**
% YoY change	*62.1%*	*-7.5%*	*3.3%*	*41.3%*	*13.0%*	*14.0%*
Free Cash Flow per share	$37.00	$34.25	$34.90	$48.70	$54.22	$60.76

Source: Company data, Evercore ISI Research

VALUATION METHODOLOGY

In order to arrive at our $1,300 target price, we apply a 26x multiple to our 2019E GAAP EPS forecast of $50, justified in our view given Alphabet's market leadership, our view that growth should remain robust over the coming years, and in light of its longer term historical trading averages.

RISKS

Downside risks to our target price include:

1. A larger-than-expected slowdown in mobile search would challenge our growth forecasts.

2. The regulatory environment could limit growth, particularly in Europe.

3. Investments in Other Bet initiatives may not deliver meaningful returns.

COMPANIES UNDER COVERAGE BY AUTHOR

Symbol	Company	Rating	Price (2018-07-09)	Evercore ISI Target
AMZN	Amazon.com, Inc.	Outperform	$1739.02	$1900.00
ANGI	ANGI Homeservices Inc	In Line	$16.44	$13.00
EBAY	eBay Inc.	In Line	37.91	$43.00
FB	Facebook Inc.	Outperform	204.74	$215.00
GOOGL	Alphabet, Inc.	Outperform	1167.28	$1300.00
IAC	IAC/InterActiveCorp.	Outperform	$155.37	$172.00
MTCH	Match Group, Inc.	In Line	$39.82	$38.00
NFLX	Netflix, Inc.	In Line	418.97	$320.00
P	Pandora Media, Inc.	In Line	7.99	$7.00
SNAP	Snap, Inc.	Underperform	$13.65	$9.00
SPOT	Spotify Technology S.A	Outperform	$177.44	$190.00
TWTR	Twitter, Inc.	In Line	44.14	$42.00
YELP	Yelp, Inc.	In Line	$40.00	$46.00

TIMESTAMP

(Article 3(1)e and Article 7 of MAR)

Time of dissemination: July 10, 2018, 17:37 ET.

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Buy - Return 10% to 20%
Neutral - Return 0% to 10%
Cautious - Return -10% to 0%
Sell - Return < -10%

For disclosure purposes, ISI Group and ISI UK ratings were viewed as follows: Strong Buy and Buy equate to Buy, Neutral equates to Hold, and Cautious and Sell equate to Sell.

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Suspended – the company rating, target price and earnings estimates have been temporarily suspended.

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Stocks included in the model portfolio will be weighted from 0 to 100% for Long and 0 to -100% for Short. A stock's weight in the portfolio reflects the analyst's degree of conviction in the stock's rating relative to other stocks in the portfolio. The model portfolio may also include a cash component. At any given time the aggregate weight of the stocks included in the portfolio and the cash component must equal 100%.

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Coverage Universe

Ratings	Count	Pct.
Buy	367	54%
Hold	264	38%
Sell	34	5%
Coverage Suspended	17	2%
Rating Suspended	4	1%

Investment Banking Services / Past 12 Months

Rating	Count	Pct.
Buy	83	23%
Hold	24	9%
Sell	1	3%
Coverage Suspended	6	35%
Rating Suspended	0	0%

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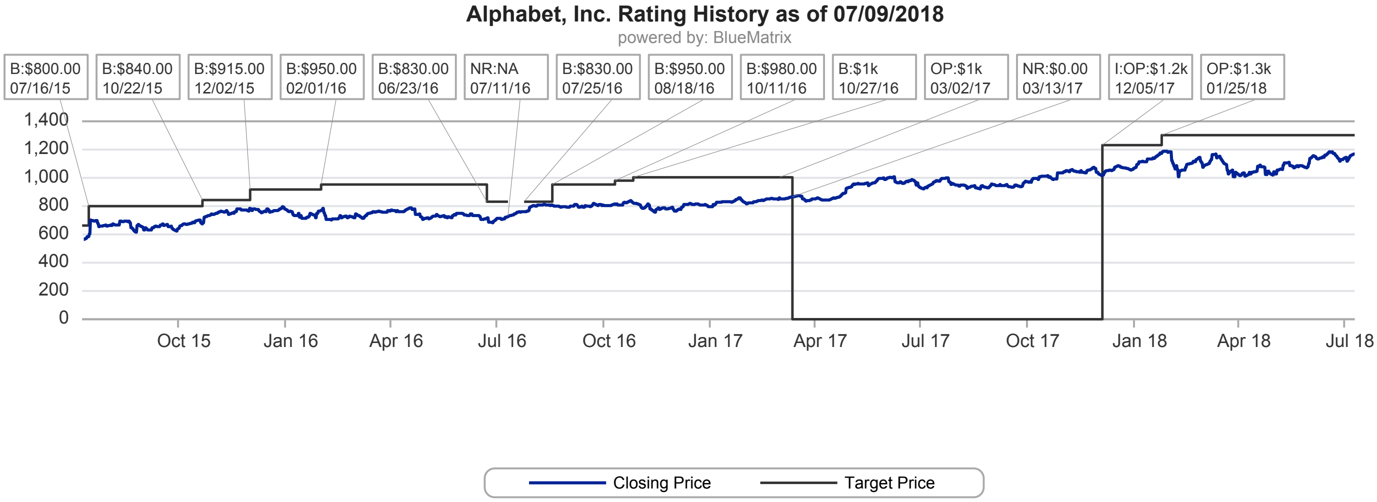
Price Charts



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July 10, 2018

Sector: Internet

Alphabet Inc.

Imagine 2025: Waymo Value Here

Our view: We believe the commercialization of Waymo by year-end in Phoenix could be a catalyst in the near-/medium-term, leading to a potential rerating in GOOGL's multiple. Our two LT monetization scenarios for Waymo, developed with RBC's Auto Analyst Joe Spak, generate potential EVs of $119B-$180B. We see an upside scenario of $1,500.

Key points:

Imagine 2025: While the robo-taxi TAM opportunity will likely be nascent in 2025, we believe that it will grow exponentially thru 2050, requiring OEMs & suppliers to invest today to capitalize on this trend. We forecast a ~$3.8 trillion TAM in 2050 (in today's dollars). Please see Imagine 2025.

RBC Auto Tech Conference: At the recent RBC Auto Tech Conference, multiple industry participants (Innoviz, Leddartech, etc.) referenced Waymo as way ahead of the competition in autonomous.

Scenario 1 – Transportation Network Company: While Waymo's long-term monetization model(s) remain unclear, we believe there are two ways investors should think about it. Under the first scenario, we believe Waymo will buy vehicles from OEMs and outfit the custom vehicles with its autonomous driving technology and become its own Transportation Network Company ("TNC"). By 2030, we forecast that a potential ~1.5MM Waymo vehicles could account for 1.5% of total new vehicles on the road in the world. The key financial points are that we believe that Waymo will be able to generate $1.9B in annual revenue with an annual Operating Loss of $1.0B by 2022 and $65B in annual revenue with an annual Operating Profit of $20B by 2030. We estimate Waymo achieving Op Income break-even in 2025. For this scenario, we built a DCF and assign an exit multiple of 12x EBITDA and derive an EV of $119B. While capital intensive, we believe this model could become self-financing (i.e. +FCF) by 2029.

Scenario 2 – Licensing a Self-Driving OS (SDOS) to OEMs: Under this scenario, we assume Waymo will license its self-driving operating system (SDOS) to OEMs in the form of a recurring, yearly software subscription. In this scenario, we forecast that Waymo will grow penetration from 25% to 34% of the new autonomous vehicle market over ~10 years, assuming other OEMs and Tech companies take the remaining market share. The key financial points are that we believe that Waymo will be able to generate $736MM in annual revenue with an annual Operating Profit of $250MM by 2022 under this scenario and $53B in annual revenue with an annual Operating Profit of $35B by 2030. For this scenario, we built a DCF and assign an exit multiple of 15x EBITDA and derive an Enterprise Value of $180B. Given that this model is less capital intensive and higher margin, we assume this would be GOOGL's preferred monetization strategy.

Outperform

NASDAQ: GOOGL; USD 1,167.28

Price Target USD 1,285.00

WHAT'S INSIDE	
☐ Rating/Risk Change	☐ Price Target Change
☐ In-Depth Report	☐ Est. Change
☐ Preview	☑ News Analysis

Scenario Analysis*

Downside Scenario	Current Price	Price Target	Upside Scenario
1,000.00	1,167.28	1,285.00	1,500.00
↓ 14%		↑ 10%	↑ 29%

*Implied Total Returns

Key Statistics

Shares O/S (MM):	705.0	Market Cap (MM):	822,932
Dividend:	0.00	Yield:	0.0%
		Avg. Daily Volume:	1,801,217

RBC Estimates

FY Dec	2017A	2018E	2019E	2020E
Revenue	89.2	110.0	132.4	156.7
EBITDA	43,476.0	52,625.0	61,760.0	71,673.0
EPS, Ops Diluted	26.83	58.27	63.23	73.27
P/E	43.5x	20.0x	18.5x	15.9x

Revenue	**Q1**	**Q2**	**Q3**	**Q4**
2017	20.1A	20.9A	22.3A	25.9A
2018	24.9A	25.8E	27.4E	31.9E
EBITDA				
2017	10,080.0A	10,496.0A	11,363.0A	11,537.0A
2018	11,444.0A	12,862.0E	14,156.0E	14,162.0E

All values in USD unless otherwise noted.

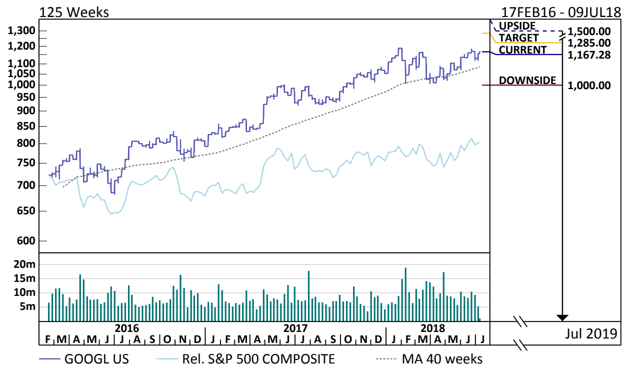
Disseminated: Jul 10, 2018 02:10ET; Produced: Jul 10, 2018 02:10ET

Priced as of prior trading day's market close, EST (unless otherwise noted).

For Required Conflicts Disclosures, see Page 29

Target/Upside/Downside Scenarios

Exhibit 1: Alphabet Inc.



Source: Bloomberg and RBC Capital Markets estimates for Upside/Downside/Target

Target price/base case

Our $1,285 PT and 2019 valuation framework is based on a blended average of EV/ Adj. EBITDA and GAAP P/E. We arrive at $1,285 by applying a 13x Target Multiple on 2019E EBITDA of $61.8B and 25x Target Multiple on 2019E GAAP EPS of $50.81. Our price target is also supported by an SOP analysis.

Upside scenario

In our upside scenario, we think the commercial launch of Waymo in Phoenix at the end of the year serves as a catalyst for the stock in the near-/medium-term, leading to a potential rerating in GOOGL's multiple. In this scenario, we apply higher P/E (30x vs. 25x) and EV/EBITDA (15x vs. 13x) multiples to our earnings to arrive at our $1,500 upside scenario.

Downside scenario

In our downside scenario, Alphabet struggles with the transition to mobile, seeing CPCs decline further without a commensurate increase in Paid Clicks. TAC also increases steadily as Google relies more on Partner sites/apps to gain traffic. We apply a lower P/E multiple to arrive at our $1,000 downside scenario.

Investment summary

Our Outperform rating on Alphabet is based on several key factors:

1) Still Significant Secular Growth for Internet Advertising: We estimate that Global Internet Ad spend was approximately $200B in 2017 and Global Net Ad spend will grow mid-teens. That still makes the Internet a sub-40% Media channel in terms of Ad Spend on a global basis, and with incremental Mobile Internet usage surging and TV Ad Budgets likely beginning to tip online, we see still significant secular growth ahead.

2) Very Strong Market Share in Its Core Search Business: Google has long been the major leader in Search Advertising, accounting for 70%+ of Global Search Ad Revenue. At the margin, its market share has continued to increase, with its very strong position in Mobile and its ongoing innovation likely to continue to expand that share incrementally for the foreseeable future.

3) Leading and Growing Market Share in Other Internet Advertising Segments: We estimate that Google is one of the largest Display Advertising companies on the Net. And we estimate that Google's key YouTube asset generated ~$10B in Revenue in 2016, positioning Google extremely well for the strong growth in Video Advertising.

4) Significant Competitive Moats: We believe that through scale, aggressive product innovation, and very substantial investments in Capex ($42B over the past five years) and R&D ($33B over the past five years), Alphabet has established unusually deep competitive moats around its business.

5) An Excellent Track Record of Innovation and Acquisition: While GOOGL management has been perceived as opaque and non-Street-friendly (though this may be changing), the company has positioned itself well, through organic investments and acquisitions, for most of the major trends in Consumer Internet: Mobile, Video, Local... We have used the term "Shut Up & Deliver Management" to describe (in a positive way, really) the management teams of AMZN and PCLN. The label works with GOOGL as well.

Risks Include: 1) Regulatory Concerns; 2) Competitive Risk; 3) Mobile Monetization; and 4) European Macro Exposure.

Table of Contents

Waymo Value Here 4

What we know about Waymo to date 5
Industry Relationships 6
Waymo's Phoenix Early Rider Program 7
How many autonomous vehicles does Waymo have? 8
How many miles has Waymo driven autonomously? 9

Insights from RBC's Auto Tech Conference 11
Dawn of robo-taxi era 11
Business models still evolving 11
LiDAR a must 11
Electrification inflecting 12
Scale is critical and achieving it is harder than it looks 12

Insights from Imagine 2025 13
Artificial Intelligence and Automotive 13
Why robo-taxis before an autonomous vehicle in your garage 15
Tangential industries could benefit too 16

Monetization Scenarios – So How Much Money Could Waymo Make? 17
Scenario 1 – Transportation Network Company 17
Scenario 2 – Licensing a Self-Driving OS (SDOS) to OEMs 19

Valuation Scenarios – So How Much Could Waymo Be Worth? 21
Scenario 1 – Transportation Network Company 21
Scenario 2 – Licensing a Self-Driving OS (SDOS) to OEMs 24

Waymo Value Here

We believe the commercialization of Waymo by year-end in Phoenix could be a catalyst for GOOGL shares in the near-/medium-term, leading to a potential rerating in GOOGL's multiple. At the recent RBC Auto Tech Conference, multiple industry participants (Innoviz, Leddartech, Perceptive Automata, Lumileds) referenced Waymo as way ahead of the competition in autonomous, due to its AI competencies, its technology platform, and the database and learnings it has developed through 7MM miles of autonomous driving. And on a relative basis, while the robo-taxi TAM opportunity will likely be nascent in 2025, we believe that it will grow exponentially through 2050, requiring OEMs and suppliers to invest today to be able to capitalize on the trend. We forecast a ~$3.8 trillion TAM in 2050 (in today's dollars) in our Imagine 2025 report.

With 82K vehicles ordered through Jaguar and Chrysler in the last few months, one of GOOGL's decade-long "Other Bets" appears to be approaching monetization… and quickly. In this report, we summarize key details of Waymo's traction to date, the leading takeaways from RBC's May Auto Tech Conference in Silicon Valley, key points from our very recent Imagine 2025 report on AI and the Automotive sector, and our potential Waymo Monetization and Valuation Scenarios.

What we know about Waymo to date

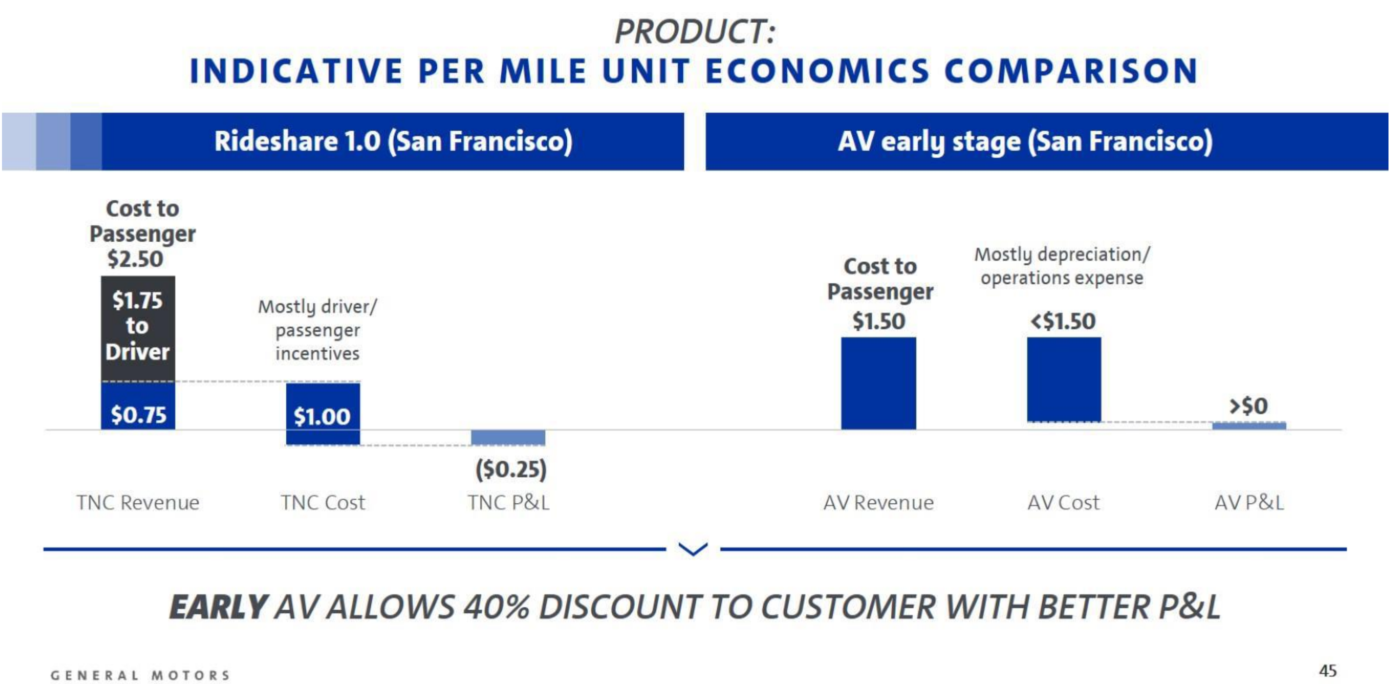
What is Waymo? How does it work? What is it like to ride in a Waymo? The company provides a three-minute video to help answer these questions on its website (www.waymo.com).

Exhibit 2: Waymo 360° Experience: A Fully Self-Driving Journey

Source: Waymo, YouTube, February 28th, 2018

Though we do not have the consumer cost per ride for Waymo in its current test phase in Phoenix, we have some industry estimates from GM's November 2018 Investor Day. The current ride sharing economics are likely close to $2.50 per mile, with the majority of the cost going to the driver (these numbers are based in San Francisco, which we consider a more mature ride sharing city). Meanwhile, early stage AV currently costs $1.50 per mile in San Francisco, according to numbers released by GM.

Exhibit 3: Current Unit Economics



Source: GM 2018 Investor Day, Company Documents

Industry Relationships

Waymo has several key industry relationships across the Auto Industry, spanning OEMs, Ride Sharing Networks, Suppliers, and Car Rental Networks. Below, we note several key relationships that have been publicly disclosed. The majority of these relationships have been disclosed as partnerships, with few details provided. We do not believe any partner is currently paying Waymo a license fee for its technology.

Exhibit 4: Industry Relationships

Company	Type	Relationship
Fiat Chrysler	OEM	Partnership
Honda	OEM	Partnership
Hyundai	OEM	Partnership
Intel	Semiconductors	Partnership
Avis	Rentals	Partnership
Jaguar Land Rover	OEM	Partnership
Lyft	Ride Sharing	Partnership

Source: Company reports

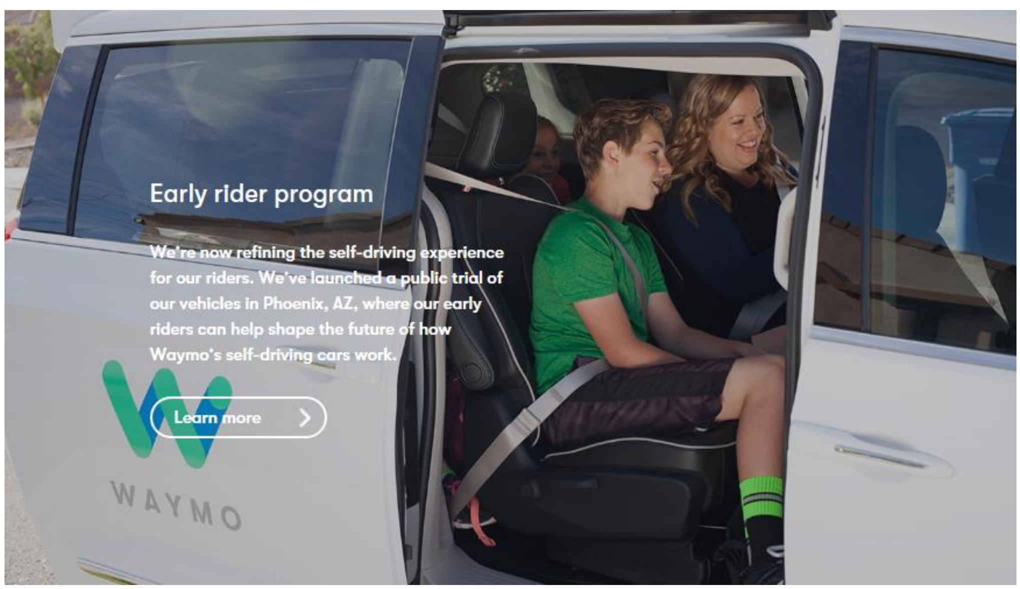
Waymo’s Phoenix Early Rider Program

The partnership with Fiat Chrysler may come first to mind as Chrysler’s Pacificas have been the first Waymo cars driven around in public on a larger scale. There are hundreds of these vehicles currently being tested in Phoenix, Arizona, as part of Waymo’s Early Rider program.

Exhibit 5: Chrysler Pacifica tested by Waymo

Source: USA Today

Exhibit 6: Waymo Early Rider Moments: “Doing What It’s Supposed To”



Source: Waymo

Mark S.F. Mahaney, (415) 633-8608; mark.mahaney@rbccm.com

How many autonomous vehicles does Waymo have?

In late March 2018, Waymo announced a partnership with Jaguar Land Rover to build up to 20,000 self-driving electric SUVs. The first prototype Jaguar I-Pace will hit the road for public testing at the end of 2018, and is targeted to become part of Waymo's commercial ride-hailing service in 2020.

Exhibit 7: Jaguar I-Pace Prototype

Source: Medium

And in April, Waymo CEO John Krafcik hinted at a partnership with Honda, with a new autonomous car likely to be built from the ground up with the help of Waymo, rather than Waymo modifying existing cars on the market with its self-driving sensors and technology.

In addition to the OEMs, Waymo announced a partnership with Lyft in May 2017 to collaborate on self-driving cars, though little has been publicly disclosed about the partnership. We believe that Waymo may see Lyft's network as a future TNC for fleets of robo-taxis. And with Waymo's partnership with Avis, Avis started a service arrangement in Phoenix for its autonomous test program in mid-2017.

While it is tough to estimate the number of cars Waymo is equipped with currently on the road, we believe that number is in the several hundreds to low thousands, up from only a couple hundreds less than 3 years ago. Perhaps more importantly, Waymo has struck a few deals this year to drastically increase supply in the coming years. In addition to the 20,000 Jaguar I-Pace deal, Waymo struck a deal with Fiat Chrysler to buy as many as 62,000 minivans. This was announced just recently on May 31, 2018. This follows the public announcement earlier this year in which Waymo said it planned to acquire thousands of minivans --- though no exact amount was initially given.

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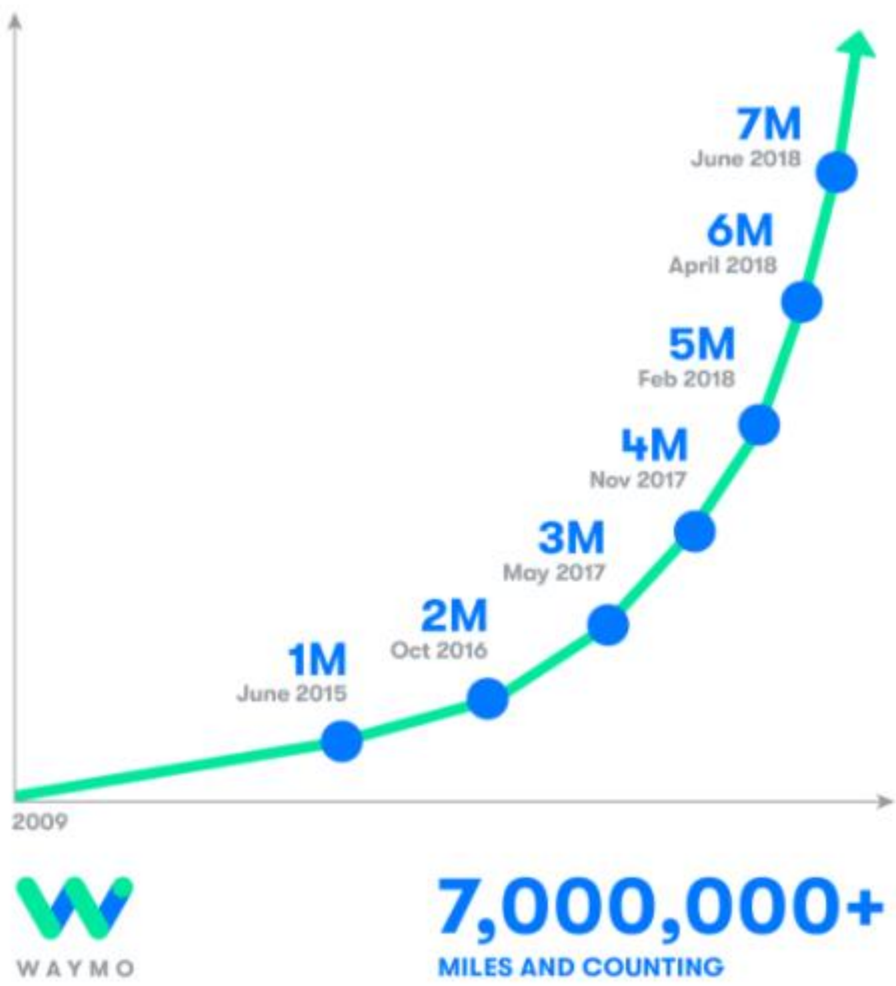
How many miles has Waymo driven autonomously?

Waymo has amassed over 7MM self-driven, autonomous miles. It drives more than 25,000 autonomous miles each week, largely in urban areas. Waymo's software also completed 2.7B simulated miles in 2017 alone. What's notable to us is that the frequency of 1M mile updates have increased, implying an accelerated growth rate, as seen in the chart below.

Exhibit 8: Self-driven miles by Waymo



Source: Waymo

Mark S.F. Mahaney, (415) 633-8608; mark.mahaney@rbccm.com

Exhibit 9: Map of Waymo self-driving tests in the U.S.

Source: Waymo

At the Google I/O conference this May, Waymo CEO John Krafcik went through recent updates at Waymo. He mentioned that Phoenix, AZ, will be the first stop for driverless transportation, which is launching later this year and will enable anyone to call Waymo using their app. CEO Krafcik also spoke about partnering with ride-hailing companies and logistics partners over time to help build better autonomous drivers while making their self-driving technology more broadly available.

The *So What?* We believe the commercialization of Waymo by year-end in Phoenix could be a catalyst for GOOGL shares in the near-/medium-term, with a potential rerating in GOOGL's multiple. We say this because we see several potential material monetization and valuation scenarios for Waymo, which we detail later.

Insights from RBC's Auto Tech Conference

On Thursday, May 31st, the inaugural RBC Auto Tech Conference pulled together various participants across multiple industries to get a sense of how four key secular themes are evolving: connected, autonomous, shared and electrification. The big picture takeaway is that these themes are all very real and quickly moving from the development phase to the production realm, but with that comes a new set of challenges. Autonomous hype was strong (and perhaps re-invigorated by Softbank's investment in GM Cruise and Waymo buying up to 62k FCA Pacificas). Participants indicated the pace of electrification is accelerating. Meanwhile, connectivity of vehicles and infrastructure makes that data explode and opens up whole new services, features and monetization opportunities.

Notably, participants on the Sensor Suite & Sensor Fusion Panel, which included executives from Innoviz Technology, Leddartech Holdings, Perceptive Automata and Lumileds Holdings, unanimously agreed that Waymo is "way ahead" of anyone else and their AI team is the world's best, while their deep pockets allow them to invest heavily in future technology. Further, their millions of self-driven miles provide them with a substantial head start from the rest of the competition. Full takeaways can be found here, but some overarching themes from the conference included:

Dawn of robo-taxi era

Will there ever be "owned" Level 4/5 cars? The general consensus was "robo-taxis" will be here in ~2 years and only scale from there. There was some debate over whether owned Level 4/5 will ever happen and if that is even a good thing if it does. Meaning the shared autonomous model could become so prevalent and economical that it will never make sense to own a Level 4/5 car. Also clear, pretty much everyone hates the SAE levels of automation definitions.

Business models still evolving

Enthusiasm for robo-taxis and Transportation as a Service (TaaS) was emphatic. Many believe revenue/trip will be the new go-to-metric for mobility, which if true, means being multi-modal could be important. Consumer interface and differentiating service even more so. Ford highlighted a number of interesting mobility and services efforts. Still, there was no clarity from anyone on how the exact business model will evolve: transaction based, subscription, advertising or other. We continue to highlight APTV as very well positioned as they have seeds planted in a number of different business models from selling product or whole systems, to TaaS, to capitalizing off data from their connected services offerings.

LiDAR a must

Every participant that plays in and around the autonomous driving space save Tesla believes LiDAR is a critical sensor for L4/L5 autonomous vehicles. The form and type of LiDAR technology was up for debate, but there could be different LiDAR technologies for different purposes/use cases. Sounds like we should also be on the lookout for increased use of LiDAR for ADAS around the end of decade. While the current industry cost for LiDAR can be up to ~$70k per vehicle, Waymo CEO John Krafcik said Waymo had slashed the price of LiDAR by 90% in his keynote address kicking off the Detroit Auto Show on Sunday, January 7th.

Electrification inflecting

Sentiment is that low hanging fruit of improving ICE engines via technology or lower levels of electrification is picked off and OEM plans are quickly moving to more complex electrification architectures (PHEV/BEV).

Scale is critical and achieving it is harder than it looks

This goes for: 1) Making vehicles. Witness Tesla, though the company maintains they are on track to achieve 5k/week Model 3 pace around end of quarter. Start-up Byton also talked about the importance of some of their partners in order to scale quickly. We also believe this theme is at least in part behind Softbank's investment in GM Cruise given their integrated approach and manufacturing know-how. 2) Making components. On power electronics (DLPH and BWA) and motors (BWA) scale will help with profitability while on LiDAR (Velodyne, Innoviz, Leddertech) scale gets the sensor cost more affordable. Automotive grade, and the difficulty in achieving it, was also a recurring theme among suppliers. BWA and DLPH view it as a competitive advantage that keeps new entrants at bay while the LiDAR players are striving to get the product performance and robustness to that level for use on production vehicles. Meanwhile, the security (BB) required for all this to occur is also critical and perhaps generally underappreciated by investors.

Insights from Imagine 2025

Artificial Intelligence and Automotive

The automotive industry is experiencing four major disruptive trends: connectivity, autonomous driving, shared mobility and electrification (CASE). Artificial Intelligence (AI) is likely to be a key enabler for all four of those factors. For instance, AI in connectivity can create a better user experience and new potential revenue streams by predicting that the driver wants to stop at Starbucks on the way to work (and routing them there), or improving maintenance scheduling. In shared mobility, AI can help with better predictive routes improving arrival times, utilization and pooling. In electrification, AI can help with manufacturing operations and cost reduction. However, the most obvious, and likely most disruptive use case of AI in automotive is to solve autonomous driving.

With autonomous driving, safety is improved and mobility enabled for those that may otherwise not have had access to it. But the true power to transform the landscape and the economic opportunity is the convergence of autonomous vehicles with another mega, macro trend – a culture of shared. As has been documented in many aspects of society from music to housing, young adults and urban populations have begun to shun ownership, especially when it relates to an asset with a high capital cost. The combination of sharing and autonomous vehicles gives rise to shared autonomous vehicles (SAVs) or robo-taxis and the emergence of a new modality of transportation.

The benefit to society is multi-fold. First is safety. In the U.S., there are about ~40k road fatalities per year and >2 million injuries. Global fatalities are closer to 1.2 million. Experts believe that nearly 95% of those accidents are caused by human error. So if AI can improve versus human driving, lives are saved. Secondly, time – arguably the most valuable asset – is freed up. Productivity (or Netflix watching) can increase. Travel times and city congestion can be brought down. Which leads into a third benefit – a potential re-shaping of the landscape. Estimates show that roughly a third of all urban and suburban landscape is for the vehicle. With robo-taxis, square footage set aside for parking spots and garages can now be freed up.

From a business perspective, the model can shift from one of vehicle ownership to one of pay-per-mile – transportation as a service (TaaS). This has many implications for existing automakers and suppliers, as well as many technology companies and other potential new entrants. The economic profit opportunity for those that capitalize can be great. The ramifications are far reaching, impacting municipalities (who can rethink urban planning and potentially lessen the need for public transportation), but also the fields of insurance, law, medicine, energy, and media. Further, new "meta" data is created that can be monetized. Similar to how the smartphone created a whole new eco-system of business, so too can the autonomous vehicle.

We've been on the autonomous path for a while, but AI causes an inflection

In many respects, operation of a motor vehicle has been automated for a while (think power steering or cruise control). And the world is now in an era when advance driver assistance systems (ADAS or active safety) that offer features such as automatic emergency breaking and lane-keep assist are increasing in penetration. But we think of *autonomous driving* more in terms of the SAE definitions of Level 4 (autonomous given environments) and Level 5 (autonomous all the time). It is higher compute power and the development of AI through more robust machine learning and deep learning neural networks that enable these higher levels of autonomy. That being said, there are already enough signals that we expect the technology to advance to make robo-taxis a reality over the next 5 to 10 years.

Exhibit 10: SAE Levels of Autonomy

Level	Name	Narrative definition	DDT: Sustained lateral and longitudinal vehicle motion control	DDT: OEDR	DDT fallback	ODD
Driver performs part or all of the *DDT*						
0	No Driving Automation	The performance by the *driver* of the entire *DDT*, even when enhanced by *active safety systems*.	*Driver*	*Driver*	*Driver*	n/a
1	Driver Assistance	The *sustained* and ODD-specific execution by a *driving automation system* of either the *lateral* or the *longitudinal vehicle motion control* subtask of the DDT (but not both simultaneously) with the expectation that the *driver* performs the remainder of the *DDT*.	*Driver* and *System*	*Driver*	*Driver*	Limited
2	Partial Driving Automation	The *sustained* and ODD-specific execution by a *driving automation system* of both the *lateral* and *longitudinal vehicle motion control* subtasks of the *DDT* with the expectation that the *driver* completes the *OEDR* subtask and *supervises* the *driving automation system*.	***System***	*Driver*	*Driver*	Limited
ADS ("*System*") performs the entire *DDT* (while engaged)						
3	Conditional Driving Automation	The *sustained* and ODD-specific performance by an *ADS* of the entire DDT with the expectation that the *DDT fallback-ready user* is *receptive* to *ADS*-issued *requests to intervene*, as well as to *DDT performance-relevant system failures* in other vehicle systems, and will respond appropriately.	*System*	***System***	*Fallback-ready user (becomes the driver during fallback)*	Limited
4	High Driving Automation	The *sustained* and ODD-specific performance by an *ADS* of the entire *DDT* and *DDT fallback* without any expectation that a *user* will respond to a *request to intervene*.	*System*	*System*	***System***	Limited
5	Full Driving Automation	The *sustained* and unconditional (i.e., not ODD-specific) performance by an *ADS* of the entire *DDT* and *DDT fallback* without any expectation that a *user* will respond to a *request to intervene*.	*System*	*System*	*System*	**Unlimited**

Source: SAE International J3016

How is AI used for autonomous

Autonomous driving is one of the most high-profile use cases for narrow AI – that is a specific use case, in this instance replacing a human driver. While general AI may be simpler than general AI or super-human AI, it is by no means simple. Autonomous driving will rely on machine learning algorithms and deep neural networks (deep learning) to take all the sensor inputs (cameras, lidar, radar, maps, and other sensors) to drive, make decisions and understand location/perception.

The more miles the AI takes in, the more it learns. Thus, miles = knowledge. These miles come in two forms: on-road and simulated miles. On-road miles are just as they sound – done on the road. All parties testing autonomous vehicles have some sort of on-road testing. The challenge with only using on-road testing is that the amount of miles that can be achieved is limited by fleet size. Waymo reported that as of June 2018, they had driven ~7mm autonomous miles on-road since 2009. The pace has been exponential.

The other form of miles is simulated miles. These are done using more AI that allow for the learning algorithms to be tested in different environments. In 2017, Waymo claimed they drove 2.7 billion miles simulated miles (and 5 billion miles cumulatively since inception). The

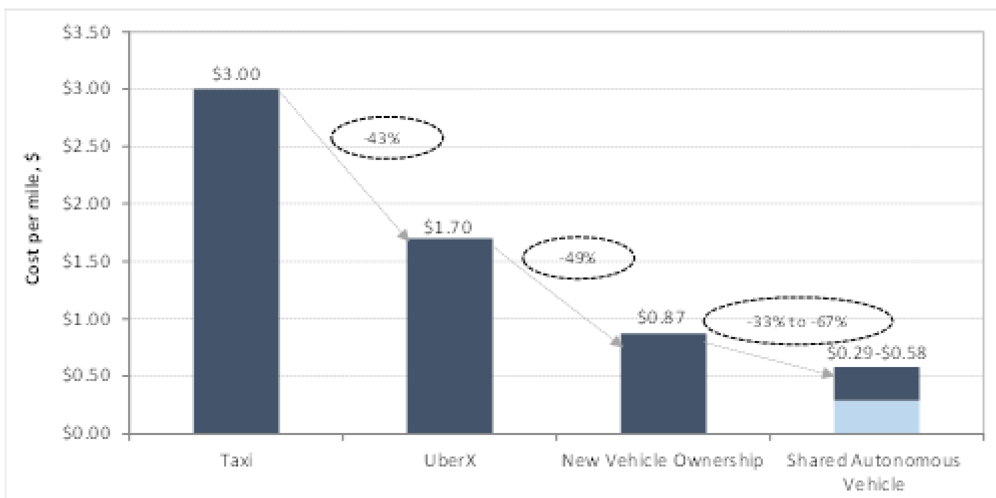
2.7 billion miles in 2017 alone is equivalent to >3,400x what a human driver will do in their lifetime.

Why robo-taxis before an autonomous vehicle in your garage

Because of two main factors, cost and technological progress, autonomous vehicles will first be deployed in a ride-share business model. For our *futurist* vision, we will assume the technology progresses and gets there. But the economic reality of shared fleets makes robo-taxis economically attractive. A personally owned vehicle may put on 12-15k miles/year and is utilized about 4% of the time. However, in a fleet environment utilization can be much higher and vehicles could put on 70-100k miles per year (current networks like NYC taxis, Uber and Lyft support this). This allows for a much greater defraying of costs – even if an autonomous vehicle were to cost more.

When we surveyed average taxi rates across over 360 urban U.S. areas, we found the average taxi cost per mile to be about $3. When we looked at UberX rates in U.S. cities they operate in, we found the cost per mile to be closer to $1.70. Across the U.S., the average cost to own a vehicle comes to about $0.87 (though clearly more in urban areas where parking costs more money and miles driven generally lower). Our work suggests that a shared autonomous vehicle could bring the cost per mile to the consumer down to near $0.50/mile. That amount could be cut in half in a "pooled" ride.

Exhibit 11: Cost per mile economics for various mobility solutions



Note: Taxi and UberX analysis assumes an average trip distance of 10 miles traveled. New vehicle ownership analysis assumes 15,000 miles traveled annually. Shared autonomous analysis assumes 70,000 miles traveled annually.

Source: Uber, Taxi Fare Finder, ALG, RBC Capital Markets estimates

The mobility market up for grabs could be meaningful

While the robo-taxi TAM opportunity will likely be nascent in 2025, we believe that it will grow exponentially through 2050, requiring OEMs and suppliers to invest today to be able to capitalize on the trend. Today, the global average miles driven per year is ~7,500 (in the US it is closer to 12,000 miles/year). On average, we assume that "owned" vehicles will drive ~7,000/year, a lower amount (and decreasing over time) presuming that even those who own vehicles will at times use autonomous vehicles on demand. For autonomous vehicles on demand, globally, we assumed they will put on 75,000 miles/year or a 10x improvement in the annual utilization of the asset. This results in about ~40% of total miles driven in 2050 being driven by autonomous vehicles on demand or ~7.7 trillion miles. If the operators of these robo-taxis were able to collect $0.50/mile, that is a ~$3.8 trillion TAM in 2050 (in today's dollars). Note there were ~94 million vehicles sold globally in 2017 which if we assume an average transaction price of $22,500 yields a $2.1 trillion market for selling vehicles.

To the automotive industry, as autonomous vehicles begin to spread the amount of vehicles needed in the vehicle parc could begin to decline. However, annual demand may not decline as much since replacement cycles could hasten (we see a potential ~27% scrap rate for robo-taxis vs. global average of ~4.7%). Further, industry cyclicality could be reduced as miles vary less than units with the economic cycles, and we would argue that miles driven could increase as mobility will become more affordable and more available to those that didn't have access prior like the elderly, the youth and the disabled. Therefore, the return profile of an SAV could be improved. GM has indicated they believe ~20-30% margins are possible for SAVs which is far superior to any auto operating margins in today's world.

Tangential industries could benefit too

There are of course other industries that would be impacted. Insurance premiums may fall but the companies are likely to also experience lower claims. And because of all the data coming off the vehicle, they can use AI to better write or dynamically adjust rates. Autonomous vehicles could represent a growing opportunity for entertainment and advertising as well as the telecom industry. The beverage industry may see growth as impaired driving becomes less of a concern – hard to say this is a positive, but it may simply be reality.

Monetization Scenarios – So How Much Money Could Waymo Make?

Working with RBC Capital Markets' Auto Analyst Joe Spak, we see two primary monetization scenarios for Waymo. Under the first scenario, Waymo would buy vehicles from OEMs (e.g. Fiat Chrysler, Jaguar Land Rover, etc.), and outfit the custom vehicles with its autonomous technology (LiDAR, Radar, Vision System, Cameras, Sensors, Software, etc.) and become its own Transportation Network Company ("TNC"). This is the current model that Waymo appears to be testing in Phoenix and plans to commercialize by the end of this year.

Scenario 1 – Transportation Network Company

Under this scenario, we forecast three separate phases of growth and monetization through 2030. The key financial points are that we believe that Waymo will be able to generate $1.9B in annual revenue with an annual Operating Loss of $1.0B by 2022 and $65B in annual revenue with an annual Operating Profit of $20B by 2030. We estimate Waymo achieving Operating Income break-even in 2025.

In the first, "Test Phase", we estimate Waymo starts with 500 vehicles in its 2018 fleet, with the average car driving ~35,000 miles per day by 2021. During this phase, we forecast only a few regions will be running commercial services through this Test Phase, with the bulk of vehicles testing new geographies. We forecast a 200% CAGR in Waymo Vehicles to 13,500 in 2021, and a 30% CAGR in utilization efficiency to ~35,400 Miles per Vehicle through 2021. We also forecast a $1.50 in Revenue per Mile in 2019 decreases to $1.33 in 2021. We derive the $1.50 per mile from early stage revenue estimates disclosed by GM Cruise for the SF region. We believe this is comparable as a proxy for our Waymo estimates. As Waymo uses the next 3-4 years to test out the commercialization in various geographies for their TNC, we believe they will also use this period to gain trust with consumers and other parties. Assuming the Waymo safety features live up to their promise, we believe this will eventually materialize. Why? Well… do you remember the first time you tried a ride-sharing app and let a stranger drive you? How have your feelings changed since then?

Exhibit 12: Waymo Monetization as a TNC

		Test Phase			Expansion Phase						Steady Growth		
	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Vehicles	**500**	**1,500**	**4,500**	**13,500**	**33,750**	**67,500**	**118,125**	**206,719**	**341,086**	**528,683**	**819,459**	**1,147,243**	**1,548,777**
Y/Y growth	--	*200%*	*200%*	*200%*	*150%*	*100%*	*75%*	*75%*	*65%*	*55%*	*55%*	*40%*	*35%*
Share of total L4-L5 Robo-taxi Fleet	--	*33%*	*25%*	*19%*	*13%*	*9%*	*6%*	*5%*	*5%*	*4%*	*5%*	*5%*	*6%*
Miles/Vehicle	**16,000**	**28,000**	**30,800**	**35,420**	**44,275**	**53,130**	**58,443**	**64,287**	**70,716**	**74,252**	**74,994**	**75,744**	**76,502**
Y/Y growth	--	*75%*	*10%*	*15%*	*25%*	*20%*	*10%*	*10%*	*10%*	*5%*	*1%*	*1%*	*1%*
Time Utilization (on 24-hour basis)	--	*11%*	*12%*	*13%*	*17%*	*20%*	*22%*	*24%*	*27%*	*28%*	*29%*	*29%*	*29%*
Share of global total vehicle miles driven	--	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.1%*	*0.2%*	*0.4%*	*0.6%*	*0.8%*
Revenue/Mile	--	**$1.50**	**$1.42**	**$1.33**	**$1.25**	**$1.17**	**$1.08**	**$1.00**	**$0.86**	**$0.77**	**$0.69**	**$0.63**	**$0.55**
Revenue ($ in millions)	--	**$63**	**$196**	**$638**	**$1,868**	**$4,184**	**$7,480**	**$13,289**	**$20,743**	**$30,227**	**$42,404**	**$54,745**	**$65,166**
Y/Y growth	--	--	*212%*	*225%*	*193%*	*124%*	*79%*	*78%*	*56%*	*46%*	*40%*	*29%*	*19%*
Vehicle CAGR		*200%*					*84%*					*43%*	
Miles/Vehicle CAGR		*30%*					*13%*					*1%*	

Source: RBC Capital Markets estimates

In the second, "Expansion Phase", we forecast Waymo will increase its commercial vehicles penetration on an 84% CAGR through 2027 to ~530,000 Vehicles. In this Expansion Phase, utilization will also increase at a 13% CAGR through 2027 to ~74,000 Miles per Vehicle, more than doubling from ~35,000 per vehicle. We forecast Revenue per Mile moving to $1.00 in 2025. The more than doubling in utilization and $1.00 per mile monetization rate by 2025 is similar to what GM Cruise laid out for its autonomous goals. Throughout the entire phase, we forecast $1.25 in Revenue per Mile in 2022 decreases to $0.77 in 2027, while the cost declines from $2.02 per Mile to $0.61 per Mile over the same time period.

Below, we break down the per mile unit economics for Waymo autonomous vehicles. We forecast break-even miles will start in 2025, as the cost per mile falls below $0.90 with revenue per mile of $1.00. Our assumptions include a useful life of 3 years per vehicle for depreciation, and a 5.5% interest rate per mile. We estimate the insurance cost to be 70% of the typical vehicle (of $1,150), maintenance costs to be 5x the typical vehicle (of $1,186), and other costs to be $665 per year. We also assume an electricity cost of $0.12/kWh, and 3.5 miles/kWh for the "cost to fill up." We are assuming Waymo will move from Hybrids to full electric vehicles. All in, while we are forecasting positive operating profit for Waymo in 2025, we are not forecasting a positive NPV per vehicle in this timeframe, as we forecast a reduction in revenue per passenger as Waymo competes with other Driverless TNCs (e.g. Cruise) and the ride-sharing industry.

Exhibit 13: Waymo Per Mile Economics

		Test Phase			Expansion Phase						Steady Growth		
Per Mile Economics	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**2030E**
Annual Depreciation		$1.59	$1.83	$1.61	$1.19	$0.90	$0.71	$0.55	$0.43	$0.35	$0.29	$0.23	$0.18
Interest Per Mile		$0.34	$0.42	$0.58	$0.46	$0.33	$0.23	$0.17	$0.13	$0.10	$0.08	$0.06	$0.05
Insurance, maintenance, other		$0.26	$0.24	$0.21	$0.17	$0.14	$0.13	$0.12	$0.10	$0.10	$0.10	$0.10	$0.10
Cost to fill up (electric)		$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03
Total Cost Per Mile		$2.23	$2.52	$2.43	$1.85	$1.41	$1.10	$0.87	$0.70	$0.59	$0.51	$0.43	$0.36
SG&A Investment ($MM)		$200	$100	$100	$100	$100	$100	$266	$482	$785	$1,229	$1,738	$2,370
SG&A Investment ($MM)/mile		$4.76	$0.72	$0.21	$0.07	$0.03	$0.01	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02
Revenue per Mile		$1.50	$1.42	$1.33	$1.25	$1.17	$1.08	$1.00	$0.86	$0.77	$0.69	$0.63	$0.55
Operating Income (Loss) per Mile		($5.49)	($1.83)	($1.31)	($0.66)	($0.27)	($0.03)	$0.11	$0.14	$0.16	$0.16	$0.18	$0.17
Absolute Operating Income (Loss)		**($231)**	**($253)**	**($626)**	**($992)**	**($955)**	**($235)**	**$1,488**	**$3,383**	**$6,248**	**$10,100**	**$15,805**	**$20,134**

Source: RBC Capital Markets estimates

In this Expansion Phase, we forecast Waymo will ramp up commercialization and utilization across its geographical footprint in the U.S. and in major cities internationally. During this Expansion Phase, we forecast Revenue can grow from less than $2B per year to ~$30B in 2027.

Exhibit 14: Waymo Utilization Rates

		Test Phase			Expansion Phase						Steady Growth		
	2018E	**2019E**	**2020E**	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**2030E**
Miles/Vehicle Traveled Annually	16,000	28,000	30,800	35,420	44,275	53,130	58,443	64,287	70,716	74,252	74,994	75,744	76,502
Hours in Operation (@30mph)	533	933	1,027	1,181	1,476	1,771	1,948	2,143	2,357	2,475	2,500	2,525	2,550
Utilization	**6%**	**11%**	**12%**	**13%**	**17%**	**20%**	**22%**	**24%**	**27%**	**28%**	**29%**	**29%**	**29%**

Source: RBC Capital Markets estimates

In the third, "Steady Growth" Phase, we forecast Waymo will increase its commercial vehicle penetration three fold in three years, to more than 1.5 million vehicles in 2030 which represents a 43% CAGR. In this phase, we forecast a near-peak utilization 1% CAGR to ~77k miles per vehicle per year, with Revenue per Mile declining to $0.55 by 2030, though Operating Income per Mile holding steady in the range of $0.16 - $0.18.

By 2030, we forecast that a potential ~1.5 million Waymo vehicles could account for 1.5% of the total new vehicles on the road in the world. As a gut check, we looked back to 1908 when the first production of the Model T was completed. Over the next 20 years through 1927, Ford built roughly ~15 million Model T's. With a full supply of traditional, non-autonomous vehicles already on the market, we note that our forecast of Waymo vehicles would only represent 10% of the Model T production over half the time period of 100 years earlier.

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Our 2030 estimates also imply Waymo takes 5.9% of the Robo-taxi Market Share. We also forecast that Waymo will make up 1.9% of total New Autonomous Vehicles on the road by 2030.

As another gut check, the ~103MM Robo-taxi miles we are forecasting for Waymo in 2030 would be 0.8% of Total Global Miles Driven. These assumptions assume that total Robo-taxi miles driven make up 14% of Total Global Miles Driven, according to estimates from the RBC Autos Team.

Exhibit 15: Waymo Market Share

	Test Phase				Expansion Phase						Steady Growth		
	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Waymo Vehicles Fleet (MM)		0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.5	0.8	1.1	1.5
Total L4-5 Robo-taxi VIO (MM)		0.0	0.0	0.1	0.3	0.8	1.9	4.1	7.5	11.8	16.6	21.4	26.3
Waymo Robo-taxi Vehicle Market Share		*33.3%*	*24.6%*	*18.8%*	*13.0%*	*8.8%*	*6.3%*	*5.0%*	*4.5%*	*4.5%*	*4.9%*	*5.4%*	*5.9%*
	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Waymo Robo-taxi Miles (MM)		33	88	298	941	2,466	5,178	9,967	18,489	31,522	50,301	74,114	102,615
Total Global Miles (MM)		10,542,995	10,360,215	10,604,584	10,860,611	11,132,341	11,450,110	11,506,742	12,434,926	13,071,858	12,618,099	12,959,283	13,221,863
Waymo Miles Market Share		*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.1%*	*0.2%*	*0.4%*	*0.6%*	*0.8%*
	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Beginning Fleet		500	1,500	4,500	13,500	33,750	67,500	118,125	206,719	341,086	528,683	819,459	1,147,243
New Vehicles Added		1,000	3,000	9,000	20,750	35,750	56,625	103,469	162,617	233,785	370,823	460,827	599,736
Scrap		-	-	-	(500)	(2,000)	(6,000)	(14,875)	(28,250)	(46,188)	(80,047)	(133,043)	(198,201)
Ending Fleet		1,500	4,500	13,500	33,750	67,500	118,125	206,719	341,086	528,683	819,459	1,147,243	1,548,777
Waymo Annual Share of New Autonomous Vehicles		*22%*	*22%*	*17%*	*11%*	*7%*	*5%*	*4%*	*2%*	*2%*	*2%*	*2%*	*2%*

Source: RBC Capital Markets estimates

Scenario 2 – Licensing a Self-Driving OS (SDOS) to OEMs

Under this scenario, we assume Waymo will license its self-driving operating system (SDOS) to OEMs in the form of a recurring, yearly software subscription to run Waymo OS. The key financial points are that we believe that Waymo will be able to generate $736MM in annual revenue with an annual Operating Profit of $250MM by 2022 under this scenario and $53B in annual revenue with an annual Operating Profit of $35B by 2030.

The RBC Autos Team estimates that L4-L5 Autonomous vehicle penetration will grow from ~1,000 currently to greater than 750k in 2023, ~4MM in 2025, and greater than ~25MM by 2030. We use these projections to forecast penetration for Waymo. Through 2024, we forecast that Waymo will equip up to 29% of new autonomous vehicles with Waymo OS. In 2025, we forecast continued growth for Waymo SDOS to reach new self-driving vehicle OS market share of 30%. As the cost per autonomous vehicle declines, we forecast that Waymo will be able to take 1/3 of total market share for new vehicles in the SDOS market.

In this scenario, we envision that a couple major OEMs will bring to market and commercialize competitors to Waymo (e.g. GM Cruise & Ford), while other or smaller OEMs who are less capitalized or behind in innovation will partner with Waymo.

Exhibit 16: Waymo SDOS Vehicle Penetration

($ in millions unless noted otherwise)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Total L4-L5 Vehicles - New per year	**--**	**4,499**	**13,773**	**53,370**	**190,512**	**512,612**	**1,155,643**	**2,358,031**	**3,745,215**	**5,132,399**	**6,519,582**	**7,906,766**	**9,293,950**
% of new vehicles with Waymo OS	--	*25%*	*25%*	*26%*	*27%*	*28%*	*29%*	*30%*	*30%*	*31%*	*31%*	*32%*	*34%*
Total L4-L5 Vehicles - VIO	**--**	**4,499**	**18,272**	**71,642**	**259,905**	**763,381**	**1,885,452**	**4,121,542**	**7,515,195**	**11,813,466**	**16,576,212**	**21,431,355**	**26,286,498**
New Waymo Vehicles	**--**	**1,125**	**3,443**	**13,876**	**51,438**	**143,531**	**335,136**	**707,409**	**1,123,564**	**1,591,044**	**2,021,071**	**2,530,165**	**3,159,943**
Y/Y Growth	--	--	*206%*	*303%*	*271%*	*179%*	*133%*	*111%*	*59%*	*42%*	*27%*	*25%*	*25%*
Total Waymo Vehicles	**--**	**1,125**	**4,568**	**18,444**	**69,320**	**210,567**	**537,044**	**1,211,796**	**2,237,876**	**3,589,586**	**5,089,383**	**6,704,062**	**8,506,701**
Y/Y Growth	--	--	*306%*	*304%*	*276%*	*204%*	*155%*	*126%*	*85%*	*60%*	*42%*	*32%*	*27%*
Cost/new vehicle ($in 000s)	$200	$200	$186	$173	$159	$145	$132	$118	$105	$91	$77	$64	$50
Waymo SDOS cost/new vehicle ($ in 000s)	--	$12	$12	$11	$10	$10	$9	$8	$8	$7	$7	$7	$6
% of total new vehicle cost	--	*6%*	*6%*	*6%*	*7%*	*7%*	*7%*	*7%*	*7%*	*8%*	*9%*	*10%*	*11%*

Source: RBC Capital Markets estimates

We believe Waymo's SDOS leadership is derived from a culmination of nearly 10 years of leading AI and Autonomous research and industry-leading driverless miles driven. To forecast the potential price of the Waymo OS, we looked at the PC industry in the 1990s – specifically what Microsoft Windows used to make up of the total cost of the PC. As the cost of hardware has come down, the Microsoft OS price has risen to about 10% of the total cost to produce a PC. We forecast a similar trajectory for Waymo OS through 2030.

In this scenario, we forecast that Waymo will grow penetration from 25% to 34% of the new autonomous vehicle market. We forecast that OEMs will renew their Waymo SDOS license subscriptions on a yearly basis throughout the life of the vehicle and assume a useful life per autonomous vehicle of 3.5 years. We note that we do not model non-renewals in this scenario in this first iteration of a potential valuation, but we may revisit this over time.

Under this scenario, we note that the potential for a recurring revenue stream in the distant future appears compelling, in our view. We forecast that the recurring revenue for Waymo SDOS will scale from 20%-30% of total revenue over the next five years, to greater than 50% of total revenues in 2026, to nearly 70% of total revenue for Waymo in 2030.

Exhibit 17: Waymo SDOS Monetization Build

($ in millions unless noted otherwise)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Total L4-L5 Vehicles - New per year		4,499	13,773	53,370	190,512	512,612	1,155,643	2,358,031	3,745,215	5,132,399	6,519,582	7,906,766	9,293,950
Total L4-L5 Vehicles - VIO	--	4,499	18,272	71,642	259,905	763,381	1,885,452	4,121,542	7,515,195	11,813,466	16,576,212	21,431,355	26,286,498
New Waymo Vehicles	--	1,125	3,443	13,876	51,438	143,531	335,136	707,409	1,123,564	1,591,044	2,021,071	2,530,165	3,159,943
y/y growth		--	206%	303%	271%	179%	133%	111%	59%	42%	27%	25%	25%
Total Waymo Vehicles	--	1,125	4,568	18,444	69,320	210,567	537,044	1,211,796	2,237,876	3,589,586	5,089,383	6,704,062	8,506,701
y/y growth		--	306%	304%	276%	204%	155%	126%	85%	60%	42%	32%	27%
Waymo SDOS	**--**	**$13**	**$53**	**$206**	**$736**	**$2,119**	**$5,096**	**$10,741**	**$18,436**	**$27,188**	**$36,245**	**$45,662**	**$53,210**
Waymo SDOS Recurring Revenue		$0	$13	$53	$199	$709	$2,023	$4,751	$9,767	$16,194	$22,657	$28,916	$35,831
Waymo SDOS New Revenue		$13	$40	$153	$537	$1,410	$3,073	$5,990	$8,668	$10,994	$13,588	$16,746	$17,380
% of total new vehicle cost		*6%*	*6%*	*6%*	*7%*	*7%*	*7%*	*7%*	*7%*	*8%*	*9%*	*10%*	*11%*
% of new vehicles with Waymo SDOS	--	*25%*	*25%*	*26%*	*27%*	*28%*	*29%*	*30%*	*30%*	*31%*	*31%*	*32%*	*34%*
Revenue	**$0**	**$13**	**$53**	**$206**	**$736**	**$2,119**	**$5,096**	**$10,741**	**$18,436**	**$27,188**	**$36,245**	**$45,662**	**$53,210**
y/y growth			294%	287%	258%	188%	140%	111%	72%	47%	33%	26%	17%
Operating Income (EBIT)	$0	$3	$15	$64	$250	$826	$2,497	$5,800	$10,508	$16,041	$22,109	$28,767	$34,587
margin (%)		25%	28%	31%	34%	39%	49%	54%	57%	59%	61%	63%	65%
Less: Taxes	$0	$1	$3	$13	$53	$174	$524	$1,218	$2,207	$3,369	$4,643	$6,041	$7,263
NOPLAT	**$0**	**$3**	**$12**	**$50**	**$198**	**$653**	**$1,972**	**$4,582**	**$8,302**	**$12,672**	**$17,466**	**$22,726**	**$27,324**
Plus: D&A	$0	$1	$4	$14	$51	$148	$357	$752	$1,290	$1,903	$2,537	$3,196	$3,725
EBITDA	**$0**	**$4**	**$19**	**$78**	**$302**	**$975**	**$2,853**	**$6,552**	**$11,799**	**$17,944**	**$24,646**	**$31,963**	**$38,311**
Waymo SDOS	**--**	**$13**	**$53**	**$206**	**$736**	**$2,119**	**$5,096**	**$10,741**	**$18,436**	**$27,188**	**$36,245**	**$45,662**	**$53,210**
Y/Y Growth	--	--	*294%*	*287%*	*258%*	*188%*	*140%*	*111%*	*72%*	*47%*	*33%*	*26%*	*17%*
% Recurring Software Revenue	--	*0%*	*25%*	*26%*	*27%*	*33%*	*40%*	*44%*	*53%*	*60%*	*63%*	*63%*	*67%*

Source: RBC Capital Markets estimates

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Valuation Scenarios – So How Much Could Waymo Be Worth?

Scenario 1 – Transportation Network Company

For this valuation scenario, we forecast Waymo grows its fleet at an 88% CAGR through 2030. We assume Waymo takes mid-single market share by 2030 of the global Robo-taxi fleet. We believe time utilization of Waymo's Robo-taxi fleet will expand from low-double-digits over the next few years to nearly 30% by 2030, accounting for 0.8% of total global vehicle miles driven. In this scenario, we forecast Waymo will achieve profitability on a per-mile-economic basis in 2025. In 2030, we forecast 19% Y/Y Revenue growth and 31% EBIT margins. We assume the cost per new autonomous vehicle comes down from $200K to $50K by 2030, with Waymo generating positive FCF starting in 2029.

Exhibit 18: Waymo DCF

($ in millions)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Drivers													
Waymo Vehicles in Fleet	500	1,500	4,500	13,500	33,750	67,500	118,125	206,719	341,086	528,683	819,459	1,147,243	1,548,777
y/y growth		*200%*	*200%*	*200%*	*150%*	*100%*	*75%*	*75%*	*65%*	*55%*	*55%*	*40%*	*35%*
Share of total L4-L5 Robo-taxi Fleet		*33.3%*	*24.6%*	*18.8%*	*13.0%*	*8.8%*	*6.3%*	*5.0%*	*4.5%*	*4.5%*	*4.9%*	*5.4%*	*5.9%*
Miles/vehicle	16,000	28,000	30,800	35,420	44,275	53,130	58,443	64,287	70,716	74,252	74,994	75,744	76,502
y/y growth		*75%*	*10%*	*15%*	*25%*	*20%*	*10%*	*10%*	*10%*	*5%*	*1%*	*1%*	*1%*
Time Utilization (on 24-hour basis)		*11%*	*12%*	*13%*	*17%*	*20%*	*22%*	*24%*	*27%*	*28%*	*29%*	*29%*	*29%*
Share of global total vehicle miles driven		*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.1%*	*0.2%*	*0.4%*	*0.6%*	*0.8%*
Per Mile Economics													
Revenue/mile		**$1.50**	**$1.42**	**$1.33**	**$1.25**	**$1.17**	**$1.08**	**$1.00**	**$0.86**	**$0.77**	**$0.69**	**$0.63**	**$0.55**
Depreciation		$1.59	$1.83	$1.61	$1.19	$0.90	$0.71	$0.55	$0.43	$0.35	$0.29	$0.23	$0.18
Interest Per Mile		$0.34	$0.42	$0.58	$0.46	$0.33	$0.23	$0.17	$0.13	$0.10	$0.08	$0.06	$0.05
Insurance, maintenance, other		$0.26	$0.24	$0.21	$0.17	$0.14	$0.13	$0.12	$0.10	$0.10	$0.10	$0.10	$0.10
Cost to charge (electric)		$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03
SG&A/investment		$4.76	$0.72	$0.21	$0.07	$0.03	$0.01	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02
Total cost/mile		**$6.99**	**$3.24**	**$2.64**	**$1.91**	**$1.43**	**$1.12**	**$0.89**	**$0.72**	**$0.61**	**$0.53**	**$0.45**	**$0.38**
Operating Income (Loss) per Mile		**($5.49)**	**($1.83)**	**($1.31)**	**($0.66)**	**($0.27)**	**($0.03)**	**$0.11**	**$0.14**	**$0.16**	**$0.16**	**$0.18**	**$0.17**
Waymo Financials													
Revenue		**$63**	**$196**	**$638**	**$1,868**	**$4,184**	**$7,480**	**$13,289**	**$20,743**	**$30,227**	**$42,404**	**$54,745**	**$65,166**
y/y growth			212%	225%	193%	124%	79%	78%	56%	46%	40%	29%	19%
Operating Income (EBIT)		($231)	($253)	($626)	($992)	($955)	($235)	$1,488	$3,383	$6,248	$10,100	$15,805	$20,134
margin (%)		-366%	-129%	-98%	-53%	-23%	-3%	11%	16%	21%	24%	29%	31%
Less: Taxes		($48)	($53)	($131)	($208)	($200)	($49)	$313	$710	$1,312	$2,121	$3,319	$4,228
NOPLAT		**($182)**	**($200)**	**($495)**	**($783)**	**($754)**	**($185)**	**$1,176**	**$2,673**	**$4,936**	**$7,979**	**$12,486**	**$15,906**
Plus: D&A		$67	$253	$771	$1,778	$3,228	$4,935	$7,351	$10,397	$13,858	$17,858	$20,128	$21,136
EBITDA		**($164)**	**($0)**	**$145**	**$787**	**$2,274**	**$4,700**	**$8,839**	**$13,780**	**$20,106**	**$27,958**	**$35,934**	**$41,269**
Less: Capex		($200)	($559)	($1,555)	($3,301)	($5,200)	($7,464)	($12,228)	($17,001)	($21,254)	($28,656)	($29,327)	($29,987)
capex/sales		-317.5%	-284.7%	-243.8%	-176.7%	-124.3%	-99.8%	-92.0%	-82.0%	-70.3%	-67.6%	-53.6%	-46.0%
Cost/new vehicle ($ in actual)		$200,000	$186,364	$172,728	$159,092	$145,456	$131,820	$118,184	$104,548	$90,912	$77,276	$63,640	$50,000
Free cash flow to Firm		**($315)**	**($506)**	**($1,278)**	**($2,306)**	**($2,726)**	**($2,715)**	**($3,702)**	**($3,931)**	**($2,460)**	**($2,819)**	**$3,288**	**$7,054**

Source: Company reports; RBC Capital Markets estimates

We note the majority of the Enterprise Value comes from the Terminal Value under this scenario. We assign a 12x exit year EBITDA multiple to derive the terminal value of Waymo's TNC. This is a slight premium (one turn) to RBC Auto Analyst Joe Spak's GM Cruise model, which we believe is warranted due to our projection that Waymo will have nearly twice as large of an autonomous fleet than GM Cruise by 2030.

Exhibit 19: Waymo Valuation

Enterprise Value	
Cumulative PV of free cash flow	($8,284)
Terminal Value	
Terminal Year EBITDA (2030E)	$41,269
Exit Multiple	12.0x
Terminal Value	**$495,232**
PV of Terminal Value	**$127,114**
Enterprise Value	**$118,830**

Source: Company reports; RBC Capital Markets estimates

We acknowledge that our target multiples and valuation projections do not carry much conviction due to the lack of current business models and public comps available. Because of this, we have derived a couple sensitivity analyses to toggle what we view as the most important variables. In the first sensitivity, we forecast the various valuations for Waymo based on 1.3MM vehicles in 2030 on the low end and 1.8MM on the high end. We also assign various exit multiples on our respective 2030 EBITDA estimates to arrive at various valuation ranges ($66B on the low-end and $183B on the high end).

Exhibit 20: Valuation Sensitivity – Waymo Vehicles in Fleet & Exit EV/EBITDA Multiple

	DCF Valuation Sensitivity - Waymo Vehicles & Exit EV/EBITDA Multiple								
	2030 Waymo Vehicles								
	1,319,329	**1,376,691**	**1,434,053**	**1,491,415**	**1,548,777**	**1,606,140**	**1,663,502**	**1,720,864**	**1,778,226**
	Share of Global Miles Traveled								
Exit EV/EBITDA multiple	**0.71%**	**0.73%**	**0.74%**	**0.76%**	**0.78%**	**0.79%**	**0.81%**	**0.83%**	**0.84%**
8x	$66,164	$68,737	$71,311	$73,885	$76,459	$79,032	$81,606	$84,180	$86,754
9x	$75,274	$78,218	$81,163	$84,107	$87,052	$89,996	$92,940	$95,885	$98,829
10x	$84,384	$87,699	$91,014	$94,329	$97,644	$100,960	$104,275	$107,590	$110,905
11x	$93,494	$97,179	$100,865	$104,551	$108,237	$111,923	$115,609	$119,295	$122,981
12x	$102,604	$106,660	$110,717	$114,773	$118,830	$122,887	$126,943	$131,000	$135,056
13x	$111,714	$116,141	$120,568	$124,995	$129,423	$133,850	$138,277	$142,705	$147,132
14x	$120,824	$125,622	$130,420	$135,218	$140,016	$144,814	$149,612	$154,410	$159,208
15x	$129,934	$135,102	$140,271	$145,440	$150,608	$155,777	$160,946	$166,114	$171,283
16x	$139,044	$144,583	$150,122	$155,662	$161,201	$166,741	$172,280	$177,819	$183,359

Source: Company reports; RBC Capital Markets estimates

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In our second sensitivity analysis, we toggled various Revenue Per Mile assumptions that Waymo would charge in 2030 and the respective profit margins (assuming a constant cost structure). Again, we layered sensitivities here for the size of Waymo's vehicle fleet. If Waymo were to become the dominant player in this space with a relatively weak competitive set, we believe they may be able to charge a slightly higher price (at a level still attractive relative to consumer car ownership), and the valuation could end up closer to the bottom right of the sensitivity chart below.

Exhibit 21: Valuation Sensitivity – Revenue Per Mile, Respective EBIT Margins, & Waymo Vehicles in Fleet

		DCF Valuation Sensitivity - Revenue Per Mile & Waymo Vehicles								
		2030 Waymo Vehicles								
		1,319,329	1,376,691	1,434,053	1,491,415	1,548,777	1,606,140	1,663,502	1,720,864	1,778,226
		Share of Global Miles Traveled								
EBIT Margin	Revenue per mile	0.71%	0.73%	0.74%	0.76%	0.78%	0.79%	0.81%	0.83%	0.84%
11%	$0.43	$61,876	$64,161	$66,447	$68,733	$71,019	$73,305	$75,591	$77,876	$80,162
16%	$0.45	$70,023	$72,663	$75,303	$77,943	$80,583	$83,223	$85,864	$88,504	$91,144
21%	$0.48	$79,188	$82,227	$85,265	$88,304	$91,342	$94,381	$97,419	$100,458	$103,496
26%	$0.51	$89,432	$92,916	$96,399	$99,883	$103,367	$106,851	$110,335	$113,819	$117,303
31%	$0.55	$102,604	$106,660	$110,717	$114,773	$118,830	$122,887	$126,943	$131,000	$135,056
36%	$0.60	$117,580	$122,288	$126,995	$131,703	$136,411	$141,119	$145,826	$150,534	$155,242
41%	$0.64	$133,604	$139,008	$144,413	$149,817	$155,222	$160,626	$166,031	$171,435	$176,839
46%	$0.70	$152,729	$158,964	$165,200	$171,436	$177,672	$183,908	$190,144	$196,380	$202,616
51%	$0.77	$175,594	$182,824	$190,054	$197,285	$204,515	$211,745	$218,975	$226,205	$233,435

Source: Company reports; RBC Capital Markets estimates

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Scenario 2 – Licensing a Self-Driving OS (SDOS) to OEMs

Under this scenario where Waymo licenses Waymo SDOS to OEMs, the key financial points are that we believe that Waymo will be able to generate $736MM in annual revenue with an annual Operating Profit of $250MM by 2022 and $53B in annual revenue with an annual Operating Profit of $35B by 2030. For this valuation scenario, we forecast Waymo will have over 8MM vehicles using Waymo SDOS by 2030, with one out of every three new autonomous vehicles run by Waymo SDOS. In this scenario, we forecast Waymo will be EBIT positive immediately and FCF positive in 2021. In 2030, we forecast 17% Y/Y Revenue growth and 65% EBIT margins. We assume the Waymo's SDOS revenue per new autonomous vehicle comes down from $12K to $6K by 2030, which would represent an increase from 6% of the total cost for a new autonomous vehicle to 11% through 2030.

Exhibit 22: Waymo DCF and Valuation

($ in millions unless noted otherwise)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Total L4-L5 Vehicles - New per year		4,499	13,773	53,370	190,512	512,612	1,155,643	2,358,031	3,745,215	5,132,399	6,519,582	7,906,766	9,293,950
Total L4-L5 Vehicles - VIO	--	4,499	18,272	71,642	259,905	763,381	1,885,452	4,121,542	7,515,195	11,813,466	16,576,212	21,431,355	26,286,498
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y/y growth		--	206%	303%	271%	179%	133%	111%	59%	42%	27%	25%	25%
Total Waymo Vehicles	--	1,125	4,568	18,444	69,320	210,567	537,044	1,211,796	2,237,876	3,589,586	5,089,383	6,704,062	8,506,701
y/y growth		--	306%	304%	276%	204%	155%	126%	85%	60%	42%	32%	27%
Waymo SDOS	**--**	**$13**	**$53**	**$206**	**$736**	**$2,119**	**$5,096**	**$10,741**	**$18,436**	**$27,188**	**$36,245**	**$45,662**	**$53,210**
Waymo SDOS Recurring Revenue		$0	$13	$53	$199	$709	$2,023	$4,751	$9,767	$16,194	$22,657	$28,916	$35,831
Waymo SDOS New Revenue		$13	$40	$153	$537	$1,410	$3,073	$5,990	$8,668	$10,994	$13,588	$16,746	$17,380
% of total new vehicle cost		*6%*	*6%*	*6%*	*7%*	*7%*	*7%*	*7%*	*7%*	*8%*	*9%*	*10%*	*11%*
% of new vehicles with Waymo SDOS	--	*25%*	*25%*	*26%*	*27%*	*28%*	*29%*	*30%*	*30%*	*31%*	*31%*	*32%*	*34%*
Revenue	**$0**	**$13**	**$53**	**$206**	**$736**	**$2,119**	**$5,096**	**$10,741**	**$18,436**	**$27,188**	**$36,245**	**$45,662**	**$53,210**
y/y growth			294%	287%	258%	188%	140%	111%	72%	47%	33%	26%	17%
Operating Income (EBIT)	$0	$3	$15	$64	$250	$826	$2,497	$5,800	$10,508	$16,041	$22,109	$28,767	$34,587
margin (%)		25%	28%	31%	34%	39%	49%	54%	57%	59%	61%	63%	65%
Less: Taxes	$0	$1	$3	$13	$53	$174	$524	$1,218	$2,207	$3,369	$4,643	$6,041	$7,263
NOPLAT	**$0**	**$3**	**$12**	**$50**	**$198**	**$653**	**$1,972**	**$4,582**	**$8,302**	**$12,672**	**$17,466**	**$22,726**	**$27,324**
Plus: D&A	$0	$1	$4	$14	$51	$148	$357	$752	$1,290	$1,903	$2,537	$3,196	$3,725
EBITDA	**$0**	**$4**	**$19**	**$78**	**$302**	**$975**	**$2,853**	**$6,552**	**$11,799**	**$17,944**	**$24,646**	**$31,963**	**$38,311**
Less: Change in working capital	$0	($1)	($4)	($15)	($53)	($138)	($298)	($565)	($769)	($875)	($906)	($942)	($755)
change in WC/change in sales		10.0%	7.5%	7.4%	7.2%	6.5%	5.8%	5.3%	4.2%	3.2%	2.5%	2.1%	1.4%
Less: Capex	$0	($13)	($21)	($21)	($22)	($32)	($51)	($54)	($92)	($109)	($145)	($183)	($213)
% of sales	50.0%	100.0%	40.0%	10.0%	3.0%	1.5%	1.0%	0.5%	0.5%	0.4%	0.4%	0.4%	0.4%
Cost/new vehicle ($in 000s)	$200	$200	$186	$173	$159	$145	$132	$118	$105	$91	$77	$64	$50
Waymo SDOS cost/new vehicle ($ in 000s)	--	$12	$12	$11	$10	$10	$9	$8	$8	$7	$7	$7	$6
Free cash flow to Firm	**$0**	**($11)**	**($10)**	**$29**	**$174**	**$631**	**$1,981**	**$4,716**	**$8,730**	**$13,592**	**$18,953**	**$24,798**	**$30,081**
margin (%)		-83%	-18%	14%	24%	30%	39%	44%	47%	50%	52%	54%	57%
y/y growth					501%	263%	214%	138%	85%	56%	39%	31%	21%

Source: Company reports; RBC Capital Markets estimates

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We note the majority of the Enterprise Value comes from the Terminal Value under this scenario, though less than the TNC scenario. We assign a 15x exit year EBITDA multiple to derive the terminal value of Waymo's SDOS. We believe these estimates could prove to be conservative, as similar market-dominant software companies with 60% EBIT margins (but slower Revenue growth) trade in the mid to high 20's on FCF multiples. Due to the lack of public comps to this business model and the uncertainty surrounding the price Waymo could charge, we believe our 15x multiple is a fair proxy.

Exhibit 23: Waymo Valuation

Waymo Enterprise Value	
Cumulative PV of free cash flow	$32,987
Terminal Value	
Terminal Year EBITDA (2030E)	$38,311
Exit Multiple	15.0x
Terminal Value	**$574,672**
PV of Terminal Value	**$147,504**
Enterprise Value	**$180,491**

Source: Company reports; RBC Capital Markets estimates

We have built a couple sensitivity analyses to toggle what we view as the most important variables. In the first sensitivity, we forecast the various levels of market share Waymo SDOS may run for the new robo-taxis. We also assign various exit multiples on our respective 2030 EBITDA estimates to arrive at various valuation ranges ($87B on the low-end and $304B on the high end). We provide a wide-range of Waymo SDOS penetration of new vehicles for these scenarios; 14% at the low end to greater than 50% of the market for new autonomous vehicles at the high end.

Exhibit 24: Valuation Sensitivity – Waymo SDOS Market Share of New Robo-taxis & Exit EV/EBITDA Multiple

DCF Valuation Sensitivity - Waymo SDOS share of New Robo-taxis & Exit EV/EBITDA Multiple

Exit EV/EBITDA multiple	Share of New Robo-taxis, Waymo SDOS: 14%	19%	24%	29%	34%	39%	44%	49%	54%
7x	$87,339	$90,960	$94,581	$98,202	$101,822	$105,443	$109,064	$112,685	$116,306
9x	$103,227	$107,793	$112,358	$116,924	$121,490	$126,055	$130,621	$135,186	$139,752
11x	$119,116	$124,626	$130,136	$135,647	$141,157	$146,667	$152,177	$157,688	$163,198
13x	$135,004	$141,459	$147,914	$154,369	$160,824	$167,279	$173,734	$180,189	$186,644
15x	$150,893	$158,293	$165,692	$173,092	$180,491	$187,891	$195,290	$202,690	$210,090
17x	$166,781	$175,126	$183,470	$191,814	$200,158	$208,503	$216,847	$225,191	$233,535
19x	$182,670	$191,959	$201,248	$210,537	$219,826	$229,115	$238,403	$247,692	$256,981
21x	$198,559	$208,792	$219,026	$229,259	$239,493	$249,726	$259,960	$270,194	$280,427
23x	$214,447	$225,625	$236,804	$247,982	$259,160	$270,338	$281,517	$292,695	$303,873

Source: Company reports; RBC Capital Markets estimates

In our second sensitivity analysis, we toggled various Waymo SDOS cost assumptions that Waymo could charge as a % of the total autonomous vehicle build cost. Again, we layered sensitivities here for the share of Waymo's SDOS of new autonomous vehicles. If Waymo's SDOS becomes the a clear leader amongst its peers and a favorite amongst consumers in terms of operability and safety, we believe Waymo may be able to charge a higher cost to the OEMs to install Waymo OS, and the valuation could end up closer to the bottom right of the sensitivity chart below.

Exhibit 25: Valuation Sensitivity – Waymo SDOS cost % of Robo-taxis & Waymo SDOS Share of New Robo-taxis

DCF Valuation Sensitivity - Waymo SDOS cost % & share of new vehicle market

Waymo SDOS cost as % of \ Share of New Robo-taxis, Waymo SDOS	14%	19%	24%	29%	34%	39%	44%	49%	54%
3%	$135,825	$137,843	$139,861	$141,879	$143,897	$145,915	$147,933	$149,951	$151,969
5%	$139,592	$142,955	$146,319	$149,682	$153,046	$156,409	$159,772	$163,136	$166,499
7%	$143,359	$148,068	$152,776	$157,485	$162,194	$166,903	$171,612	$176,321	$181,029
9%	$147,126	$153,180	$159,234	$165,288	$171,343	$177,397	$183,451	$189,505	$195,559
11%	$150,893	$158,293	$165,692	$173,092	$180,491	$187,891	$195,290	$202,690	$210,090
13%	$154,660	$163,405	$172,150	$180,895	$189,640	$198,385	$207,130	$215,875	$224,620
15%	$158,427	$168,517	$178,608	$188,698	$198,788	$208,879	$218,969	$229,059	$239,150
17%	$162,194	$173,630	$185,066	$196,501	$207,937	$219,373	$230,808	$242,244	$253,680
19%	$165,961	$178,742	$191,523	$204,304	$217,085	$229,867	$242,648	$255,429	$268,210

Source: Company reports; RBC Capital Markets estimates

Valuation

Our $1,285 PT and 2019 valuation framework is based on a blended average of EV/ Adj. EBITDA and GAAP P/E. We arrive at $1,285 by applying a 13x Target Multiple on 2019E EBITDA of $61.8B and 25x Target Multiple on 2019E GAAP EPS of $50.81. Our price target is also supported by an SOP analysis. These multiples are in line with other Large-Cap Internet stocks on a growth-adjusted basis. Our price target and implied return support our Outperform rating.

Risks to rating and price target

1) Regulatory Concerns; 2) Competitive Risk; 3) Mobile Monetization; and 4) European Macro Exposure.

Company description

Alphabet is a top search destination on the Web and provides a leading search marketing platform for advertisers and merchants.

Alphabet - Income Statement
($ Millions Except EPS)

	3/16A	6/16A	9/16A	12/16A	3/17A	6/17A	9/17A	12/17A	3/18A	6/18E	9/18E	12/18E	2016A	2017A	2018E	2019E	2020E
		2016A				2017A				2018E							
Total Revenue - Gross	20,257	21,500	22,451	26,064	24,750	26,010	27,772	32,323	31,146	32,478	34,390	39,788	90,272	110,855	137,802	165,859	196,365
Total Revenue - Net	16,469	17,525	18,269	21,216	20,121	20,919	22,270	25,873	24,858	25,820	27,437	31,862	73,479	89,183	109,977	132,382	156,693
Traffic Acquisition Costs	3,788	3,975	4,182	4,848	4,629	5,091	5,502	6,450	6,288	6,658	6,953	7,926	16,793	21,672	27,825	33,477	39,672
Operating Expense	11,127	11,557	12,502	14,577	13,553	16,787	14,488	18,209	17,857	17,601	18,124	22,743	49,763	63,037	76,325	91,344	107,492
Other Cost of Revenue	3,860	4,155	4,517	5,813	5,166	5,282	5,646	7,817	7,179	7,036	7,505	10,264	18,345	23,911	31,983	39,426	47,763
Research & Development	3,367	3,363	3,596	3,622	3,942	4,172	4,205	4,306	5,039	5,046	5,071	5,175	13,948	16,625	20,331	23,944	27,714
Sales & Marketing	2,387	2,415	2,565	3,118	2,644	2,897	3,042	4,310	3,604	3,524	3,693	5,244	10,485	12,893	16,065	18,941	21,949
G&A	1,513	1,624	1,824	2,024	1,801	1,700	1,595	1,776	2,035	1,995	1,855	2,060	6,985	6,872	7,945	9,034	10,066
Stock-Based Compensation	1,494	1,503	1,860	1,846	2,009	2,003	1,820	1,847	2,457	2,557	2,657	2,757	6,703	7,679	10,428	11,178	11,928
Other	0	0	0	0	0	2,736	0	0	0	0	0	0	0	2,736	0	0	0
Operating Income	5,342	5,968	5,767	6,639	6,568	4,132	7,782	7,664	7,001	8,219	9,313	9,119	23,716	26,146	33,653	41,038	49,201
Non-GAAP Op Inc (Excl SBC & Other)	6,836	7,471	7,627	8,485	8,577	8,871	9,602	9,511	9,458	10,776	11,970	11,876	30,419	36,561	44,081	52,216	61,129
D&A	1,371	1,490	1,596	1,687	1,503	1,625	1,761	2,026	1,986	2,086	2,186	2,286	6,144	6,915	8,544	9,544	10,544
Adjusted EBITDA	8,207	8,961	9,223	10,172	10,080	10,496	11,363	11,537	11,444	12,862	14,156	14,162	36,563	43,476	52,625	61,760	71,673
Interest Income And Other, Net	-213	151	278	218	251	245	197	354	3,542	350	375	400	434	1,047	4,667	2,000	2,500
Pretax Income	5,129	6,119	6,045	6,857	6,819	4,377	7,979	8,018	10,543	8,569	9,688	9,519	24,150	27,193	38,320	43,038	51,701
Provision for income taxes	922	1,242	984	1,524	1,393	853	1,247	11,038	1,142	1,285	1,453	1,428	4,672	14,531	5,308	6,456	7,755
GAAP Net Income	4,207	4,877	5,061	5,333	5,426	3,524	6,732	(3,020)	9,401	7,283	8,235	8,092	19,478	15,398	33,011	36,582	43,946
Non-GAAP Net Income	5,248	5,864	6,326	6,593	7,033	5,126	8,188	(1,542)	11,367	9,329	10,361	10,297	24,031	18,805	41,353	45,525	53,488
GAAP EPS	$6.02	$7.00	$7.25	$7.56	$7.73	$5.01	$9.57	($4.35)	$13.33	$10.29	$11.58	$11.33	$27.88	$21.97	$46.52	$50.81	$60.20
Non-GAAP EPS	$7.50	$8.42	$9.06	$9.36	$10.02	$7.29	$11.64	($2.22)	$16.12	$13.17	$14.57	$14.42	$34.39	$26.83	$58.27	$63.23	$73.27
Fully diluted shares	699	697	698	700	702	704	704	695	705	708	711	714	699	701	710	720	730
Growth Rate																	
Gross Revenue (Y/Y)	17%	21%	20%	22%	22%	21%	24%	24%	26%	25%	24%	23%	20%	23%	24%	20%	18%
Gross Revenue (Q/Q)	-5%	6%	4%	16%	-5%	5%	7%	16%	-4%	4%	6%	16%	--	--	--	--	--
Net Revenue (Y/Y)	18%	22%	21%	23%	22%	19%	22%	22%	24%	23%	23%	23%	21%	21%	23%	20%	18%
Net Revenue (Q/Q)	-5%	6%	4%	16%	-5%	4%	6%	16%	-4%	4%	6%	16%	--	--	--	--	--
Opex (Y/Y)	18%	21%	20%	23%	22%	45%	16%	25%	32%	5%	25%	25%	21%	27%	21%	20%	18%
Adjusted EBITDA (Y/Y)	20%	25%	25%	24%	23%	17%	23%	13%	14%	23%	25%	23%	23%	19%	21%	17%	16%
Non-GAAP Operating Inc. (Y/Y)	21%	25%	24%	24%	25%	19%	26%	12%	10%	21%	25%	25%	24%	20%	21%	18%	17%
GAAP EPS (Y/Y)	16%	42%	26%	7%	28%	-28%	32%	-157%	72%	105%	21%	-361%	18%	-21%	112%	9%	18%
PF EPS (Y/Y)	14%	20%	23%	8%	33%	-13%	28%	-124%	61%	81%	25%	-749%	16%	-22%	117%	9%	16%
Margin Analysis																	
TAC	18.7%	18.5%	18.6%	18.6%	18.7%	19.6%	19.8%	20.0%	20.2%	20.5%	20.2%	19.9%	18.6%	19.5%	20.2%	20.2%	20.2%
GAAP Operating Margin - Net	32.4%	34.1%	31.6%	31.3%	32.6%	32.8%	34.9%	29.6%	28.2%	31.8%	33.9%	28.6%	32.3%	29.3%	30.6%	31.0%	31.4%
GAAP Operating Margin - Gross	26.4%	27.8%	25.7%	25.5%	26.5%	15.9%	28.0%	23.7%	22.5%	25.3%	27.1%	22.9%	26.3%	23.6%	24.4%	24.7%	25.1%
Non-GAAP Operating Margin - Net	41.5%	42.6%	41.7%	40.0%	42.6%	42.4%	43.1%	36.8%	38.0%	41.7%	43.6%	37.3%	41.4%	41.0%	40.1%	39.4%	39.0%
Y/Y Change	0.90%	1.12%	1.11%	0.54%	1.12%	-0.22%	1.37%	-3.23%	-4.58%	-0.67%	0.51%	0.51%	0.90%	-0.40%	-0.91%	-0.64%	-0.43%
Tax Rate	18.0%	20.3%	16.3%	22.2%	20.4%	19.5%	15.6%	137.7%	10.8%	15.0%	15.0%	15.0%	19.3%	53.4%	13.9%	15.0%	15.0%

Source: RBC Capital Markets estimates, Company Reports

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Required disclosures

Conflicts disclosures

The analyst(s) responsible for preparing this research report received compensation that is based upon various factors, including total revenues of the member companies of RBC Capital Markets and its affiliates, a portion of which are or have been generated by investment banking activities of the member companies of RBC Capital Markets and its affiliates.

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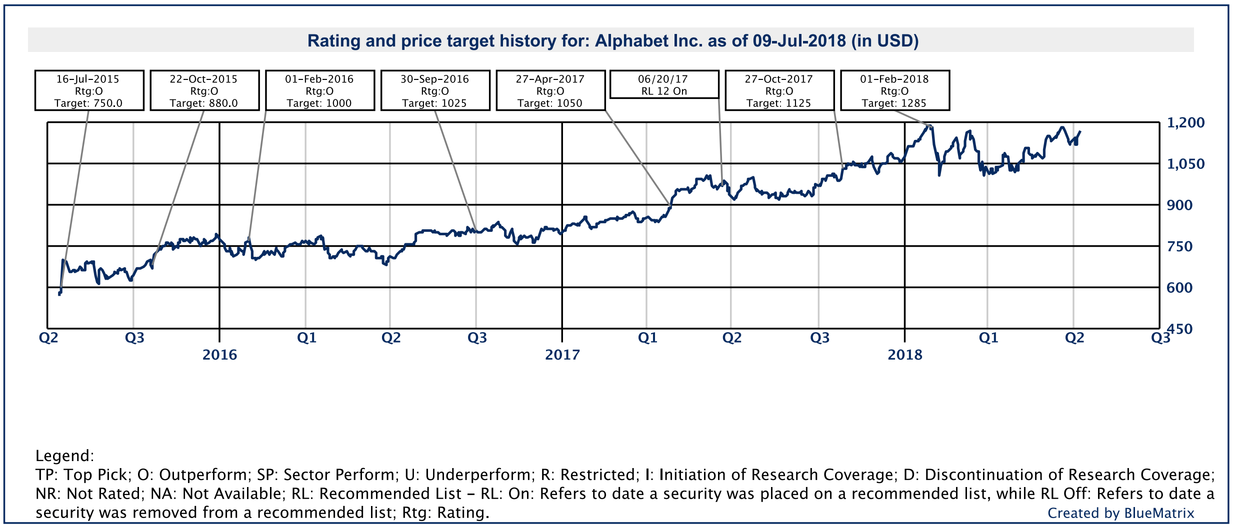

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Alphabet Inc.

Valuation

Our $1,285 PT and 2019 valuation framework is based on a blended average of EV/ Adj. EBITDA and GAAP P/E. We arrive at $1,285 by applying a 13x Target Multiple on 2019E EBITDA of $61.8B and 25x Target Multiple on 2019E GAAP EPS of $50.81. Our price target is also supported by an SOP analysis. These multiples are in line with other Large-Cap Internet stocks on a growth-adjusted basis. Our price target and implied return support our Outperform rating.

Risks to rating and price target

1) Regulatory Concerns; 2) Competitive Risk; 3) Mobile Monetization; and 4) European Macro Exposure.

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July 6, 2018

United States

The U.S. market is in an Uptrend Under Pressure. We are encouraged by strong price action and the decline in distribution this week, but would like to see confirmation next week with bigger volume before we move the market back into a Confirmed Uptrend. Distribution now stands at four days on the S&P 500 and five on the Nasdaq, with one day set to expire on the Nasdaq next Thursday. We are also encouraged by the action of leading ideas over the last few sessions. Though the majority of leadership continues to consolidate, multiple ideas have been able to hold and move higher off short-term levels of support over the past week. Our recommendation will be to buy high relative strength ideas at ideal pivot points should we see the major averages hold these gains early next week and move higher on more convincing volume.

Stocks on our U.S. Focus List: Current Sentiment

Our USFL of 68 ideas gained 1.9% on average this week, outperforming the S&P 500 (+1.5%), but underperforming the Nasdaq (+2.4%).

Actionable Focus List ideas: Activision Blizzard (**ATVI**), Alphabet (**GOOGL**), At Home (**HOME**), Calavo Growers (**CVGW**), Diamondback Energy (**FANG**), Fleetcor Technologies (**FLT**), Home Depot (**HD**), Nextera Energy (**NEP**), Paypal (**PYPL**), PRA Health Sciences (**PRAH**), SS&C Technologies (**SSNC**), Unitedhealth (**UNH**), Vertex Pharmaceuticals (**VRTX**)

By Sector

Technology ideas across the U.S. Focus List recovered this week. **QTWO**, **TEAM**, **SSNC**, **CRM**, **MPWR**, **PSTG,** and **GOOGL** all found support at their respective 50-DMA, while **RNG**, **NOW**, **VEEV**, and **ADSK** all regained that same level. **ON**, **ANET**, **PAYC**, **RP**, **TYL,** and **NVDA** are still trading below their respective 50-DMA. Payment processors also did well this week, with six of our eight ideas moving higher off 50-DMA support. **SQ**, **FLT**, and **PYPL** are leading the group, while **GPN** and **PAGS** are lagging. Health Care ideas also remain strong, holding up well on a relative basis during the market decline, and now beginning to move back toward highs. **IDXX**, **UNH**, **ILMN**, and **PRAH** all found support at the 50-DMA, while **VRTX** is building momentum after last week's gap up and setting up to test all-time highs. Conversely, Banks on the list remain weak. **TCBI**, **WAL,** and **ZION** are still trading around their respective 200-DMA, while **SIVB** has come 10% off its high and below its 50-DMA.

New Ideas or Deletions

We made no changes to the U.S. Focus List this week.

Developed Markets

Twenty-two developed markets declined 0.1% on average this week, weighed by mixed trading across regions. Eight markets are in a Confirmed Uptrend, including three in an Uptrend Under Pressure. Eleven markets are in a Rally Attempt, while three markets are in a Downtrend.

The iShares Developed Market Index (EFA) gained 0.9% this week. The index staged a healthy recovery from Monday's lows. However, it is currently 3% and 4% below its 10- and 40-WMA, respectively, and remains in a Downtrend.

Key Developed Markets

EMEA

This week the Stoxx 600 rose 0.6%. Following Monday's 0.84% decline, the index gained for the next four trading sessions. It now sits just 0.5% below its 200-DMA. We upgraded the Stoxx 600 to a Rally Attempt last Friday and, this week, four other European indices followed suit. We upgraded France, Germany, Belgium, and Luxembourg to a Rally Attempt. With these changes, 17 indices, including the Stoxx 600, are in a Rally Attempt.

Sixteen European markets gained 0.2% on average, with few distinguishable movements in either direction. Spain (+2.4%), Italy (+1.2%), Germany (+1%), and Belgium (+1%) were the top gainers, while Sweden (-2.6%), the U.K. (-0.8%), and Finland (-0.6%) led the laggards.

- The IMF trimmed its 2018 GDP growth forecast for Germany to 2.2% y/y from 2.5% in April. It believes that short-term stresses such as a hard Brexit, increased global protectionism, and a growing perception of sovereign risk in Europe could lead to renewed financial stress and affect exports and investment. For 2019, the IMF upgraded its growth forecast to 2.1% y/y from 2.0% y/y earlier.
- Germany's factory orders were well above expectations in May, up 2.6% m/m, compared with consensus forecasts of 1.1%. This was after a decline of 1.6% m/m in April.
- Industrial production in Germany grew 2.6% m/m, well above consensus forecasts of 0.3% m/m. Production growth improved after a decline of 1.3% m/m in April.
- U.K. new car registrations in June dropped 3.5% y/y and 6.3% in the first half of 2018, according to the latest figures released Friday.

APAC

Developed APAC markets posted sharp losses this week. Singapore, Japan, and Hong Kong declined 2.4%, 2.3%, and 2.2%, respectively. New Zealand and Australia bucked the trend with gains of 1.5% and 1%, respectively.

- Hong Kong's retail sales rose 11.6% y/y in May, following 11% y/y growth in April.
- Hong Kong's Nikkei Private Sector PMI edged down to 47.7 in June from 47.8 the previous month.

- Australia's Central Bank maintained its cash rate at a record low of 1.5%, in line with consensus estimates, owing to slow growth in inflation and wages, increased household debt, and challenges in global growth with respect to trade policy in the U.S.
- Australia's May trade surplus rose 75% m/m to AUD 0.83B, missing market estimates of AUD 1.2B. Growth was primarily driven by a 4% m/m increase in exports.

Stocks on our Global Focus List for Developed Markets: Current Sentiment

For the trailing five-day period through Thursday (Asia's full week), the 66 ideas (two net weekly removals) on our GFL DM declined 1.2% on average, underperforming the EFA benchmark.

Switzerland outperformed other markets as five stocks gained 2.9% on average. Underperformers included Japan – 11 stocks lost 3.7% on average; France - seven stocks declined 2.5% on average; Australia – six stocks lost 2.1% on average; and Hong Kong – 14 stocks lost 1.5% on average.

Stock Leaders included:

- Enn Energy Holdings (XINA.HK): 11.4% gain, bounced off its 10-WMA
- Vifor Pharma (VIFN.CH): 8.9% gain, all-time high weekly close
- China Everbright Greentech (CEBL.HK): 4.6% gain, 13% off highs
- GMO Payment (GMOP.JP): 3.5% gain, 6% off all-time highs
- Puma (PUMX.DE): 3.2% gain, 4% above its 10-WMA

Actionable Developed Market Focus List ideas: Basic-Fit (BFIT.NL), Cochlear (COH.AU), Homeserve (HSV.GB), Ipsen (IPN.FR), Premium Brands (PBH.CA), Straumann (STMN.CH), Swedish Orphan Biovitrum (SOBI.SE)

Stock Laggards included:

- Trigano (TRI.FR): 19.6% loss, removed from the list after it broke below its 40-WMA
- Aeon Fantasy (AEFA.JP): 13.6% loss, 24% off highs
- Wuxi Biologics Cayman Inc (WXBO.HK): 10.5% loss, breached its 10-WMA
- En-Japan (ENJP.JP): 8% loss, cut below its 10- and 40-WMA

By Sector

Our GFL DM versus the iShares Developed Market Index is:

- Overweight – Consumer Cyclical/Retail, Technology, Health Care, and Utility.
- Underweight – Capital Equipment, Consumer Staple, Financial, Energy, Transport, and Basic Material.

New Ideas or Deletions

This week we added Homeserve (HSV.GB) to the Focus List, while we removed Sands China (SNDC.HK), Trigano (TRI.FR), and Countryside Properties (CSP.GB).

Emerging Markets

Twenty-four emerging markets lost 0.4% on average, reversing gains from last week. Ten markets are in a Confirmed Uptrend, including five in an Uptrend Under Pressure. Nine markets are in a Rally Attempt, while five markets are in a Downtrend.

The iShares Emerging Market Index (EEM) gained 0.2% this week. The index bounced from 52-week lows to end the week positive, but continues to trade significantly below the 10- and 40-WMA and remains in a Downtrend.

Key Emerging Markets

APAC

APAC markets remained subdued this week as most indices closed with sizeable losses. Notably, China (-4.5%), Pakistan (-3.9%), South Korea (-2.3%), and Taiwan (-2.1%) declined more than 2%. Meanwhile, Thailand (+1.2%) and India (+0.7%) were the only markets to close in the green.

- Indonesia's inflation slowed down to 3.12% in June, from 3.23% in May and 4.37% in June 2017, mainly due to base effects and slower inflation for major commodity groups, except food and transport. Food and transport inflation accelerated to 4.7% and 1.9% in June from 4.5% and 1.7% in May, respectively.
- Malaysia's exports increased 3.4% y/y while imports rose 0.1% y/y, taking the trade surplus in May to MYR 8.1B.
- In June, the Philippines's CPI increased 5.2% y/y, higher than consensus estimates of 4.8%.
- South Korea's June CPI increased 1.5% y/y, lower than consensus estimates of 1.7%.
- In June, Taiwan's CPI increased 1.31% y/y, lower than consensus estimates of 1.52%.
- Thailand's June CPI increased 1.38% y/y, lower than consensus estimates of 1.54%.
- China's Caixin General Composite PMI increased to 53.0 in June from 52.3 in May, the highest since February.
- China's Caixin General Services PMI rose to 53.9 in June from 52.9 the previous month, beating market consensus of 52.7.

EMEA

Ten EMEA markets gained 0.2% on average. Turkey (2.2), Russia (1.7%), the Czech Republic (1.3%), and Poland (0.7%) led, while Saudi Arabia (-1.6%), Egypt (-1.4%), South Africa (-1%), and Greece (-1%) lagged.

- Egypt's non-oil private sector PMI increased to 49.4 in June from May's 49.2. New orders and employment contracted at lower rates, while the reduction in output accelerated and buying activity contracted.
- The Standard Bank South Africa PMI rose to 50.9 in June from 50 in May. New orders and employment increased at a faster pace due to stronger domestic demand, while exports continued to decline.
- Turkey's annual consumer price inflation rose to 15.39% in June, from 12.15% in May.

Americas

Five emerging Americas markets gained 0.7% on average. Brazil (+2.6%) and Mexico (+1.8%) outperformed, while Colombia (-1.1%) and Chile (-0.2%) lagged.

- Last week, Brazil's central bank cut its GDP forecast and increased inflation projections. The bank now expects GDP growth of 1.6% this year, down from the previous forecast of 2.6%. As for consumer prices, the bank forecasts inflation of 4.2% at the end of 2018, up from the previous 3.8% forecast. The forecast is below the central bank's 2018 target of 4.5%, plus or minus 1.5%. The central bank added that 2019 inflation would be 3.7%. Meanwhile, economists surveyed by Brazil's central bank expect the country's economic growth to expand 1.55% in 2018 and 2.5% in 2019.
- Financial institutions consulted by Brazil's central bank raised their forecast for inflation for the seventh week in a row. Economists now expect inflation (as measured by the IPCA index) to reach 4.03% this year, versus previous views of 4.0%. They also expect inflation of 4.10% in 2019. Economists expect the Selic rate to remain at 6.5% until the end of this year and to increase to 8% next year.
- A survey showed that Brazil's left is failing to gain steam in presidential elections scheduled for October. The poll conducted by Ibope showed far-right congressman Jair Bolsonaro leading with 17% of voters' intentions, followed by environmentalist Marina Silva. Center-left populist Ciro Gomes received 8% of voter intentions. While Bolsonaro's comments on various social issues are unpleasant to many, they see his rivals as more of a threat to the health of the Brazilian market. The economic advisor for Bolsonaro said his main goal will be to cut spending, including on interest payments, and plans to raise BRL 700B by speeding up privatizations.
- The Mexican peso gained +1% following the victory by leftist Andres Manuel Lopez Obrador (AMLO) in the country's presidential elections with an estimated 53% of the vote. Broader global movement in favor of the U.S. dollar and concerns over the results of the elections had put pressure on the peso. While most investors had expected a victory by AMLO, the high margin of victory was at the upper end of polls and suggests that his leftist MORENA party may clinch the majority in Congress. AMLO stated the he looked forward to working with U.S. president Donald Trump and that he would preserve fiscal discipline and respect the central bank's autonomy. He also promised to avoid raising taxes in real terms, to double pensions for the elderly, and to stay within legal channels as he reviews oil deals approved under the outgoing president.

Stocks on our Global Focus List for Emerging Markets: Current Sentiment

For the trailing five-day period through Thursday (Asia's full week), the 29 ideas (one addition and one removal) on our GFL EM gained 1.69% on average, sharply outperforming the EEM benchmark index.

Weekly outperformers included India – 17 stocks gained 3.2% on average, Malaysia – two stocks gained 3.1% on average; and South Africa – two stocks gained 1.1% on average. Underperformers included Taiwan – two stocks lost 3.8% on average; and South Korea – six stocks dropped 1.13% on average.

Stock Leaders included:

- Gruh Finance (GRU.IN): 11.4% gain, re-took its 10-WMA

- Avenue Supermarts (**AS.IN**): 7.7% gain, 3% off highs
- Maruti Suzuki India (**MUD.IN**): 6.6% gain, bounced off its 40-WMA
- Edelweiss (**EWC.IN**): 6.2% gain, reclaimed its 40-WMA
- Top Glove (**TOGL.MY**): 5.9% gain, rose above its all-time highs

Actionable Emerging Markets Focus List ideas: Asian Paints (**API.IN**), Berger Paints (**BPI.IN**), HDFC Bank (**HFC.IN**), JSW Steel (**JVS.IN**), Maruti Suzuki (**MUD.IN**), Reliance Industries (**REL.IN**), Silergy (**SGY.TW**), Sundram Fasteners (**SMF.IN**)

Stock Laggards included:

- Chroma Ate (**CMA.TW**): 5.0% loss, breached its 40-WMA
- Samsung Electro Mechanics (**SEM.KR**): 4.3% loss, the stock is 9% off highs
- JSW Steel (**JVS.IN**): 3.7% loss, undercut its 20-WMA
- L & F (**LAF.KR**): 2.9% loss, 12% off highs
- Silergy (**SGY.TW**): 2.5% loss, 5% off highs
- Samsung Sdi (**SCT.KR**): 2.3% loss, 10% off highs

By Sector

Our GFL EM versus the iShares Emerging Market Index is:

- Overweight – Basic Materials, Retail/Consumer Cyclical, Transportation, Consumer Staple, Capital Equipment, Financial, and Health Care.
- Underweight – Energy, Utility, and Technology.

New Ideas or Deletions

This week, we added Silergy (**SGY.TW**) and removed Titan (**TIT.IN**) from the Focus List.

| Internet | 12m target upgrade | United States | @ Go to SG website

Alphabet

The safer online mega-cap

's

Buy

Price 02/07/18	**$1,142.1**
12m target	**$1,410.0**
Upside to TP	**23.5%**
12m f'cast div	**$0.00**
12m TSR	**23.5%**

Main changes since last report

Target ($)	↑1410.0	(1320.0)
EPS 18e ($)	↑42.28 (40.22)	+5.1%
EPS 19e ($)	↑47.82 (46.67)	+2.5%
EPS 20e ($)	54.56	nc

new vs (old) nc: no change

Preferred stock
WPP LN

Least preferred stock
FB US

SG strategy team sector weighting
Neutral

Share price performance

Source: SG Cross Asset Research/Equity

Perf. (%)	1m	3m	12m	ytd
Share	0.6	12.8	22.8	8.4
Rel. index*	1.9	10.4	14.6	9.5
Rel. sector**	-0.6	-3.2	-3.4	-1.8

* MSCI World ($)
** MSCI World Internet ($)

RIC GOOGL.OQ, Bloom GOOGL US

52-week range	1,187-919
EV 18 ($m)	672,282
Mkt cap. ($m)	804,045
Free float (%)	71.9
No. shares o/s (m)	704
Avg vol. 3m (No. shares)	691,212

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Concerns about rising traffic acquisition costs (TAC) constraining operating leverage has held back Alphabet stock of late but we expect those worries to subside by mid-year as the effect of new distribution agreements laps for Google properties. We also note the shift in mix to Mobile is a healthy development for Google Network revenues. Meanwhile, we still think the Google Search model is less dependent on personalised data and as such less exposed to privacy concerns than that other online mega-cap, Facebook. Taking a conservative approach on the "hidden value" in YouTube, Cloud Services and Waymo, we see a 23.5% 12-month TSR at current levels and reiterate our Buy rating.

TAC impact to ease as of mid-18, lower GDPR risk profile on privacy concerns Ad revenue growth remains remarkable for a company GOOG's size (1Q18e 21% constant FX, FY18e 19.3%), but this has been overshadowed in recent quarters by rising TAC (+200bp 1Q18), which has constrained operating leverage given continued material investment. New distribution agreements will however lap by mid-year, and the shift in mix to Mobile is well advanced - already prompting management to indicate that the impact will diminish as of 2Q. Meanwhile, the Google Search model remains fundamentally less dependent on personalised data in our view, and as such is less exposed to privacy concerns than that other online mega-cap Facebook.

Improved non-operational KPI 1) Alphabet's LT tax rate is now sustainably stabilised in the high teens thanks to US tax reform, a notable improvement on the mid-20s levy implied as of the 2021 expiration of the Irish tax scheme; **2)** Ongoing buybacks and a >$100bn cash position create scope to stem stock-based compensation related dilution (share count +0.4% in 1Q18).

Target price raised to $1,410 Our $1,410 (was $1,320) target price is the midpoint between a $1,213 DCF-based mid-cycle valuation and a $1,606 cycle-peak valuation. We continue to capture the 'hidden' value associated with Other Bets, YouTube, Google Cloud Services which impacts our mid-cycle and cycle-peak valuations by $140 and $270, respectively (see page 2). Implied 2019e valuation ratios: 13.5x EV/EBITDA, 20x EV/GAAP EBIT and 26x P/E GAAP ex cash. Note that our DCF-based valuation reflects SBC-related cash tax outflow and the impact of perpetual dilution equivalent to SGe 1% p.a.

Financial data	12/17	12/18e	12/19e	12/20e
Revenues ($bn)	111	135	157	181
Rev. yoy growth (%)	22.8	21.7	16.4	15.2
EBIT margin (%)	26.1	25.4	25.2	25.6
Rep. net inc. ($bn)	25.8	29.8	34.0	39.1
EPS (adj.) ($)	36.7	42.3	47.8	54.6
EPS yoy growth (%)	31.7	15.2	13.1	14.1
Dividend/share ($)	0.00	0.00	0.00	0.00
Dividend yoy growth (%)	NA	NA	NA	NA
Payout (%)	0	0	0	0

Ratios	12/17	12/18e	12/19e	12/20e
P/E (x)	25.6	27.0	23.9	20.9
FCF yield (/EV) (%)	4.9	4.0	5.3	6.4
Dividend yield (%)	0.0	0.0	0.0	0.0
Price/book value (x)	4.34	4.42	3.75	3.21
EV/revenues (x)	4.89	4.98	4.13	3.45
EV/EBIT (x)	18.8	19.6	16.4	13.5
EV/IC (x)	9.0	11.1	10.6	10.0
ROIC/WACC (x)	4.6	5.1	5.7	6.5
Net Debt/EBITDA (x)	NM	NM	NM	NM

Key forecasts assumptions

Alphabet 2018-20e

$m, $	2017	2018e	2019e	2020e	
Revenues	**110,855**	**134,947**	**157,136**	**180,952**	
Change	*23%*	*22%*	*16%*	*15%*	
Change constant FX	*24%*	*21%*	*16%*	*15%*	
Google	109,652	134,337	156,396	180,012	
Advertising	*95,375*	*114,394*	*131,648*	*150,446*	*Network + Google properties*
Other	*14,277*	*19,943*	*24,748*	*29,566*	*Google Play, Google Cloud, hardware*
Other Bets	477	610	740	940	Nest transferred from Other Bets to Google segment (-$0.6bn OI on $0.7bn revs)
Traffic acquisition costs	**21,672**	**27,340**	**31,727**	**36,558**	
% ad revenues	**22.7%**	**23.9%**	**24.1%**	**24.3%**	**Network + Distribution agreements**
Revenues ex TAC	**89,183**	**107,607**	**125,409**	**144,394**	
Operating income GAAP	**28,882**	**34,288**	**39,612**	**46,318**	**Excludes -$2.7bn EC fine in FY17, -$0.6bn equity securities impact in FY18**
Margin	26.1%	25.4%	25.2%	25.6%	
Google	31,616	36,838	42,612	49,818	
Other Bets	-2734	-2550	-3,000	-3500	
Impact Other Bets	-8.6%	-6.9%	-7.0%	-7.0%	
EPS GAAP	**$36.7**	**$42.3**	**$47.8**	**$54.6**	**Ex EC fine in FY17, equity securities in FY18**
Share count diluted (m)	**704**	**705**	**710**	**717**	**Assumes no buybacks post-2018**
Stock-based compensation	**7,679**	**9,295**	**11,547**	**12,606**	
% revenues	6.9%	6.9%	7.3%	7.0%	
EBITDA pre SBC	43,476	52,086	60,864	69,702	
Net cash position ($bn)	**98**	**109**	**138**	**171**	

Source: SG Cross Asset Research/Equity

The key assumptions underpinning our forecasts are:

▪ The rise in TAC eases as of mid-2018. As shown in the table on page 3, TAC as a percentage of revenues has significantly increased in recent quarters both for Google Properties (payments to OEMs/carriers to secure Google search engine positioning) and Network (pass-on payments on revenues collected on behalf of third-party sites, with the shift to Mobile implying a higher TAC level). While the mix shift for Network should continue, management has indicated since the 4Q call that the "pace of yoy TAC increase as a % of Sites revs would slow after 1Q18", though it has consistently declined to be more specific, or even give granularity on distribution agreements (type, date, duration, etc.).

We note that:

▪ The impact of "new distribution agreements" was first flagged on the 2Q17 earnings call, suggesting a lap effect as of mid-2018.

▪ The $9bn FY17 "Distribution Arrangements" cost breakdown is closely held information, but top beneficiaries are obviously Apple (as recognised in Apple's licensing revenues) and Samsung, both likely collecting >$3bn pa SGe. Smaller recipients include the Mozilla

Foundation as Google became Firefox's search engine by default as of November 2017 at the expense of Yahoo (in markets excl. China & Russia). No figure was disclosed, but Mozilla's FY16 revenues of $0.5bn indicate a payment of $0.4-0.5bn on a full-year basis and a -40bp impact in 1Q18. This smaller negative impact will lap by 4Q.

Traffic acquisition costs as a % of Network & Google Properties ad revenues

$m	1Q16	2Q16	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17	1Q18
Network Members	*2,571*	*2,623*	*2,623*	*3,082*	*2,824*	*3,042*	*3,101*	*3,674*	*3,386*
% revs	*69.6%*	*70.1%*	*70.3%*	*69.6%*	*70.5%*	*71.6%*	*71.4%*	*73.6%*	*72.9%*
Google Properties	*1,217*	*1,352*	*1,559*	*1,766*	*1,805*	*2,049*	*2,401*	*2,776*	*2,902*
% revs	***8.5%***	***8.8%***	***9.7%***	***9.8%***	***10.4%***	***11.1%***	***12.2%***	***12.5%***	***13.2%***
TOTAL	*3,788*	*3,975*	*4,182*	*4,848*	*4,629*	*5,091*	*5,502*	*6,450*	*6,288*
% revs	***21.0%***	***20.8%***	***21.1%***	***21.6%***	***21.6%***	***22.5%***	***22.9%***	***23.7%***	***23.6%***

Source: SG Cross Asset Research/Equity

▪ We exclude from our forecasts the impact of marketable and non-marketable equity securities. In accordance with new accounting standards followed since 1Q18, Alphabet includes in its income statement related gains and losses, through the recognition of performance fees and gains based on "observable transactions for identical or similar investments" (whether or not they are realised). This introduces unwelcome volatility into reported earnings, and had in 1Q18 a -$0.6bn impact on operating income and a +$2.4bn impact on net reported income, i.e. $3.40 a share.

▪ We have reset our €/$ assumption to 1.18 from 1.25, consistent with SG Media Research coverage.

▪ We have lowered our tax rate assumption to 16%, leading to raised earnings forecasts. This is consistent with the 1Q level *excluding* the impact of equity securities, including a 6% tax rate on foreign operations, essentially generated by an Irish subsidiary according to the company filings. Importantly, **we now assume Alphabet's tax rate will permanently stabilise in the mid to high teens**, thanks to the US tax reform. Please refer to a more detailed analysis in the Valuation section.

▪ We expect poor cash conversion in 2018 due to the continued depreciation/capex gap and this year's planned capex bump ($7bn alone in 1Q, of which a more relevant $4.6bn when excl. the acquisition of the NYC Chelsea Market building for $2.4bn). Note that Alphabet will also experience cash outflows related to the US tax reform, which will be spread over eight years (5% for each of 2018-22, then 15%, 20% and 25% in 2023, 2024 and 2025, respectively). These outflows are captured in our DCF-based valuation (see Valuation section). The company should continue to generate very strong cash flow (SGe +$25bn after the cash stock-based compensation-related outflows and a $8.6bn buyback), leading to a $109bn net cash position by end-2018e.

▪ We expect the negative EBIT impact of Other Bets, which now excludes Nest, to remain broadly stable on a relative basis (see next section).

▪ We have conservatively not assumed buybacks beyond the $8.6bn plan launched in January ($2.2bn completed at end-1Q). For valuation purposes, we assume a 1% share count increase in perpetuity to reflect value leakage associated with stock-based compensation-related dilution, essentially now through restricted stock unit awards.

Updating our valuation of Alphabet's 'hidden' assets

Other Bets / Waymo, YouTube, Google Cloud services

Other Bets/Waymo

Alphabet Other Bets

$m	2014	2015	2016	2017	2018e
Revenues	327	445	809	477	610
Operating income GAAP	-1,893	-3,456	-3,578	-2,734	-2,550
% Google OI GAAP pre Other Bets	***-10.3%***	***-17.9%***	***-15.1%***	***-9.5%***	***-7.4%***
SBC	338	475	647	353	450
DA	147	203	340	307	450
Capex	496	850	1,385	493	550
EBITDA-capex	-1,904	-3,628	-3,976	-2,567	-2,200
Post tax	**-1,525**	**-2,937**	**-3,260**	**-2,020**	**-1,690**

Source: SG Cross Asset Research/Equity. FY17 figures adjusted for Nest transfer from Other Bets into Google in 1Q18

As shown in the above table, the impact of 'Other Bets' on overall earnings, though very high in an absolute terms, was reduced below 10% in 2017. This is consistent with the '70/20/10' rule periodically flagged by management, whereby 70% of investments are allocated to core activities, 20% to 'new' activities, and 10% to 'speculative' projects.

Other Bets - SG assumptions

$m	Revs 2017?	EBIT 2017?	
X Labs	50	-1,830	Moonshots. artificial intelligence, driverless cars, internet access delivery by balloons (Loon Project) DeepMind (AI) $660m, but little revs. No other projects generating external revs. 350 staff in all? (250 X Labs + 100 /DeepMind?)
Verily	50	-200	Life Sciences. diabetes-measuring contact lenses/Novartis. JV Galvani GSK 55% $700m/7 years bioelectronic (implant / nerve signals). $800m from Temasek for an undisclosed minority stake in 2017
Calico	50	-200	California Life Co. Focus on increasing life expectancy (neurodegeneration, cancer); $240m contributed Sep 13 to Sep 15 JV with AbbVie Sep 14. $1.5bn total. $750m already contributed by AbbVie to cover R&D over the "next few years" (5?)
Sidewalk Labs	60	-100	Smart cities: housing, transport, energy acquisition $150m/Titan Outdoor mid-15 (payphones wifi LinkNYC)
Fiber	267	-404	Basic internet free. 1 Gigabit $70/m, Gigabit + TV $130/m. 30k subs end-14. 100k now? Most in KC (>10% share) Current service KC, Austin, Provo, S Antonio, Atlanta, Charlotte, Raleigh-Durham, Salt Lake City
TOTAL	**477**	**-2,734**	

Source: SG Cross Asset Research/Equity. Excluding Nest since FY17 (according to pro forma data disclosed on the occasion of its transfer to Google segment, Nest lost -$0.6bn on $0.7bn of revenues in FY17)

Within Other Bets, the highest-profile asset is clearly the driverless car unit Waymo, for which the only available benchmark is Tesla Inc. (not covered by SG).

Tesla Inc, however is far from being a perfect peer as it is unclear whether Waymo will simply focus on technology, acting as an auto OEM 'parts' supplier, or integrate vehicle-manufacturing like Tesla. We deem the latter unlikely given Alphabet's typically "non-exclusive" approach, and the partnerships already struck with Fiat Chrysler, Honda and Jaguar Land Rover. What is unclear is whether Waymo is designed to eventually become a discrete profit centre or an initiative à la Android or Chrome to secure Alphabet's position in the car ecosystem.

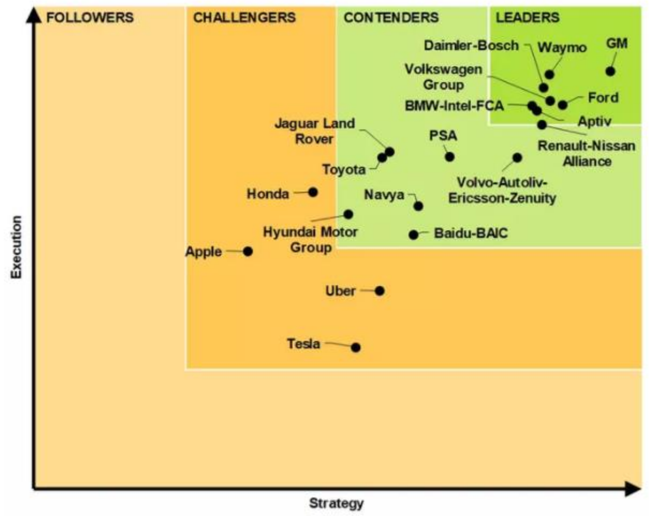
In addition, Tesla has a $67bn+ enterprise value, but on already significant revenues and over $12bn of invested capital.

Tesla Inc. financials

$m	2010	2011	2012	2013	2014	2015	2016	2017	2018*	2019*	2020*
Revenues	117	193	413	2,013	3,198	4,046	7,000	11,758	19,610	28,120	35,080
Change		65%	114%	387%	59%	27%	73%	68%	67%	43%	25%
EBITDA	-115	-216	-315	126	202	-96	614	466	1,044	3,366	5,239
Margin	-98%	-112%	-76%	6.3%	6.3%	-2.4%	8.8%	4.0%	5.3%	12.0%	14.9%
Operating income	-147	-262	-394	-61	-187	-717	-667	-1,632	-635	1,132	2,394
Net profit GAAP	-154	-265	-396	-74	-294	-889	-675	-1,961	-1,665	63	1,396

Source: SG Cross Asset Research/Equity, * Bloomberg consensus

Driverless cars: a crowded landscape



Source: Navigant Jan. 2018 ranking

Given the size of the addressable Automobile opportunity, and even allowing for an extended discounting period (a necessary adjustment given prospective adoption cycles), it is relatively easy to come up with significant Waymo top-down valuations, as shown in the below table. The uncertainty surrounding Waymo's current model and the potential adoption cycle of driverless car technology (10/15/20 years?), a crowded competitive landscape and an uncertain regulatory framework, however, imply very low visibility.

Addressable opportunity = 43m vehicles

2017, m	Cars	
US-Canada	19.28	
EMEA	15	vs total EMEA 21
Japan	5.2	
S. Korea	1.76	
	41.24	Total 86m China 26m
Car + light vehicles sales (N. America, Europe, Japan)	41.2	
Heavy trucks	1.4	2.6m market, of which 47% BRIC
TOTAL	42.6	

Source: SG Cross Asset Research/Equity

Potential addressable market: 43m vehicles in 15 years

Adoption rate	10%	15%	20%	25%	30%	40%	50%
Cost*	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Market opportunity, $m	21,309	31,964	42,618	53,273	63927	85,236	106,545
Waymo share?	20%	20%	20%	20%	20%	20%	20%
Margin	20%	20%	20%	20%	20%	20%	20%
Implied profit, $m	852	1,279	1,705	2,131	2,557	3,409	4,262
Implied value in 15 years, $m 15x	12,785	19,178	25,571	31,964	38,356	51,142	63,927
Present value disc. 9%, $m	3,510	5,265	7,020	8,775	10,530	14,040	17,550
per Alphabet share	*$5*	*$8*	*$10*	*$13*	*$15*	*$20*	*$25*

Source: SG Cross Asset Research/Equity * $5,000 cost by 2025 flagged by Delphi CEO in December 2017

This low visibility leads us to use the following approach for Other Bets:

- In a mid-cycle approach, we maintain the negative value implicitly embedded in perpetuity in our DCF valuation (see valuation section), which is equivalent to assuming that the company will *permanently* burn cash on new projects. For perspective, assuming -$1.7bn 2018e after-tax cash burn growing in perpetuity implies a negative $31bn value, equivalent to -$45/share in our DCF valuation (assuming nil growth in perpetuity would reduce the impact to -$18bn/-$26 per share). Note though that these amounts are lower than those used in our previous reports as Nest's losses ($0.6bn last year) are now included in Google's earnings.
- In a cycle-peak approach, we assume Other Bets' cumulative value is nil, with the value of Other Bets implicitly offsetting cash burn NPV. This implies a +$31bn/+$45 per share value uplift.

Given that our target price is set on a 50/50 weighing, we implicitly assume a $15bn/$22 per share value before cash burn, i.e. <2% of our total target price.

YouTube

Alphabet has never disclosed precise performance figures for YouTube, which explains the wide range of revenues periodically mentioned in the press. Management's comments have suggested in the past that the unit was probably close to breakeven, or that it has low margins: "We could make YT profitable if we slowed down on investments" – Alphabet CFO in 2015; "There is no timetable on YT profitability" – YT CEO Susan Wojcicki in October 2016. There have been no qualitative comments since then.

Given YouTube's effective footprint, its addressable market is the global online video market ex China. Based on ZenithOptimedia's estimates, this amounted to $23bn in 2017, i.e. 14% of online spend in the area (online video consistently captures a mid-teens share of online spend in almost all geographies), a number expected to rise to $28bn and $34bn in 2018-19.

Global online video ad market

$m	2013	2014	2015	2016	2017	2018e	2019e	2020e
Global online video	**9,902**	**13,520**	**17,631**	**22,108**	**26,816**	**31,972**	**37,459**	**43,229**
Change		*37%*	*30%*	*25%*	*21%*	*19%*	*17%*	*15%*
% of Global Online	9.6%	10.8%	11.6%	12.3%	13.2%	14.1%	15.0%	15.8%
China online video	1,176	1,855	2,586	3,299	3,550	3,699	3,628	3,595
		58%	*39%*	*28%*	*8%*	*4%*	*-2%*	*-1%*
% of Online China	7.1%	8.0%	8.2%	8.3%	7.7%	7.1%	6.4%	5.9%
Global online video ex China	**8726**	**11,665**	**15,045**	**18,809**	**23,266**	**28,273**	**33,831**	**39,634**
		34%	*29%*	*25%*	*24%*	*22%*	*20%*	*17%*
% of Global online ex China	10%	11%	13%	13%	15%	16%	17%	19%
US	5,216	6,765	8,524	10,058	11,869	14,005	16,526	19,170
Growth		*30%*	*26%*	*18%*	*18%*	*18%*	*18%*	*16%*
Non-US	3,510	4,900	6,521	8,751	11,397	14,268	17,305	20,464
Growth		*40%*	*33%*	*34%*	*30%*	*25%*	*21%*	*18%*

Source: SG Cross Asset Research/Equity; ZenithOptimedia

There are no reliable data regarding YouTube market share, but we assume a broad 45-60% share (other top players are Facebook, and to a much lesser extent, Hulu, whose ad revs topped $1bn in 2017, but is concentrated on the US market), which implies a broad $12-16bn in 2018 revenues.

Note that these revenues are on a gross basis, as 55% accrue to the channel makers and 45% are retained by YT. Payments to channel makers are recorded by the company as ‘other costs’, and not traffic acquisition costs. Beyond these pass-on payments, costs borne by YT are direct cost contents (essentially investments in some premium channels), costs related to bandwidth (YT accounts for 15% of US consumption and has more than 1.5bn users globally), storage (300 hours uploaded every minute), technical assistance (YT runs YouTube Spaces, i.e. recording studios for channel makers in major cities such as New York, Los Angeles, Chicago, Toronto, London, Paris, Berlin, Tokyo, Mumbai, Bangkok, etc.), and SG&A.

There are no pure peers to YouTube among the major streaming platforms:

- Netflix has a similar global footprint and scale, but collects no ad revenues and enjoys strong pricing power.
- Hulu has substantial advertising exposure (c.40% of its total revenues) but is also reliant on subscriptions (60% revs) and has a US-centric footprint. In the April 2018 filings by Disney related to the mooted transaction with 21CF, Disney’s 30% Hulu stake was attributed a $2,270m value, excluding a $1.1bn “control premium”. We have used a valuation excluding the control premium.

https://www.sec.gov/Archives/edgar/data/1001039/000119312518121183/d565472ds4.htm

Spotify enjoys a global addressable opportunity but follows a predominantly subscription-based model, and its higher content payout ratio (mid-60s to 70%) implies lower margins, all else equal.

We have consequently used an average of the Netflix and Hulu valuations, leading to a YouTube implied average valuation of $97bn.

YouTube peers' valuation (revenue multiples)

$m	2018*	2019*	2020*	
Netflix	**11.0x**	**9.1x**	**7.6x**	Market price. No ad revenues
Hulu	**2.2x**	**1.9x**	**1.6x**	$7.56bn valuation / Disney April 18 filing $8.7bn incl. control premium. 17m subs end-17, 60% subs., 40% ad
Spotify	**4.8x**	**3.7x**	**3.1x**	Little ad revenues
Average NFLX/Hulu	**6.6x**	**5.5x**	**4.6x**	
Valuation YT SGe	**98,186**	**97,179**	**95,800**	

Source: SG Cross Asset Research/Equity * Bloomberg consensus

Google Cloud

The Google Cloud unit comprises the Google Cloud Platform launched in 2013 and G Suite (formerly Google Apps for Work), combined since September 2016. The shift in IT spending from traditional systems to cloud-based systems should underpin strong growth for infrastructure-as-a-service (IaaS), a market expected by Gartner to almost treble between 2017 and 2021. With an estimated 6% market share (Source Synergy), Google is the No.3 player in this market, behind AWS (33%) and Microsoft / Azure (10%).

Cloud Infrastructure-as-a-Service: a booming market

$bn	2017	2018e	2019e	2020e	2021e
Iaas Cloud market	30.0	40.8	52.9	67.4	83.5

Source: SG Cross Asset Research/Equity Gartner April 2018

Alphabet does not disclose numbers for its Google Cloud unit, but our estimates and implied value are derived from the sector benchmark Amazon Web Services, based on the following:

- Amazon (not covered) has a current market value of $823bn, with a >$815bn EV.
- AWS' contribution to AMZN profits has averaged >40% over time: 43% of AMZN's non-GAAP EBIT over the last six years and 46% excluding International losses (43% and 46% in FY17).
- Assuming conservatively 40% of AMZN's value is consequently attributable to AWS would suggest a $327bn AWS value, i.e. 13.1x 2018e revs and 10.1x 2019e revs. For a sanity check, this assumption implies a 2.3x 2018e revs valuation for AMZN's overall retail activities.
- Adjusted for market share, and on similar revenue multiples, this suggests a potential $56bn valuation for Google Cloud activities.

Amazon Web Services

$m	2013	2014	2015	2016	2017	2018*	2019*	2020*	
Revs	3,108	4,644	7,880	12,219	17,459	24,931	32,325	41,186	
Growth		*49%*	*70%*	*55%*	*43%*	*43%*	*30%*	*27%*	*In line with Gartner market estimates 2019-20. 48% revs growth in 1Q18*
Costs	2,435	3,984	6,017	8,513	12,255	17,400	22,500	28,600	
Non-GAAP EBIT	673	660	1,863	3,706	5,204	7,531	9,825	12,586	
Margin excl. SBC	21.7%	14.2%	23.6%	30.3%	29.8%	30.2%	30.4%	30.6%	
Flow-through		-1%	37%	42%	29%	31%	31%	31%	*Mid-30s flow-through*
SBC & other	na	na	356	598	873	1,247	1,616	2,059	
% revs			*4.5%*	*4.9%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*Unchanged as % of revs*
GAAP EBIT			**1,507**	**3,108**	**4,331**	**6,285**	**8,209**	**10,526**	

Source: SG Cross Asset Research/Equity * As SG does not cover the company, for indicative purposes we have assumed growth in line with market estimates, mid-30s operational flow-through, and an unchanged SBC impact

From Amazon market value to AWS implied value

$bn	2017	2018*	2019*	2020*
	EV AMZN	**814**		
	% EV AWS	**40%**		
	Value AWS	**326**		
	Implied ex AWS	**488**		
x Revenues	18.6x	13.1x	10.1x	7.9x
x EBIT non-GAAP	62.6x	43.2x	33.1x	25.9x
x EBIT GAAP	75.2x	51.8x	39.7x	30.9x

Source: SG Cross Asset Research/Equity, * As SG does not cover the company, for indicative purposes we have assumed growth in line with market estimates, mid-30s operational flow-through, and an unchanged SBC impact

Given the lack of hard figures (GCP market share varies from 6% to 8% according to various sources) and a weaker competitive ranking than usual for the company, we consider it more sensible at this stage to *exclude* Google Cloud from our mid-cycle value, and to include it only in our cycle-peak value. Given our target price methodology (see final section of this report), **we are effectively recognising in our TP a Google Cloud valuation based on a 50% discount to AWS**, which we think is realistic given its smaller scale.

In summary, recognising all this 'hidden' value using what we think is a realistic approach leads to +$140 a share uplift to our mid-cycle valuation and +$270 a share uplift to our cycle-peak valuation.

Upside: Other Bets, YouTube, Google Cloud

	Mid-cycle $m	Cycle peak $m	
Other Bets / Waymo	0	31,296	Perpetual value FCF 2018e after tax
YouTube	97,055	97,055	6.6x SGe revs 2018e, 5.5x revs 2019e Implies >10x net revenues (excl. pass-on payments 55% of revs)
Google Cloud Services	0	59,192	Pro rated /AWS implied 13.1x revs FY18e, 10.1x revs FY19e 6% market share vs AWS 33%, Azure 13%
TOTAL	**97,855**	**187,544**	
Per share	**$140**	**$270**	

Source: SG Cross Asset Research/Equity

Valuation

DCF-based mid-cycle valuation: accounting for poor cash conversion, SBC impact and a more benign LT tax rate

Below we update our DCF-based approach, which we think is well suited to Alphabet as it captures the (relative) maturity of the company and its high capital intensity. We use the following assumptions:

- A 9.4% WACC. As with other stocks under our coverage, we use a 2.9% risk-free rate to reflect a global footprint (this includes lower 'European' and US risk-free rates, but also exposure to emerging markets). On a 130% risk premium, this leads to a 9.4% WACC.

- A 4% LT nominal growth rate beyond 2027, i.e. only slightly superior to the growth rate we use for most other media companies.

- An unchanged 8.5% growth assumption in the 2021-27 fade period. It is conservatively based on advertising growth trends, which is conservative given non ad revenues' (cloud, hardware, Google Play) higher growth. Our advertising addressable market estimate is based on:

  i) a 3.5% CAGR in LT global adspend ex China (to reflect Google's effective footprint), i.e. in line with LT nominal adspend growth, implicitly including cyclical downturns.

  ii) online spend gaining 2.3pp of share/year post 2020, i.e. at an unchanged rate vs Zenith's 2018-20e assumptions. This implies online would capture a 57% share of overall adspend by 2027. As noted in previous reports, this 'market share' should be viewed with some caution as it is magnified by the fact that the online addressable market extends to small and medium-sized businesses, whose adspend is poorly captured in industry data.

Alphabet: modelling ad revenues to 2027e

$bn	2010	2011	2012	2013	2014	2015	2016	2017	2018e	2019e	2020e	2027e	CAGR
Global ad market	**399.3**	**416.1**	**433.8**	**451.7**	**475.6**	**496.2**	**521.6**	**541.5**	**565.3**	**588.7**	**613.3**		
Change		*4.3%*	*4.1%*	*4.3%*	*5.3%*	*4.3%*	*5.1%*	*3.8%*	*4.4%*	*4.1%*	*4.2%*		
Global online market	**64.7**	**72.4**	**86.5**	**103.1**	**125.7**	**151.4**	**179.1**	**203.5**	**227.0**	**250.1**	**273.8**		
Change		*11.9%*	*19.5%*	*19.2%*	*21.9%*	*20.4%*	*18.3%*	*13.6%*	*11.5%*	*10.2%*	*9.5%*		
Online %	**16.2%**	**17.4%**	**19.9%**	**22.8%**	**26.4%**	**30.5%**	**34.3%**	**37.6%**	**40.2%**	**42.5%**	**44.6%**		
Share gain		+1.2%	+2.5%	+2.9%	+3.6%	+4.1%	+3.8%	+3.2%	+2.6%	+2.3%	+2.2%		
China ad market	*38.1*	*44.8*	*50.4*	*57.2*	*63.2*	*69.0*	*76.0*	*80.4*	*87.2*	*92.4*	*97.4*		
China online ad market	*8.4*	*7.7*	*11.3*	*16.5*	*23.2*	*31.5*	*39.7*	*46.1*	*52.1*	*56.6*	*60.9*		
Global ad market ex China	**361.2**	**371.3**	**383.4**	**394.5**	**412.4**	**427.2**	**445.6**	**461.1**	**478.1**	**496.3**	**515.9**	**656.4**	**3.5%**
Change		*2.8%*	*3.3%*	*2.9%*	*4.5%*	*3.6%*	*4.3%*	*3.5%*	*3.7%*	*3.8%*	*4.0%*		
Global online ad market ex China	**56.3**	**64.7**	**75.2**	**86.6**	**102.5**	**119.9**	**139.4**	**157.43**	**174.9**	**193.5**	**212.91**	**376.6**	**8.5%**
Change		*14.9%*	*16.2%*	*15.2%*	*18.4%*	*17.0%*	*16.3%*	*12.9%*	*11.1%*	*10.6%*	*10.0%*		
Online %	**15.6%**	**17.4%**	**19.6%**	**22.0%**	**24.9%**	**28.1%**	**31.3%**	**34.1%**	**36.6%**	**39.0%**	**41.3%**	**57.4%**	
Share gain	**+2.0%**	**+1.8%**	**+2.2%**	**+2.3%**	**+2.9%**	**+3.2%**	**+3.2%**	**+2.9%**	**+2.4%**	**+2.4%**	**+2.3%**	**+16.1%**	
Google ad revs	**28.2**	**36.5**	**43.7**	**50.6**	**59.1**	**67.4**	**79.4**	**95.4**	**115.0**	**132.3**	**150.1**		
Share Google ex China online	**50.2%**	**56.5%**	**58.1%**	**58.4%**	**57.6%**	**56.2%**	**56.9%**	**60.6%**	**65.7%**	**68.3%**	**70.5%**		
% Google overall ad market ex China	7.8%	9.8%	11.4%	12.8%	14.3%	15.8%	17.8%	20.7%	24.0%	26.6%	29.1%		

Source: SG Cross Asset Research/Equity; ZenithOptimedia (note historical data restated at constant FX)

■ No margin expansion beyond 2020, implicitly assuming continued losses at Other Bets, and subpar profitability for YouTube and Cloud Services.

■ A gradual convergence between depreciation charges and capex by 2027. At this stage, the gap remains significant ($7bn in 2017, SGe $13bn in 2018). We simultaneously assume neutral WCR, which may be conservative.

■ The outflows stemming from the US tax reform, as the $10.2bn transition tax recognised in the 2017 results will be paid over eight years (5% for each of the 2018-22, then 15%, 20% and 25% in 2023, 2024 and 2025, respectively).

■ Net cash position at end-2017. We have also taken into account the fair value of non-marketable equity investments, which include Google Ventures investments and associates' holdings. In total, these investments represent <2% of total equity value.

■ The value leakage related to stock-based compensation is reflected through:

– The cash impact of settling RSU taxation on behalf of employees (SGe -$5.1bn in 2018, of which -$1.15bn already cashed out in 1Q). Note the company stopped issuing 'plain' stock options in early 2013.

– The cash tax benefit on SBC deductibility. We have assumed this was equal to the P&L credit, given the difficulty of precisely modelling it over time (the actual cash benefit may differ according to share price changes).

– The impact of the perpetual net issuance of 1% p.a. in additional shares. We have reflected the associated value leakage through the assumption that 1% of LT growth was captured in perpetuity. This reflects issuance partly offset by the rising impact of buybacks ($1.8bn in FY15, $3.7bn in FY16, $4.8bn in FY17 and $8.6bn in FY18, of which $2.2bn completed in 1Q).

Alphabet: share count inflation is slowing

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	*CAGR 10yr*	*CAGR 5yr*
No. of shares diluted (m)	545.6	583.7	619.1	632.4	635.0	638.8	646.4	654.4	664.6	677.6	687.0	697.3	699.0	703.6		
		7.0%	6.1%	2.2%	0.4%	0.6%	1.2%	1.2%	1.6%	2.0%	1.4%	1.5%	0.2%	0.7%	***1.1%***	***1.1%***

Source: SG Cross Asset Research/Equity; Note: follow-on offering in 2005. YouTube was acquired in 2006 for $1.65bn (7.324m shares/$225). Excluding YT acquisition would reduce the 10y CAGR by 0.1%. AdMob was also acquired in shares (2010), but those were offset by an equivalent buyback

■ We assume Alphabet's tax rate will permanently stabilise in the mid to high teens thanks to the US tax reform, which will offset the rise that would have happened following the Irish government's October 2014 decision to abolish local tax schemes, with existing agreements remaining valid for a transitional period until the end of 2020. At this stage, we estimate US operations' effective tax rate at 23% after state and local taxes and the positive impact of federal research tax credits and the foreign operations tax rate at 6.2%. We note in this respect that:

– Alphabet has consistently stated in its filings that "substantially all of foreign income" was earned by an Irish subsidiary;

– it is unclear whether the previous Irish tax schemes are still being used, but the 6.2% rate mentioned by the company in its most recent 10-Q filing closely matches the 6.25% rate applied to Irish "knowledge development boxes", a mechanism introduced in 2016;

– this is slightly below the company's last ten years levels (cumulative P&L tax of $29.6bn, implying a 19.0% tax rate, with a 16.3% actual cash tax rate).

Alphabet tax rate by geography

	Tax rate	
US	23%	Federal tax rate + state + federal benefits (research tax credits)
Foreign	6.25%	Substantially all foreign operations income earned by Irish subsidiary
		6.25% Irish "knowledge development box" (50% cut on standard 12.5%). Consistent with 6.2% foreign tax rate in 1Q18 10-Q filing

Source: SG Cross Asset Research/Equity

This leads to a **$1,073 DCF valuation, to which we add $140 to reflect YouTube's value** (see previous section)**, leading to our updated mid-cycle valuation of $1,213**.

DCF mid-cycle valuation

	As is		1.0% perpetual value leakage
Wacc	9.4%		
LT Growth	4.0%		
FCF 2018-27e	237 182		237 182
Terminal Value	523 033		412 965
Net Cash end 2017	97 902		97 902
non Marketable Equity Invest.	8 800		8 800
Equity Value	866 917	0	756 850
Per share	1229 $		**1073 $**

Source: SG Cross Asset Research/Equity

Implied valuation multiples on $1,073 mid-cycle value

	2018E	2019E	2020E
EV / Revenues (Net TAC)	**5.8x**	**4.8x**	**3.9x**
EV / EBITDA	**12.0x**	**9.8x**	**8.1x**
EV / EBIT post SBC	**18.3x**	**15.1x**	**12.2x**
EV / EBIT non Gaap	**14.4x**	**11.7x**	**9.6x**
PER non gaap	**20.2x**	**17.6x**	**15.6x**
PER non gaap ex cash	**17.8x**	**14.8x**	**12.5x**
PER gaap post SBC ex cash	**22.5x**	**19.0x**	**15.7x**
FCF yield	**3.3%**	**4.6%**	**5.6%**

Applying the SG Toolbox to Alphabet: cycle-trough/peak values

In keeping with the approach applied across SG's media coverage, we have updated our cycle-trough/peak values for the Alphabet stock.

Trough value = $676/share

We have used trough assumptions of:

- Five percent ad revenue growth, 40% Google Play app revenue growth and 25% other non-app revenue growth (up from 10% to reflect Cloud Services' contribution to growth). This is a much harsher scenario than in 2009, when Google's revenue growth slowed to 'only' 12% (at constant FX) from the mid-20s reached in 2008, but paid search maturity was lower then.
- Operating leverage of 40% (ad revenues), 15% (app revenues) and 20% (other). A 40% flow-through assumption on ad revenues equates to 15% cost inflation. This is conservative in our view, as we would expect the company to rein in its aggressive investments under such a scenario, although not to the extent seen in 2009 (costs up only 3%, with year-end headcount down, resulting in 300bp margin expansion and a 35% EPS jump), a flexibility then probably linked to a relatively 'nimbler' size (Google was then 4 times smaller).

Applied to a 2017 starting base, this would yield a $35.4 trough EPS GAAP, slightly down vs 2017. We have assumed a trough P/E ex cash of 15x, i.e. that seen in late 2008 (12x trailing EPS, 18x forward EPS). Adjusted for net cash 2018e of $145 per share, this leads to a $676 trough value.

Cycle peak = $1,606/share

We use the following cycle-peak assumptions:

- Twenty-five percent ad revenue growth, 35% Google Play app and 40% non-app revenue (incl. Cloud activities) revenue growth, in each of two consecutive years.
- Operating leverage of 35% (ad revenues), 10% (app revenues) and 5% (other). A 35% flow-through assumption on ad revenues reflects sustained investments.

Applied to a 2017 starting base over a two-year period, this would yield a $54.3 GAAP cycle-peak EPS by 2019e, i.e. 13% above our current forecast. We have assumed a cycle-peak P/E of 24.7x and include $190 per share of net cash by end-2019e.

We also reflect in our $1,606 cycle-peak valuation the $270 cycle-peak value uplift stemming from the hidden value associated with YouTube, Other Bets and Google Cloud.

Summary: $1,410 target price

As with other stocks in our coverage, we set our $1,410 target price (vs $1,320) at the average of our mid-cycle ($1,213) and cycle-peak value ($1,606). At our TP, the implied 2019e valuation ratios are 13.5x EV/EBITDA, 20x EV/GAAP EBIT and 26x P/E GAAP ex cash.

XX Upside: Other Bets, YouTube, Google Cloud

	Mid-cycle	Cycle peak	
	$m	$m	
Other Bets / Waymo	0	31,296	Perpetual value FCF 2018e after tax
YouTube	97,055	97,055	6.6x SGe revs 2018e, 5.5x revs 2019e Implies >10x net revenues (excl. pass-on payments 55% of revs)
Google Cloud Services	0	59,192	Pro rated /AWS implied 13.1x revs FY18e, 10.1x revs FY19e 6% market share vs AWS 33%, Azure 13%
TOTAL	**97,855**	**187,544**	
Per share	**$140**	**$270**	

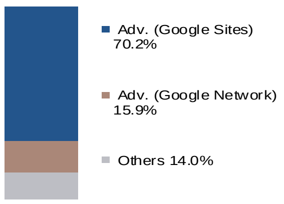
Source: SG Cross Asset Research/Equity

SG target price $1,410

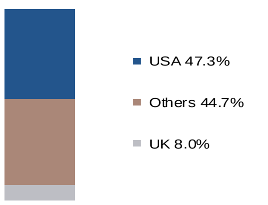
	Mid cycle	Cycle peak	Midpoint
Base	$1,073	$1,336	
'Hidden' value	$140	$270	
Total	$1,213	$1,606	$1,410

Source: SG Cross Asset Research/Equity

Sales/division 17



Sales/region 17



Major shareholders (%)

L. Page	7.0
Fidelity	7.0
S. Brin	6.9
Blackrock	5.7
E. Schmidt	1.5

Alphabet

Valuation ($m)	12/13	12/14	12/15	12/16	12/17	12/18e	12/19e	12/20e
No. of shares basic year end/outstanding	666	676	693	688	693	694	699	706
Share price: avg (hist. yrs) or current	442	568	620	763	940	1,142	1,142	1,142
Average market cap. (SG adjusted) (1)	294,272	383,895	429,590	525,018	651,477	792,739	798,449	806,444
Restated net debt (-)/cash (+) (2)	53,472	59,158	67,846	82,398	97,902	109,274	137,602	170,635
Value of minorities (3)	NA	NA	NA	NA	NA	NA	NA	NA
Value of financial investments (4)	1,976	3,079	11,183	11,183	11,183	11,183	11,183	11,183
Other adjustment (5)								
EV = (1) - (2) + (3) - (4) + (5)	238,824	321,658	350,561	431,437	542,392	672,282	649,664	624,626
P/E (x)	24.5	28.0	26.4	27.4	25.6	27.0	23.9	20.9
Price/cash flow (x)	16.1	17.4	16.7	14.8	16.6	17.2	14.9	13.3
Price/free cash flow (x)	26.5	34.2	27.0	20.5	24.7	30.1	23.6	20.6
Price/book value (x)	3.43	3.73	3.59	3.84	4.34	4.42	3.75	3.21
EV/revenues (x)	3.99	4.87	4.67	4.78	4.89	4.98	4.13	3.45
EV/EBITDA (x)	11.2	12.4	11.9	11.8	12.5	12.9	10.7	9.0
Dividend yield (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per share data ($)								
SG EPS (adj.)	18.0	20.3	23.4	27.9	36.7	42.3	47.8	54.6
Cash flow	27.5	32.6	37.1	51.6	56.6	66.4	76.6	86.0
Book value	129	152	173	199	217	259	305	356
Dividend	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Income statement ($m)								
Revenues	59,825	66,001	74,989	90,272	110,855	134,947	157,136	180,952
Gross income	21,355	26,028	29,501	36,563	43,476	52,086	60,864	69,702
EBITDA	21,355	26,028	29,501	36,563	43,476	52,086	60,864	69,702
Depreciation and amortisation	-3,939	-4,979	-4,938	-6,144	-6,915	-8,503	-9,704	-10,778
EBIT	13,966	16,496	19,360	23,716	28,882	34,288	39,612	46,318
Impairment losses	NA	NA	NA	NA	NA	NA	NA	NA
Net interest income	530	763	291	434	1,047	1,200	1,300	1,400
Exceptional & non-operating items	NA	NA	NA	NA	NA	NA	NA	NA
Taxation	-2,282	-3,331	-3,303	-4,672	-4,100	-5,678	-6,955	-8,589
Minority interests	NA	NA	NA	NA	NA	NA	NA	NA
Reported net income	12,214	13,928	16,348	19,478	25,829	29,810	33,957	39,129
SG adjusted net income	12,920	14,444	15,826	19,478	25,829	29,810	33,957	39,129
Cash flow statement ($m)								
EBITDA	21,355	26,028	29,501	36,563	43,476	52,086	60,864	69,702
Change in working capital	-31	364	-409	3,300	9,246	-820	-820	-820
Other operating cash movements	0	0	0	0	0	0	0	0
Cash flow from operating activities	18,659	22,376	25,899	36,036	39,827	46,788	54,389	61,693
Net capital expenditure	-7,358	-10,959	-9,915	-9,972	-13,085	-20,000	-20,000	-22,000
Free cash flow	11,301	11,417	15,984	26,064	26,742	26,788	34,389	39,693
Cash flow from investing activities	508	-5,729	-2,408	-2,095	-20	-1,400	0	0
Cash flow from financing activities	-300	-1,421	-3,607	-6,997	-7,593	-14,016	-6,061	-6,660
Net change in cash resulting from CF	11,509	4,267	9,969	16,972	19,129	11,372	28,328	33,033
Balance sheet ($m)								
Total long-term assets	38,034	50,448	57,347	62,089	72,987	72,987	72,987	72,987
of which intangible	6,066	4,607	3,847	3,307	2,692	2,692	2,692	2,692
Working capital	1,270	1,494	963	2,319	-1,746	-1,047	-349	350
Employee benefit obligations	NA	NA	NA	NA	NA	NA	NA	NA
Shareholders' equity	87,309	104,500	120,331	139,036	152,502	182,312	216,269	255,398
Minority interests	0	0	0	0	0	0	0	0
Provisions								
Net debt (-)/cash (+)	53,472	59,158	67,846	82,398	97,902	109,274	137,602	170,635
Accounting ratios								
ROIC (%)	35.8	32.9	33.8	36.1	42.8	47.7	53.8	61.4
ROE (%)	15.4	14.5	14.5	15.0	17.7	17.8	17.0	16.6
Gross income/revenues (%)	35.7	39.4	39.3	40.5	39.2	38.6	38.7	38.5
EBITDA margin (%)	35.7	39.4	39.3	40.5	39.2	38.6	38.7	38.5
EBIT margin (%)	23.3	25.0	25.8	26.3	26.1	25.4	25.2	25.6
Revenue yoy growth (%)	19.2	10.3	13.6	20.4	22.8	21.7	16.4	15.2
Rev. organic growth (%)	19.2	10.3	13.6	20.4	22.8	21.7	16.4	15.2
EBITDA yoy growth (%)	12.6	21.9	13.3	23.9	18.9	19.8	16.9	14.5
EBIT yoy growth (%)	9.5	18.1	17.4	22.5	21.8	18.7	15.5	16.9
EPS (adj.) yoy growth (%)	11.0	12.5	15.6	18.9	31.7	15.2	13.1	14.1
Dividend growth (%)	NA	NA	NA	NA	NA	NA	NA	NA
Cash conversion (%)	75.3	66.0	72.2	97.8	110.7	64.1	71.9	74.0
Net debt/equity (%)	NM	NM	NM	NM	NM	NM	NM	NM
FFO/net debt (%)	NM	NM	NM	NM	NM	NM	NM	NM
Dividend paid/FCF (%)	NM	NM	NM	NM	NM	NM	NM	NM

Source: SG Cross Asset Research/Equity

Report completed on 3 Jul. 2018 17:21 CET

APPENDIX

COMPANIES MENTIONED

AbbVie (ABBV US, Buy)
Alphabet (GOOGL US, Buy)
Amazon (AMZN.OQ, No Reco)
Apple (AAPL US, No Reco)
Azure Power Energy (nocode88819, No Reco)
Delphi Automotive PLC (DLPH US, No Reco)
Disney (DIS.N, No Reco)
Facebook (FB US, Sell)
FCA (FCA IM, Sell)
GlaxoSmithKline (GSK LN, Sell)
Honda (7267 JP, No Reco)
Jaguar Land Rover (8291453Z LN, No Reco)
Microsoft Corporation (MSFT US, No Reco)
Netflix (NFLX US, Sell)
Novartis AG (NOVN VX, Buy)
Samsung Electronics Co Ltd (005930 KS, No Reco)
Spotify (, No Reco)
Tesla Motors Inc (TSLA.O, No Reco)
Twenty-First Century Fox (FOXA US, Hold)
WPP Group (WPP LN, Buy)
YAHOO INC. (YHOO, No Reco)

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The following named research analyst(s) hereby certifies or certify that (i) the views expressed in the research report accurately reflect his or her or their personal views about any and all of the subject securities or issuers and (ii) no part of his or her or their compensation was, is, or will be related, directly or indirectly, to the specific recommendations or views expressed in this report: **Christophe Cherblanc**

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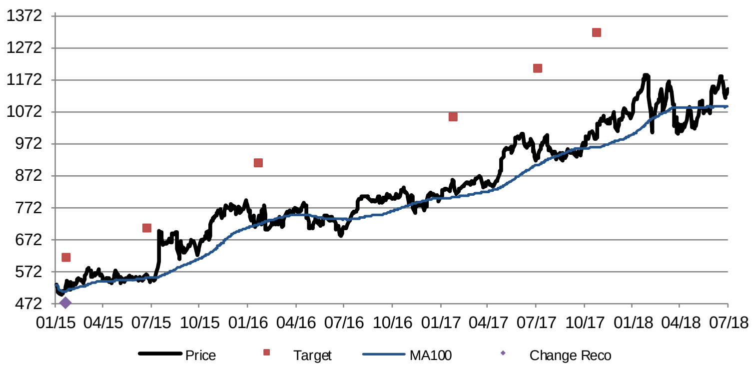
Historical Price: Alphabet (GOOGL.OQ)



Source: SG Cross Asset Research/Equity

2015/2016	Change	2017/2018	Change (Paris time)
22/01/15	New Rating: Buy	27/01/17	New analyst : Christophe Cherblanc
22/01/15	New Target: 615.0	27/01/17 18:06	New Target: 1055.0
25/06/15	New Target: 705.0	06/07/17 17:35	New Target: 1210.0
22/01/16	New Target: 910.0	27/10/17 11:30	New Target: 1320.0

VALUATION METHODOLOGY AND RISKS TO RATING, RECOMMENDATION AND PRICE TARGET

Valuation Methodology **Alphabet**

50/50 cycle-peak ($1606 valuation) and mid-cycle ($1213 DCF). Implied 2019e valuation ratios are 13.5x EV/EBITDA, 20x EV/GAAP EBIT, 26x P/E GAAP ex cash.

Risks

Downside; increased regulatory constraints such as EC crackdown on tax avoidance (SGe LT tax rate 24% vs current <20%), costs overruns on Other Bets (-$3.1bn EBIT in 2015), execution risk in managing an ever-larger organisation (+10k staff / year).

SG EQUITY RESEARCH RATINGS on a 12 month period

BUY: absolute total shareholder return forecast of 15% or more over a 12 month period.

HOLD: absolute total shareholder return forecast between 0% and +15% over a 12 month period.

SELL: absolute total shareholder return forecast below 0% over a 12 month period.

Total shareholder return means forecast share price appreciation plus all forecast cash dividend income, including income from special dividends, paid during the 12 month period. Ratings are determined by the ranges described above at the time of the initiation of coverage or a change in rating (subject to limited management discretion). At other times, ratings may fall outside of these ranges because of market price movements and/or other short term volatility or trading patterns. Such interim deviations from specified ranges will be permitted but will become subject to review by research management.

Sector Weighting Definition on a 12 month period:

The sector weightings are assigned by the SG Equity Research Strategist and are distinct and separate from SG equity research analyst ratings. They are based on the relevant MSCI.

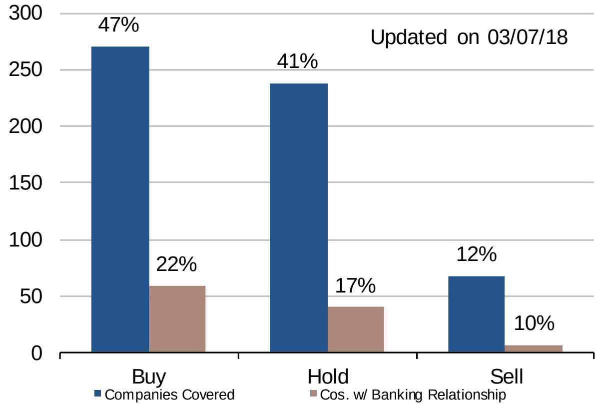
OVERWEIGHT: sector expected to outperform the relevant broad market benchmark over the next 12 months.

NEUTRAL: sector expected to perform in-line with the relevant broad market benchmark over the next 12 months.

UNDERWEIGHT: sector expected to underperform the relevant broad market benchmark over the next 12 months.

The Preferred and Least preferred stocks are selected by the covering analyst based on the individual analyst's coverage universe and not by the SG Equity Research Strategist.

Equity rating and dispersion relationship



Source: SG Cross Asset Research/Equity

All pricing information included in this report is as of market close, unless otherwise stated.

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Delphi Automotive PLC	SG acted as co-manager in Delphi Automotive's bond issue (8y).
Jaguar Land Rover	SG acted as Joint Bookrunner in Jaguar Land Rover's Bond issue (RegS;10NCL; Senior)
Novartis AG	SG acted as Co-manager in Novartis Finance SA's Bond issue (Senior;RegS; 5.5yr/12.5y/20.5)

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SG or its affiliates have received compensation for investment banking services in the past 12 months from Azure Power Energy, Delphi

Automotive PLC, Jaguar Land Rover, Novartis AG.
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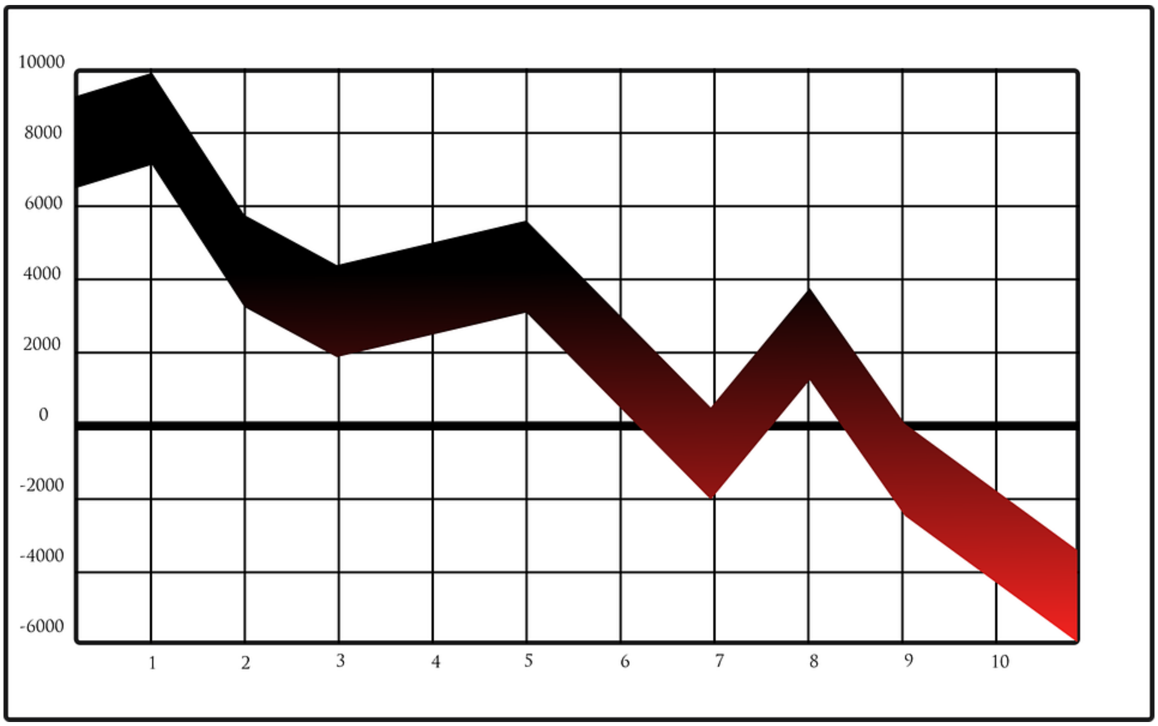
How to Trade Alphabet Inc After an Earnings Drop



Alphabet Inc (NASDAQ:GOOGL) : How to Trade Alphabet Inc After an Earnings Drop

Date Published: 2018-07-03

Disclaimer
The results here are provided for general informational purposes, as a convenience to the readers. The materials are not a substitute for obtaining professional advice from a qualified person, firm or corporation.

LEDE

While a bull market had defined an eight-year span, what we now see is volatility in either direction -- often times driven by exogenous geopolitical factors. It's time to identify patterns of momentum in either direction.

We discussed the tremendous pattern of bullish momentum that continues after a large earnings beat in Apple, but there is a **bearish** momentum pattern in Alphabet Inc (NASDAQ:GOOGL) stock **1 trading** day after earnings, **if and only if** the stock showed a large gap down after the actual earnings announcement.

This is a conditional entry -- the company reports earnings and **if the stock move off of that report is a 3% loss or larger**, then a bearish position is back-tested looking for continuing downward momentum. The event is rare, but when it has occurred, the back-test results are noteworthy.

We can now look for large stock moves off of earnings in either direction -- and be prepared for the following momentum pattern. Bull or bear market -- it's empirically focused back-tests that we're after to identify patterns.

Alphabet Inc (NASDAQ:GOOGL) Earnings

In Alphabet Inc, if the stock move immediately following an earnings result was a large drop (3% or more to the downside), when we test waiting one-day after that earnings announcement and then bought a three-week at the money (50 delta) put, the results were quite strong.

This back-test opens one-day **after earnings** were announced to try to find a stock that *continues a downward spiral after an earnings gap down*.

Simply owning options after earnings, blindly, is likely not a good trade, but hand-picking the times and the stocks to do it in can be useful. We can test this approach without bias with a custom option back-test. Here is the timing set-up around earnings:

Rules

* Condition: Wait for the one-day stock move off of earnings, and if it shows a 3% loss or more in the underlying, then, follow these rules:
* Open the long at-the-money put one-trading day after earnings.

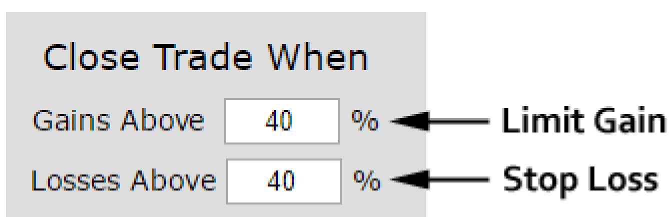
* Close the long put 14 **calendar days** after earnings.
* Use the options closest to 21 days from expiration (but more than 14 days).

This is a straight down the middle direction trade -- this trade wins if the stock is continues on a downward trajectory after a large earnings move the two-weeks following earnings and it will stand to lose if the stock rises, instead. This is not a silver bullet -- it's a trade that needs to be carefully examined.

But, this is a *conditional back-test*, which is to say, it only triggers if an event before it occurs.

RISK CONTROL

Since blindly owning put can be a quick way to lose in the option market, we will apply a tight risk control to this analysis as well. We will add a 40% stop loss and a 40% limit gain.



In English, at the close of every trading day, if the put is up 40% from the price at the start of the trade, it gets sold for a profit. If it is down 40%, it gets sold for a loss. This also has the benefit of taking profits if there is a stock decline early in the two-week period rather than waiting to close 14-days later.

Another risk reducing move we made was to use 21-day options and only hold them for 14-days so the trade doesn't suffer from total premium decay.

RESULTS

If we bought the at-the-money put in Alphabet Inc (NASDAQ:GOOGL) over the last three-years but only held it **after earnings** and after an earnings pop higher, we get these results:

GOOGL

Long 50 Delta Put

% Wins:	**86%**
Wins: **6**	Losses: **1**
% Return:	**421.8%**

Tap Here to See the Back-test

The mechanics of the TradeMachine® are that it uses end of day prices for every back-test entry and exit (every trigger).

Looking at Averages

The overall return was **421.8**%; but the trade statistics tell us more with average trade results:

➡ The average return ***per trade*** was 69.87% over each 13-day period.

➡ The average return ***per winning trade*** was 89.17% over each 13-day period.

➡ The average return ***per losing trade*** was -45.93% over each 13-day period.

WHAT HAPPENED

You can guess stock direction -- guess momentum -- guess anything. But there's a lot less luck to successful option trading than that -- and every professional trader knows it. To learn more watch this quick demonstration video:

Tap Here to See the Tools at Work

Risk Disclosure

You should read the Characteristics and Risks of Standardized Options.

Past performance is not an indication of future results.

Trading futures and options involves the risk of loss. Please consider carefully whether futures or options are appropriate to your financial situation. Only risk capital should be used when trading futures or options. Investors could lose more than their initial investment.

Past results are not necessarily indicative of future results. The risk of loss in trading can be substantial, carefully consider the inherent risks of such an investment in light of your financial condition.

Please note that the executions and other statistics in this article are hypothetical, and do not reflect the impact, if any, of certain market factors such as liquidity and slippage.

A Wright Investors' Service Research Report:

Alphabet Inc

WRIGHT INVESTORS' SERVICE
177 West Putnam Avenue
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U.S.A.

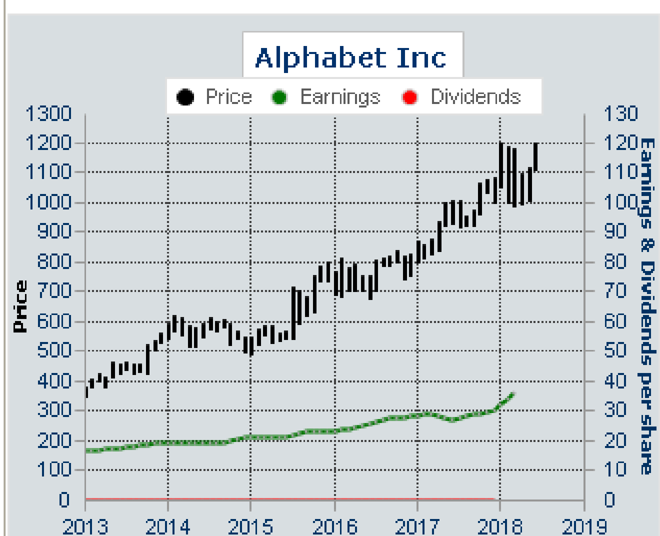
COMPANY PROFILE

Figures in U.S. Dollars

Wright Quality Rating: AAB13

Alphabet Inc. is a holding company. The Company's businesses include Google Inc. (Google) and its Internet products, such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo and X. The Company's segments include Google and Other Bets. The Google segment includes its Internet products, such as Search, Ads, Commerce, Maps, YouTube, Google Cloud, Android, Chrome and Google Play, as well as its hardware initiatives. The Google segment is engaged in advertising, sales of digital content, applications and cloud offerings, and sales of hardware products. The Other Bets segment is engaged in the sales of Internet and television services through Google Fiber, sales of Nest products and services, and licensing and research and development (R&D) services through Verily. It offers Google Assistant, which allows users to type or talk with Google; Google Maps, which helps users navigate to a store, and Google Photos, which helps users store and organize all of their photos.

Stock Chart



Stock Price (6/29/2018): 1,129.19

Recent stock performance

1 Week	-3.4%
4 Weeks	-0.5%
13 Weeks	8.9%
52 Weeks	21.5%

Officers

Chairman
Dr. John L. Hennessy

Chief Executive Officer
Lawrence E. Page

Senior Vice President & Chief Financial Officer
Ruth M. Porat

Senior Vice President & Secretary
David C. Drummond

Earnings / Dividends (as of 3/31/2018)

	Earnings	Dividends
Most Recent Qtr	13.33	0.00
Last 12 Months	36.06	0.00

Ratio Analysis

Key Data

Ticker:
GOOGL

2017 Sales:
110,855,000,000

Major Industry:
Miscellaneous

Sub Industry:
Service Organizations

Country:
United States

Currency:
U.S. Dollars

Fiscal Year Ends:
December

Employees
80,110

Exchanges:
NAS FRA MXK

Share Type:
CLass A

Market Capitalization:
784,724,944,550

Total Shares Outstanding:
694,945,000

Closely Held Shares:
88,404,174

Price / Earnings Ratio	31.31	Dividend Yield	0.00%
Price / Sales Ratio	7.08	Payout Ratio	0.00%
Price / Book Ratio	5.14	% Held by Insiders	12.72%

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Comparative Business Analysis: Alphabet Inc

Report Date: July 02, 2018

Company Description

Alphabet Inc. is a holding company. The Company's businesses include Google Inc. (Google) and its Internet products, such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo and X. The Company's segments include Google and Other Bets. The Google segment includes its Internet products, such as Search, Ads, Commerce, Maps, YouTube, Google Cloud, Android, Chrome and Google Play, as well as its hardware initiatives. The Google segment is engaged in advertising, sales of digital content, applications and cloud offerings, and sales of hardware products. The Other Bets segment is engaged in the sales of Internet and television services through Google Fiber, sales of Nest products and services, and licensing and research and development (R&D) services through Verily. It offers Google Assistant, which allows users to type or talk with Google; Google Maps, which helps users navigate to a store, and Google Photos, which helps users store and organize all of their photos.

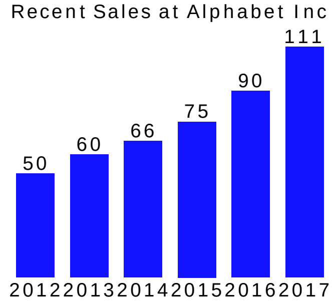
Competitor Analysis

Alphabet Inc operates in the Information retrieval services sector. This analysis compares Alphabet Inc with three other companies: Microsoft Corporation (2017 sales of $89.95 billion of which 43% was More Personal Computing), SK Holdings Co Ltd of South Korea (93.30 trillion Korean Won [US$83.03 billion] of which 45% was SK Innovation), and International Business Machines Corporation ($79.14 billion of which 43% was Technology serivces&Cloud Platforms).

Sales Analysis

During the first quarter of 2018, sales at Alphabet Inc totalled $31.15 billion. This is an increase of 25.8% from the $24.75 billion in sales at the company during the first quarter of 2017. This was the largest same quarter increase in sales since the first quarter of 2013. During the previous 33 quarters, sales at Alphabet Inc have increased compared with the same quarter in the previous year. Sales at Alphabet Inc appear to have some seasonality: during each of the previous 9 years, sales have been highest during the fourth quarter, which has accounted for between 27.4% and 29.2% of the annual sales. Alphabet Inc reported sales of $110.86 billion for the year ending December of 2017. This represents an increase of 22.8% versus 2016, when the company's sales were $90.27 billion. Sales at Alphabet Inc have increased during each of the previous five years (and since 2012, sales have increased a total of 121%). Sales of Other Bets saw an increase that was more than double the company's growth rate: sales were up 48.7% in 2017, from $809.00 million to $1.20 billion.

Recent Sales at Alphabet Inc



(Figures in Billions of U.S. Dollars)

Although Alphabet Inc is headquartered in the United States, it derives most of its sales outside of its home market: sales in the United States were $52.45 billion which was only 47.3% of 2017's sales. During 2017, the company's sales increased at a faster rate than all three comparable companies. While Alphabet Inc enjoyed a sales increase of 22.8%, the other companies saw smaller increases: Microsoft Corporation sales were up 5.4%, SK Holdings Co Ltd increased 11.6%, and International Business Machines Corporation experienced a sales decline of 1.0%. Alphabet Inc currently has 80,110 employees. With sales of $110.86 billion , this equates to sales of US$1,383,785 per employee. The sales per employee levels at the three comparable companies vary greatly, from US$215,873 to US$20,153,827, as shown in the following table. Some of the variation may be due to the way each of these companies counts employees (and if they count subcontractors, independent contractors, etc).

Sales Comparisons (Fiscal Year ending 2017)

Company	Year Ended	Sales (US$blns)	Sales Growth	Sales / Emp (US$)	Largest Region
Alphabet Inc	Dec 2017	110.855	22.8%	1,383,785	the United States (47.3%)
Microsoft Corporation	Jun 2017	89.950	5.4%	725,403	the United States (50.3%)
SK Holdings Co Ltd	Dec 2017	83.034	11.6%	20,153,827	South Korea
International Business Machines Corporation	Dec 2017	79.139	-1.0%	215,873	the Americas (47.4%)

Recent Stock Performance

During each of the previous 3 years, this stock has increased in value (at the end of 2014, the stock was at $530.66). For the 52 weeks ending 6/29/2018, the stock of this company was up 21.5% to $1,129.19 . During the past 13 weeks, the stock has increased 8.9%. During the 12 months ending 3/31/2018, earnings per share totalled $36.06 per share. Thus, the Price / Earnings ratio is 31.31. These 12 month earnings are greater than the earnings per share achieved during the calendar year ending last December, when the company reported earnings of 29.95 per share. Earnings per share rose 7.4% in 2017 from 2016. The 31.3 P/E ratio of this company is higher than the P/E ratio of all three comparable companies, which are currently trading between 8.2 and 27.5 times earnings. This company is currently trading at 7.08 times sales. The three companies vary greatly in terms of price to sales ratio: trading from 0.15 times all the way up to 8.42 times their annual sales. Alphabet Inc is trading at 5.14 times book value.

Summary of company valuations

Company	Date	P/E	Price / Book	Price / Sales	52 Wk Pr Chg
Alphabet Inc	6/29/2018	31.3	5.14	7.08	21.50%
Microsoft Corporation	6/29/2018	27.5	9.21	8.42	43.06%
SK Holdings Co Ltd	6/22/2018	8.2	1.06	0.15	-6.83%
International Business Machines Corporation	6/29/2018	11.8	7.25	1.62	-9.19%

The market capitalization of this company is $784.72 billion . The capitalization of the floating stock (i.e., that which is not closely held) is $684.90 billion .

Dividend Analysis

This company has paid no dividends during the last 12 months. The three comparable companies all paid dividends during the previous 12 months, however. The company has not paid any dividends during the previous 6 calendar years.

Profitability Analysis

On the $110.86 billion in sales reported by the company in 2017, the cost of goods sold totalled $38.68 billion, or 34.9% of sales (i.e., the gross profit was 65.1% of sales). This gross profit margin is lower than the company achieved in 2016, when cost of goods sold totalled 32.2% of sales. There was a wide variation in the gross profit margins at the three comparable companies, from 13.6% of sales to 71.7% of sales. Some of this disparity may be due to different accounting standards. The company's earnings before interest, taxes, depreciation and amorization (EBITDA) were $35.78 billion, or 32.3% of sales. This EBITDA to sales ratio is roughly on par with what the company achieved in 2016, when the EBITDA ratio was 33.0% of sales. In 2017, earnings before extraordinary items at Alphabet Inc were $22.49 billion, or 20.3% of sales. This profit margin is lower than the level the company achieved in 2016, when the profit margin was 21.6% of sales. Earnings before extraordinary items have grown for each of the past 5 years (and since 2013, earnings before extraordinary items have grown a total of 74%). The company's return on equity in 2017 was 16.2%. This was a decline in performance from the 16.2% return that the company achieved in 2016. (Extraordinary items have been excluded).

Profitability Comparison

Company	Year	Gross Profit Margin	EBITDA Margin	Earnings before extras

Alphabet Inc	2017	65.1%	32.3%	20.3%
Alphabet Inc	2016	67.8%	33.0%	21.6%
Microsoft Corporation	2017	71.7%	38.5%	23.6%
SK Holdings Co Ltd	2017	13.6%	12.3%	1.8%
International Business Machines Corporation	2017	50.9%	18.9%	14.2%

During the first quarter of 2018, Alphabet Inc reported earnings per share of $13.33. This is an increase of 84% versus the first quarter of 2017, when the company reported earnings of $7.23 per share.

Research and Development

Research and Development Expenses at Alphabet Inc in 2017 were $16.63 billion, which is equivalent to 15.0% of sales. In 2016, Alphabet Inc spent $13.95 billion on R&D, which was 15.5% of sales. The company's expenditures on R&D in 2017 were higher than all three comparable companies (as a percentage of sales): Microsoft Corporation spent 13.7% of its sales on R&D, SK Holdings Co Ltd spent 1.2%, and International Business Machines Corporation spent 7.3%. During each of the previous 5 years, the company has increased the amount of money it has spent on Research and Development (in 2012, Alphabet Inc spent $6.79 billion versus $16.63 billion in 2017).

Financial Position

As of December 2017, the company's long term debt was $3.97 billion and total liabilities (i.e., all monies owed) were $44.11 billion. The long term debt to equity ratio of the company is very low, at only 0.03. As of December 2017, the accounts receivable for the company were $18.71 billion, which is equivalent to 62 days of sales. This is slightly higher than at the end of 2016, when Alphabet Inc had 58 days of sales in accounts receivable. The company's outstanding payroll is quite high. At the end of 2017, Alphabet Inc had outstanding payroll of $4.58 billion. Since the company currently has 80,110 employees, this equates to $57,183.87 per employee.

Financial Positions

Company	Year	LT Debt/ Equity	Days AR	R&D/ Sales
Alphabet Inc	2017	0.03	62	15.0%
Microsoft Corporation	2017	1.08	80	13.7%
SK Holdings Co Ltd	2017	1.71	54	1.2%
International Business Machines Corporation	2017	2.26	146	7.3%

SUMMARY ANALYSIS: Alphabet Inc

Per Share- U.S. Dollars

Year	Price	Value Ratios			Equity Capital			Earnings		Dividends	
Calendar Year	**Market Price Last**	**Price/ Earnings Ratio**	**Price/ Book Ratio**	**Dividend Yield**	**% Earned Growth**	**% Profit Rate (ROE)**	**Book Value Begin Yr**	**12 Month Earnings Per Share**	**% Change**	**% Payout Ratio**	**12 Month Dividends Per Share**
2009	309.99	30.4	7.0	0.0%	23.1%	23.1%	44.21	10.21	53.3%	0.0%	0.00
2010	296.99	22.6	5.4	0.0%	23.7%	23.7%	55.47	13.16	28.9%	0.0%	0.00
2011	322.95	21.7	4.6	0.0%	21.0%	21.0%	70.82	14.88	13.1%	0.0%	0.00
2012	353.69	21.9	4.0	0.0%	18.1%	18.1%	89.48	16.16	8.6%	0.0%	0.00
2013	560.36	29.4	5.2	0.0%	17.5%	17.5%	108.67	19.07	18.0%	0.0%	0.00
2014	530.66	25.2	4.1	0.0%	16.2%	16.2%	129.99	21.02	10.3%	0.0%	0.00
2015	778.01	34.1	5.1	0.0%	14.9%	14.9%	153.64	22.84	8.6%	0.0%	0.00
2016	792.45	28.4	4.5	0.0%	15.9%	15.9%	175.07	27.88	22.1%	0.0%	0.00
2017	1,053.40	35.2	5.2	0.0%	14.9%	14.9%	201.12	29.95	7.4%	0.0%	0.00
6/29/2018	1,129.19	31.3	5.1	0.0%	n/a	n/a	219.50	36.06	n/c	0.0%	0.00

SALES ANALYSIS: **Alphabet Inc**

Figures in millions of U.S. Dollars

Year	Sales		Cost of Goods Sold		Earnings before Interest, Taxes, Depreciation, and Amortization (EBITDA)		After Tax Income before Extraordinary Charges and Credits		Employees		
	Amount *in millions*	Year-to-year Growth	Amount *in millions*	% of Sales	Amount *in millions*	% of Sales	Amount *in millions*	% of Sales	Number	Sales Per Employee	After Tax Income Per Employee
2008	21,796	31.3%	7,122	32.7%	7,353	33.7%	4,227	19.4%	20,222	1,077,814	209,023
2009	23,326	7.0%	7,320	31.4%	9,905	42.5%	6,520	28.0%	19,835	1,175,995	328,734
2010	29,118	24.8%	9,021	31.0%	12,192	41.9%	8,505	29.2%	24,400	1,193,361	348,566
2011	37,862	30.0%	11,337	29.9%	14,235	37.6%	9,737	25.7%	32,467	1,166,169	299,905
2012	50,175	32.5%	17,672	35.2%	16,432	32.7%	10,737	21.4%	53,861	931,565	199,346
2013	59,825	19.2%	21,885	36.6%	18,518	31.0%	12,920	21.6%	47,756	1,252,722	270,542
2014	66,001	10.3%	20,711	31.4%	21,962	33.3%	14,444	21.9%	53,600	1,231,362	269,478
2015	74,989	13.6%	23,140	30.9%	24,779	33.0%	15,826	21.1%	61,814	1,213,139	256,026
2016	90,272	20.4%	29,038	32.2%	30,374	33.6%	19,478	21.6%	72,053	1,252,856	270,329
2017	110,855	22.8%	38,684	34.9%	34,201	30.9%	22,486	20.3%	80,110	1,383,785	280,689

PRICE ANALYSIS: Alphabet Inc
Per Share- U.S. Dollars

Quarter		High Price	Low Price	Closing Price	Quarterly %Change	12 months % Change
2009	Jan - Mar	190.500	141.375	174.030	n/a	n/a
	Apr - Jun	223.670	170.305	210.795	21.1%	n/a
	Jul - Sep	253.500	197.990	247.925	17.6%	n/a
	Oct - Dec	312.995	241.300	309.990	25.0%	n/a
2010	Jan - Mar	314.755	260.000	283.560	-8.5%	62.9%
	Apr - Jun	298.920	222.360	222.475	-21.5%	5.5%
	Jul - Sep	268.425	216.815	262.895	18.2%	6.0%
	Oct - Dec	315.425	259.425	296.985	13.0%	-4.2%
2011	Jan - Mar	321.480	275.640	293.380	-1.2%	3.5%
	Apr - Jun	297.595	236.510	253.190	-13.7%	13.8%
	Jul - Sep	313.750	245.430	257.520	1.7%	-2.0%
	Oct - Dec	323.380	240.298	322.950	25.4%	8.7%
2012	Jan - Mar	335.125	282.275	320.620	-0.7%	9.3%
	Apr - Jun	326.570	278.260	290.035	-9.5%	14.6%
	Jul - Sep	382.445	281.045	377.250	30.1%	46.5%
	Oct - Dec	387.190	318.000	353.690	-6.2%	9.5%
2013	Jan - Mar	422.000	347.760	397.094	12.3%	23.9%
	Apr - Jun	460.300	380.630	440.185	10.9%	51.8%
	Jul - Sep	464.000	422.780	437.955	-0.5%	16.1%
	Oct - Dec	560.500	421.490	560.355	27.9%	58.4%
2014	Jan - Mar	614.440	541.135	557.255	-0.6%	40.3%
	Apr - Jun	589.600	511.000	584.670	4.9%	32.8%
	Jul - Sep	608.910	567.450	588.410	0.6%	34.4%
	Oct - Dec	592.400	497.190	530.660	-9.8%	-5.3%
2015	Jan - Mar	583.200	490.910	554.700	4.5%	-0.5%
	Apr - Jun	584.700	529.000	540.040	-2.6%	-7.6%

	Jul - Sep	713.330	539.760	638.370	18.2%	8.5%
	Oct - Dec	798.690	631.115	778.010	21.9%	46.6%
2016	Jan - Mar	810.350	682.010	762.900	-1.9%	37.5%
	Apr - Jun	790.950	672.660	703.530	-7.8%	30.3%
	Jul - Sep	819.060	699.000	804.060	14.3%	26.0%
	Oct - Dec	839.000	743.590	792.450	-1.4%	1.9%
2017	Jan - Mar	874.420	796.890	847.800	7.0%	11.1%
	Apr - Jun	1,008.610	834.600	929.680	9.7%	32.1%
	Jul - Sep	1,006.190	915.310	973.720	4.7%	21.1%
	Oct - Dec	1,086.490	961.950	1,053.400	8.2%	32.9%
2018	Jan - Mar	1,198.000	984.000	1,037.140	-1.5%	22.3%
	Apr - Jun	1,201.490	994.250	1,129.190	8.9%	21.5%
6/29/2018				1,129.190	8.9%	21.5%

EARNINGS AND DIVIDENDS ANALYSIS: Alphabet Inc

Per Share- U.S. Dollars
Fiscal Year Ends in December

	Earnings Per Share						Dividends Per Share						
	12 Months		Quarterly Reported Earnings				12 Months		Quarterly Reported Dividends				
Calendar Years	**Earnings**	**% Change**	Q1 Mar.	Q2 Jun.	Q3 Sep.	Q4 Dec.	**Dividends**	**% Change**	Q1 Mar.	Q2 Jun.	Q3 Sep.	Q4 Dec.	**% Payout**
2007	6.65	33.7%	1.60	1.47	1.69	1.90	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2008	6.66	0.2%	2.06	1.96	2.03	0.61	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2009	10.21	53.3%	2.25	2.33	2.57	3.07	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2010	13.16	28.9%	3.04	2.86	3.36	3.91	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2011	14.88	13.1%	2.76	3.85	4.17	4.11	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2012	16.16	8.6%	4.45	4.14	3.27	4.31	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2013	19.07	18.0%	4.97	4.77	4.38	4.95	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2014	21.02	10.3%	5.02	4.98	4.09	6.92	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2015	22.84	8.6%	5.07	4.92	5.74	7.10	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2016	27.88	22.1%	6.02	6.98	7.24	7.63	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2017	29.95	7.4%	7.23	4.69	8.97	9.06	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2018	n/a	n/c	13.33	n/a	n/a	n/a	n/a	n/c	n/a	n/a	n/a	n/a	n/c

Annual Balance Sheet - (Actual Values): Alphabet Inc
All figures in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Assets					
Total Assets	**196,615**	**167,114**	**147,210**	**131,133**	**110,920**
Total Current Assets	124,308	105,408	90,114	80,685	72,886
Cash & Short Term Investments	101,951	86,929	73,694	65,247	58,949
Cash	10,715	12,918	16,549	18,347	18,898
Short Term Investments	91,236	74,011	57,145	46,900	40,051
Receivables (Net)	18,705	14,232	13,909	11,556	9,390
Inventories -Total	749	268	0	0	426
Raw Materials			0	0	115
Work in Process			0	0	
Finished Goods			0	0	311
Progress Payments & Other			0	0	
Prepaid Expenses					
Other Current Assets	2,903	3,979	2,511	3,882	4,121
Long Term Receivables	0	0	0	0	0
Investment in Associated Companies	0	0	0	0	0
Other Investments	7,813	5,878	5,183	3,079	1,976
Property Plant and Equipment - Gross	59,647	47,527	40,146	32,746	23,837
Accumulated Depreciation	17,264	13,293	11,130	8,863	7,313
Property Plant and Equipment – Net	42,383	34,234	29,016	23,883	16,524
Other Assets	22,111	21,594	22,897	23,486	19,534
Deferred Charges	2,672	1,819	3,181	3,280	1,976

Tangible Other Assets	0	0	0	0	0
Intangible Other Assets	19,439	19,775	19,716	20,206	17,558
Total Assets	196,615	167,114	147,210	131,133	110,920
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**196,615**	**167,114**	**147,210**	**131,133**	**110,920**
Total Current Liabilities	24,183	16,756	19,310	16,805	15,908
Accounts Payable	3,137	2,041	1,931	1,715	2,453
Short Term Debt & Current Portion of Long Term Debt	0	0	3,225	2,019	4,018
Accrued Payroll	4,581	3,976	3,539	3,065	
Income Taxes Payable	881	554	302	96	24
Dividends Payable					
Other Current Liabilities	15,584	10,185	10,313	9,910	9,413
Long Term Debt	3,969	3,935	1,995	3,228	2,236
Long Term Debt Excluding Capitalized Leases	3,943	3,935	1,995	2,992	1,990
Capitalized Lease Obligations	26	0	0	236	246
Provision for Risks and Charges					
Deferred Income	340	202	151	104	139
Deferred Taxes	-250	-157	-62	1,971	1,947
Deferred Taxes - Credit	430	226	189	1,971	1,947
Deferred Taxes - Debit	680	383	251		
Other Liabilities	15,871	7,342	5,485	4,525	3,381
Total Liabilities	44,113	28,078	26,879	26,633	23,611
Non-Equity Reserves	0	0	0	0	0
Minority Interest	0	0	0	0	0
Preferred Stock	0	0	0	0	0

Common Equity	152,502	139,036	120,331	104,500	87,309
Total Liabilities & Shareholders' Equity	196,615	167,114	147,210	131,133	110,920

Annual Balance Sheet - (Common Size): **Alphabet Inc**

Figures are expressed as Percent of Total Assets.
Total Assets are in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Assets					
Total Assets	**196,615.0**	**167,114.0**	**147,210.0**	**131,133.0**	**110,920.0**
Total Current Assets	63.2%	63.1%	61.2%	61.5%	65.7%
Cash & Short Term Investments	51.9%	52.0%	50.1%	49.8%	53.1%
Cash	5.4%	7.7%	11.2%	14.0%	17.0%
Short Term Investments	46.4%	44.3%	38.8%	35.8%	36.1%
Receivables (Net)	9.5%	8.5%	9.4%	8.8%	8.5%
Inventories -Total	0.4%	0.2%	0.0%	0.0%	0.4%
Raw Materials			0.0%	0.0%	0.1%
Work in Process			0.0%	0.0%	
Finished Goods			0.0%	0.0%	0.3%
Progress Payments & Other			0.0%	0.0%	
Prepaid Expenses					
Other Current Assets	1.5%	2.4%	1.7%	3.0%	3.7%
Long Term Receivables	0.0%	0.0%	0.0%	0.0%	0.0%
Investment in Associated Companies	0.0%	0.0%	0.0%	0.0%	0.0%
Other Investments	4.0%	3.5%	3.5%	2.3%	1.8%
Property Plant and Equipment - Gross	30.3%	28.4%	27.3%	25.0%	21.5%
Accumulated Depreciation	8.8%	8.0%	7.6%	6.8%	6.6%
Property Plant and Equipment – Net	21.6%	20.5%	19.7%	18.2%	14.9%
Other Assets	11.2%	12.9%	15.6%	17.9%	17.6%

Deferred Charges	1.4%	1.1%	2.2%	2.5%	1.8%
Tangible Other Assets	0.0%	0.0%	0.0%	0.0%	0.0%
Intangible Other Assets	9.9%	11.8%	13.4%	15.4%	15.8%
Total Assets	100.0%	100.0%	100.0%	100.0%	100.0%
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**196,615.0**	**167,114.0**	**147,210.0**	**131,133.0**	**110,920.0**
Total Current Liabilities	12.3%	10.0%	13.1%	12.8%	14.3%
Accounts Payable	1.6%	1.2%	1.3%	1.3%	2.2%
Short Term Debt & Current Portion of Long Term Debt	0.0%	0.0%	2.2%	1.5%	3.6%
Accrued Payroll	2.3%	2.4%	2.4%	2.3%	
Income Taxes Payable	0.4%	0.3%	0.2%	0.1%	0.0%
Dividends Payable					
Other Current Liabilities	7.9%	6.1%	7.0%	7.6%	8.5%
Long Term Debt	2.0%	2.4%	1.4%	2.5%	2.0%
Long Term Debt Excluding Capitalized Leases	2.0%	2.4%	1.4%	2.3%	1.8%
Capitalized Lease Obligations	0.0%	0.0%	0.0%	0.2%	0.2%
Provision for Risks and Charges					
Deferred Income	0.2%	0.1%	0.1%	0.1%	0.1%
Deferred Taxes	-0.1%	-0.1%	-0.0%	1.5%	1.8%
Deferred Taxes - Credit	0.2%	0.1%	0.1%	1.5%	1.8%
Deferred Taxes - Debit	0.3%	0.2%	0.2%		
Other Liabilities	8.1%	4.4%	3.7%	3.5%	3.0%
Total Liabilities	22.4%	16.8%	18.3%	20.3%	21.3%
Non-Equity Reserves	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest	0.0%	0.0%	0.0%	0.0%	0.0%

Preferred Stock	0.0%	0.0%	0.0%	0.0%	0.0%
Common Equity	77.6%	83.2%	81.7%	79.7%	78.7%
Total Liabilities & Shareholders' Equity	100.0%	100.0%	100.0%	100.0%	100.0%

Balance Sheet - (Year to Year Percent Change): **Alphabet Inc**

Figures are the Percent Changes from the Prior Year.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Assets					
Total Assets	**17.7%**	**13.5%**	**12.3%**	**18.2%**	**18.3%**
Cash & Short Term Investments	17.3%	18.0%	12.9%	10.7%	22.1%
Cash	-17.1%	-21.9%	-9.8%	-2.9%	32.9%
Short Term Investments	23.3%	29.5%	21.8%	17.1%	17.6%
Receivables (Net)	31.4%	2.3%	20.4%	23.1%	9.4%
Inventories -Total	179.5%			-100.0%	-15.6%
Raw Materials				-100.0%	
Work in Process					
Finished Goods				-100.0%	-38.4%
Progress Payments & Other					
Prepaid Expenses					
Other Current Assets	-27.0%	58.5%	-35.3%	-5.8%	33.0%
Current Assets - Total	17.9%	17.0%	11.7%	10.7%	20.6%
Long Term Receivables					
Investment in Associated Companies					
Other Investments	32.9%	13.4%	68.3%	55.8%	34.5%
Property Plant and Equipment - Gross	25.5%	18.4%	22.6%	37.4%	34.7%
Accumulated Depreciation	29.9%	19.4%	25.6%	21.2%	25.2%
Property Plant and Equipment – Net	23.8%	18.0%	21.5%	44.5%	39.4%
Other Assets	2.4%	-5.7%	-2.5%	20.2%	-2.4%
Deferred Charges	46.9%	-42.8%	-3.0%	66.0%	-1.7%

Tangible Other Assets					
Intangible Other Assets	-1.7%	0.3%	-2.4%	15.1%	-2.5%
Total Assets	17.7%	13.5%	12.3%	18.2%	18.3%
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**17.7%**	**13.5%**	**12.3%**	**18.2%**	**18.3%**
Accounts Payable	53.7%	5.7%	12.6%	-30.1%	21.9%
Short Term Debt & Current Portion of Long Term Debt		-100.0%	59.7%	-49.8%	57.6%
Accrued Payroll	15.2%	12.3%	15.5%		
Income Taxes Payable	59.0%	83.4%	214.6%	300.0%	-90.0%
Dividends Payable					
Other Current Liabilities	53.0%	-1.2%	4.1%	5.3%	29.0%
Current Liabilities - Total	44.3%	-13.2%	14.9%	5.6%	11.0%
Long Term Debt	0.9%	97.2%	-38.2%	44.4%	-25.2%
Long Term Debt Excluding Capitalized Leases	0.2%	97.2%	-33.3%	50.4%	-33.4%
Capitalized Lease Obligations			-100.0%	-4.1%	
Provision for Risks and Charges					
Deferred Income	68.3%	33.8%	45.2%	-25.2%	39.0%
Deferred Taxes			-103.1%	1.2%	4.0%
Deferred Taxes - Credit	90.3%	19.6%	-90.4%	1.2%	4.0%
Deferred Taxes - Debit	77.5%	52.6%			
Deferred Tax Liability in Untaxed Reserves					
Other Liabilities	116.2%	33.9%	21.2%	33.8%	21.4%
Total Liabilities	57.1%	4.5%	0.9%	12.8%	6.9%
Non-Equity Reserves					
Minority Interest					

Preferred Stock					
Preferred Stock Issued for ESOP					
ESOP Guarantees - Preferred Issued					
Common Equity	9.7%	15.5%	15.1%	19.7%	21.7%
Total Liabilities & Shareholders' Equity	17.7%	13.5%	12.3%	18.2%	18.3%

Balance Sheet - (5 Year Averages): **Alphabet Inc**
Figures in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Assets					
Total Assets	**150,598.4**	**130,035.0**	**111,127.0**	**93,202.2**	**75,022.4**
Cash & Short Term Investments	77,354.0	66,617.0	58,223.8	50,548.4	42,417.1
Cash	15,485.4	16,185.6	15,491.8	14,713.4	12,335.5
Short Term Investments	61,868.6	50,431.4	42,732.0	35,835.0	30,081.5
Receivables (Net)	13,558.4	11,534.4	9,922.4	8,141.0	6,470.1
Inventories -Total	288.6	239.8	186.2	186.2	186.2
Raw Materials			23.0	23.0	23.0
Work in Process					
Finished Goods			163.2	163.2	163.2
Progress Payments & Other					
Prepaid Expenses					
Other Current Assets	3,479.2	3,518.2	3,047.0	2,793.4	2,292.0
Current Assets - Total	94,680.2	81,909.4	71,379.4	61,669.0	51,365.4
Long Term Receivables	0.0	0.0	0.0	0.0	0.0
Investment in Associated Companies	0.0				
Other Investments	4,785.8	3,517.0	2,499.4	1,567.4	977.4
Property Plant and Equipment - Gross	40,780.6	32,390.6	25,765.2	20,090.2	15,167.0
Accumulated Depreciation	11,572.6	9,288.4	7,589.2	6,165.6	5,050.1
Property Plant and Equipment – Net	29,208.0	23,102.2	18,176.0	13,924.6	10,116.9
Other Assets	21,924.4	21,506.4	19,072.2	16,041.2	12,562.7
Deferred Charges	2,585.6	2,453.4	2,189.4	1,641.6	1,068.8

Tangible Other Assets	0.0	0.0	0.0	0.0	0.0
Intangible Other Assets	19,338.8	19,053.0	16,882.8	14,399.6	11,493.9
Total Assets	150,598.4	130,035.0	111,127.0	93,202.2	75,022.4
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**150,598.4**	**130,035.0**	**111,127.0**	**93,202.2**	**75,022.4**
Accounts Payable	2,255.4	2,030.4	1,739.8	1,450.2	1,150.4
Short Term Debt & Current Portion of Long Term Debt	1,852.4	2,362.2	2,605.8	2,653.8	2,250.0
Accrued Payroll					
Income Taxes Payable	371.4	243.2	171.8	118.8	
Dividends Payable					
Other Current Liabilities	11,081.0	9,423.6	8,405.0	7,262.6	5,590.4
Current Liabilities - Total	18,592.4	16,623.2	15,054.6	13,191.8	10,380.3
Long Term Debt	3,072.6	2,876.4	2,686.6	2,287.6	1,642.0
Long Term Debt Excluding Capitalized Leases	2,971.0	2,780.0	2,590.2	2,191.2	1,592.8
Capitalized Lease Obligations	101.6	96.4	96.4	96.4	49.2
Provision for Risks and Charges					
Deferred Income	187.2	139.2	107.6	84.4	71.9
Deferred Taxes	689.8	1,114.2	1,203.0	1,162.4	715.7
Deferred Taxes - Credit	952.6	1,241.0	1,253.2		
Deferred Taxes - Debit					
Deferred Tax Liability in Untaxed Reserves					
Other Liabilities	7,320.8	4,703.8	3,675.2	2,654.0	1,811.2
Total Liabilities	29,862.8	25,456.8	22,727.0	19,620.2	15,139.6
Non-Equity Reserves	0.0	0.0	0.0	0.0	0.0
Minority Interest	0.0	0.0	0.0	0.0	0.0

Preferred Stock	0.0	0.0	0.0	0.0	0.0
Preferred Stock Issued for ESOP					
ESOP Guarantees - Preferred Issued					
Common Equity	120,735.6	104,578.2	88,400.0	73,582.0	59,882.8
Total Liabilities & Shareholders' Equity	150,598.4	130,035.0	111,127.0	93,202.2	75,022.4

Interim Balance Sheet - (Actual Values): **Alphabet Inc**
All figures in millions of U.S. Dollars.

Fiscal Period End Date	**03/31/2018**	**12/31/2017**	**09/30/2017**	**06/30/2017**	**03/31/2017**
Assets					
Total Assets	**206,257**	**196,615**	**189,031**	**178,245**	**172,391**
Total Current Assets	123,761	124,308	119,345	112,386	108,794
Cash & Short Term Investments	103,071	101,951	100,309	94,771	92,599
Receivables (Net)	16,814	18,705	15,577	14,877	12,969
Inventories - Total	636	749	765	398	280
Prepaid Expenses					
Other Current Assets	3,240	2,903	2,694	2,340	2,946
Investment in Associated Companies	0	0	0	0	0
Property Plant and Equipment - Gross	67,801	59,647	56,358	53,341	50,321
Accumulated Depreciation	18,956	17,264	16,238	15,665	14,385
Property Plant and Equipment – Net	48,845	42,383	40,120	37,676	35,936
Other Assets	33,651	29,924	29,566	28,183	27,661
Intangible Other Assets	20,671	19,439	19,614	19,537	19,684
Total Assets	206,257	196,615	189,031	178,245	172,391
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**206,257**	**196,615**	**189,031**	**178,245**	**172,391**
Total Current Liabilities	25,394	24,183	20,693	18,685	15,256
Accounts Payable	3,526	3,137	2,674	2,488	2,306
Short Term Debt & Current Portion of Long Term Debt	1,329	0	0	0	0
Income Taxes Payable	1,343	881	221	133	803

Other Current Liabilities	19,196	20,165	17,798	16,064	12,147
Long Term Debt	3,973	3,969	3,964	3,955	3,937
Long Term Debt Excluding Capitalized Leases	3,944	3,943	3,941	3,939	3,937
Capitalized Lease Obligations	29	26	23	16	
Deferred Taxes	-284	-250	-354	-7	239
Deferred Taxes - Credit	394	430	151	369	604
Deferred Taxes - Debit	678	680	505	376	365
Other Liabilities	16,349	16,211	7,628	7,326	8,010
Total Liabilities	45,432	44,113	31,931	29,959	27,442
Non-Equity Reserves	0	0	0	0	0
Minority Interest	0	0	0	0	0
Preferred Stock	0	0	0	0	0
Common Equity	160,825	152,502	157,100	148,286	144,949
Total Liabilities & Shareholders' Equity	206,257	196,615	189,031	178,245	172,391

Interim Balance Sheet - (Common Size): Alphabet Inc
Figures are expressed as Percent of Total Assets.
Total Assets are in millions of U.S. Dollars.

Fiscal Period End Date	**03/31/2018**	**12/31/2017**	**09/30/2017**	**06/30/2017**	**03/31/2017**
Assets					
Total Assets	**206,257.0**	**196,615.0**	**189,031.0**	**178,245.0**	**172,391.0**
Total Current Assets	60.0%	63.2%	63.1%	63.1%	63.1%
Cash & Short Term Investments	50.0%	51.9%	53.1%	53.2%	53.7%
Receivables (Net)	8.2%	9.5%	8.2%	8.3%	7.5%
Inventories - Total	0.3%	0.4%	0.4%	0.2%	0.2%
Prepaid Expenses					
Other Current Assets	1.6%	1.5%	1.4%	1.3%	1.7%
Investment in Associated Companies	0.0%	0.0%	0.0%	0.0%	0.0%
Property Plant and Equipment - Gross	32.9%	30.3%	29.8%	29.9%	29.2%
Accumulated Depreciation	9.2%	8.8%	8.6%	8.8%	8.3%
Property Plant and Equipment – Net	23.7%	21.6%	21.2%	21.1%	20.8%
Other Assets	16.3%	15.2%	15.6%	15.8%	16.0%
Intangible Other Assets	10.0%	9.9%	10.4%	11.0%	11.4%
Total Assets	100.0%	100.0%	100.0%	100.0%	100.0%
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**206,257.0**	**196,615.0**	**189,031.0**	**178,245.0**	**172,391.0**
Total Current Liabilities	12.3%	12.3%	10.9%	10.5%	8.8%
Accounts Payable	1.7%	1.6%	1.4%	1.4%	1.3%
Short Term Debt & Current Portion of Long Term Debt	0.6%	0.0%	0.0%	0.0%	0.0%
Income Taxes Payable	0.7%	0.4%	0.1%	0.1%	0.5%

Other Current Liabilities	9.3%	10.3%	9.4%	9.0%	7.0%
Long Term Debt	1.9%	2.0%	2.1%	2.2%	2.3%
Long Term Debt Excluding Capitalized Leases	1.9%	2.0%	2.1%	2.2%	2.3%
Capitalized Lease Obligations	0.0%	0.0%	0.0%	0.0%	
Deferred Taxes	-0.1%	-0.1%	-0.2%	-0.0%	0.1%
Deferred Taxes - Credit	0.2%	0.2%	0.1%	0.2%	0.4%
Deferred Taxes - Debit	0.3%	0.3%	0.3%	0.2%	0.2%
Other Liabilities	7.9%	8.2%	4.0%	4.1%	4.6%
Total Liabilities	22.0%	22.4%	16.9%	16.8%	15.9%
Non-Equity Reserves	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock	0.0%	0.0%	0.0%	0.0%	0.0%
Common Equity	78.0%	77.6%	83.1%	83.2%	84.1%
Total Liabilities & Shareholders' Equity	100.0%	100.0%	100.0%	100.0%	100.0%

Annual Income Statement - (Actual Values): Alphabet Inc
All figures in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Net Sales or Revenues	**110,855**	**90,272**	**74,989**	**66,001**	**59,825**
Cost of Goods Sold	38,684	29,038	23,140	20,711	21,885
Depreciation, Depletion & Amortization	6,899	6,100	5,024	4,602	3,939
Gross Income	65,272	55,134	46,825	40,688	34,001
Selling, General & Administrative Expenses	36,390	31,418	27,465	23,814	19,912
Other Operating Expenses	0	0	0	0	0
Operating Expenses - Total	81,973	66,556	55,629	49,127	45,736
Operating Income	28,882	23,716	19,360	16,874	14,089
Extraordinary Credit - Pretax	280	278	371	354	138
Extraordinary Charge - Pretax	3,140	534	475	501	428
Non-Operating Interest Income	1,312	1,220	999	790	785
Reserves - Increase/Decrease	0	0	0	0	0
Pretax Equity in Earnings	0	0	0	0	0
Other Income/Expense - Net	-32	-406	-500	-157	-5
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	34,201	30,374	24,779	21,962	18,518
Earnings before Interest & Taxes(EBIT)	27,302	24,274	19,755	17,360	14,579
Interest Expense on Debt					
Interest Capitalized	48	0	0	0	0
Pretax Income	27,193	24,150	19,651	17,259	14,496
Income Taxes	4,707	4,672	3,303	3,331	2,282
Minority Interest	0	0	0	0	0

Equity in Earnings	0	0	0	0	0
After Tax Other Income/Expense	0	0	-522	0	0
Discontinued Operations	0	0	0	516	706
Net Income before Extraordinary Items/Preferred Dividends	22,486	19,478	15,826	14,444	12,920
Extraordinary Items & Gain/Loss Sale of Assets	-9,824	0	0	0	0
Preferred Dividend Requirements	0	0	0	0	0
Net Income after Preferred Dividends - available to Common	22,486	19,478	15,826	14,444	12,920

Annual Income Statement - (Common Size): Alphabet Inc
Figures are expressed as Percent of Net Sales or Revenues.
Net Sales or Revenues are in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Net Sales or Revenues	**110,855.0**	**90,272.0**	**74,989.0**	**66,001.0**	**59,825.0**
Cost of Goods Sold	34.9%	32.2%	30.9%	31.4%	36.6%
Depreciation, Depletion & Amortization	6.2%	6.8%	6.7%	7.0%	6.6%
Gross Income	58.9%	61.1%	62.4%	61.6%	56.8%
Selling, General & Administrative Expenses	32.8%	34.8%	36.6%	36.1%	33.3%
Other Operating Expenses	0.0%	0.0%	0.0%	0.0%	0.0%
Operating Expenses - Total	73.9%	73.7%	74.2%	74.4%	76.4%
Operating Income	26.1%	26.3%	25.8%	25.6%	23.6%
Extraordinary Credit - Pretax	0.3%	0.3%	0.5%	0.5%	0.2%
Extraordinary Charge - Pretax	2.8%	0.6%	0.6%	0.8%	0.7%
Non-Operating Interest Income	1.2%	1.4%	1.3%	1.2%	1.3%
Reserves - Increase/Decrease	0.0%	0.0%	0.0%	0.0%	0.0%
Pretax Equity in Earnings	0.0%	0.0%	0.0%	0.0%	0.0%
Other Income/Expense - Net	-0.0%	-0.4%	-0.7%	-0.2%	-0.0%
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	30.9%	33.6%	33.0%	33.3%	31.0%
Earnings before Interest & Taxes(EBIT)	24.6%	26.9%	26.3%	26.3%	24.4%
Interest Expense on Debt					
Interest Capitalized	0.0%	0.0%	0.0%	0.0%	0.0%
Pretax Income	24.5%	26.8%	26.2%	26.1%	24.2%
Income Taxes	4.2%	5.2%	4.4%	5.0%	3.8%

Minority Interest	0.0%	0.0%	0.0%	0.0%	0.0%
Equity in Earnings	0.0%	0.0%	0.0%	0.0%	0.0%
After Tax Other Income/Expense	0.0%	0.0%	-0.7%	0.0%	0.0%
Discontinued Operations	0.0%	0.0%	0.0%	0.8%	1.2%
Net Income before Extraordinary Items/Preferred Dividends	20.3%	21.6%	21.1%	21.9%	21.6%
Extraordinary Items & Gain/Loss Sale of Assets	-8.9%	0.0%	0.0%	0.0%	0.0%
Preferred Dividend Requirements	0.0%	0.0%	0.0%	0.0%	0.0%
Net Income after Preferred Dividends - available to Common	20.3%	21.6%	21.1%	21.9%	21.6%

Income Statement - (Year to Year Percent Change): **Alphabet Inc**

Figures are the Percent Changes from the Prior Year.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Net Sales or Revenues	**22.8%**	**20.4%**	**13.6%**	**10.3%**	**19.2%**
Cost of Goods Sold	33.2%	25.5%	11.7%	-5.4%	23.8%
Depreciation, Depletion & Amortization	13.1%	21.4%	9.2%	16.8%	33.0%
Gross Income	18.4%	17.7%	15.1%	19.7%	15.1%
Selling, General & Administrative Expenses	15.8%	14.4%	15.3%	19.6%	18.7%
Other Operating Expenses					
Operating Expenses - Total	23.2%	19.6%	13.2%	7.4%	22.2%
Operating Income	21.8%	22.5%	14.7%	19.8%	10.4%
Extraordinary Credit - Pretax	0.7%	-25.1%	4.8%	156.5%	500.0%
Extraordinary Charge - Pretax	488.0%	12.4%	-5.2%	17.1%	-22.3%
Non-Operating Interest Income	7.5%	22.1%	26.5%	0.6%	10.1%
Reserves - Increase/Decrease					
Pretax Equity in Earnings					
Other Income/Expense - Net					-101.0%
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	12.6%	22.6%	12.8%	18.6%	12.7%
Earnings before Interest & Taxes(EBIT)	12.5%	22.9%	13.8%	19.1%	8.2%
Interest Expense on Debt	26.6%	19.2%	3.0%	21.7%	-1.2%
Interest Capitalized					
Pretax Income	12.6%	22.9%	13.9%	19.1%	8.3%
Income Taxes	0.7%	41.4%	-0.8%	46.0%	-12.2%
Minority Interest					
Equity in Earnings					
After Tax Other Income/Expense					
Discontinued Operations			-100.0%	-26.9%	

Net Income before Extraordinary Items/Preferred Dividends	15.4%	23.1%	9.6%	11.8%	20.3%
Extraordinary Items & Gain/Loss Sale of Assets					
Preferred Dividend Requirements					
Net Income after Preferred Dividends - available to Common	15.4%	23.1%	9.6%	11.8%	20.3%

Income Statement - (5 Year Averages): **Alphabet Inc**
Figures in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Net Sales or Revenues	**80,388.4**	**68,252.4**	**57,770.4**	**48,596.2**	**40,061.2**
Cost of Goods Sold	26,691.6	22,489.2	18,949.0	16,125.2	13,447.0
Depreciation, Depletion & Amortization	5,312.8	4,525.4	3,675.6	2,950.0	2,334.5
Gross Income	48,384.0	41,237.8	35,145.8	29,521.0	24,279.7
Selling, General & Administrative Expenses	27,799.8	23,878.0	20,089.4	16,301.0	12,837.1
Other Operating Expenses	0.0	0.0	0.0	0.0	0.0
Operating Expenses - Total	59,804.2	50,892.6	42,714.0	35,376.2	28,618.5
Operating Income	20,584.2	17,359.8	15,056.4	13,220.0	11,442.7
Extraordinary Credit - Pretax	284.2	232.8	183.0	114.6	
Extraordinary Charge - Pretax	1,015.6	497.8	584.2	568.2	468.0
Non-Operating Interest Income	1,021.2	901.4	819.8	735.8	623.7
Reserves - Increase/Decrease	0.0	0.0	0.0	0.0	0.0
Pretax Equity in Earnings	0.0				
Other Income/Expense - Net	-220.0	-108.6	34.6	215.6	279.8
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	25,966.8	22,413.0	19,185.2	16,667.8	14,256.5
Earnings before Interest & Taxes(EBIT)	20,654.0	17,887.6	15,509.6	13,717.8	11,922.0
Interest Expense on Debt	113.8	99.2	86.0	65.2	45.0
Interest Capitalized	9.6	0.0	0.0	0.0	0.0
Pretax Income	20,549.8	17,788.4	15,423.6	13,652.6	11,877.0
Income Taxes	3,659.0	3,237.2	2,820.6	2,618.2	2,324.1
Minority Interest	0.0	0.0	0.0	0.0	0.0
Equity in Earnings	0.0	0.0	0.0	0.0	0.0
After Tax Other Income/Expense	-104.4	-104.4	-104.4	0.0	0.0
Discontinued Operations	244.4	234.2	234.2	234.2	131.0

Net Income before Extraordinary Items/Preferred Dividends	17,030.8	14,681.0	12,732.8	11,268.6	9,683.9
Extraordinary Items & Gain/Loss Sale of Assets	-1,964.8	0.0	0.0	0.0	0.0
Preferred Dividend Requirements	0.0	0.0	0.0	0.0	0.0
Net Income after Preferred Dividends - available to Common	17,030.8	14,681.0	12,732.8	11,268.6	9,683.9

Interim Income Statement - (Actual Values): Alphabet Inc
All figures in millions of U.S. Dollars.

Fiscal Period End Date	**03/31/2018**	**12/31/2017**	**09/30/2017**	**06/30/2017**	**03/31/2017**
Net Sales or Revenues	**31,146**	**32,323**	**27,772**	**26,010**	**24,750**
Cost of Goods Sold	11,481	12,240	9,393	8,749	8,302
Depreciation, Depletion & Amortization	1,986	2,027	1,755	1,624	1,493
Gross Income	17,679	18,056	16,624	15,637	14,955
Selling, General & Administrative Expenses	10,678	10,392	8,842	8,769	8,387
Other Operating Expenses	0	0	0	0	0
Operating Expenses - Total					
Operating Income	7,001	7,664	7,782	6,868	6,568
Extraordinary Credit - Pretax	124	86	120	105	78
Extraordinary Charge - Pretax	220	33	128	2,838	249
Non-Operating Interest Income					
Reserves - Increase/Decrease					
Pretax Equity in Earnings	0	0	0	0	0
Other Income/Expense - Net	3,668	337	232	263	447
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	12,559	10,081	9,761	6,022	8,337
Earnings before Interest & Taxes(EBIT)	10,573	8,054	8,006	4,398	6,844
Interest Expense on Debt					
Interest Capitalized					
Pretax Income	10,543	8,018	7,979	4,377	6,819
Income Taxes	1,142	1,214	1,247	853	1,393
Minority Interest	0	0	0	0	0
Equity in Earnings	0	0	0	0	0

After Tax Other Income/Expense					
Discontinued Operations	0	0	0	0	0
Net Income before Extraordinary Items/Preferred Dividends	9,401	6,804	6,732	3,524	5,426
Extraordinary Items & Gain/Loss Sale of Assets	0	-9,824	0	0	0
Preferred Dividend Requirements	0	0	0	0	0
Net Income after Preferred Dividends - available to Common	9,401	6,804	6,732	3,524	5,426

Interim Income Statement - (Common Size): **Alphabet Inc**

Figures are expressed as Percent of Net Sales or Revenues.
Net Sales or Revenues are in millions of U.S. Dollars.

Fiscal Period End Date	**03/31/2018**	**12/31/2017**	**09/30/2017**	**06/30/2017**	**03/31/2017**
Net Sales or Revenues	**31,146.0**	**32,323.0**	**27,772.0**	**26,010.0**	**24,750.0**
Cost of Goods Sold	36.9%	37.9%	33.8%	33.6%	33.5%
Depreciation, Depletion & Amortization	6.4%	6.3%	6.3%	6.2%	6.0%
Gross Income	56.8%	55.9%	59.9%	60.1%	60.4%
Selling, General & Administrative Expenses	34.3%	32.2%	31.8%	33.7%	33.9%
Other Operating Expenses	0.0%	0.0%	0.0%	0.0%	0.0%
Operating Expenses - Total					
Operating Income	22.5%	23.7%	28.0%	26.4%	26.5%
Extraordinary Credit - Pretax	0.4%	0.3%	0.4%	0.4%	0.3%
Extraordinary Charge - Pretax	0.7%	0.1%	0.5%	10.9%	1.0%
Non-Operating Interest Income					
Reserves - Increase/Decrease					
Pretax Equity in Earnings	0.0%	0.0%	0.0%	0.0%	0.0%
Other Income/Expense - Net	11.8%	1.0%	0.8%	1.0%	1.8%
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	40.3%	31.2%	35.1%	23.2%	33.7%
Earnings before Interest & Taxes(EBIT)	33.9%	24.9%	28.8%	16.9%	27.7%
Interest Expense on Debt					
Interest Capitalized					
Pretax Income	33.9%	24.8%	28.7%	16.8%	27.6%
Income Taxes	3.7%	3.8%	4.5%	3.3%	5.6%
Minority Interest	0.0%	0.0%	0.0%	0.0%	0.0%

Equity in Earnings	0.0%	0.0%	0.0%	0.0%	0.0%
After Tax Other Income/Expense					
Discontinued Operations	0.0%	0.0%	0.0%	0.0%	0.0%
Net Income before Extraordinary Items/Preferred Dividends	30.2%	21.1%	24.2%	13.5%	21.9%
Extraordinary Items & Gain/Loss Sale of Assets	0.0%	-30.4%	0.0%	0.0%	0.0%
Preferred Dividend Requirements	0.0%	0.0%	0.0%	0.0%	0.0%
Net Income after Preferred Dividends - available to Common	30.2%	21.1%	24.2%	13.5%	21.9%

Sources of Capital: **Alphabet Inc**

Currency figures are in millions of U.S. Dollars.
Year to year % changes pertain to reported Balance Sheet values.

Fiscal Year	2017	2016	2015	2014	2013
Fiscal Year End Date	12/31/2017	12/31/2016	12/31/2015	12/31/2014	12/31/2013
Total Capital	**156,471.0**	**142,971.0**	**122,326.0**	**107,728.0**	**89,545.0**
Percent of Total Capital					
Short Term Debt	0.0%	0.0%	2.6%	1.9%	4.5%
Long Term Debt	2.5%	2.8%	1.6%	3.0%	2.5%
Other Liabilities	10.1%	5.1%	4.5%	4.2%	3.8%
Total Liabilities	28.2%	19.6%	22.0%	24.7%	26.4%
Minority Interest	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock	0.0%	0.0%	0.0%	0.0%	0.0%
Retained Earnings	72.4%	73.5%	72.9%	70.3%	68.4%
Common Equity	97.5%	97.2%	98.4%	97.0%	97.5%
Total Capital	100.0%	100.0%	100.0%	100.0%	100.0%
Year to Year Net Changes					
Short Term Debt	0.0	-3,225.0	1,206.0	-1,999.0	1,469.0
Long Term Debt	34.0	1,940.0	-1,233.0	992.0	-752.0
Other Liabilities	8,529.0	1,857.0	960.0	1,144.0	595.0
Total Liabilities	16,035.0	1,199.0	246.0	3,022.0	1,528.0
Minority Interest	0.0	0.0	0.0	0.0	0.0
Preferred Stock	0.0	0.0	0.0	0.0	0.0
Retained Earnings	8,116.0	15,908.0	13,517.0	14,444.0	12,920.0
Common Equity	13,466.0	18,705.0	15,831.0	17,191.0	15,594.0
Total Capital	13,500.0	20,645.0	14,598.0	18,183.0	14,842.0
Year to Year Percent Changes					
Short Term Debt		-100.0%	59.7%	-49.8%	57.6%
Long Term Debt	0.9%	97.2%	-38.2%	44.4%	-25.2%

Other Liabilities	116.2%	33.9%	21.2%	33.8%	21.4%
Total Liabilities	57.1%	4.5%	0.9%	12.8%	6.9%
Minority Interest					
Preferred Stock					
Retained Earnings	7.7%	17.8%	17.9%	23.6%	26.7%
Common Equity	9.7%	15.5%	15.1%	19.7%	21.7%
Total Capital	9.4%	16.9%	13.6%	20.3%	19.9%
Total Liabilities & Common Equity					
Total Liabilities	44,113.0	28,078.0	26,879.0	26,633.0	23,611.0
Net Change in Liabilities as % of Total Liabilities	36.3%	4.3%	0.9%	11.3%	6.5%
Common Equity	152,502.0	139,036.0	120,331.0	104,500.0	87,309.0
Net Change in Common Equity as % of Common Equity	8.8%	13.5%	13.2%	16.5%	17.9%
Cash Flow					
Operating Activities	37,091.0	36,036.0	26,024.0	22,376.0	18,659.0
Financing Activities	-8,298.0	-8,332.0	-3,677.0	-1,439.0	-857.0
Investing Activities	31,401.0	31,165.0	23,711.0	21,055.0	13,679.0

Accounting Ratios: **Alphabet Inc**

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Receivables Turnover	5.9	6.3	5.4	5.7	6.4
Receivables - Number of Days	54.2	56.9	60.3	57.9	54.8
Inventory Turnover	76.1	216.7			47.0
Inventory - Number of Days	4.8	1.7			7.8
Gross Property, Plant & Equipment Turnover	1.9	1.9	1.9	2.0	2.5
Net Property, Plant & Equipment Turnover	2.6	2.6	2.6	2.8	3.6
Depreciation, Depletion & Amortization % of Gross Property, Plant & Equipment	11.6%	12.8%	12.5%	14.1%	16.5%
Depreciation, Depletion & Amortization Year to Year Change	799.0	1,076.0	422.0	663.0	977.0
Depreciation, Depletion & Amortization Year to Year % Change	13.1%	21.4%	9.2%	16.8%	33.0%

Asset Utilization: **Alphabet Inc**

Figures are expressed as the ratio of Net Sales.
Net Sales are in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Net Sales	**110,855.0**	**90,272.0**	**74,989.0**	**66,001.0**	**59,825.0**
Cash & Cash Equivalents	92.0%	96.3%	98.3%	98.9%	98.5%
Short-Term Investments	82.3%	82.0%	76.2%	71.1%	66.9%
Accounts Receivable	16.9%	15.8%	18.5%	17.5%	15.7%
Inventories	0.7%	0.3%	0.0%	0.0%	0.7%
Other Current Assets	2.6%	4.4%	3.3%	5.9%	6.9%
Total Current Assets	112.1%	116.8%	120.2%	122.2%	121.8%
Total Long Term Receivables & Investments	7.0%	6.5%	6.9%	4.7%	3.3%
Long Term Receivables	0.0%	0.0%	0.0%	0.0%	0.0%
Investments in Associated Companies	0.0%	0.0%	0.0%	0.0%	0.0%
Other Investments	7.0%	6.5%	6.9%	4.7%	3.3%
Property, Plant & Equipment - Gross	53.8%	52.6%	53.5%	49.6%	39.8%
Accumulated Depreciation	15.6%	14.7%	14.8%	13.4%	12.2%
Property Plant & Equipment - Net	38.2%	37.9%	38.7%	36.2%	27.6%
Other Assets	19.9%	23.9%	30.5%	35.6%	32.7%
Total Assets	177.4%	185.1%	196.3%	198.7%	185.4%

Employee Efficiency: **Alphabet Inc**

Values per Employee are in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Employees	**80,110**	**72,053**	**61,814**	**53,600**	**47,756**
Values per Employee					
Sales	1,383,785	1,252,856	1,213,139	1,231,362	1,252,722
Net Income	280,689	270,329	256,026	269,478	270,542
Cash Earnings	347,585	454,332	427,622	410,672	391,364
Working Capital	1,249,844	1,230,372	1,145,436	1,191,791	1,193,107
Total Debt	49,544	54,613	84,447	97,892	130,957
Total Capital	1,953,202	1,984,248	1,978,937	2,009,851	1,875,052
Total Assets	2,454,313	2,319,321	2,381,499	2,446,511	2,322,640
Year to Year % Change per Employee					
Employees	11.2%	16.6%	15.3%	12.2%	-11.3%
Sales	10.5%	3.3%	-1.5%	-1.7%	34.5%
Net Income	3.8%	5.6%	-5.0%	-0.4%	35.7%
Cash Earnings	-23.5%	6.2%	4.1%	4.9%	34.1%
Working Capital	1.6%	7.4%	-3.9%	-0.1%	39.3%
Total Debt	-9.3%	-35.3%	-13.7%	-25.2%	27.4%
Total Capital	-1.6%	0.3%	-1.5%	7.2%	35.2%
Total Assets	5.8%	-2.6%	-2.7%	5.3%	33.4%

Fixed Charges Coverage: Alphabet Inc

Fiscal Year	2017	2016	2015	2014	2013
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
EBIT/Total Interest Expense	173.9	195.8	190.0	171.9	175.7
EBIT/Net Interest					
EBIT/(Total Interest Exp + Pfd Div)	173.9	195.8	190.0	171.9	175.7
EBIT/Dividends on Common Shares					
EBIT/(Dividends on Common + Pfd)					
EBITDA/Total Interest Expense	217.8	245.0	238.3	217.4	223.1
EBITDA/Net Interest					
EBITDA/(Total Interest Exp + Pfd Div)	217.8	245.0	238.3	217.4	223.1
EBITDA/Dividends on Com Shares					
EBITDA/(Dividends on Com + Pfd)					

Leverage Analysis: Alphabet Inc

Fiscal Year	2017	2016	2015	2014	2013
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Long Term Debt % of EBIT	14.5%	16.2%	10.1%	18.6%	15.3%
Long Term Debt % of EBITDA	11.6%	13.0%	8.1%	14.7%	12.1%
Long Term Debt % of Total Assets	2.0%	2.4%	1.4%	2.5%	2.0%
Long Term Debt % of Total Capital	2.5%	2.8%	1.6%	3.0%	2.5%
Long Term Debt % of Com Equity	2.6%	2.8%	1.7%	3.1%	2.6%
Total Debt % of EBIT	14.5%	16.2%	26.4%	30.2%	42.9%
Total Debt % of EBITDA	11.6%	13.0%	21.1%	23.9%	33.8%
Total Debt % of Total Assets	2.0%	2.4%	3.5%	4.0%	5.6%
Total Debt % of Total Capital	2.5%	2.8%	4.3%	4.9%	7.0%
Total Debt % of Total Capital & Short Term Debt	2.5%	2.8%	4.2%	4.8%	6.7%
Total Debt % of Common Equity	2.6%	2.8%	4.3%	5.0%	7.2%
Minority Interest % of EBIT	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest % of EBITDA	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest % of Total Assets	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest % of Total Capital	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest % of Com Equity	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock % of EBIT	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock % of EDITDA	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock % of Total Assets	0.0%	0.0%	0.0%	0.0%	0.0%

Preferred Stock % of Total Capital	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock % of Total Equity	0.0%	0.0%	0.0%	0.0%	0.0%
Common Equity % of Total Assets	77.6%	83.2%	81.7%	79.7%	78.7%
Common Equity % of Total Capital	97.5%	97.2%	98.4%	97.0%	97.5%
Total Capital % of Total Assets	79.6%	85.6%	83.1%	82.2%	80.7%
Capital Expenditure % of Sales	11.9%	11.3%	13.2%	16.6%	12.3%
Fixed Assets % of Common Equity	27.8%	24.6%	24.1%	22.9%	18.9%
Working Capital % of Total Capital	64.0%	62.0%	57.9%	59.3%	63.6%
Dividend Payout	0.0%	0.0%	0.0%	0.0%	0.0%
Funds From Operations % of Total Debt	701.6%	831.9%	506.4%	419.5%	298.8%

Liquidity Analysis: **Alphabet Inc**

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Total Current Assets % Net Sales	112.1%	116.8%	120.2%	122.2%	121.8%
Cash % of Current Assets	8.6%	12.3%	18.4%	22.7%	25.9%
Cash & Equivalents % of Current Assets	82.0%	82.5%	81.8%	80.9%	80.9%
Quick Ratio	5.0	6.0	4.5	4.6	4.3
Receivables % of Current Assets	15.0%	13.5%	15.4%	14.3%	12.9%
Receivable Turnover - number of days	54.2	56.9	60.3	57.9	54.8
Inventories % of Current Assets	0.6%	0.3%	0.0%	0.0%	0.6%
Inventory Turnover - number of days	4.8	1.7			7.8
Inventory to Cash & Equivalents - number of days	49,001.8	116,770.3			49,816.1
Receivables % of Total Assets	9.5%	8.5%	9.4%	8.8%	8.5%
Current Ratio	5.1	6.3	4.7	4.8	4.6
Total Debt % of Total Capital	2.5%	2.8%	4.2%	4.8%	6.7%
Funds from Operations % of Current Liabilities	115.1%	195.4%	136.9%	131.0%	117.5%
Funds from Operations % of Long Term Debt	701.6%	831.9%	1,325.0%	681.9%	835.9%
Funds from Operations % of Total Debt	701.6%	831.9%	506.4%	419.5%	298.8%
Funds from Operations % of Total Capital	17.8%	22.9%	21.6%	20.4%	20.9%
Cash Flow (in milllions of U.S. Dollars)					
Operating Activities	37,091.0	36,036.0	26,024.0	22,376.0	18,659.0

Financing Activities	-8,298.0	-8,332.0	-3,677.0	-1,439.0	-857.0
Investing Activities	31,401.0	31,165.0	23,711.0	21,055.0	13,679.0

Per Share Data: **Alphabet Inc**

Figures are expressed as per unit of respective shares.
Figures are in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Sales	159.55	130.58	109.10	97.04	89.07
Operating Income	41.57	34.31	28.17	24.81	20.98
Pre-tax Income	39.14	34.93	28.59	25.37	21.58
Net Income (Continuing Operations)	18.22	28.18	23.78	21.24	19.24
Net Income Before Extra Items	32.36	28.18	23.02	21.24	19.24
Extraordinary Items		0.00	0.00	0.00	0.00
Net Income After Extraordinary Items	18.22	28.18	23.02	21.24	19.24
Net Income Available to Common Shares	29.95	27.88	22.84	21.02	19.07
Fully Diluted Earnings	29.95	27.88	22.84	21.02	19.07
Common Dividends	0.00	0.00	0.00	0.00	0.00
Cash Earnings	37.09	46.85	38.15	32.04	27.58
Book Value	219.50	201.12	175.07	153.64	129.99
Retained Earnings	163.00	152.08	129.81	111.30	91.21
Assets	282.99	241.74	214.17	192.79	165.14

Profitability Analysis: Alphabet Inc
Currency figures are in U.S. Dollars.

Fiscal Year	2017	2016	2015	2014	2013
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Gross Income Margin	58.9%	61.1%	62.4%	61.6%	56.8%
Operating Income Margin	26.1%	26.3%	25.8%	25.6%	23.6%
Pretax Income Margin	24.5%	26.8%	26.2%	26.1%	24.2%
EBIT Margin	24.6%	26.9%	26.3%	26.3%	24.4%
Net Income Margin	11.4%	21.6%	21.1%	21.9%	21.6%
Return on Equity - Total	8.7%	15.0%	14.1%	15.1%	16.2%
Return on Invested Capital	8.5%	14.6%	13.5%	14.3%	15.2%
Return on Assets	7.0%	12.4%	11.5%	12.0%	12.7%
Asset Turnover	0.6	0.5	0.5	0.5	0.5
Financial Leverage	2.6%	2.8%	4.3%	5.0%	7.2%
Interest Expense on Debt	157,000,000	124,000,000	104,000,000	101,000,000	83,000,000
Effective Tax Rate	17.3%	19.3%	16.8%	19.3%	15.7%
Cash Flow % Sales	25.1%	36.3%	35.2%	33.4%	31.2%
Selling, General & Administrative Expenses % of Sales	32.8%	34.8%	36.6%	36.1%	33.3%
Research & Development Expense	15.0%	15.5%	16.4%	14.9%	13.2%
Operating Income Return On Total Capital	9.4%	16.9%	13.6%	20.3%	19.9%

Wright Quality Rating - Investment Acceptance: Alphabet Inc

Currency figures are in millions of U.S. Dollars.

Wright Quality Rating	**AAB13**
Investment Acceptance Rating	**A**
Total Market Value of Shares Outstanding - Three Year Average	594,051
- Current Year	784,725
Public Market Value (Excludes Closely Held) - Three Year Average	518,482
- Current Year	684,900
Trading Volume - Three Year Average	408,590
- Current Year	512,948
Turnover Rate - Three Year Average	68.8%
- Current Year	65.4%
Stock Exchange Listings	NAS FRA MXK
Number of Institutional Investors	3,149
Number of Shareholders	3,074
Closely Held Shares as % of Total Shares Outstanding	12.7%

Wright Quality Rating - Financial Strength: **Alphabet Inc**

Wright Quality Rating	**AAB13**
Financial Strength Rating	**A**
Total Shareholders' Equity (Millions of U.S. Dollars)	160,825
Total Shareholders' Equity as % Total Capital	96.8%
Preferred Stock as % of Total Capital	0.0%
Long Term Debt as % of Total Capital	2.4%
Long Term Debt (Millions of U.S. Dollars)	3,973
Lease Obligations (Millions of U.S. Dollars)	29
Long Term Debt including Leases (Millions of U.S. Dollars)	4,002
Total Debt as % of Total Capital	3.2%
Fixed Charge Coverage Ratio: Pretax Income to Interest Expense & Preferred Dividends	192.4
Fixed Charge Coverage Ratio: Pretax Income to Net Interest Income & Preferred Dividends	-26.2
Quick Ratio (Cash & Receivables / Current Liabilities)	4.7
Current Ratio (Current Assets / Current Liabilities)	4.9

Wright Quality Rating - Profitability & Stability: Alphabet Inc

Wright Quality Rating	**AAB13**
Profitability & Stability Rating	**B**
Profit Rate of Earnings on Equity Capital - Time-Weighted Normal	15.9%
- Basic Trend	-0.4%
Cash Earnings Return on Equity - Time-Weighted Average	22.9%
- Basic Trend	-0.6%
Cash Earnings Return on Equity - Stability Index	59.8%
Return On Assets (Time-Weighted Average)	14.0%
Pre-Tax Income as % of Total Assets (Time-Weighted Average)	14.2%
Operating Income as % of Total Assets (Time-Weighted Average)	13.7%
Operating Income as % of Total Capital (Adjusted Rate)	18.9%
Pre-Tax Income as % of Total Assets (Time-Weighted Average)	14.2%
Operating Income as % of Total Assets (Time-Weighted Average)	13.7%
Operating Income as % of Total Capital (Adjusted Rate)	18.9%

Wright Quality Rating - Corporate Growth: Alphabet Inc

Figures are expressed on a Per Share Basis.

Wright Quality Rating	**AAB13**
Growth Rating	**13**
Normal Earnings Growth	15.5%
Cash Earnings Growth	10.9%
Cash Earnings Stability Index	81.3%
Earned Equity Growth	15.9%
Dividend Growth	0.0%
Operating Income Growth	14.5%
Assets Growth	12.1%
Sales/Revenues Growth	13.2%

Wright Industry Averages Reports

Introduction

The following pages are comprised of seven reports which contain averages for the companies in the Software & Services (Global) sector. The primary source of the data contained in these reports is the Worldscope® Database. The "averages" reports are compiled from the fundamental data compiled on the companies which make up this industry.

Industry Averages - Report Types

- Sales Analysis
- Income Statement
- Balance Sheet
- Sources of Capital
- Leverage Analysis Ratios
- Per Share Data Ratios
- Profitability Analysis Ratios

The Wright Industry Averages Reports are compiled on a fiscal year basis. Companies ending their fiscal year in January are grouped with the prior year's reports. The values for 2012 for example are contributed by those companies that ended their fiscal year after 31 January 2012 and prior to 1 February 2013. The values shown for all reports are presented in U.S. dollars.

Data Compilation Steps

All companies in the industry with more than $1 million (U.S.) in net sales were included. Currency items in the financial statements were converted to U.S. dollars using an average exchange rate for each fiscal year. A sum (aggregate value) was computed for all financial statement items by totaling the values reported by each company in the industry sector. Industry Average report values were computed by dividing the aggregate value by the number of companies reporting.

Per share ratios were computed by using in the numerator a specific value that represents the aggregate sum for all companies in the industry divided by the aggregate value of the average number of appropriate common shares for each company.

Most companies in the industry reported Operating Income along with the major components that go into the calculation of Operating Income. For the minority of companies that did not report all underlying cost components those components were derived, where possible, utilizing the reported items. For example, if Cost of Goods Sold was not reported it was derived on a company-specific basis from the other reported items (i.e. Sales, Gross Income and Depreciation, Depletion & Amortization). The derived value was then included in the calculation of the industry average.

Summary Analysis: Software & Services Industry Averages (Global)

Figures are expressed on a Per Share Basis in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Market Prices						
High	11.13	8.81	9.29	8.67	7.81	6.48
Low	7.11	5.80	5.58	5.70	4.79	4.37
Average	9.12	7.31	7.44	7.19	6.30	5.43
Last	10.06	7.64	7.83	7.45	7.30	5.56
Value Ratios						
High Price / Earnings	39.3	34.8	43.0	29.9	26.5	29.5
Low Price / Earnings	25.2	22.9	25.8	19.7	16.2	19.9
Average Price / Earnings	32.2	28.9	34.4	24.8	21.4	24.7
Last Price / Earnings	35.6	30.2	36.2	25.7	24.7	25.3
Average Price / Book Value	4.8	4.2	4.4	3.9	3.6	3.4
Last Price / Book Value	5.3	4.4	4.7	4.0	4.2	3.5
Dividends / Average Price (Dividend Yield)	0.9%	1.1%	1.0%	1.0%	1.2%	1.3%
Dividends / Last Price (Dividend Yield)	0.8%	1.1%	0.9%	1.0%	1.0%	1.2%
Common Equity						
Earned Equity Growth	12.6%	10.6%	8.9%	12.9%	14.0%	10.5%
Return on Equity	15.7%	15.9%	13.3%	17.2%	18.9%	15.3%
Book Value	1.88	1.73	1.68	1.84	1.75	1.59
Common Shares (in millions)						
Common Shares Outstanding	324.6	300.7	286.4	252.5	243.4	242.2
Common Shares Used to Compute EPS	324.6	300.7	286.4	252.5	243.4	242.2
Common Stock Earnings						
Earnings per Share	0.28	0.25	0.22	0.29	0.29	0.22
Percent Change	11.8%	17.1%	-25.6%	-1.6%	34.3%	-20.5%
Income Tax Rate	21.4%	23.6%	27.3%	26.9%	25.1%	32.4%
Common Stock Dividends						
Dividends per Share	0.08	0.08	0.07	0.07	0.07	0.07
Percent Change	-2.8%	17.3%	-3.1%	-1.5%	8.7%	15.6%
Total Common Dividends (in millions of US$)	26.3	25.0	20.3	18.5	18.1	16.6

Dividends / Earnings (% Payout)	28.6%	32.9%	32.8%	25.2%	25.2%	31.1%
Capital Expenditure (in millions of US$)	41.4	34.1	29.6	28.6	25.2	23.6
Sales						
Sales (in millions of US$)	812.1	685.8	619.1	609.1	615.2	628.9
Percent Change	18.4%	10.8%	1.7%	-1.0%	-2.2%	10.4%
Sales per Share	2.50	2.28	2.16	2.41	2.53	2.60
Percent Change	9.7%	5.5%	-10.4%	-4.6%	-2.7%	9.0%

Sales Analysis: Software & Services Industry Averages (Global)

Figures are expressed in thousands of U.S. Dollars. Values per Employee are in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Sales	812,068	685,829	619,108	609,051	615,242	628,886
Percent Change	18.4%	10.8%	1.7%	-1.0%	-2.2%	10.4%
Cost of Goods Sold	381,716	328,507	292,622	284,424	293,532	308,151
Percent of Sales	47.0%	47.9%	47.3%	46.7%	47.7%	49.0%
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	174,299	145,768	125,104	139,180	131,458	110,794
Percent of Sales	21.5%	21.3%	20.2%	22.9%	21.4%	17.6%
Net Income after Preferred Dividends - available to Common	91,794	76,049	61,863	73,292	71,807	53,193
Percent of Sales	11.3%	11.1%	10.0%	12.0%	11.7%	8.5%
Employees	5,349	5,172	4,533	4,031	3,825	3,560
Sales per Employee	151,830	132,611	136,568	151,077	160,863	176,670
Net Income per Employee	17,162	14,705	13,646	18,180	18,775	14,943

Income Statement - (Actual Values): Software & Services Industry Averages (Global)

All figures in millions of U.S. Dollars.

Fiscal Year	2017	2016	2015	2014	2013	2012
Net Sales or Revenues	**812.1**	**685.8**	**619.1**	**609.1**	**615.2**	**628.9**
Cost of Goods Sold	381.7	328.5	292.6	284.4	293.5	308.2
Depreciation, Depletion & Amortization	48.6	40.0	35.4	33.9	33.4	32.6
Other Costs	1.8	1.3	0.1	-0.2	1.5	0.1
Gross Income	379.9	316.0	291.1	291.0	286.9	288.0
Selling, General & Administrative Expenses	243.3	204.4	188.1	183.0	182.6	181.3
Other Operating Expenses	8.7	6.7	5.6	6.6	4.3	4.9
Operating Expenses - Total	682.4	579.6	521.7	507.9	513.9	527.0
Operating Income	127.9	104.9	97.4	101.4	99.9	101.8
Extraordinary Credit - Pretax	3.8	2.3	2.9	2.6	1.4	2.5
Extraordinary Charge - Pretax	17.1	12.1	17.4	8.9	7.2	28.8
Non-Operating Interest Income	3.9	3.1	2.5	2.3	2.2	2.8
Reserves - Increase/Decrease	0.0	0.0	0.0	0.0	-0.0	-0.0
Pretax Equity in Earnings	1.4	0.6	0.6	0.1	0.2	-0.0
Other Income/Expense - Net	-7.8	-7.9	-5.8	-10.9	-3.4	-6.8
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	174.3	145.8	125.1	139.2	131.5	110.8
Earnings before Interest & Taxes(EBIT)	124.7	104.8	89.9	106.0	97.5	79.2
Interest Expense on Debt	10.7	8.5	7.2	6.7	6.5	6.6
Interest Capitalized	0.2	0.1	0.1	0.0	0.1	0.0
Pretax Income	117.1	98.3	84.7	101.9	93.5	78.5
Income Taxes	25.1	23.2	23.2	27.4	23.5	25.4
Minority Interest	0.8	1.5	0.7	0.6	0.5	0.5
Equity in Earnings	0.2	0.2	0.2	0.8	0.8	0.8
After Tax Other Income/Expense	-0.2	-0.1	-0.3	-0.1	-0.1	-0.1
Discontinued Operations	0.6	2.4	1.2	-1.2	1.6	-0.1
Net Income before Extraordinary Items/Preferred Dividends	91.9	76.1	61.9	73.4	71.9	53.3
Extraordinary Items & Gain/Loss Sale of Assets	-10.4	-0.0	0.1	0.0	0.8	0.3

Preferred Dividend Requirements	0.1	0.1	0.1	0.1	0.1	0.1
Net Income after Preferred Dividends - available to Common	91.8	76.0	61.9	73.3	71.8	53.2

Balance Sheet - (Actual Values): Software & Services Industry Averages (Global)

All figures in millions of U.S. Dollars.

Fiscal Year	2017	2016	2015	2014	2013	2012
Assets						
Total Assets	**1,444.4**	**1,200.9**	**1,066.6**	**984.3**	**910.2**	**889.0**
Cash & Short Term Investments	417.5	329.1	288.3	253.3	236.7	212.9
Cash	253.1	198.5	168.9	146.4	135.0	124.7
Short Term Investments	164.4	130.7	119.4	106.9	101.8	88.3
Receivables (Net)	211.7	175.4	160.6	152.8	149.3	144.2
Inventories -Total	23.2	18.4	17.7	15.9	16.7	16.7
Raw Materials	5.2	4.1	4.1	3.9	3.6	3.2
Work in Process	8.3	7.1	6.7	7.2	7.9	7.4
Finished Goods	9.4	8.1	8.1	7.0	7.5	6.6
Progress Payments & Other	0.3	-0.9	-1.2	-2.3	-2.4	-0.6
Prepaid Expenses	7.2	5.4	5.0	4.4	4.2	3.7
Other Current Assets	65.3	61.0	50.4	53.1	53.5	54.6
Current Assets - Total	722.9	587.2	519.7	477.3	458.8	431.8
Long Term Receivables	22.1	18.3	17.3	16.9	17.9	10.9
Investment in Associated Companies	33.3	27.0	24.6	21.3	18.0	11.1
Other Investments	46.7	35.1	33.3	24.2	22.3	26.1
Property Plant and Equipment - Gross	291.6	243.3	217.1	180.9	177.0	175.4
Accumulated Depreciation	146.1	125.2	113.0	97.4	96.1	99.3
Property Plant and Equipment – Net	145.5	118.1	104.6	83.9	80.9	76.3
Other Assets	470.4	411.5	363.2	356.8	302.8	279.3
Deferred Charges	10.5	8.6	8.3	7.2	10.6	8.1
Tangible Other Assets	32.1	23.7	21.3	21.1	21.8	11.5
Intangible Other Assets	425.8	360.6	316.5	305.4	270.6	257.8
Total Assets	1,444.4	1,200.9	1,066.6	984.3	910.2	889.0
Liabilities & Shareholders' Equity						
Total Liabilities & Shareholders' Equity	**1,444.4**	**1,200.9**	**1,066.6**	**984.3**	**910.1**	**889.0**
Accounts Payable	77.8	62.3	55.6	51.6	49.4	43.7

Short Term Debt & Current Portion of Long Term Debt	65.8	47.7	39.1	31.3	34.7	32.7
Accrued Payroll	29.6	25.5	24.1	23.1	20.3	21.0
Income Taxes Payable	11.7	9.1	8.2	11.5	10.2	9.2
Dividends Payable	0.7	1.0	1.0	0.8	0.4	1.3
Other Current Liabilities	228.1	188.3	167.8	156.0	155.1	145.7
Current Liabilities - Total	413.4	333.6	295.7	273.8	269.6	253.8
Long Term Debt	276.8	215.0	182.9	149.0	126.8	118.3
Long Term Debt Excluding Capitalized Leases	213.7	168.2	145.1	114.8	95.4	87.4
Capitalized Lease Obligations	63.1	46.9	37.9	34.2	31.4	31.0
Provision for Risks and Charges	26.9	25.8	23.4	26.3	23.8	35.2
Deferred Income	18.4	14.8	11.9	11.2	10.8	9.9
Deferred Taxes	3.1	10.8	11.8	14.8	5.6	3.6
Deferred Tax Liability in Untaxed Reserves						0.0
Other Liabilities	49.0	41.6	35.1	32.3	28.0	16.0
Total Liabilities	788.0	641.9	560.9	505.5	464.2	435.3
Non-Equity Reserves	0.1	0.1	0.1	0.1	0.1	0.2
Minority Interest	40.6	33.8	23.0	11.2	11.3	11.3
Preferred Stock	4.9	6.0	2.8	1.9	2.8	3.0
Preferred Stock Issued for ESOP	0.0	0.0	0.0	0.0	0.0	0.0
ESOP Guarantees - Preferred Issued						0.0
Common Equity	610.7	519.1	479.8	465.7	425.4	384.7
Total Liabilities & Shareholders' Equity	1,444.4	1,200.9	1,066.6	984.3	910.1	889.0

Sources of Capital: Software & Services Industry Averages (Global)

Currency figures are in millions of U.S. Dollars.
Year to year % changes pertain to reported Balance Sheet values.

Fiscal Year	2017	2016	2015	2014	2013	2012
Actual Values						
Total Capital	**933.2**	**773.7**	**688.5**	**627.8**	**566.4**	**517.5**
Long Term Debt	276.8	215.0	182.9	149.0	126.8	118.3
Minority Interest	40.6	33.8	23.0	11.2	11.3	11.3
Preferred Stock	4.9	6.0	2.8	1.9	2.8	3.0
Common Equity	610.7	519.1	479.8	465.7	425.4	384.7
Percent of Total Capital						
Long Term Debt	29.7%	27.8%	26.6%	23.7%	22.4%	22.9%
Minority Interest	4.4%	4.4%	3.3%	1.8%	2.0%	2.2%
Preferred Stock	0.5%	0.8%	0.4%	0.3%	0.5%	0.6%
Common Equity	65.4%	67.1%	69.7%	74.2%	75.1%	74.3%
Total Capital	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Year to Year Net Changes (in millions of U.S. Dollars)						
Long Term Debt	61.8	32.1	33.9	22.2	8.5	8.7
Minority Interest	6.8	10.8	11.9	-0.2	0.0	3.0
Preferred Stock	-1.0	3.2	0.8	-0.9	-0.2	0.1
Common Equity	91.7	39.3	14.1	40.3	40.7	36.4
Total Capital	159.5	85.2	60.7	61.4	49.0	48.2
Year to Year Percent Changes						
Long Term Debt	28.7%	17.5%	22.8%	17.5%	7.2%	7.9%
Minority Interest	20.2%	46.7%	106.2%	-1.4%	0.2%	36.9%
Preferred Stock	-17.3%	116.3%	43.3%	-31.3%	-6.6%	2.0%
Common Equity	17.7%	8.2%	3.0%	9.5%	10.6%	10.4%
Total Capital	20.6%	12.4%	9.7%	10.8%	9.5%	10.3%
Total Liabilities & Common Equity						
Total Liabilities	788.0	641.9	560.9	505.5	464.2	435.3
Net Change in Liabilities as % of Total Liabilities	18.5%	12.6%	9.9%	8.2%	6.2%	4.9%

Common Equity	610.7	519.1	479.8	465.7	425.4	384.7
Net Change in Common Equity as % of Common Equity	15.0%	7.6%	2.9%	8.6%	9.6%	9.5%
Cash Flow						
Operating Activities	165.3	134.1	112.9	114.6	110.4	113.6
Financing Activities	-2.3	-15.4	3.2	-14.9	-25.6	-27.1
Investing Activities	143.0	102.1	98.0	83.9	68.7	79.8

Leverage Analysis: Software & Services Industry Averages (Global)

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Long Term Debt % of EBIT	222.0%	205.1%	203.4%	140.5%	130.1%	149.4%
Long Term Debt % of EBITDA	158.8%	147.5%	146.2%	107.1%	96.5%	106.8%
Long Term Debt % of Total Assets	19.2%	17.9%	17.2%	15.1%	13.9%	13.3%
Long Term Debt % of Total Capital	29.7%	27.8%	26.6%	23.7%	22.4%	22.9%
Long Term Debt % of Com Equity	45.3%	41.4%	38.1%	32.0%	29.8%	30.8%
Total Debt % of EBIT	274.8%	250.6%	246.9%	170.0%	165.7%	190.8%
Total Debt % of EBITDA	196.6%	180.2%	177.5%	129.5%	122.8%	136.4%
Total Debt % of Total Assets	23.7%	21.9%	20.8%	18.3%	17.7%	17.0%
Total Debt % of Total Capital	36.7%	34.0%	32.2%	28.7%	28.5%	29.2%
Total Debt % of Total Capital & Short Term Debt	36.7%	34.0%	32.2%	28.7%	28.5%	29.2%
Total Debt % of Common Equity	56.1%	50.6%	46.3%	38.7%	38.0%	39.3%
Minority Interest % of EBIT	32.6%	32.2%	25.6%	10.5%	11.6%	14.3%
Minority Interest % of EBITDA	23.3%	23.2%	18.4%	8.0%	8.6%	10.2%
Minority Interest % of Total Assets	2.8%	2.8%	2.2%	1.1%	1.2%	1.3%
Minority Interest % of Total Capital	4.4%	4.4%	3.3%	1.8%	2.0%	2.2%
Minority Interest % of Com Equity	6.7%	6.5%	4.8%	2.4%	2.7%	2.9%
Preferred Stock % of EBIT	4.0%	5.7%	3.1%	1.8%	2.9%	3.8%
Preferred Stock % of EDITDA	2.8%	4.1%	2.2%	1.4%	2.1%	2.7%
Preferred Stock % of Total Assets	0.3%	0.5%	0.3%	0.2%	0.3%	0.3%
Preferred Stock % of Total Capital	0.5%	0.8%	0.4%	0.3%	0.5%	0.6%
Preferred Stock % of Total Equity	0.8%	1.1%	0.6%	0.4%	0.7%	0.8%
Common Equity % of Total Assets	42.3%	43.2%	45.0%	47.3%	46.7%	43.3%
Common Equity % of Total Capital	65.4%	67.1%	69.7%	74.2%	75.1%	74.3%
Total Capital % of Total Assets	64.6%	64.4%	64.6%	63.8%	62.2%	58.2%
Capital Expenditure % of Sales	5.1%	5.0%	4.8%	4.7%	4.1%	3.8%
Fixed Assets % of Common Equity	23.8%	22.8%	21.8%	18.0%	19.0%	19.8%
Working Capital % of Total Capital	33.2%	32.8%	32.5%	32.4%	33.4%	34.4%
Dividend Payout	28.6%	32.9%	32.8%	25.2%	25.2%	31.1%
Funds From Operations % of Total Debt	46.8%	51.7%	53.8%	63.6%	73.4%	77.9%

Per Share Data: Software & Services Industry Averages (Global)

Figures are expressed as per unit of respective shares.
Figures are in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Sales	2.50	2.28	2.16	2.41	2.53	2.60
Operating Income	0.39	0.35	0.34	0.40	0.41	0.42
Pre-tax Income	0.36	0.33	0.30	0.40	0.38	0.32
Net Income (Continuing Operations)	0.26	0.27	0.23	0.31	0.32	0.24
Net Income Before Extra Items	0.28	0.25	0.22	0.29	0.30	0.22
Extraordinary Items	0.00	-0.00	-0.00	0.00	0.00	0.00
Net Income After Extraordinary Items	0.25	0.25	0.22	0.29	0.30	0.22
Net Income Available to Common Shares	0.28	0.25	0.22	0.29	0.29	0.22
Fully Diluted Earnings	0.28	0.25	0.21	0.29	0.29	0.22
Common Dividends	0.08	0.08	0.07	0.07	0.07	0.07
Cash Earnings	0.49	0.45	0.42	0.45	0.49	0.49
Book Value	1.88	1.73	1.68	1.84	1.75	1.59
Retained Earnings	1.10	1.02	0.96	1.08	0.99	0.86
Assets	4.45	3.99	3.72	3.90	3.74	3.67

Profitability Analysis: Software & Services Industry Averages (Global)
Currency figures are in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Gross Income Margin	46.8%	46.1%	47.0%	47.8%	46.6%	45.8%
Operating Income Margin	15.7%	15.3%	15.7%	16.6%	16.2%	16.2%
Pretax Income Margin	14.4%	14.3%	13.7%	16.7%	15.2%	12.5%
EBIT Margin	15.4%	15.3%	14.5%	17.4%	15.8%	12.6%
Net Income Margin	10.0%	11.1%	10.0%	12.0%	11.8%	8.5%
Return on Equity - Total	15.7%	15.9%	13.3%	17.2%	18.9%	15.3%
Return on Invested Capital	10.5%	11.0%	9.9%	12.9%	14.0%	11.4%
Return on Assets	6.8%	7.1%	6.3%	8.1%	8.2%	6.9%
Asset Turnover	0.6	0.6	0.6	0.6	0.7	0.7
Financial Leverage	56.1%	50.6%	46.3%	38.7%	38.0%	39.3%
Interest Expense on Debt	10,747,420	8,467,178	7,192,740	6,677,898	6,496,700	6,634,928
Effective Tax Rate	21.4%	23.6%	27.3%	26.9%	25.1%	32.4%
Cash Flow % Sales	19.7%	19.8%	19.3%	18.8%	19.3%	18.7%
Selling, General & Administrative Expenses % of Sales	30.0%	29.8%	30.4%	30.0%	29.7%	28.8%
Research & Development Expense % of Sales	7.2%	7.0%	7.1%	6.6%	6.1%	6.1%
Operating Income Return On Total Capital	20.6%	12.4%	9.7%	10.8%	9.5%	10.3%

Wright Quality Rating®

Since 1970, Wright Investors' Service has rated all of the companies in its database (when there is sufficient information available). The Wright Quality Rating, measures the overall investment quality of a company.

Wright Quality Ratings are based on numerous individual measures of quality, grouped into four principal components: (1) Investment Acceptance (i.e. stock liquidity), (2) Financial Strength, (3) Profitability & Stability, and (4) Growth. The ratings are based on established principles using 5-6 years of corporate record and other investment data.

The ratings consist of three letters and a number. Each letter reflects a composite qualitative measurement of numerous individual standards which may be summarized as follows:

A = Outstanding; **B** = Excellent; **C** = Good; **D** = Fair; **L** = Limited; **N** = Not Rated.

The number component of the Quality Rating is also a composite measurement of the annual corporate growth, based on earnings and modified by growth rates of equity, dividends, and sales per common share. The Growth rating may vary from 0 (lowest) to 20 (highest). (See sample Quality Rating below.)

Example:

Wright Quality Rating: BAC8

Investment Acceptance	B	Excellent
Financial Strength	A	Outstanding
Profitability & Stability	C	Good
Growth	8	

The highest quality rating assigned by Wright is AAA20. This rating would be assigned to a company that has a large and broad base of shareholders, an outstanding balance sheet and strong and stable profitability. The company would also have experienced superior growth over the past several years.

The Wright Quality Rating assigned to a company also takes into consideration country and industry variations. If there is not sufficient information available, the quality rating will not be assigned or an "N" (not-rated) will be applied for that particular quality criteria.

O'Neil Market View

EQUITY RESEARCH WILLIAM O'NEIL+CO.

June 29, 2018

United States

The U.S. market is in an Uptrend Under Pressure. The S&P 500 and Nasdaq are both holding support above their respective 50-DMA after a sharp pullback earlier in the week. We are now looking for this level of support to hold for the next few sessions before we recommend increasing risk in the market. Distribution also remains elevated at six days on the S&P 500 and seven on the Nasdaq. Next week, however, two distribution days expire on each index which would take the count back down to a more comfortable level. Lastly, we are still monitoring the action of leading ideas which have come sharply off recent highs. We will be looking for new ideas to emerge, while prior leadership consolidates. Our recommendation is still to remain patient here with a focus on high relative strength ideas bucking the general market pullback.

Stocks on our U.S. Focus List: Current Sentiment

Our USFL of 68 ideas (five net removals) lost 2.6% on average this week, underperforming the S&P 500 (-1.3%) and the Nasdaq (-2.4%).

Actionable Focus List ideas: Activision Blizzard (**ATVI**), Alphabet (**GOOGL**), At Home (**HOME**), Calavo Growers (**CVGW**), Continental Resources (**CLR**), Diamondback Energy (**FANG**), Fleetcor Technologies (**FLT**), Home Depot (**HD**), McCormick (**MKC**), Nextera Energy (**NEP**), Paypal (**PYPL**), PRA Health Sciences (**PRAH**), SS&C Technologies (**SSNC**), Supernus Pharmaceuticals (**SUPN**), Unitedhealth (**UNH**), Vertex Pharmaceuticals (**VRTX**)

By Sector

We did see early signs of rotation into Energy last week. This continued this week with **FANG**, **CLR**, **WRD,** and **NEP** all holding those gains despite the pullback in the market. Consumer Staple also came under accumulation this week. **CVGW** regained its 50-DMA and is now trading just 3% off all-time highs, while **WTW** and new addition **MKC** are both trading near new highs. Lastly, the two biotechs on the USFL, **VRTX** and **SUPN**, both broke out and remain actionable at current levels. Conversely, Technology remains under pressure. The majority of software ideas undercut short-term support levels and now need time to consolidate before presenting better entry points. **SPLK** and **RHT** were both removed from our list due to severe technical deterioration, while **PAYC**, **ADSK**, **RNG**, **TYL**, **NOW,** and **RP** all remain on the list, but are all trading below their respective 50-DMA. Among software ideas, **ATVI** does stand out positively with a relative strength line near new highs.

New Ideas or Deletions

We added McCormick (**MKC**) and removed Fedex (**FDX**), Splunk (**SPLK**), Marvell Technology (**MRVL**), MKS Instruments (**MKSI**), Morgan Stanley (**MS**), and 58.com (**WUBA**) from the U.S. Focus List this week.

Developed Markets

Twenty-two developed markets declined 0.9% on average this week, extending losses from the previous week. Nine markets are in a Confirmed Uptrend, including four in an Uptrend Under Pressure. Five markets are in a Rally Attempt, while eight markets are in a Downtrend.

The iShares Developed Market Index (EFA) declined 1.2% for the week. It briefly touched a 10-month low before a 1% recovery on Friday. The index's 50-DMA undercut its 200-DMA for the first time since January 2017. It is now 10% off highs and remains in a Downtrend.

Key Developed Markets

EMEA

This week through Thursday, the Stoxx 600 lost 1.3%, following a 1% decline the prior week. The index is trading below the 50- and 200-DMA and remains in a Downtrend. However, on Friday, the index gained about 1% in early trading, trimming its losses for the week. We also downgraded a few other indices, including Denmark, Sweden, Switzerland, and Luxembourg, to a Downtrend. More than two-thirds of markets are in a Downtrend.

Sixteen European markets declined 0.9% on average, with most indices registering losses for the week. Denmark (-2.2%), Germany (-2.0%) and Ireland (-1.5%) were the top losers.

- According to Eurostat, eurozone inflation rose to 2% in June from 1.9% in May, approaching the ECB's target of slightly less than 2%. However, core inflation, which excludes volatile components like food and energy, eased to 1.0% from 1.1% in May.
- Germany's labor data for June was strong. Jobless claims were forecast to fall by 7,500 in June, but came in better than expected, falling by 15,000.
- On Friday, EU leaders struck a provisional migration deal that particularly pacifies concerns of Italy and Germany. The deal also focuses on strengthening control over external borders and internal screening.
- According to statistics agency Insee, France's consumer confidence in June hit its lowest point in almost two years. The indicator was below expectations of 100, at 97, and slid from 99 in May. This was the index's lowest level since August 2016.

APAC

Asia-Pacific markets followed suit as all five developed markets in the region closed in the red. Hong Kong (-1.3%) and Japan (-0.9%) declined the most. Hong Kong posted a strong bounce on Friday (+1.6%), but remains well below its 40-WMA and in a Downtrend. Japan and Australia/NZ remain in an Uptrend.

- Japan's unemployment rate for May fell 2.2%, marginally lower than the 2.5% decline in April and missing consensus estimates of a 2.5% fall.
- In May, New Zealand's trade surplus inflated about 5x to NZD 294M, beating consensus expectations of a NZD 100M surplus.

- On June 27, the Reserve Bank of New Zealand maintained its official cash rate at 1.75%, in line with consensus expectations. Economists believe that GDP forecasts will remain intact, while consumer prices are likely to rise in the short term.
- Singapore’s May consumer prices grew 0.4% y/y, more than market expectations of a 0.3% increase. Growth was driven by rising transport and food costs
- Hong Kong’s trade gap widened 21.3% y/y to HKD 43.3B in May from HKD 35.6B a year ago.

Stocks on our Global Focus List for Developed Markets: Current Sentiment

For the trailing five-day period through Thursday (Asia's full week), the 68 ideas (one addition and six removals) on our GFL DM declined 3.0% on average, underperforming the EFA benchmark.

Underperformers included Germany – five stocks lost 5.8% on average; the U.K. – four stocks lost 4.5% on average, Japan – 11 stocks lost 3.6% on average, and Hong Kong – 16 stocks lost 3.1% on average.

Stock Leaders included:

- Schoeller-Bleckmann (SCBL.AT): 3.7% gain, 7% off highs
- Swedish Orphan (SOBI.SE): 1.6% gain, 1% off highs

Actionable Developed Market Focus List ideas: Asahi Intecc (AS@H.JP), Ashtead (AHT.GB), Basic-Fit (BFIT.NL), Benefit One (BONE.JP), Cochlear (COH.AU), Ipsen (IPN.FR), Kose (OSEC.JP), Premium Brands (PBH.CA), Swedish Orphan Biovitrum (SOBI.SE), Tosho (T@SH.JP)

Stock Laggards included:

- Stabilus (STMX.DE): 8.7% loss, breached 40-WMA, 13% off highs
- Sixt (SIX2X.DE): 8.6% loss, 18% off highs
- Rubis (RUI.FR): 8.2% loss, removed from the list, broke below its 40-WMA, 19% off highs
- Wirecard (WDIX.DE): 8.1% loss, 12% off highs

By Sector

Our GFL DM versus the iShares Developed Market Index is:

- Overweight - Consumer Cyclical/Retail, Technology, Health Care, and Utility.
- Underweight - Capital Equipment, Consumer Staple, Financial, Energy, and Basic Material.

New Ideas or Deletions

This week we added Basic-Fit (BFIT.NL) to the focus list, while we removed Cie Automotive (AFR.ES), Galaxy Entertainment (PIPE.HK), Shanghai Fosun Pharma (SFPG.HK), Geely Automobile (MANR.HK), Rubis (RUI.FR), and Plastic Omnium (POM.FR).

Emerging Markets

Twenty-four emerging markets gained 0.1% on average, boosted by healthy gains toward the end of the week. Nine markets are in a Confirmed Uptrend, including five in an Uptrend Under Pressure. Five markets are in a Rally Attempt, while 10 markets are in a Downtrend.

The iShares Emerging Market Index (EEM) declined 1.3% this week. It was down as much as 4% through mid-day Thursday, before staging a late recovery. However, the index remains 16% off highs, well below both the 50- and 200-DMA, and in a Downtrend.

Key Emerging Markets

APAC

Nine APAC markets declined 0.3% on average. Thailand (-2.4%), South Korea (-1.3%), and India (-0.7%) fell, but the Philippines (+1.8%), Pakistan (+0.7%), and China (+0.6%) each posted gains. The Philippines staged a follow-through day on Friday. Most other markets (except India and Taiwan) are in a Downtrend. For these, we'll be looking for a follow-through day as early as mid-next week.

- China's manufacturing PMI increased to 51.9 in May, beating market consensus of 51.3. Non-manufacturing PMI increased to 54.9 in May, slightly above market estimates of 54.8.
- The Caixin China General Manufacturing PMI stood at 51.1 in May, below market consensus of 51.3.
- In May, Indonesia's exports increased 12.5% y/y to $16.1B, while its imports grew 28.1% y/y to $17.6B, narrowing the trade deficit to $1.52B, worse than market expectations due to higher oil prices.
- Indonesia's central bank raised its policy interest rate by 50bps to 5.25%, twice the market expectation. This was the third rate hike in less than two months, intensifying efforts to stabilize the nation's falling currency.
- Thailand's industrial production increased 3.20% y/y in May, falling short of consensus estimates of 3.50% growth.
- In May, South Korea's industrial production increased 0.9% y/y, beating past consensus estimates of 0.5%.
- Taiwan's industrial production increased 7.05% y/y in May, due to growth in the electronic parts and components industry.

EMEA

Ten EMEA markets posted an average gain of 0.4%, driven by healthy gains across most indices. Russia (1.7%), Hungary (1.5%), and Turkey (1.4%) posted gains, while Greece (-2.3%), and Poland (-2.1%) lagged peers.

- The Central Bank of Egypt left its key overnight deposit rate unchanged at 16.75%, in line with the consensus. The bank said the decision was consistent with its aim of achieving the targeted inflation rate of 13% with a tolerance range of 3% on either side.

- In Turkey's elections this week, the incumbent President Recep Tayyip Erdogan retained his office after securing more than 50% of the vote. However, his Justice and Development Party got only 42.5%, which translates to 295 seats, falling short of the 301 needed for majority in the parliament.
- Private sector credit in South Africa expanded 4.56% y/y in May, decelerating from April's 5.07% and below consensus estimates of 4.92%. May's reading was the weakest since September 2010.

Americas

Emerging Americas markets were mixed this week, as five markets gained 0.2% on average. Brazil (+2.6%), Colombia (+2.5%) were the outperformers while Peru (-2.6%) and Chile (-2.2%) dragged on regional performance.

- Brazil's central bank cut its GDP forecast and increased inflation projections. In its quarterly inflation report, the bank expects GDP growth of 1.6% this year, down from a previous forecast of 2.6% in the March report. As for consumer prices, the bank forecast inflation ending 2018 at 4.2%, up from the 3.8% forecast in March but still below the 4.5% target. The central bank added that 2019 inflation would be 3.7%.
- Meanwhile, economists surveyed by Brazil's central bank pared their expectations for the country's economic growth this year for the eighth week in a row, to 1.55% from 1.76% a week before. 2019 GDP growth forecasts were revised down for the third consecutive week, to 2.60% from 2.70%.
- The Brazilian real climbed almost 1% against the dollar on Thursday June 28, as a survey showed that the country's left failed to gain steam in presidential elections scheduled for October. The poll conducted by Ibope showed far-right congressman Jair Bolsonaro leading with 17% of voters' intentions, followed by environmentalist Marina Silva. Center-left populist Ciro Gomes received 8% of voter intentions.
- Although the focus of Mexico's general elections on Sunday will be on the presidential candidates, the key to the country's future will rest on how the congressional contests shake out. According to a poll conducted in late June by Parametria, the left-wing Morena party is poised to win the most seats in both the lower house and the senate. Morena is commanded by leftist Andres Manuel Lopez Obrador (AMLO), who leads the polls in the country's presidential race. Some of AMLO's policy proposals, including the reversal of key reforms enacted by the current administration that opened Mexico's energy industry to international companies, have scared investors. Whether or not AMLO can move forward with his proposed measures will depend on how much support from congress he gets.

Stocks on our Global Focus List for Emerging Markets: Current Sentiment

For the trailing five-day period through Thursday (Asia's full week), the 29 ideas (one removal) on our GFL EM lost 0.6 % on average, comfortably outperforming the EEM benchmark index.

Weekly outperformers included Malaysia – two stocks gained 4.2% on average. Underperformers included South Korea – six stocks lost 3.7% on average, South Africa – two stocks lost 2.1% on average, and India – 18 stocks dropped 0.3% on average.

Stock Leaders included:

- IPC Laboratories (LAB.IN): 6.3%, back above 50-DMA
- Top Glove (TOGL.MY): 5.0% gain, all-time high weekly close
- Britannia Inds. (BRI.IN): 4.3% gain, all-time high weekly close
- Banco Del Bajio (BJI.MX): 3.5% gain, the stock is approaching all-time highs

Actionable Emerging Markets Focus List ideas: Asian Paints (API.IN), Berger Paints (BPI.IN), Clicks (CLSJ.ZA), HDFC Bank (HFC.IN), JSW Steel (JVS.IN), Page Industries (PI1.IN), Reliance Industries (REL.IN), Skc Kolon Pi (SKJ.KR), Sundram Fasteners (SMF.IN)

Stock Laggards included:

- Koh Young Technology (KYX.KR): 10.1% loss, reversal from all-time high
- Samsung SDI (SCT.KR): 5.7% loss, 6% off highs
- Edelweiss Financial Services (EWC.IN): 5.7% loss, 13% off highs but bounced from 40-WMA support

By Sector

Our GFL EM versus the iShares Emerging Market Index is:

- Overweight – Basic Materials, Retail/Consumer Cyclical, Transportation, Consumer Staple, Capital Equipment, Financial, and Health Care.
- Underweight – Energy, Utility, and Technology.

New Ideas or Deletions

This week, we removed Power Grid Corporation of India (PGC.IN) from the Focus List.

Morgan Stanley | RESEARCH

UPDATE

2018 年 6 月 29 日 08:17 AM GMT

Alphabet Inc.

長期見通しに注目：Google Homeを無料提供すべき理由

投資判断	業界投資判断	目標株価
Overweight	In-Line	$1,250.00

2QのEPSは1%の予想未達になると見る一方、売上高800億ドル超のウェブサイト事業は加速するとみており、短期的な見通しはまちまちとなっている。長期的には業績予想の上方修正を見込むほか、SOTPに基づくバリュエーションがWaymoによって1,400ドルに達する可能性が下期に具体性を帯びると見て、弊社は強気スタンスを維持する。また、Google Home Miniを無料提供した場合の影響についても分析する。これもSOTPに基づくバリュエーションの押し上げに寄与する可能性がある。

今回の変更点

Alphabet Inc. (GOOGL.O)	従来	現在
目標株価	$1,200.00	**$1,250.00**

短期的には為替変動や投資による影響を踏まえ18年EPS予想を1%引き下げ、2Qは1%のEPS予想未達を予想。まず短期的な見通しについては、為替変動の影響を除く18年通期のウェブサイト事業の予想を2%上方修正する。年初から続く検索事業の好調と弊社のボトムアップ分析によるモバイル/デスクトップ検索に関する予想確度の向上を織り込んだ。とはいえ、売上高に対する為替の逆風は従来予想より2%強まるとみられるうえ、クラウド、ハードウェア、YouTubeへの持続的な投資を考慮して18年通期の営業費用予想(弊社が過去に行った費用分析に基づく)も引き上げる。総じて、弊社は概ね予想に沿った2Q決算になるとみている(粗利益は市場予想を1%上回り、EPSは1%下回る)。

長期見通しに注目して強気スタンスを維持する4つの理由：1) Alphabetの広告事業は引き続き大数の法則に逆らい、年間売上高が800億ドルを超えるウェブサイト事業は2Qに前年比24%の成長に加速すると予想される。**2)**この大規模で拡大を続ける広告事業が長期的にレバレッジ効果をもたらすとみられる(20年の弊社EPS予想を3%引き上げる)。**3)**業績予想の上方修正が見込まれる(19-20年の弊社EPS予想は市場予想を6%、4%上回る)。**4)**弊社のSOTPに基づくバリュエーションは1,400ドルとなっており、AlphabetがWaymoの自動運転試験を一般向けに開放するのに伴い、下期にこの達成が視野に入ってくる可能性がある。また、Google Home Miniの無料提供を通して積極的な投資を行えば、SOTPに基づくバリュエーションはさらに上昇する可能性がある。**2Q決算まではいかなる株価下落局面も押し目買いの好機と弊社はみており、基本ケースの想定を1,250ドルに引き上げる(長期的な利益拡大予想に基づく)。**

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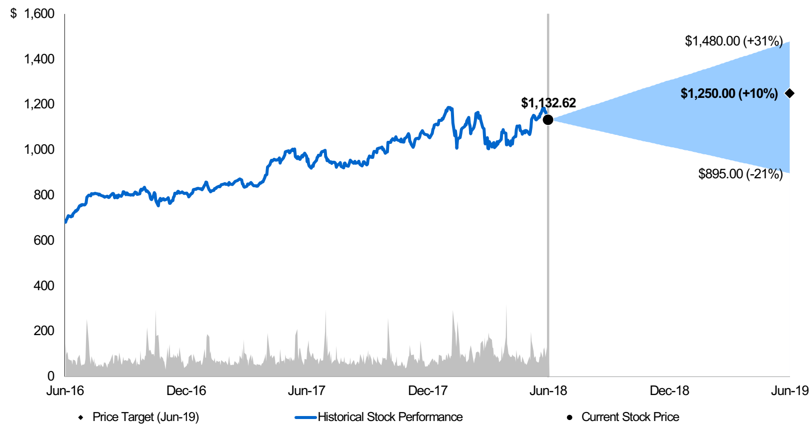
Alphabet Inc. (GOOGL.O, GOOGL US)

Internet / **United States of America**

投資判断	**Overweight**
業界投資判断	**In-Line**
目標株価	**$1,250.00**
直近終値 (2018年 6月 27日)	$1,116.94
時価総額 (百万)	$852,501
52週 高-安	$1,201.49-915.31

本レポートは、6月28日発行の"Alphabet Inc.: Focus on Long-term...And Why GOOGL Should Give Away Google Homes"の翻訳版(抄訳)です。日本語文への翻訳に際してはその解釈や表現に細心の注意を払っておりますが、万一、英文と日本語文との間に解釈や表現の違いが生じた場合は英文が優先します。

リスク・リワード



株価は6月26日終値。出所：Thomson Reuters, Morgan Stanley Research

目標株価 1,250ドル

DCF法に基づく。19年調整後弊社EBITDA予想約600億ドルの13倍。ここから「Other Bets(その他)」部門の損失を現在価値に割戻して差引き、目標株価を1,250ドルとした。DCF分析では、WACC約8%、永久成長率3%(他の成長志向型インターネット企業と同水準)と想定した。

強気ケース 1,480ドル

19年弊社強気ケースEBITDA予想から「Other Bets」の損失を現在価値に割戻し差引いた額の15倍

予想を上回る費用管理と自社株買いがマルチプルを押し上げ、収益力も高まる。モバイルの収益化が中核の検索収入の伸びを大幅に押し上げ、世界の検索広告予算に占めるAlphabetの割合が増す。YouTubeが売上高の伸びにこれまで以上に寄与し、弊社基本ケースを上回る高い利益率で運営される。

基本ケース 1,250ドル

19年弊社基本ケースEBITDA予想から「Other Bets」の損失を現在価値に割戻し差引いた額の13倍

中核のウェブサイトの伸びは18年に約23%(為替影響を除く)となり、Other Betsの非GAAP営業損失が縮小する。モバイル端末の普及により世界の検索広告予算に占めるAlphabetの割合が増し、18年の検索収入は20%程度の伸びとなる。モバイル検索が今後も伸びを牽引し続ける一方、デスクトップ検索も貢献し、YouTubeはオンライン動画でシェアを拡大する。

弱気ケース 895ドル

19年弊社弱気ケースEBITDA予想から「Other Bets」の損失を現在価値に割戻し差引いた額の11倍

世界的に広告市場の成長が鈍化し、投資の拡大が利益率の縮小につながる。広告予算の伸びと検索広告予算に占めるAlphabetの割合がともに低下し、18年まで検索広告の伸びが鈍化、18年の売上高は弊社基本ケース下回る。経費管理が想定以下にとどまり、調整後EBITDAは予想を下回る。

投資シナリオ

- モバイル検索、YouTubeの高い貢献度、18年のMap収益化などの継続的なイノベーションが支えとなり、Google Websitesの成長がアップサイドのサプライズとなる可能性。
- 規律に従った経費管理の継続が、利益率の拡大とEPS予想の上方修正につながる。
- 目標株価1,250ドルは、19年弊社EBITDA予想からAlphabetの投資損失を現在価値で差引いた額の13倍に相当する。

主なバリュードライバー

- オーガニック成長率が減速している米国と英国を含め、世界の広告予算に占める検索広告向け支出の割合が引き続き拡大する。
- モバイル検索広告が引き続きオンライン広告で予算を獲得し、今後のウェブサイト事業の成長を牽引する。
- 動画コンテンツへの投資がYouTubeの長期的な収益化を促す
- 費用増加ペースの減速化

目標株価に達しないリスク

- 検索はAlphabetの広告事業の重要な要素である。検索事業は世界の広告予算のシェアを獲得し続け、Googleはシェアにおける優位を維持すると考えるが、米国および英国市場における成長は鈍化している。
- Google Inc.をはじめAlphabetのその他の部門に関する情報開示を改善しても、検索事業への全般的な投資が減少しない可能性。
- 売上高の大部分を広告から得ている中での広告市場の悪化。
- EUによる独占禁止法違反調査のネガティブな結果。

バリュエーション

図表 1: Alphabet：コアDCF分析

Morgan Stanley | Google DCF (USD millions)	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	TY - 2025
Core Discounted cash flow analysis											
Net revenue	$73,479	$89,183	$108,327	$129,236	$151,772	$175,624	$200,325	$225,689	$251,252	$276,863	$285,169
% change Y/Y	*21.2%*	*21.4%*	*21.5%*	*19.3%*	*17.4%*	*15.7%*	*14.1%*	*12.7%*	*11.3%*	*10.2%*	*3.0%*
Adj. EBITDA	$36,563	$43,476	$50,350	$59,994	$71,385	$84,470	$98,082	$112,538	$127,290	$142,459	$146,733
(+) Other Bets EBITDA Loss (Gain)*	**$3,081**	**$5,726**	**$2,269**	**$1,880**	**$1,226**	**$333**	**($563)**	**($913)**	**($1,763)**	**($2,113)**	
(-) Cash taxes	(5,917)	(6,798)	(9,285)	(10,847)	(12,770)	(14,939)	(17,239)	(19,633)	(22,399)	(25,310)	
(+/-) Changes in working capital	3,300	9,246	61	2,219	2,380	2,437	2,495	2,488	2,730	2,782	
(-) Capex	(9,972)	(13,130)	(21,076)	(22,689)	(26,342)	(30,043)	(33,767)	(37,478)	(41,095)	(44,592)	
(+) Other Bets Capex*	**769**	**579**	**380**	**1,200**	**1,200**	**1,200**	**1,200**	**1,200**	**1,200**	**1,200**	
(-) Stock-based compensation	(6,703)	(7,679)	(9,131)	(10,525)	(12,303)	(14,698)	(17,290)	(20,060)	(21,608)	(23,027)	
Unlevered free cash flow	**$21,121**	**$31,420**	**$13,568**	**$21,232**	**$24,777**	**$28,759**	**$32,918**	**$38,142**	**$44,355**	**$51,400**	**$53,739**
% of Revenue	*28.7%*	*35.2%*	*12.5%*	*16.4%*	*16.3%*	*16.4%*	*16.4%*	*16.9%*	*17.7%*	*18.6%*	*18.8%*
Adj. EBITDA Margin	49.8%	48.7%	46.5%	46.4%	47.0%	48.1%	49.0%	49.9%	50.7%	51.5%	**51.5%**
UFCF / Adj. EBITDA	53.3%	63.9%	25.8%	34.3%	34.1%	33.9%	33.8%	34.2%	35.3%	36.6%	**36.6%**

Core Fair value	
PV of FCF	$177,186
NPV of terminal value	615,605
Enterprise value	**$792,791**
(-) Debt	5,302
(+) Cash & equivalents	131,185
Equity value	**$918,674**
Fully Diluted Shares	730
Equity fair value per share	**$1,258**
Terminal FCF multiple	19.1x

出所：Company data, Morgan Stanley Research

図表 2: Alphabet：ノンコアDCF分析

Morgan Stanley | Google DCF (USD millions)	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	TY - 2025
Discounted cash flow analysis											
Other Bets EBITDA Loss*	**($3,081)**	**($5,726)**	**($2,269)**	**($1,880)**	**($1,226)**	**($333)**	**$563**	**$913**	**$1,763**	**$2,113**	
Other Bets Capex	**(769)**	**(579)**	**(380)**	**(1,200)**	**(1,200)**	**(1,200)**	**(1,200)**	**(1,200)**	**(1,200)**	**(1,200)**	
Unlevered free cash flow	**($3,850)**	**($6,305)**	**($2,649)**	**($3,080)**	**($2,426)**	**($1,533)**	**($638)**	**($288)**	**$563**	**$913**	**$--**

Non-Core Fair value	
PV of FCF	($6,149)
NPV of terminal value	--
Enterprise value	**($6,149)**
Equity fair value per share	**($8)**
WACC	**8.2%**
Perpetual growth rate	--%

出所：Company data, Morgan Stanley Research

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上記の開示情報の中には米国以外の規制をも遵守するためのものが含まれています。

投資判断

Morgan Stanleyでは、Overweight、Equal-weight、Not-RatedまたはUnderweightといった用語を用い、相対評価の投資判断システムを採用しています(下記の定義を参照)。Morgan Stanleyは弊社の調査対象銘柄にBuy、Hold、Sellといった投資判断を付していません。Overweight、Equal-weight、Not-Rated およびUnderweightは買い、保持、売りと同等ではありません。投資家各位には、Morgan Stanley Researchで使用されているすべての投資判断の定義を慎重にご検討いただく必要があります。また、Morgan Stanley Researchにはアナリストの見解に関するより完全な情報が含まれているため、投資家各位は調査レポート全体を熟読すべきであり、投資判断の記載のみからレポートの内容を推測すべきではありません。いかなる場合も、投資判断(もしくは調査)を投資アドバイスとして利用したり、これらに依拠したりすべきではありません。株式の購入や売却は、投資家の個々の事情 (既存の保有高など)およびその他の状況を考慮に入れて決定される必要があります。

投資判断のグローバル分布状況

（2018年5月31日現在）

以下に記述されている投資判断はMorgan Stanleyのファンダメンタル株式調査を対象としており、当ファームが作成している負債調査には該当しません。(NASDとNYSEの規則に基づく)情報開示目的から、当社ではBuy、HoldおよびSellの分類見出しを当社の投資判断であるOverweight、Equal-weight、Not-RatedおよびUnderweightに併記しています。モルガン・スタンレーは当社の調査対象銘柄にBuy、HoldまたはSellという投資判断を付していません。Overweight、Equal-weight、Not-RatedおよびUnderweightはそれぞれBuy、HoldおよびSellと同等ではなく、相対的な推奨ウエートを表します (下記の定義を参照)。上記規則の要件を満たす意味では、当社の最も積極的な投資判断であるOverweightは買い推奨に相当し、Equal-weightおよびNot-Ratedは保持、Underweightは売り推奨に相当するといえます。

	全調査対象銘柄		投資銀行部門顧客(IBC)			その他の重要な投資サービス顧客（MISC)	
投資判断	数	合計比	数	IBC合計比	投資判断別IBC比率	数	MISC合計比率
Overweight/Buy	**1172**	**38%**	**289**	**40%**	**25%**	**551**	**39%**
Equal-weight/Hold	**1338**	**43%**	**354**	**49%**	**26%**	**639**	**46%**
Not-Rated/Hold	**53**	**2%**	**5**	**1%**	**9%**	**7**	**0%**
Underweight/Sell	**533**	**17%**	**77**	**11%**	**14%**	**207**	**15%**
合計	**3,096**		**725**			**1404**	

上表中の数字には、現在、投資判断が付されている普通株式とADRが含まれます。投資銀行部門顧客とは、モルガン・スタンレーが過去12ヵ月間に、投資銀行業務に対する報酬を受け取った会社を表します。小数点以下は切り捨てているため、”%”の欄に表示された数字を合計しても100とならない場合があります。

個別銘柄に対するアナリストの投資判断

Overweight (O)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率を上回る総投資収益率が期待される銘柄。

Equal-weight (E)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率と同程度の総投資収益率が期待される銘柄。

Not-Rated (NR)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率に対する総投資利益率について当該アナリストが十分な判断を下せない銘柄。

Underweight (U)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率を下回る総投資収益率が予想される銘柄。

Morgan Stanley Researchに目標株価が記載されている場合、特に断りがない限り、その達成の予想期間は今後12～18ヵ月です。

業界に対するアナリストの投資判断

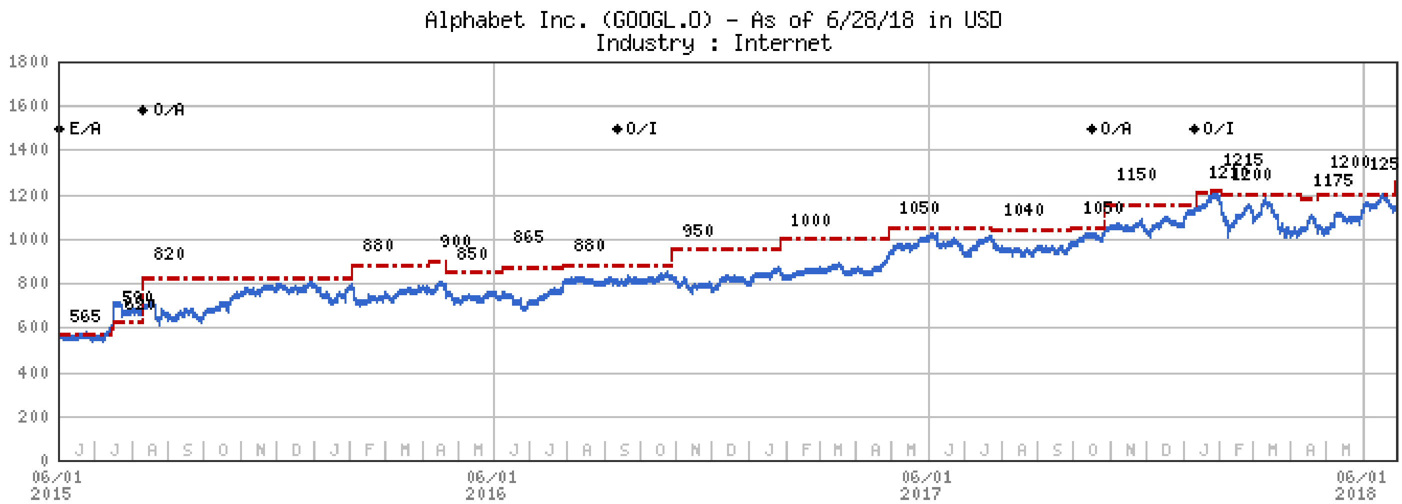
Attractive (A)：今後12～18ヵ月間について、市場全体のベンチマークである下記の株価指数との比較で、当該業界(アナリストのカバレッジユニバース)のパフォーマンスが魅力的であるとアナリストが期待している場合。

In-Line (I)：今後12～18ヵ月間について、当該業界(アナリストのカバレッジユニバース)のパフォーマンスが、市場全体のベンチマークである下記の株価指数と同程度になるとアナリストが期待している場合。

Cautious (C)：今後12～18ヵ月間について、市場全体のベンチマークである下記の株価指数との比較で、当該業界(アナリストのカバレッジユニバース)のパフォーマンスをアナリストが慎重にみている場合。

各地域のベンチマーク指数：北米はS&P500、ラテンアメリカは当該MSCI国別指数またはMSCIラテンアメリカ指数、ヨーロッパはMSCIヨーロッパ、日本はTOPIX、アジアは当該MSCI国別指数、当該MSCI地域別指数、またはMSCIアジア太平洋株価指数（日本除く）。

株価、目標株価、投資判断の推移 (投資判断の定義を参照)



Stock Rating History: 6/1/15 : E/A; 8/11/15 : O/A; 9/12/16 : O/I; 10/16/17 : O/A; 1/10/18 : O/I

Price Target History: 4/24/15 : 565; 7/15/15 : 590; 7/17/15 : 620; 8/11/15 : 820; 2/2/16 : 880; 4/7/16 : 900; 4/22/16 : 850; 6/8/16 : 865; 7/29/16 : 880; 10/28/16 : 950; 1/27/17 : 1000; 4/28/17 : 1050; 7/24/17 : 1040; 9/29/17 : 1050; 10/27/17 : 1150; 1/12/18 : 1210; 1/25/18 : 1215; 2/2/18 : 1200; 4/10/18 : 1175; 4/24/18 : 1200; 6/28/18 : 1250

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

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調査対象銘柄の一覧表： Internet

会社（コード）	投資判断(更新日)	株価* (2018/06/28)
Brian Nowak, CFA		
Activision Blizzard Inc (ATVI.O)	O (2016/09/23)	$76.01
Alphabet Inc. (GOOGL.O)	O (2015/08/11)	$1,126.78
Amazon.com Inc (AMZN.O)	O (2015/04/24)	$1,701.45
Blue Apron Holdings Inc (APRN.N)	E (2017/07/24)	$3.22
Booking Holdings Inc (BKNG.O)	O (2016/06/30)	$2,019.49
Criteo SA (CRTO.O)	E (2016/01/26)	$32.48
Despegar.com Corp (DESP.N)	E (2017/10/16)	$20.80
eBay Inc (EBAY.O)	O (2018/04/18)	$36.14
Electronic Arts Inc (EA.O)	E (2018/01/12)	$140.63
Etsy Inc (ETSY.O)	U (2018/01/12)	$42.24
Expedia Inc. (EXPE.O)	O (2018/01/10)	$120.50
Facebook Inc (FB.O)	O (2016/04/27)	$196.23
GrubHub Inc. (GRUB.N)	E (2018/04/18)	$105.58
Snap Inc. (SNAP.N)	U (2017/11/09)	$13.40
Take-Two Interactive Software (TTWO.O)	O (2018/02/01)	$118.06
TRIVAGO NV (TRVG.O)	E (2017/09/28)	$4.61
Twitter Inc (TWTR.N)	E (2018/04/17)	$44.79
Yelp Inc (YELP.N)	E (2015/07/29)	$39.12
Zynga Inc (ZNGA.O)	O (2017/06/08)	$4.04
Jonathan Lanterman, CFA		
Groupon, Inc. (GRPN.O)	E (2018/03/05)	$4.18
TrueCar Inc (TRUE.O)	E (2018/01/12)	$10.08
Zillow Group Inc (Z.O)	E (2018/04/18)	$58.62

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June 28, 2018 04:06 AM GMT

Alphabet Inc.

Focus on Long-term...And Why GOOGL Should Give Away Google Homes

Stock Rating	Industry View	Price Target
Overweight	In-Line	$1,250.00

Near-term a bit mixed as we expect a 1% 2Q EPS miss but see GOOGL's $80bn+ Websites business accelerating. Long-term is bullish as we see positive revisions and Waymo making $1,400 SOTP more tangible in 2H. We also analyze the math of a Google Home Mini giveaway, which could also drive SOTP.

WHAT'S CHANGED

Alphabet Inc. (GOOGL.O)	From	To
Price Target	$1,200.00	**$1,250.00**

Near-term, Lowering '18 EPS by 1% Due to FX and Investment, Modeling 1% EPS Miss in 2Q... Starting with the near-term, we raise our '18 ex-FX GOOGL Websites estimate by 2%, driven by continued strength in search YTD and increased precision in our bottom-up mobile/desktop search modeling (see Exhibit 3). That said, FX is now expected to be a 2% larger revenue headwind and we are raising our '18 opex (based on our historical dollar growth analysis) as GOOGL continues spending on Cloud, Hardware, and YouTube. In all, we expect a largely in-line 2Q (1% ahead of Street gross profit, 1% below in EPS; see Exhibit 6).

...But 4 Reasons To Stay Bullish and Focus on Long-Term 1) GOOGL's ad business continues to defy laws of large numbers as we expect GOOGL's $80bn+ annualized Websites business to accelerate to 24% y/y growth in 2Q **2)** This large and rapidly growing ad business will likely drive leverage long-term (our '20 EPS rises by 3%) **3)** Upward revisions are coming (we are 6%/4% ahead of Street '19/'20 EPS) and **4)** We have a $1,400 sum of parts valuation which could come more into view in 2H as GOOGL opens up Waymo autonomous tests to general audiences. As detailed below, more aggressive investment in a Google Home Mini giveaway could also drive the sum of parts narrative. **We are buyers on any weakness through 2Q results and raise our base case PT to $1,250 (higher long-term earnings).** We now turn to analyzing the case for GOOGL to give away Google Home Minis to every household in the US.

US Smart Speaker Household Penetration Headed to 70%+...with Voice Commerce on Deck: We estimate US smart speaker household penetration will

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Alphabet Inc. (GOOGL.O, GOOGL US)

Internet / **United States of America**

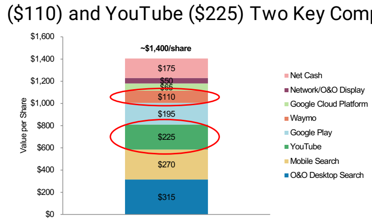
Stock Rating	**Overweight**
Industry View	**In-Line**
Price target	**$1,250.00**
Shr price, close (Jun 27, 2018)	$1,116.94
Mkt cap, curr (mm)	$852,501
52-Week Range	$1,201.49-915.31

Exhibit 1: Why GOOGL Should Give Away Home Minis

- **Protect search/data/consumer connection thru voice commerce transition**
  -Roughly 1 year of US retail search profit fully funds
- **Drive YouTube subscription revenue**
  -4 years of YouTube sub rev would also cover cost
  -Increased Sum of Parts tangibility
- **Plant seeds for next long-term profit drivers (Duplex)**

Source: Morgan Stanley Research

Exhibit 2: We have a $1,400 Sum of Parts...With Waymo ($110) and YouTube ($225) Two Key Components



Source: Company Data, Morgan Stanley Research

grow to ~70% by 2022… and that **there will be 1.3X more Amazon Echos than Google Homes** (see Exhibit 7). While only an estimated 10-15% of smart speaker owners are shopping through them today, we believe AMZN's push into voice-controlled TVs (see Alexa, Show Me The Nearest Best Buy?!? and Alexa, Meet My Television) and giving Alexa a screen could accelerate voice commerce. We see voice shopping likely leading to faster eCommerce adoption…so in our view, **the only question is whether/how much GOOGL will participate in voice commerce monetization.**

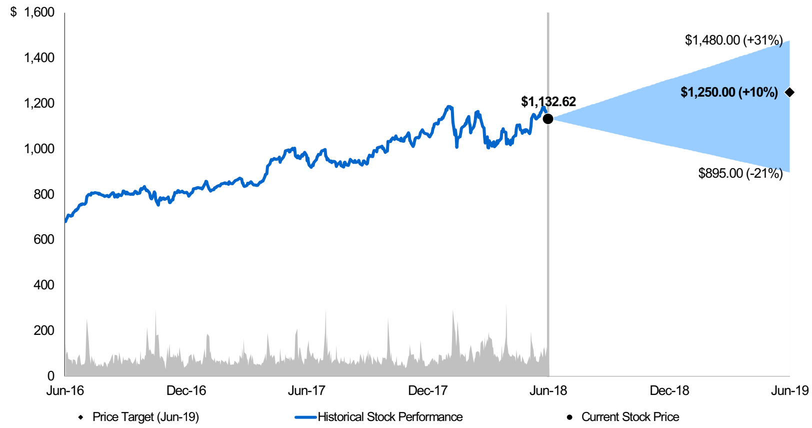
More GOOGL Devices Needed... With this backdrop, we argue GOOGL needs more devices/smart speakers in people's homes. The growth of voice shopping combined with AMZN's expected install base advantage could **1)** threaten long-term growth in GOOGL's high-monetizing retail search category (est 20% of US search revenue) and **2)** reduce GOOGL's visibility into consumer behavior and enhance AMZN's direct link to consumers, data, and connected homes.

...and $3bn is a Small Price to Pay: Like the mobile transition when GOOGL gave Android to OEMs and began paying Apple to power Safari search, **we believe GOOGL should give away a Google Home Mini to every US** (arguably global) **household.** We estimate the cost would be "only" $3.3bn ...or ~3% of 2019 opex. One way to look at it, **GOOGL's estimated US retail search profit over the next 5 years would cover this ~5X over** (see Exhibit 10). A larger personal assistant install base would also enable GOOGL to grow its emerging voice technologies (such as Duplex).

YouTube Subscription Adoption Could Also Fund This...While Driving Sum of Parts Narrative: Further, a Home Mini giveaway combined with a free YouTube Premium trial could drive YouTube subscription adoption (see Why is YouTube Focused on Music Subscription?) in the budding streaming music market. As shown in Exhibit 11, **even if 15% of free trial US households begin paying for YouTube Premium** (vs Spotify at ~25% conversion) **it would generate $1.8bn of incremental annual YouTube revenue**. This would potentially add 6% upside to YouTube revenue, pay back the total device cost in 4 years, and likely lead to a further appreciation for the ~$160bn YouTube value in our $1trln ($1,400/share) sum of the parts (see 1 Trillion Reasons for GOOGL to Improve Disclosure).

Why We Could Be Wrong: 1) For some users, phones may be an adequate channel to access smart assistants, offsetting the demand or need for smart speakers **2)** Giving away the smart speakers doesn't solve the entire shopping equation, as GOOGL still needs to continue to work and integrate with retailers (like WMT) to create a clean end-to-end voice commerce experience **3)** GOOGL is already subsidizing and giving away Google Homes in the US through multiple verticals (e.g. with the purchase of a TV or subscription to a newspaper) and **4)** It could be too late in the US given we estimate ~50% of US households are Prime...and those household could be less likely to adopt using a GOOGL Home...even if it were free **5)** Amazon could counter with low-priced or free Echos. Watch Prime Day this July.

GOOGL Risk Reward



Source: Thomson Reuters, Morgan Stanley Research

Price Target $1,250

Our $1,250 price target is based on our discounted cash flow valuation and implies ~13X 2019 adjusted EBITDA of ~$60bn. We then deduct the present value of the "Other Bets" losses, arriving at our price target of $1,250. We use an ~8% WACC and a ~3% terminal growth rate (in line with other growth-oriented internet companies).

Bull $1,480

~15X 2019 bull case EBITDA less the present value of the "Other Bets" losses

Better than expected expense discipline and share repurchases lead to multiple expansion and higher earnings power. Mobile monetization proves highly incremental to core search revenue growth and search takes more share of global budgets. YouTube becomes an even bigger contributor to top-line growth, and operates at a higher margin than in our base case.

Base $1,250

~13X 2019 base case EBITDA less the present value of the "Other Bets" losses

GOOGL's core Websites business grows ~23% (ex-FX) in 2018 and non-GAAP operating losses in "Other Bets" moderate. Assumes ~20% search revenue growth in 2018, as mobile device proliferation leads to search advertising taking share of global ad budgets. Mobile search continues to drive forward growth while desktop search also contributes and YouTube gains online video share.

Bear $895

~11X 2019 bear case EBITDA less the present value of the "Other Bets" losses.

Global ad growth slows...investment spend leads to margin compression too. Assumes slower search advertising growth through 2018, lower revenue compared to our base case in 2018 as growth in ad budgets slows, as search takes less share of budgets. Expense discipline fails to materialize leading to lower than expected adj. EBITDA.

Investment Thesis

- Google Websites growth is likely to surprise to the upside as we believe there are several underappreciated driven by mobile search, strong YouTube contribution, and continued innovation, such as Maps monetization in 2018.
- Continued expense discipline leads to margin expansion and upward revisions on EPS estimates.
- Our $1,250 price target implies ~13x 2019 base case EBITDA less the PV of the Alphabet investment losses.

Key Value Drivers

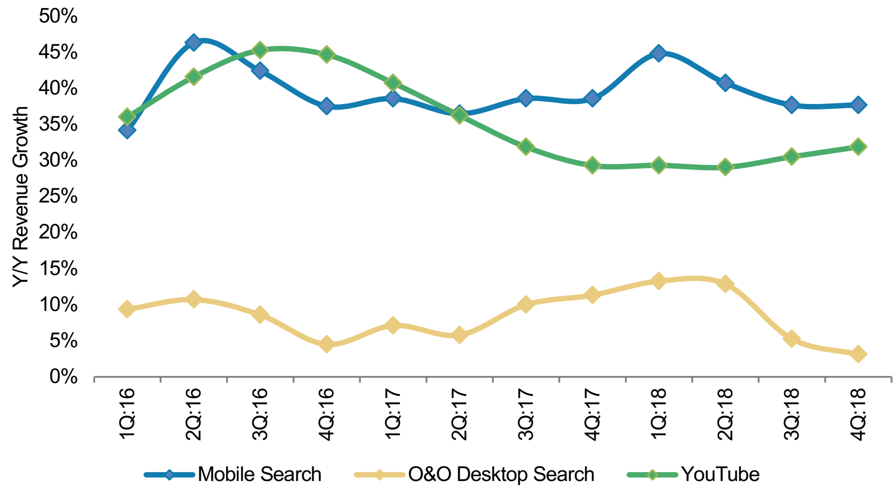
- Search advertising spend continues to gain share of global advertising budgets, including in the US and UK where organic growth appears to be slowing.
- Mobile search advertising continues to take share of online ad budgets and drive forward Websites growth.
- Investments in video content driving longer-term monetization at YouTube.
- Moderation of expense growth.

Key Risks

- Search is a key component of GOOGL's advertising business. While we believe Search will continue to take share of global ad budgets and Google will retain its dominant share, growth in US and UK markets has slowed.
- Improved disclosure around the Google Inc. and Other Alphabet segments may not decrease the overall investment activity of the business.
- Deterioration in the advertising market, particularly as vast majority of revenue is driven by advertising.
- Negative resolution of EU antitrust probe.

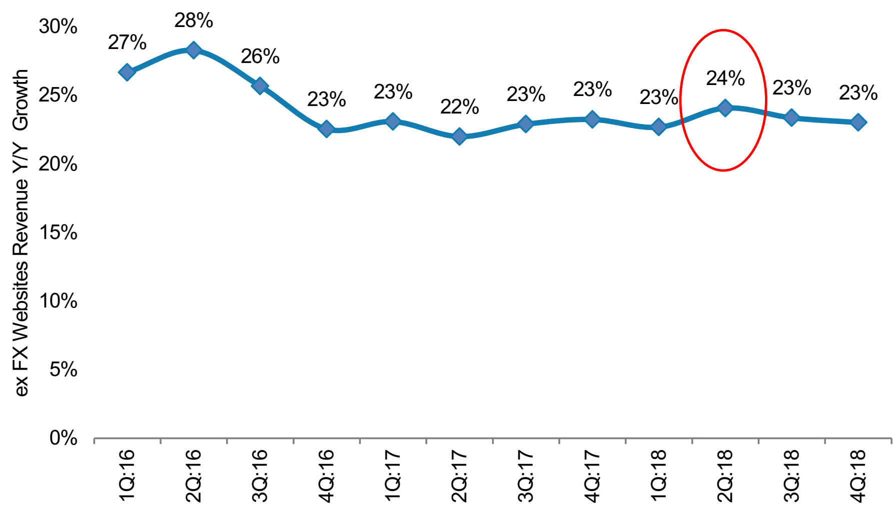
Analysis

Exhibit 3: We expect continued strength in Search and improving YouTube trends in '18...



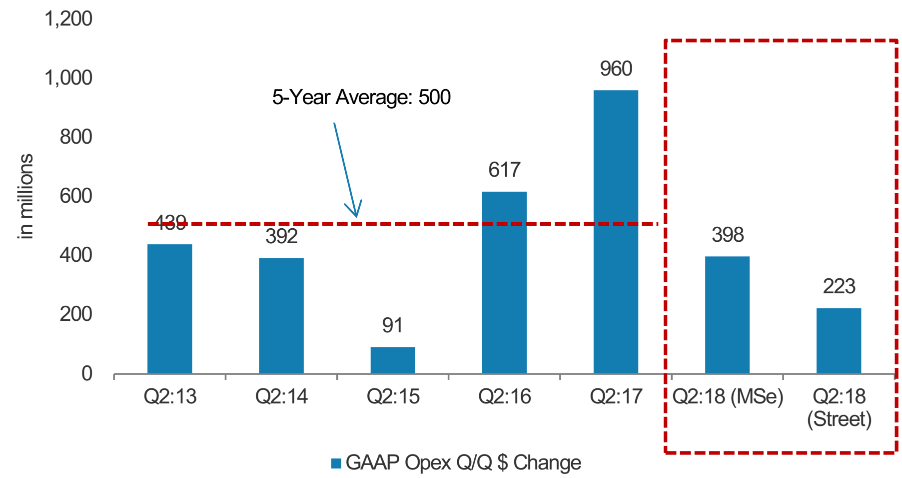
Source: Company data, Morgan Stanley Research

Exhibit 4: ...a we model GOOGL's Websites business to accelerate to 24% y/y ex FX growth in 2Q



Source: Company data, Morgan Stanley Research

Exhibit 5: We are raising our 2Q opex based on continued investment and historical average incremental step-ups...now expecting ~$400mn of sequential dollar growth



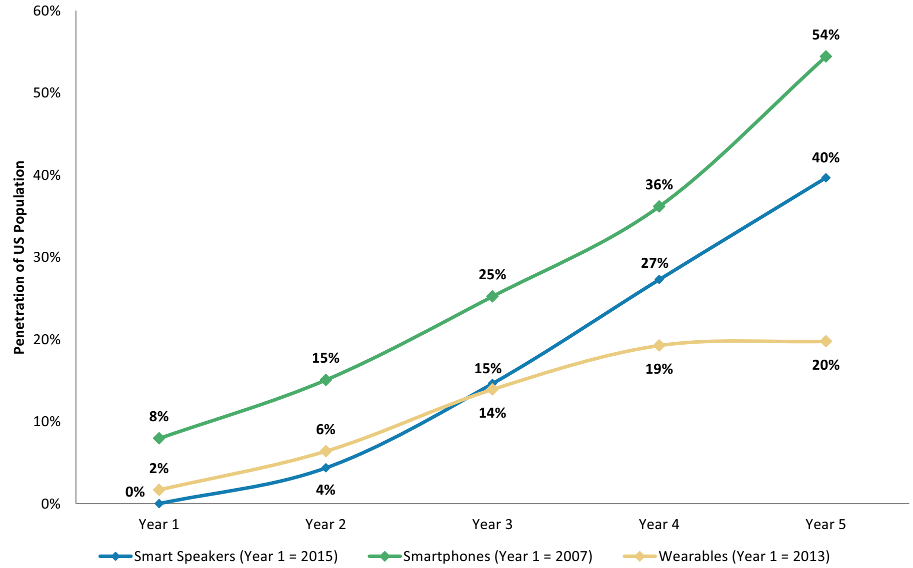
Source: Company data, Morgan Stanley Research
Note: Opex includes TAC and SBC; Q2:17 excludes one-time EC fine

Exhibit 6: We are 1% below 2Q Street EPS, but see upward revisions coming in 2019 and 2020

GOOGL	MS Est.			
in $ millions	2Q:18E	2018E	2019E	2020E
Gross Revenue	32,357	136,013	161,842	189,039
Gross Profit	18,410	76,216	89,383	104,134
Adj. EBITDA	12,202	50,350	59,952	71,260
GAAP EPS	$9.58	$44.56	$50.18	$58.23
	Consensus			
	2Q:18E	2018E	2019E	2020E
Gross Revenue	32,262	136,120	160,847	188,015
Gross Profit	18,164	75,683	88,788	102,468
Adj. EBITDA	12,266	50,558	59,721	70,178
GAAP EPS	$9.64	$44.35	$47.55	$55.75
	%/bp Variance			
	2Q:18E	2018E	2019E	2020E
Gross Revenue	0.3%	-0.1%	0.6%	0.5%
Gross Profit	1.4%	0.7%	0.7%	1.6%
Adj. EBITDA	-0.5%	-0.4%	0.4%	1.5%
GAAP EPS	-0.6%	0.5%	5.5%	4.4%

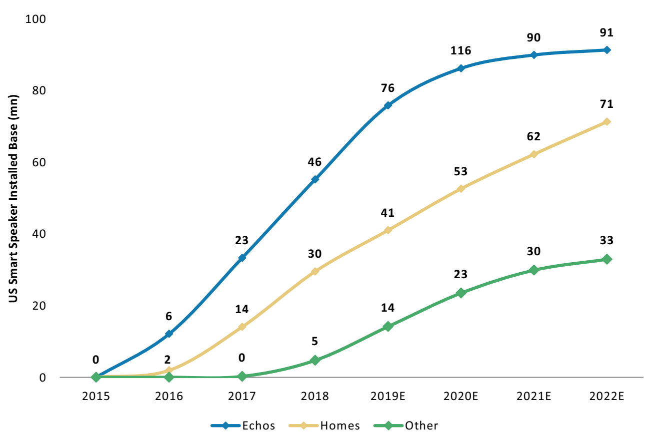
Source: Thomson Reuters, Morgan Stanley Research

Exhibit 7: We estimate that US smart speaker penetration (as % of population) will reach 40% at the end of 2019, compared to 54% for smartphones ~5 years after iPhone was released



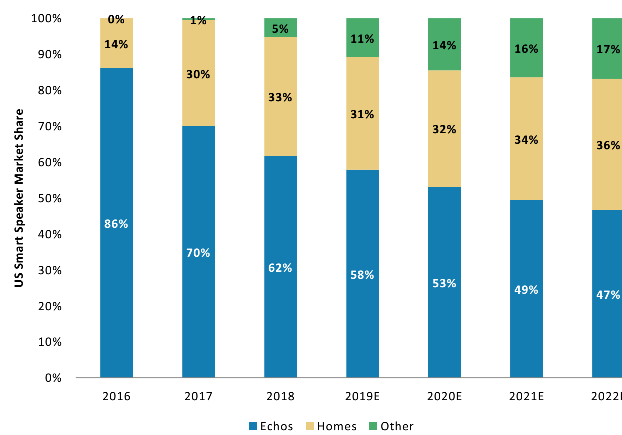
Source: IDC, Morgan Stanley Research

Exhibit 8: Google Homes and Amazon Echos are expected to reach a US installed base of 71mn/91mn devices by 2022...



Source: IDC, Morgan Stanley Research

Exhibit 9: ...and 36%/47% US smart speaker market share



Source: IDC, Morgan Stanley Research

Exhibit 10: GOOGL would have to spend ~$3.3bn to give a Google Home Mini to every household in the US

US Google Home Mini Giveaway Cost	
US Households (mn)	126
x Cost to Produce Google Home Mini	$26
= Google Home Mini Giveaway Cost (mn)	**$3,282**

Source: US Census Bureau, ABI Research, Morgan Stanley Research
Note: Cost to produce excludes overhead, shipping, and other expenses

Exhibit 11: GOOGL's estimated US retail search profit over the next 5 years would cover the cost of a Google Home Mini giveaway to every US household ~5X over

in millions

Retail Search Profit as Multiple of Home Mini Giveaway Cost	2018E	2019E	2020E	2021E	2022E	Cumulative
GOOGL US Search Ad Revenue	$35,868	$40,778	$45,192	$48,807	$51,736	**$222,381**
Y/Y Growth	*$0*	*14%*	*11%*	*8%*	*6%*	
x Retail Proportion	20%	20%	20%	20%	20%	20%
= GOOGL US Retail Search Ad Revenue	**$7,174**	**$8,156**	**$9,038**	**$9,761**	**$10,347**	**$44,476**
x Op. Profit Margin	35%	35%	35%	35%	35%	35%
= Implied Retail Search Op. Profit	**$2,511**	**$2,854**	**$3,163**	**$3,416**	**$3,621**	**$15,567**

Total Implied Retail Search Op. Profit	$15,567
/ Home Mini Giveaway Cost	$3,282
= Retail Search Profit as Multiple of Home Mini Giveaway Cost	**4.7X**

Source: Company Data, Morgan Stanley Research
Note: US Search operating margin assumes 20%/55% mobile/desktop margin and 60%/40% mobile/desktop mix

Exhibit 12: If even 15% of free trial US households adopted YouTube Premium (compared to Spotify at ~25% conversion) it would generate $1.8bn of incremental YouTube revenue

Potential Upside to YouTube 2020 Revenue	
US Households (mn)	126
x Paying Conversion	15%
= YouTube Premium US Subs (mn)	19
x Annual ARPU	$144
= Annual US YouTube Premium Sub. Rev (mn)	**$2,726**
US Paying YouTube Premium Subs (mn)	$19
x Ad ARPU	$25
x Users per Household	1.95
= Lost Ad Revenue (mn)	**$923**
Annual US YouTube Premium Sub. Rev (mn)	$2,726
- Lost Ad Revenue	$923
= Net Annual US YouTube Premium Sub. Rev (mn)	**$1,803**
Net Annual US YouTube Premium Sub. Rev (mn)	$1,803
/ Current 2020 YouTube Ad Revenue	$28,983
= Upside to YouTube Revenue	**6%**

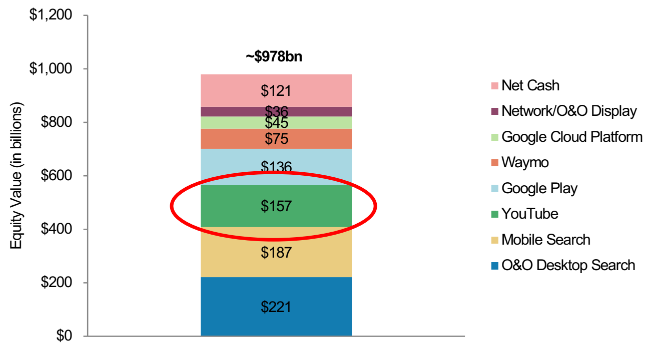
Source: Company Data, Morgan Stanley Research, US Census Bureau

Exhibit 13: Looking at it another way, we estimate GOOGL could recoup the cost of giving away a Google Home Mini to every household in the US in 4 years with YouTube Subscription profit

US Google Home Mini Giveaway Payback	
Net Annual US YouTube Premium Sub. Rev. (mn)	$1,803
x Incremental Margin	45%
= Annual US YouTube Premium Sub Op. Profit (mn)	**$812**
US Households (mn)	126
x Cost to Produce Google Home Mini	$26
= Google Home Mini Giveaway Cost (mn)	**$3,282**
Google Home Mini Giveaway Cost	$3,282
/ Annual US YouTube Premium Sub Op. Profit (mn)	$812
= Years to Recoup Expense	**4.0**

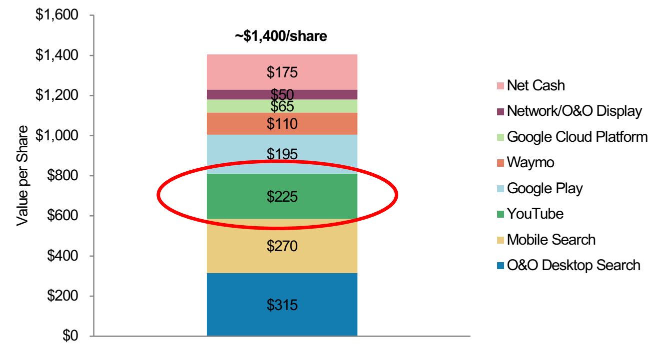
Source: Company Data, Morgan Stanley Research, US Census Bureau

Exhibit 14: Increased Google Home penetration would also likely lead to a further appreciation for the ~$160bn YouTube EV...



Source: Company Data, Morgan Stanley Research

Exhibit 15: ...or $225/share YouTube value in our $1trln ($1,400/share) sum of the parts



Source: Company Data, Morgan Stanley Research

Changes to Our Estimates

Exhibit 16: GOOGL: Changes to Our Estimates

	2018 Prior	2019 Prior	2020 Prior	2018 Current	2019 Current	2020 Current	2018 Revision	2019 Revision	2020 Revision
Total Gross revenue (GAAP)	**135,870.9**	**159,705.6**	**184,133.4**	**136,012.5**	**161,923.9**	**189,276.2**	**0.1%**	**1.4%**	**2.8%**
Total gross revenue ex-FX/hedge Y/Y (in dollars)	133,314.0	159,705.6	184,133.4	135,592.9	161,923.9	189,276.2	1.7%	1.4%	2.8%
FX+hedge impact - Y/Y	2.3%	0.0%	0.0%	0.4%	0.0%	0.0%	(193) bp	--	--
Traffic acquisition costs (TAC)	**27,670.8**	**32,659.4**	**37,462.0**	**27,685.8**	**32,688.2**	**37,504.3**	**0.1%**	**0.1%**	**0.1%**
TAC as % of advertising revenue	23.8%	24.2%	24.2%	23.9%	24.0%	23.6%	5 bp	(23) bp	(61) bp
Total Net revenue	**108,200.1**	**127,046.2**	**146,671.4**	**108,326.8**	**129,235.7**	**151,771.9**	**0.1%**	**1.7%**	**3.5%**
Gross profit (GAAP)	**76,301.8**	**88,354.4**	**101,066.6**	**76,216.0**	**89,444.1**	**104,312.3**	**-0.1%**	**1.2%**	**3.2%**
Gross margin	70.5%	69.5%	68.9%	70.4%	69.2%	68.7%	(16) bp	(34) bp	(18) bp
Total costs & expenses (GAAP)	**102,045.1**	**120,599.5**	**138,975.4**	**103,453.5**	**122,961.7**	**142,910.6**	**1.4%**	**2.0%**	**2.8%**
Total operating expenses (Non-GAAP)	**42,475.9**	**49,248.3**	**55,908.6**	**43,656.9**	**50,481.9**	**57,946.7**	**2.8%**	**2.5%**	**3.6%**
Research and development (ex-SBC)	15,664.3	18,392.7	20,793.9	15,965.4	18,788.6	21,609.6	1.9%	2.2%	3.9%
Sales and marketing (ex-SBC)	14,528.9	17,059.5	19,254.7	15,027.0	17,798.2	20,522.5	3.4%	4.3%	6.6%
General and administrative (ex-SBC)	4,870.7	5,083.8	5,429.1	5,006.2	5,067.8	5,496.3	2.8%	-0.3%	1.2%
Stock-based compensation	8,837.7	10,388.0	12,437.2	9,131.3	10,525.1	12,303.0	3.3%	1.3%	-1.1%
Depreciation	7,849.7	9,725.1	11,814.1	7,858.2	9,891.9	12,223.9	0.1%	1.7%	3.5%
Amortization of intangibles	801.1	615.0	493.0	802.0	615.0	493.0	0.1%	0.0%	0.0%
Non-recurring items	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
Research and development (ex-SBC)	14.5%	14.5%	14.2%	14.7%	14.5%	14.2%	26 bp	6 bp	6 bp
Sales and marketing (ex-SBC)	13.4%	13.4%	13.1%	13.9%	13.8%	13.5%	44 bp	34 bp	39 bp
General and administrative (ex-SBC)	4.5%	4.0%	3.7%	4.6%	3.9%	3.6%	12 bp	(8) bp	(8) bp
Stock-based compensation	8.2%	8.2%	8.5%	8.4%	8.1%	8.1%	26 bp	(3) bp	(37) bp
Depreciation	7.3%	7.7%	8.1%	7.3%	7.7%	8.1%	(0) bp	(0) bp	(0) bp
Amortization of intangibles	0.7%	0.5%	0.3%	0.7%	0.5%	0.3%	(0) bp	(1) bp	(1) bp
Non-recurring items	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	--	--	--
EBITDA (adjusted)	**51,314**	**59,834**	**69,902**	**50,350**	**59,994**	**71,385**	**-1.9%**	**0.3%**	**2.1%**
EBITDA margin (adjusted)	**47.4%**	**47.1%**	**47.7%**	**46.5%**	**46.4%**	**47.0%**	(95) bp	(67) bp	(62) bp
Incremental EBITDA margin	41.2%	45.2%	51.3%	35.9%	46.1%	50.5%	(531) bp	91 bp	(75) bp
Total operating income (GAAP)	**33,825.8**	**39,106.1**	**45,158.0**	**32,559.0**	**38,962.2**	**46,365.6**	**-3.7%**	**-0.4%**	**2.7%**
Total operating income margin (GAAP)	**24.9%**	**24.5%**	**24.5%**	**23.9%**	**24.1%**	**24.5%**	(96) bp	(42) bp	(3) bp
Other income/(expense), net (GAAP)	4,511.9	4,413.6	4,700.4	4,579.7	4,427.0	4,714.0	1.5%	0.3%	0.3%
Pretax income (GAAP)	**38,337.7**	**43,519.7**	**49,858.3**	**37,138.7**	**43,389.2**	**51,079.6**	**-3.1%**	**-0.3%**	**2.4%**
Income tax expense (GAAP)	6,520.3	7,780.3	9,216.1	5,663.3	7,670.9	9,216.8	-13.1%	-1.4%	0.0%
Tax rate (GAAP)	17.0%	17.9%	18.5%	15.2%	17.7%	18.0%	(176) bp	(20) bp	(44) bp
Net income (reported GAAP)	**31,817.4**	**35,739.4**	**40,642.3**	**31,475.4**	**35,718.2**	**41,862.8**	-1.1%	-0.1%	3.0%
Net income (GAAP), continuing ops	31,817.4	35,739.4	40,642.3	**31,475.4**	**35,718.2**	**41,862.8**	-1.1%	-0.1%	3.0%
EPS (GAAP)	**$45.04**	**$50.25**	**$56.64**	**$44.56**	**$50.22**	**$58.34**	**-1.1%**	**-0.1%**	**3.0%**

Company data, Morgan Stanley Research

Company Model

Exhibit 17: GOOGL Income Statement

Morgan Stanley | Google Model (USD millions)	2017	2018E	2019E	2020E	2021E	2017-2021E CAGR
Gross revenue build (GAAP)						
Total Alphabet revenue	**$110,855**	**$136,013**	**$161,924**	**$189,276**	**$217,752**	18%
Total Advertising	95,375	115,972	136,383	158,835	182,111	18%
Google Websites	77,788	95,997	115,101	136,332	158,601	19%
Network Websites	17,587	19,974	21,282	22,503	23,511	8%
Google Other & Other Bets	15,480	20,041	25,541	30,441	35,641	23%
Total Gross revenue (GAAP)	**110,855.0**	**136,012.5**	**161,923.9**	**189,276.2**	**217,752.5**	**18%**
Total cost of revenue (GAAP)	**45,583.0**	**59,796.6**	**72,479.8**	**84,963.9**	**97,251.8**	21%
Total gross profit (GAAP)	**65,272.0**	**76,216.0**	**89,444.1**	**104,312.3**	**120,500.6**	17%
Total gross margin (GAAP)	58.9%	56.0%	55.2%	55.1%	55.3%	
Traffic acquisition costs (TAC)	**21,672.0**	**27,685.8**	**32,688.2**	**37,504.3**	**42,128.7**	18%
Distribution TAC	9,031.0	12,833.0	16,330.8	19,758.7	23,118.0	26%
Network TAC	12,641.0	14,852.8	16,357.4	17,745.6	19,010.6	11%
TAC as % of advertising revenue	22.7%	23.9%	24.0%	23.6%	23.1%	
Net revenue build (ex-TAC)						
Core Google revenue	**89,183.0**	**108,326.8**	**129,235.7**	**151,771.9**	**175,623.8**	
Advertising revenue	73,703.0	88,285.8	103,694.7	121,330.9	139,982.8	
Google websites	68,757.0	83,164.2	98,769.8	116,573.6	135,482.6	
Network websites	4,946.0	5,121.6	4,924.9	4,757.3	4,500.2	
Licensing & other	15,480.0	20,041.0	25,541.0	30,441.0	35,641.0	
Motorola revenue						
Total Net revenue (ex-TAC)	**89,183.0**	**108,326.8**	**129,235.7**	**151,771.9**	**175,623.8**	**18%**
Total cost of revenue (ex-SBC, ex-TAC)	**22,592.9**	**30,637.8**	**38,093.8**	**45,475.0**	**52,752.1**	
Total gross profit (ex-SBC, ex-TAC)	**66,590.1**	**77,688.9**	**91,141.9**	**106,296.9**	**122,871.7**	
Total gross margin (ex-SBC, ex-TAC)	74.7%	71.7%	70.5%	70.0%	70.0%	
Total operating expenses (GAAP)	**36,390.0**	**43,656.9**	**50,481.9**	**57,946.7**	**66,035.7**	16%
Research and development (ex-SBC)	12,836.8	15,965.4	18,788.6	21,609.6	24,478.8	18%
Sales and marketing (ex-SBC)	11,658.6	15,027.0	17,798.2	20,522.5	23,396.4	19%
General and administrative (ex-SBC)	5,533.7	5,006.2	5,067.8	5,496.3	5,833.2	1%
Stock-based compensation (including COGS)	7,679.0	9,131.3	10,525.1	12,303.0	14,698.3	18%
Non-recurring items	2,736.0	0.0	0.0	0.0	0.0	
Depreciation (included in expense lines)	6,103.0	7,858.2	9,891.9	12,223.9	14,847.5	25%
Total amortization of intangibles (included in expens	812.0	802.0	615.0	493.0	459.0	
Total costs & operating expenses (GAAP)	**84,709.0**	**103,453.5**	**122,961.7**	**142,910.6**	**163,287.6**	18%
Total costs & operating expenses (adjusted)	77,030.0	94,322.3	112,436.7	130,607.7	148,589.3	18%
Total operating income (GAAP)	**26,146.0**	**32,559.0**	**38,962.2**	**46,365.6**	**54,464.9**	**20%**
Total operating margin (GAAP)	23.6%	23.9%	24.1%	24.5%	25.0%	
Total operating income, non-GAAP	**33,825.0**	**41,690.3**	**49,487.2**	**58,668.6**	**69,163.2**	
Total operating margin (adjusted)	30.5%	30.7%	30.6%	31.0%	31.8%	
EBITDA (adjusted)	**43,476.0**	**50,350.4**	**59,994.1**	**71,385.5**	**84,469.7**	**18%**
EBITDA margin	48.7%	46.5%	46.4%	47.0%	48.1%	
Incremental EBITDA margin	44.0%	35.9%	46.1%	50.5%	54.9%	
Interest and other income, net	1,047.0	4,579.7	4,427.0	4,714.0	5,292.3	
Interest income	1,312.0	1,649.4	1,745.7	2,208.7	2,787.0	
Interest expense	(109.0)	(130.2)	(167.2)	(167.2)	(167.2)	
Foreign currency exchange losses, net	(121.0)	(174.0)	(174.0)	(350.0)	(350.0)	
Gain (loss) on marketable securities, net	(80.0)	3,068.5	3,068.5	3,068.5	3,068.5	
Other	(114.0)	(46.0)	(46.0)	(46.0)	(46.0)	
Other income (expense), net	159.0	212.0	0.0	0.0	0.0	
Interest and other income, net	1,047.0	4,579.7	4,427.0	4,714.0	5,292.3	
Pre-tax income (adjusted)	**34,872.0**	**46,270.0**	**53,914.2**	**63,382.6**	**74,455.5**	
Pre-tax income (GAAP)	**27,193.0**	**37,138.7**	**43,389.2**	**51,079.6**	**59,757.2**	
Income tax provision (adjusted)	**16,980.6**	**8,599.5**	**11,028.5**	**13,141.6**	**15,355.9**	
Tax rate (adjusted)	**48.7%**	**18.6%**	**20.5%**	**20.7%**	**20.6%**	
Income tax provision (GAAP)	14,531.0	5,663.3	7,670.9	9,216.8	10,667.1	
Tax rate (GAAP)	53.4%	15.2%	17.7%	18.0%	17.9%	
Net income (GAAP), continuing ops	**12,662.0**	**31,475.4**	**35,718.2**	**41,862.8**	**49,090.1**	
Net income (loss) from discontinued ops	0.0	0.0	0.0	0.0	0.0	
Net income, reported	**12,662.0**	**31,475.4**	**35,718.2**	**41,862.8**	**49,090.1**	**40%**
EPS (GAAP), from continuing ops	**$18.06**	**$44.56**	**$50.22**	**$58.34**	**$67.76**	
EPS (GAAP) as reported	**$18.06**	**$44.56**	**$50.22**	**$58.34**	**$67.76**	**39%**

Source: Company data, Morgan Stanley Research

Exhibit 18: GOOGL Balance Sheet

Morgan Stanley | Google Model					
(USD millions)	**2017**	**2018E**	**2019E**	**2020E**	**2021E**
Google | Balance Sheet					
(USD millions)	**2017**	**2018E**	**2019E**	**2020E**	**2021E**
Balance Sheet					
Assets:					
Cash & Cash Equivalents	10,715.0	29,982.5	63,192.1	104,667.3	154,638.7
Marketable securities	91,156.0	90,227.0	90,227.0	90,227.0	90,227.0
Accounts receivable	18,336.0	20,807.4	24,823.6	29,152.3	33,733.8
Receivable under reverse repurchase agreements	0.0	0.0	0.0	0.0	0.0
Deferred income taxes	0.0	0.0	0.0	0.0	0.0
Income taxes receivables	369.0	37.0	37.0	37.0	37.0
Prepaid revenue share, expenses and other assets	3,732.0	5,000.2	5,943.1	6,907.3	7,892.2
Total Current Assets	**124,308.0**	**146,054.1**	**184,222.8**	**230,990.9**	**286,528.7**
Prepaid revenue share, expenses and other assets, non-cur	3,352.0	2,682.0	2,682.0	2,682.0	2,682.0
Deferred income taxes, non-current	0.0	0.0	0.0	0.0	0.0
Non-marketable equity securities	7,813.0	10,976.0	10,976.0	10,976.0	10,976.0
Property and equipment	42,383.0	56,555.1	69,352.0	83,469.9	98,664.9
Intangible assets	2,692.0	2,858.3	2,368.3	2,000.3	1,666.3
Goodwill	16,747.0	18,518.3	18,643.3	18,768.3	18,893.3
Total Assets	**197,295.0**	**237,643.8**	**288,244.4**	**348,887.4**	**419,411.1**
Liabilities:					
Accounts Payable	3,137.0	4,891.4	6,081.8	7,260.2	8,422.1
Short-term debt	0.0	1,329.0	1,329.0	1,329.0	1,329.0
Accrued compensation and benefits	4,581.0	4,692.5	5,577.4	6,482.2	7,406.5
Accrued expenses and other current liabilities	10,177.0	12,389.8	14,480.2	16,543.6	18,575.9
Accrued revenue share	3,975.0	4,582.9	5,447.1	6,330.9	7,233.5
Securities lending payable	0.0	0.0	0.0	0.0	0.0
Deferred revenue	1,432.0	1,596.0	1,596.0	1,596.0	1,596.0
Income taxes payable	881.0	1,204.6	1,407.3	1,656.8	1,938.2
Total Current Liabilities	**24,183.0**	**30,686.3**	**35,918.9**	**41,198.7**	**46,501.2**
Long-Term Debt	3,969.0	3,973.0	3,973.0	3,973.0	3,973.0
Deferred revenue, non-current	340.0	315.0	315.0	315.0	315.0
Income taxes payable, non-current	12,812.0	11,557.2	13,502.3	15,895.5	18,595.9
Other Long-Term Liabilities	3,489.0	3,543.0	3,543.0	3,543.0	3,543.0
Total Liabilities	**44,793.0**	**50,074.5**	**57,252.1**	**64,925.2**	**72,928.1**
Shareholders' Equity:					
Preferred Equity	0.0	0.0	0.0	0.0	0.0
Common Equity	40,247.0	48,161.3	58,686.3	70,989.3	85,687.6
Deferred stock-based compensation	0.0	0.0	0.0	0.0	0.0
AOC Income / (Loss)	(992.0)	(670.0)	(670.0)	(670.0)	(670.0)
Retained Earnings	113,247.0	140,078.0	172,976.0	213,642.9	261,465.5
Total Shareholders' Equity	**152,502.0**	**187,569.3**	**230,992.3**	**283,962.2**	**346,483.0**
Total Liabilities & Shareholders' Equity	**197,295.0**	**237,643.8**	**288,244.4**	**348,887.4**	**419,411.1**

Source: Company data, Morgan Stanley Research

Exhibit 19: GOOGL Cash Flow Statement

Morgan Stanley | Google Model (USD millions)	2017	2018E	2019E	2020E	2021E
Google | Cash Flow Statement					
Cash Flow Statement	**2017**	**2018E**	**2019E**	**2020E**	**2021E**
Operating Cash Flow:					
Net Income	12,662.0	31,475.4	35,718.2	41,862.8	49,090.1
Depreciation & Amortization of PP&E	6,103.0	7,858.2	9,891.9	12,223.9	14,847.5
Amortization of intangible and other assets	812.0	802.0	615.0	493.0	459.0
Stock-Based Compensation	7,679.0	9,131.3	10,525.1	12,303.0	14,698.3
Excess tax benefit from stock-based award activity	0.0	0.0	0.0	0.0	0.0
Deferred Income Taxes	258.0	(18.0)	0.0	0.0	0.0
Other	331.0	(3,249.0)	0.0	0.0	0.0
Funds from Operations (FFO)	**27,845.0**	**45,999.8**	**56,750.2**	**66,882.6**	**79,094.9**
Changes in Working Capital:					
Accounts receivable	(3,768.0)	(2,330.4)	(4,016.2)	(4,328.8)	(4,581.5)
Income taxes	8,211.0	(684.2)	2,147.8	2,642.6	2,981.8
Prepaid revenue share, expenses and other assets	(2,164.0)	(1,179.2)	(942.9)	(964.2)	(984.9)
Accounts payable	731.0	1,487.4	1,190.4	1,178.4	1,161.8
Accrued expenses and other liabilities	4,891.0	2,063.3	2,975.3	2,968.3	2,956.6
Accrued revenue share	955.0	573.9	864.2	883.7	902.7
Deferred revenue	390.0	130.0	0.0	0.0	0.0
Changes in Working Capital	**9,246.0**	**60.8**	**2,218.6**	**2,380.1**	**2,436.6**
Operating Cash Flow	**37,091.0**	**46,060.7**	**58,968.8**	**69,262.7**	**81,531.4**
Investing Cash Flow:					
Capex	(13,130.0)	(21,076.2)	(22,688.8)	(26,341.8)	(30,042.5)
Purchase of marketable securities	(91,877.0)	(8,351.0)	0.0	0.0	0.0
Maturities and sales of marketable securities	74,056.0	9,351.0	0.0	0.0	0.0
Investments in non-marketable equity securities	(1,627.0)	(327.0)	0.0	0.0	0.0
Cash collateral received from securities lending	0.0	0.0	0.0	0.0	0.0
Investments in reverse repurchase agreements	1,464.0	30.0	0.0	0.0	0.0
Acquisitions, net of cash acquired, and purchases of intangil	(287.0)	(2,562.6)	(250.0)	(250.0)	(250.0)
Investing Cash Flow	**(31,401.0)**	**(22,935.8)**	**(22,938.8)**	**(26,591.8)**	**(30,292.5)**
Financing Cash Flow:					
Net payments related to stock-based award activities	(4,166.0)	(1,158.0)	0.0	0.0	0.0
Net proceeds from a public stock offering	0.0	0.0	0.0	0.0	0.0
Excess tax benefit from stock-based award activities	0.0	0.0	0.0	0.0	0.0
Repurchase of common stock in connection with acquisitions	0.0	0.0	0.0	0.0	0.0
Repurchase of common stock	(4,846.0)	(4,177.4)	(2,820.3)	(1,195.8)	(1,267.6)
Proceeds from issuance of debt, net of costs	4,771.0	4,691.0	0.0	0.0	0.0
Repayment of debt	(4,057.0)	(3,378.0)	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0
Financing Cash Flow	**(8,298.0)**	**(4,022.4)**	**(2,820.3)**	**(1,195.8)**	**(1,267.6)**
Effects of FX	405.0	165.0	0.0	0.0	0.0
Beginning Cash	12,918.0	10,715.0	29,982.5	63,192.1	104,667.3
(+/-) Net Changes in Cash	(2,203.0)	19,267.5	33,209.7	41,475.1	49,971.4
(+/-) Restatements / Adjustments (pre-10-Q / K)	0.0	0.0	0.0	0.0	0.0
Ending Cash	**10,715.0**	**29,982.5**	**63,192.1**	**104,667.3**	**154,638.7**

Source: Company data, Morgan Stanley Research

Valuation

Exhibit 20: GOOGL Core Discounted Cash Flow Analysis

Morgan Stanley | Google DCF (USD millions)	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	TY - 2025
Core Discounted cash flow analysis											
Net revenue	$73,479	$89,183	$108,327	$129,236	$151,772	$175,624	$200,325	$225,689	$251,252	$276,863	$285,169
% change Y/Y	*21.2%*	*21.4%*	*21.5%*	*19.3%*	*17.4%*	*15.7%*	*14.1%*	*12.7%*	*11.3%*	*10.2%*	*3.0%*
Adj. EBITDA	$36,563	$43,476	$50,350	$59,994	$71,385	$84,470	$98,082	$112,538	$127,290	$142,459	$146,733
(+) Other Bets EBITDA Loss (Gain)*	**$3,081**	**$5,726**	**$2,269**	**$1,880**	**$1,226**	**$333**	**($563)**	**($913)**	**($1,763)**	**($2,113)**	
(-) Cash taxes	(5,917)	(6,798)	(9,285)	(10,847)	(12,770)	(14,939)	(17,239)	(19,633)	(22,399)	(25,310)	
(+/-) Changes in working capital	3,300	9,246	61	2,219	2,380	2,437	2,495	2,488	2,730	2,782	
(-) Capex	(9,972)	(13,130)	(21,076)	(22,689)	(26,342)	(30,043)	(33,767)	(37,478)	(41,095)	(44,592)	
(+) Other Bets Capex*	**769**	**579**	**380**	**1,200**	**1,200**	**1,200**	**1,200**	**1,200**	**1,200**	**1,200**	
(-) Stock-based compensation	(6,703)	(7,679)	(9,131)	(10,525)	(12,303)	(14,698)	(17,290)	(20,060)	(21,608)	(23,027)	
Unlevered free cash flow	**$21,121**	**$31,420**	**$13,568**	**$21,232**	**$24,777**	**$28,759**	**$32,918**	**$38,142**	**$44,355**	**$51,400**	**$53,739**
% of Revenue	*28.7%*	*35.2%*	*12.5%*	*16.4%*	*16.3%*	*16.4%*	*16.4%*	*16.9%*	*17.7%*	*18.6%*	*18.8%*
Adj. EBITDA Margin	49.8%	48.7%	46.5%	46.4%	47.0%	48.1%	49.0%	49.9%	50.7%	51.5%	**51.5%**
UFCF / Adj. EBITDA	53.3%	63.9%	25.8%	34.3%	34.1%	33.9%	33.8%	34.2%	35.3%	36.6%	**36.6%**

Core Fair value	
PV of FCF	$177,186
NPV of terminal value	615,605
Enterprise value	**$792,791**
(-) Debt	5,302
(+) Cash & equivalents	131,185
Equity value	**$918,674**
Fully Diluted Shares	730
Equity fair value per share	**$1,258**
Terminal FCF multiple	19.1x

Source: Company data, Morgan Stanley Research

Exhibit 21: GOOGL Non-Core Discounted Cash Flow Analysis

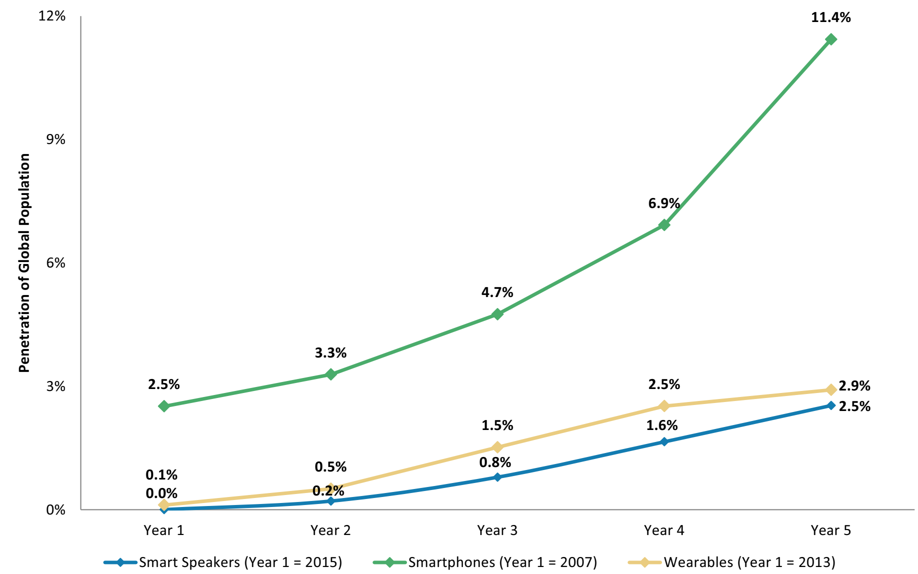
Morgan Stanley | Google DCF (USD millions)	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	TY - 2025
Discounted cash flow analysis											
Other Bets EBITDA Loss*	**($3,081)**	**($5,726)**	**($2,269)**	**($1,880)**	**($1,226)**	**($333)**	**$563**	**$913**	**$1,763**	**$2,113**	
Other Bets Capex	**(769)**	**(579)**	**(380)**	**(1,200)**	**(1,200)**	**(1,200)**	**(1,200)**	**(1,200)**	**(1,200)**	**(1,200)**	
Unlevered free cash flow	**($3,850)**	**($6,305)**	**($2,649)**	**($3,080)**	**($2,426)**	**($1,533)**	**($638)**	**($288)**	**$563**	**$913**	**$--**

Non-Core Fair value	
PV of FCF	($6,149)
NPV of terminal value	--
Enterprise value	**($6,149)**
Equity fair value per share	**($8)**
WACC	**8.2%**
Perpetual growth rate	--%

Source: Company data, Morgan Stanley Research

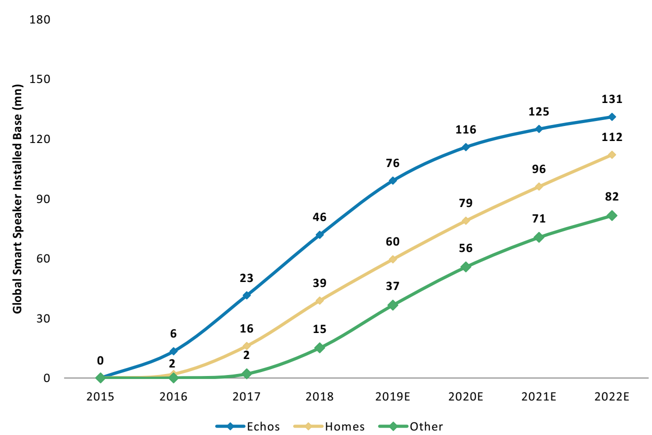
Appendix

Exhibit 22: We estimate that global smart speaker penetration will reach 2% at the end of 2019, compared to 11% for smartphones ~5 years after iPhone was released



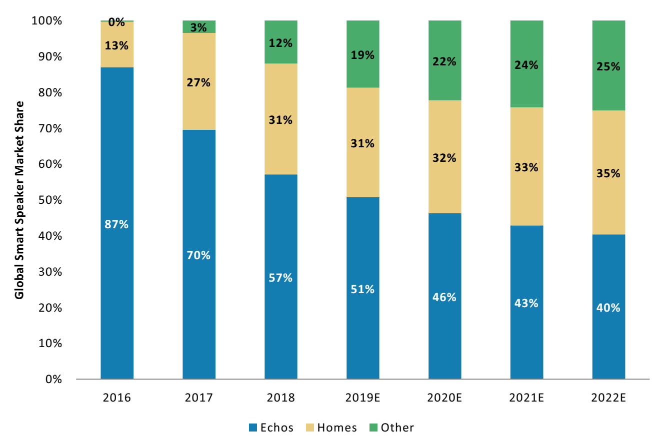
Source: IDC, Morgan Stanley Research

Exhibit 23: Google Homes and Amazon Echo are expected to reach a global installed base of 112mn/131mn devices by 2022...



Source: IDC, Morgan Stanley Research

Exhibit 24: ...and 40%/35% global smart speaker market share



Source: IDC, Morgan Stanley Research

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	COVERAGE UNIVERSE		INVESTMENT BANKING CLIENTS (IBC)			OTHER MATERIAL INVESTMENT SERVICES CLIENTS (MISC)	
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Equal-weight/Hold	**1338**	**43%**	**354**	**49%**	**26%**	**639**	**46%**
Not-Rated/Hold	**53**	**2%**	**5**	**1%**	**9%**	**7**	**0%**
Underweight/Sell	**533**	**17%**	**77**	**11%**	**14%**	**207**	**15%**
TOTAL	**3,096**		**725**			**1404**	

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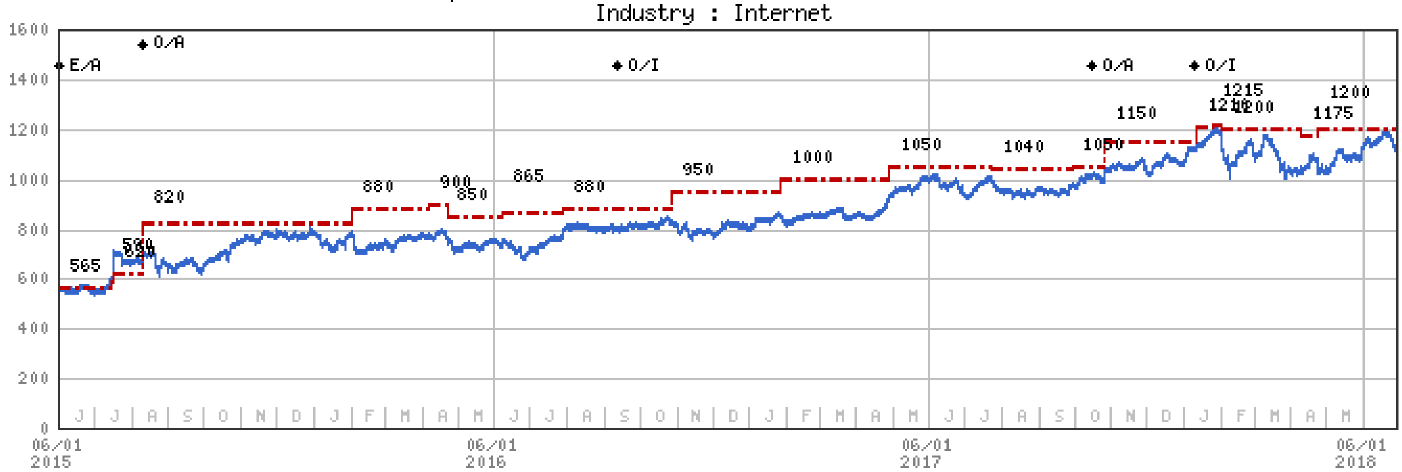
Industry : Internet



Stock Rating History: 6/1/15 : E/A; 8/11/15 : O/A; 9/12/16 : O/I; 10/16/17 : O/A; 1/10/18 : O/I

Price Target History: 4/24/15 : 565; 7/15/15 : 590; 7/17/15 : 620; 8/11/15 : 820; 2/2/16 : 880; 4/7/16 : 900; 4/22/16 : 850; 6/8/16 : 865; 7/29/16 : 880; 10/28/16 : 950; 1/27/17 : 1000; 4/28/17 : 1050; 7/24/17 : 1040; 9/29/17 : 1050; 10/27/17 : 1150; 1/12/18 : 1210; 1/25/18 : 1215; 2/2/18 : 1200; 4/10/18 : 1175; 4/24/18 : 1200

Source: Morgan Stanley Research   Date Format : MM/DD/YY   Price Target --   No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) —   Stock Price (Covered by Current Analyst) ▬
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INDUSTRY COVERAGE: Internet

COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/27/2018)
Brian Nowak, CFA		
Activision Blizzard Inc (ATVI.O)	O (09/23/2016)	$73.42
Alphabet Inc. (GOOGL.O)	O (08/11/2015)	$1,116.94
Amazon.com Inc (AMZN.O)	O (04/24/2015)	$1,660.51
Blue Apron Holdings Inc (APRN.N)	E (07/24/2017)	$3.25
Booking Holdings Inc (BKNG.O)	O (06/30/2016)	$2,001.50
Criteo SA (CRTO.O)	E (01/26/2016)	$33.22
Despegar.com Corp (DESP.N)	E (10/16/2017)	$20.54
eBay Inc (EBAY.O)	O (04/18/2018)	$36.30
Electronic Arts Inc (EA.O)	E (01/12/2018)	$137.75
Etsy Inc (ETSY.O)	U (01/12/2018)	$40.42
Expedia Inc. (EXPE.O)	O (01/10/2018)	$120.34
Facebook Inc (FB.O)	O (04/27/2016)	$195.84
GrubHub Inc. (GRUB.N)	E (04/18/2018)	$103.61
Snap Inc. (SNAP.N)	U (11/09/2017)	$12.82
Take-Two Interactive Software (TTWO.O)	O (02/01/2018)	$113.96
TRIVAGO NV (TRVG.O)	E (09/28/2017)	$4.56
Twitter Inc (TWTR.N)	E (04/17/2018)	$43.70
Yelp Inc (YELP.N)	E (07/29/2015)	$38.70
Zynga Inc (ZNGA.O)	O (06/08/2017)	$3.98
Jonathan Lanterman, CFA		
Groupon, Inc. (GRPN.O)	E (03/05/2018)	$4.23
TrueCar Inc (TRUE.O)	E (01/12/2018)	$10.15
Zillow Group Inc (Z.O)	E (04/18/2018)	$60.70

Stock Ratings are subject to change. Please see latest research for each company.
* Historical prices are not split adjusted.

Data as of Market Close: 26 June 2018

Will Alphabet Inc Deliver Long-Term Returns?

Summary Due Diligence Report

Ticker	Company Name	Exchange	Industry	Sector
GOOGL	Alphabet Inc	NASDAQ - All Markets	Internet Services	Technology

StockMarks Ratings

Quality SMQ	Safety SMD	Sentiment SMC
74	97	85
Business SMB	**Operational SMD1**	**Technicals SMS**
30	72	16
Financials SMF	**Information SMD2**	**Outlook SMA**
69	95	88
Governance SMG	**Market SMD3**	**Valuation SMW**
71	92	90

Highlights

Alphabet Inc has a bright prospect, with an overall score of 92/100. Its business rating is low due to an excessive capitalization, satisfactory asset conversion but good revenue stream. Alphabet Inc's management is rated as efficient and has improved in the last quarter. Its high quality financials are the result of a prudent financial position, reasonable cash generation efficiency and satisfactory performance. Alphabet Inc's relatively attractive valuation is due to high price attractiveness and positive market multiples.

Overall, the company is rated as very safe. With low operational risk, it has little information risk and small market risk. The current sentiment in relation to Alphabet Inc is bullish with a positive outlook. The company's business forecast is positive based on an improving trend in our estimates. To conclude, we believe Alphabet Inc to be a good long-term investment that is likely to deliver long-term returns.

Last Close Price	52-Week Range	Market Cap.
1132.620 USD	915.31 - 1201.49	786.236B
Beta	**PE**	**PBV**
0.26	30.04	5.00
EPS	**Earnings Yield**	**Div Announc. Date**
37.70	2.53%	-
DPS	**Dividend Yield**	**Div Ex Date**
-	0.00%	-

Contents

1. Business and Management 2
2. Benchmarking and Parities 4
3. Financials and Valuation 6
4. Safety and Sentiment 8
5. Estimates and Recommendations 10

Summary StockMarks Ratings for Alphabet Inc were calculated in relation to the entire population of 4475 United States-listed companies rated today, using a scale from 0 (worst) to 100 (best). For an explanation of each rating, see page 12. Readers should check for the latest news and events not yet reflected in the company financials.

The business

Its business is rated as low due to an excessive capitalization, satisfactory asset conversion but good revenue stream. The company operates in the Internet Services industry - where stock prices are rising faster than the overall Technology sector.

The Industry

The stock prices in the Internet Services industry, whose average price index is shown in chart C1, have been rising over the past quarter. Likewise, the Technology sector has followed a rising path.

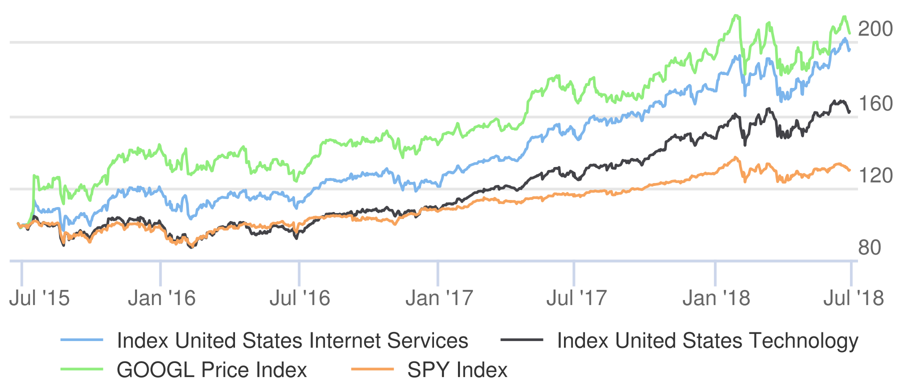
The Company

Alphabet Inc. is a holding company. The Company's businesses include Google Inc. (Google) and its Internet products, such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo and X. The Company's segments include Google and Other Bets. The Google segment includes its Internet products, such as Search, Ads, Commerce, Maps, YouTube, Google Cloud, Android, Chrome and Google Play, as well as its hardware initiatives. The Google segment is engaged in advertising, sales of digital content, applications and cloud offerings, and sales of hardware products. The Other Bets segment is engaged in the sales of Internet and television services through Google Fiber, sales of Nest products and services, and licensing and research and development (R&D) services through Verily. It offers Google Assistant, which allows users to type or talk with Google; Google Maps, which helps users navigate to a store, and Google Photos, which helps users store and organize all of their photos.

Business rating and competitors

The Summary Business StockMarks Rating (SMB = 30/100) for Alphabet Inc is significantly below the sector average and below its top 3 ranked competitors in terms of business similarity as listed in table T1. The SMB trend is depicted in chart C2. Its recent rise was primarily due to growth in the company's asset conversion rating.

C1.SADIF sector and industry stock price indexes



T1. Benchmark Group: Industry Competitors

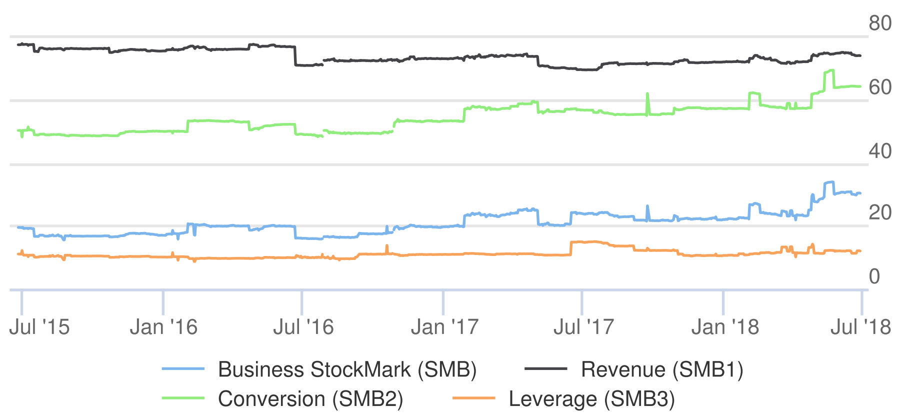
Ticker	Company Name	Similarity	Industry Share	SMB	SMB1	SMB2	SMB3
GOOGL	Alphabet Inc		8.52%	30	74	64	12
BIDU	Baidu Inc	84.21%	6.45%	70	63	36	65
FB	Facebook Inc	68.42%	3.24%	45	83	54	28
BABA	Alibaba Group Holding Ltd	63.16%	18.18%	90	80	35	99

Alphabet Inc has a good revenue rating (SMB1 = 74/100) with revenue well above its breakeven point. The company's revenue has too much volatility and is growing while its first competitor is declining.

In terms of cash conversion (SMB2 = 64/100), the company has a modest rating due to its median operating margins, sufficient asset turnover and short net operating cycle.

Finally, Alphabet Inc is inadequately leveraged (SMB3 = 12/100), especially when assessed by its degree of leverage.

C2. The trend in the Business Stockmark and its determinants



Management

Alphabet Inc's management is rated as efficient and has improved in the last quarter. The company trades with a float of 90.28%, which has been growing in the last quarter. The company's governance is rated as good.

Ownership

In terms of ownership, Alphabet Inc is in the managerial sector category, because it operates in an unregulated sector, has a float of 90.28% and its top 5 shareholders own 22.51%.The major shareholder, The Vanguard Group, Inc., owns 7.24% of the company.
Among its top 10 investors, Capital Research Global Investors bought 779091 shares and SerMont Asset Management SA sold 100 shares in the past half year. As shown in chart C3, in the last quarter, institutional investors reduced their ownership to 80.2%, while insiders increased their holdings to 0.2%.

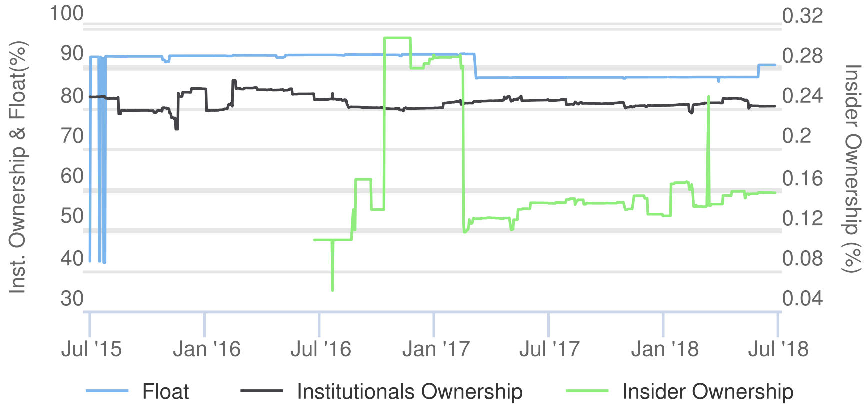
Governance

In terms of corporate governance, the company has a good rating (SMG = 71/100) as a result of a good protection against tunnelling problems with a rating of 84/100, a mild appetence in terms of compensation rating at 58/100 and a poor accountability rating of 38/100.

Management

Alphabet Inc currently has an efficient management with a Management StockMark (SMM) of 83/100, the second highest of its quality sub-ratings.
Chart C4 shows that its recent rise was driven by a matching change in the average return on assets.

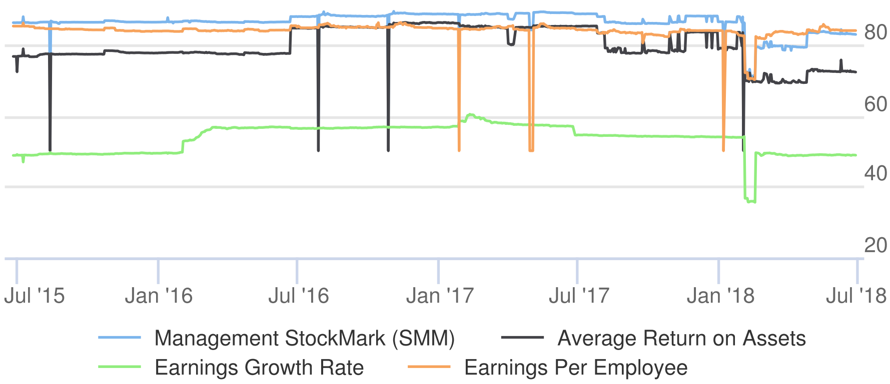
C3. Ownership evolution



Comparing the management efficiency of Alphabet Inc with that of its closest competitor, Baidu Inc, shows that Alphabet Inc's rating is 0.6% higher.

In general, the assessment of the management efficiency trend needs to be qualified by taking into account how long the incumbent management has been in place as it takes a few quarters before the impact is shown in the company financials. Sometimes, a small temporary decline or rise may not be attributed to a change in efficiency but is instead the result of large shifts in investment / disinvestment. Despite the importance of management efficiency, investors should not neglect other more subjective factors such as management integrity and business savvy, which are beyond the scope of this report.

C4. The trend in the Management StockMarks Determinants



For a descriptive classification of management efficiency, we use the following five categories:

Category	First Class	Efficient	Passable	Mediocre	Inefficient
SMM Rating	85-100	60-84	40-59	20-39	0-19

Benchmarking

In terms of overall business quality, Alphabet Inc ranks fifth amongst its competitors in the Internet Services industry. Its strongest position is in terms of earnings quality. In relation to performance, its best driver is the return rating, which stabilized in the past quarter.

Comparables

Although no two companies are exactly alike, it is useful to define a benchmark group of comparable companies. The group's selection may be based on clientele, business model, price correlation, technology, location or any other criteria. Since most companies operate via various lines of business, selecting on the basis of a single criteria is controversial and analysts often prefer a comparison with an industry or sector average. Yet, for multi-industry firms, to use the industry of registration is equally questionable.
Instead, we opted for a broader set comprising of all companies trading in the same stock exchange. This is inadequate for companies whose most direct competitor is a foreign company. Equally controversial is the choice of indicators to be compared.
Nevertheless, although we rate Alphabet Inc against the entire market, it is important to compare the company to a peer group - that we call competitors - in relation to the drivers of business quality and performance (see table T2 and chart C6).

Competitors

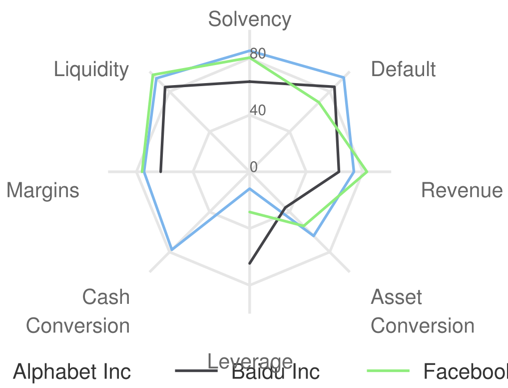
The company's closest competitor, Baidu Inc, has a similarity index of 84.21% and a market share of 6.45% compared to the company's market share of 8.52% (see table T2). This similarity index is enough to consider this competitor fully relevant for comparable analysis.
From table T2 we see that, when analyzed from an investor perspective, the company fares well in relation to its top competitor. Its best rating is for earnings quality (SMI = 96/100) while its lowest is for business (SMB = 30/100).

T2. Benchmark Group: Competitors

Ticker	Company Name	Similarity	Industry Share	SMQ	SMB	SMF	SMG
GOOGL	Alphabet Inc		8.52%	74	30	69	71
BIDU	Baidu Inc	84.21%	6.45%	73	70	57	15
FB	Facebook Inc	68.42%	3.24%	87	45	85	84
BABA	Alibaba Group Holding Ltd	63.16%	18.18%	93	90	85	28
V	Visa Inc	63.16%	1.41%	97	83	94	82
PYPL	PayPal Holdings Inc	63.16%	1.00%	95	86	89	59

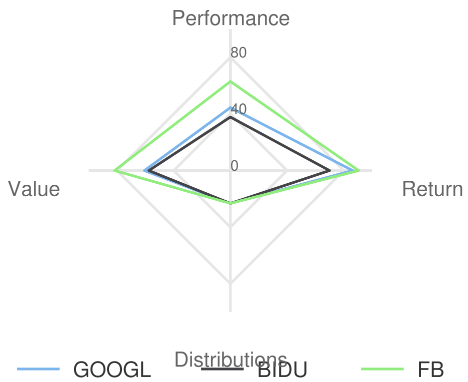
Chart C5 below depicts a detailed comparison of the determinants of each quality rating. It can be observed that Alphabet Inc underperforms its closest competitor in terms of leverage (SMB3 = 12/100).

C5. Competitor Analysis based on Quality drivers



Moreover, the comparison of performance and its drivers, depicted in chart C6, shows that Alphabet Inc is more profitable than its closest competitor. In terms of its performance (SMF12) determinants the company is in an average position with regard to the distribution to shareholders, high returns and it seems correctly valued by the market.

C6. Competitor Analysis based on Performance Drivers



Parities

Compared to its most correlated pairs, Alphabet Inc ranks fourth in terms of business sentiment. It is undervalued relative to its closest pair, with a fair value exchange rate above the nominal exchange rate and a trend towards depreciation.

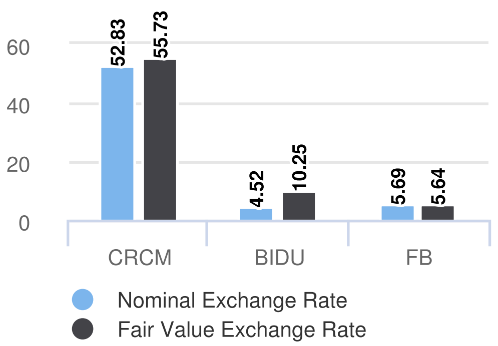
Currently, Care.com Inc is the closest stock for pair trading with a similarity index of 72.73%, defined on the basis of market correlation, sector and trading volumes (see Table 3).
In comparison to its highest correlated stocks (for pair trading), Alphabet Inc's best rank is the valuation rating (SMW) and the outlook rating (SMA), where it ranks first.

Market vs. Fair Value

Warren Buffett popularized the idea that many air-for-assets risky acquisitions take place during bull markets because overvalued acquirers can afford to overpay because they are, in effect, using stock as if it were counterfeit money.
But, unfortunately, the estimation of intrinsic values is a very challenging task.

Yet, we may minimize the problem and bypass the need to estimate intrinsic values by adjusting the nominal stock exchange rates with our Price Attractiveness StockMark (SMP), which estimates the degree of over/undervaluation at any level of market premium or discount.
By adjusting the nominal rates by the relative SMPs we obtain the fair value exchange rates depicted in chart C7.

C7. Fair value exchange rates



T3. Benchmark Group: Correlated Pairs

Ticker	Company Name	Similarity	SMC	SMW	SMS	SMA
GOOGL	Alphabet Inc		85	90	16	88
CRCM	Care.com Inc	72.73%	90	87	73	63
SNPS	Synopsys Inc	66.67%	86	68	53	86
TRST	TrustCo Bank Corp N Y	63.64%	88	78	89	56
YELP	Yelp Inc	60.61%	27	83	30	13
ORCL	Oracle Corp	60.61%	76	67	26	83

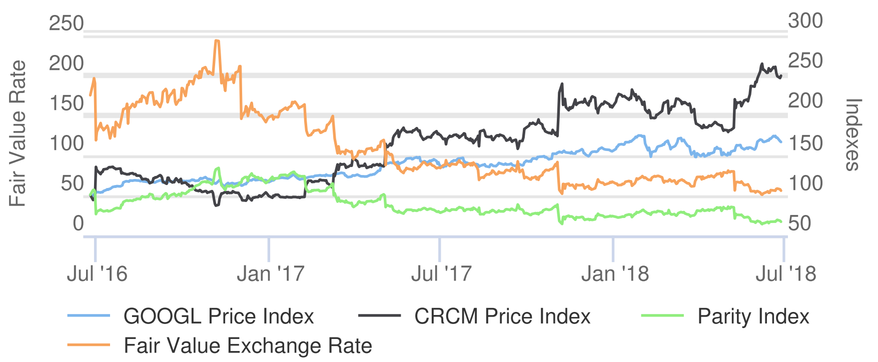
The rates quoted in chart C7 give us the number of benchmarked shares that we could buy with one share of Alphabet Inc. Therefore, an increase/decrease in the rate of exchange means that its price is appreciating/depreciating relative to its pair. The trend in the fair value exchange rate is relevant not only to adjust valuations but also to assess the price outlook for the stock price. SADIF clients may access the company's fair value in relation to any other company at http://sadifanalytics.com.

Parities

Chart C8 also shows the parity index and the evolution of the fair value exchange rate for Alphabet Inc, in relation to its first pair, Care.com Inc.

We can observe that in relation to the first pair, the trend in its fair value during the last quarter has been towards depreciation. In turn, in the last month the parity index shows a decline reflecting a depreciation in relation to its pair.

C8. Prices, parity indexes and fair value



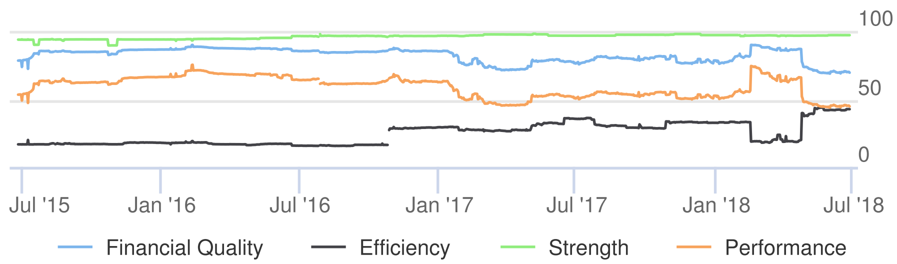
In general, pair trading requires degrees of similarity above 70% and the success of pair trading strategies depends on the investor's ability to forecast the duration of the convergence path.

However, convergence itself may only happen if the two companies are not diverging in a fundamental way. Investors can evaluate this possibility by comparing the StockMarks sentiment ratings shown in the table T3. It shows that Alphabet Inc's sentiment is below that of Care.com Inc, mostly due to a difference in the technicals rating (SMS).

Financials

The company's high quality financials are the result of a prudent financial position, reasonable cash generation efficiency and satisfactory performance. The recent trend shows a declining evolution mainly due to a deterioration in the rating of their financial performance. The table below shows some of Alphabet Inc's key ratios.

C9. The trend in the Financial rating and its determinants



T4. Ratios	GOOGL	BIDU	FB	Internet Services
Revenue				
Revenue Growth	0.06	0.05	0.12	0.07
Revenue Volatility	1.22	2.80	1.14	2.51
Sales Elasticity	0.56	0.59	1.43	0.88
Margins				
EBITDA Margin	0.36	0.38	0.54	0.11
Operating Margin	0.31	0.38	0.46	0.06
Asset Turnover	0.67	0.32	0.54	0.82
Cash Conversion				
Operating Cycle (Days)	56	-	-	101.00
Net Operating Cycle (Days)	38	-	-	53.00
Average Days Receivables & Other *	52.92	235.75	47.98	73.66
Leverage				
Breakeven Revenue	0.26	0.31	0.20	0.74
Degree of Operational Leverage	1.35	1.38	1.25	1.80
Degree of Financial Leverage	1.00	1.05	1.00	1.00
Efficiency				
ROA	0.08	0.09	0.20	0.03
ROE	0.10	0.19	0.23	0.07
Equity Growth	0.05	0.08	0.04	0.02
Liquidity				
Cash Ratio *	2.44	1.09	3.88	1.09
Quick Ratio *	2.92	1.65	4.45	1.71
Current Ratio *	2.94	1.65	4.45	1.84
Solvency				
Interest Service Coverage *	380.57	20.02	-	20.09
Capitalization	0.78	0.46	0.87	0.64
Gearing *	0.03	0.41	0.00	0.04
Asset Quality				
Asset Growth	0.05	0.07	0.05	0.02
Share of Intangibles	0.03	0.06	0.05	0.15
Share of Goodwill	0.21	0.15	0.47	0.00

* the definition of this ratio is different for banks and insurance companies

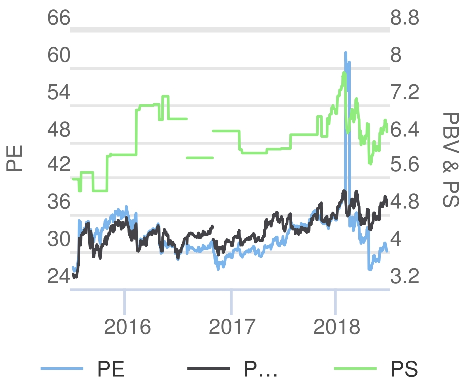
Valuation

Alphabet Inc's relatively attractive valuation is due to high price attractiveness and positive market multiples. The company is currently trading at 5.0 times book value and 30.0 times earnings, which compares favourably with the industry average. In the past quarter, the valuation has deteriorated due to a decline in the outperformance rating (SMO).

Multiples

The traditional valuation of companies based on market price multiples depicted in chart C10 shows that Alphabet Inc has remained stable in the last quarter. However, because the various multiples are based on different metrics, we standardize and combine them into a synthetic multiple (SMK) depicted in chart C11.

C10. Trend in valuation multiples



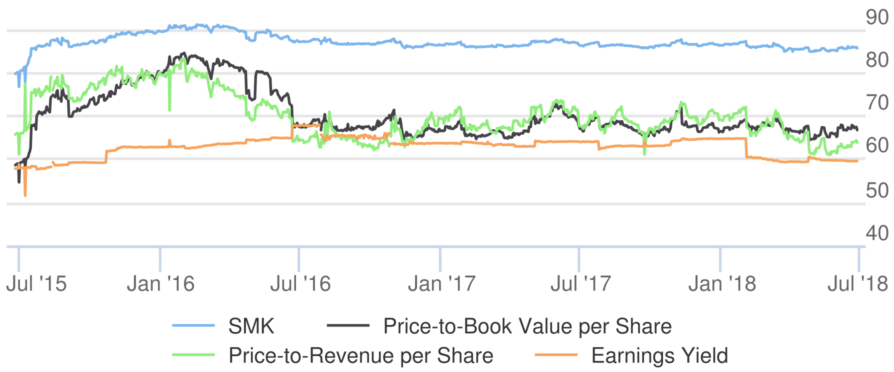
The trend in our synthetic multiple (SMK = 85/100), shown in chart C11, is positive, due mostly to a rise in the book value multiple.

Price Attractiveness

Despite the recent steep rise in Alphabet Inc share price, the possibility of the company's shares being overbought remains low.

Alphabet Inc currently has a Price StockMark (SMP) of 86/100, indicating that the market is undervaluing the company's long-term fundamentals.

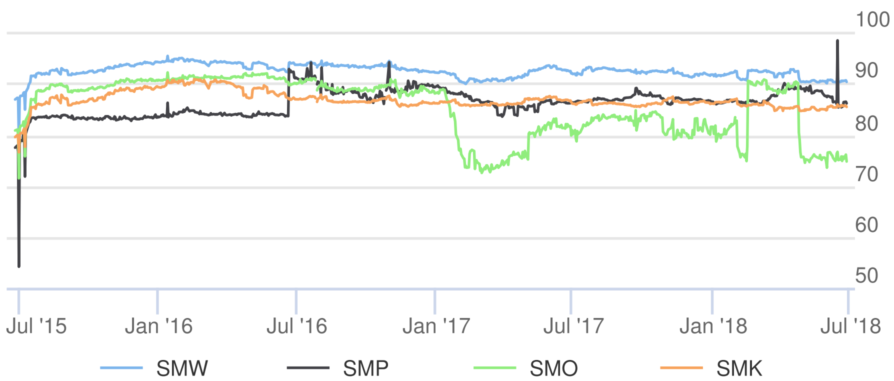
C11. Synthetic Multiple (SMK) and its determinants



However, investors should not focus exclusively on trends in market price multiples and earnings yields. They need to consider the most recent absolute value of the SMP and its trend (depicted in chart C12) for two main reasons.
Firstly, to verify if the stock is caught at a stationary level, indicating that it may remain undervalued or overvalued for long periods.
Secondly, investors should assess if it is diverging or converging in relation to a fair valuation (SMP between 45-55).

Chart C12 shows the overall valuation rating (SMW = 90/100) and its determinants. Overall, we observe that Alphabet Inc has an attractive valuation with a tendency towards correction.

C12. The trend in valuation (SMW) and its determinants



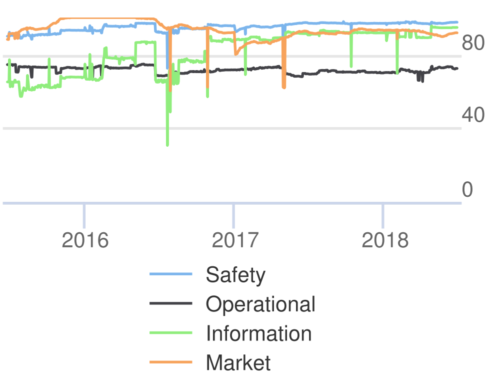
In terms of the SMW determinants it is worth noting that the company's main driver is price attractiveness (SMP) and its weakest is the outperformance (SMO).
The nominal stock exchange rate between two stocks as given by current market prices (shown previously in page 5, chart C7) may be misleading if markets, as they often do, over-estimate or underestimate the premium/discount relative to intrinsic value.
The valuation of stock-for-stock offers in M&A transactions is quite complex when shareholders of the acquirer and the target company hold significantly different views on the intrinsic value of their companies. So, since the divergence in relation to the nominal rate is significant, the fair value exchange rate is a good aide in such discussions.

Safety

The company is rated as very safe. With low operational risk, it has little information risk and small market risk. The trend in its determinants shows a significant reduction in information risk over the past quarter. The market risk, in terms of volatility, is significantly higher than the market index ETF in the last quarter.

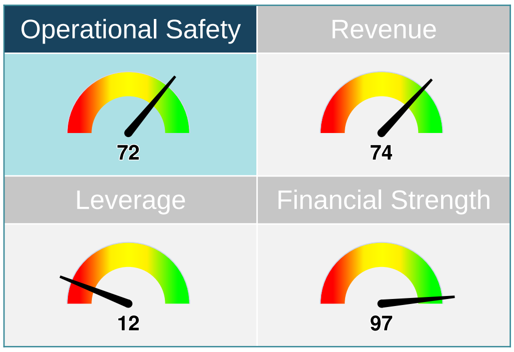
As shown in chart C13, Alphabet Inc has a high level of safety (SMD = 97/100) which has remained stable in the past quarter. Its weakest rating is in terms of operational safety.

C13. Safety and its determinants



Operational Safety

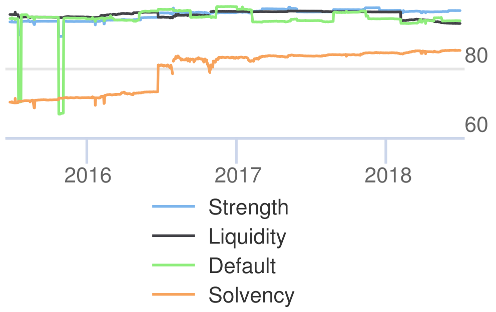
The determinants of the sales and operational risk depicted in the box below, are the result of high revenue performance combined with excessive capitalization in a company with great financial strength. Alphabet Inc's strong revenue performance is due to a combination of high revenue growth, large volatility and weak competitiveness in relation to its industry.



Financial Strength

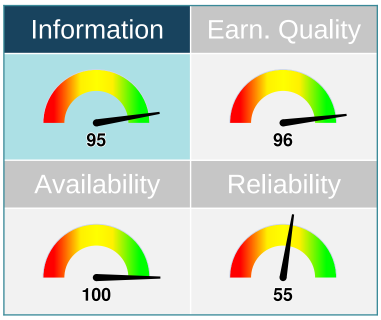
The breakdown of financial strength (SMF11 = 97/100) - see chart on the right - shows a high rating in terms of liquidity, minor risk of default and a small risk of insolvency.
The recent trend shows an improved situation in the last quarter. The main contributor for this improvement was solvency, which rose by 0.5%

C14. Financial strength



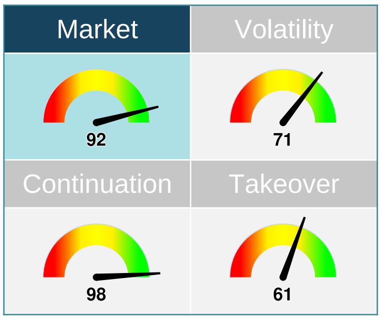
Informational Safety (SMD2 = 95/100)

Alphabet Inc's classification in terms of informational safety is the result of good earnings quality combined with good data availability and passable reliability.
This classification does not include transparency, integrity and regulatory risks, which are probably reduced due to Alphabet Inc's high rating for governance (SMG = 71/100).

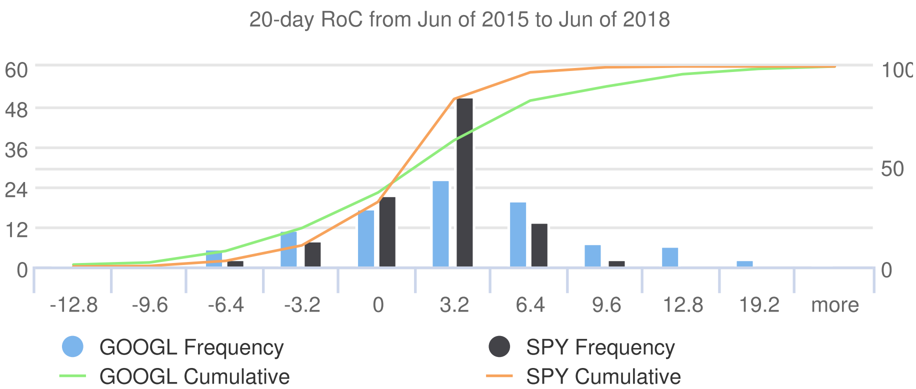


Market Safety (SMD3 = 92/100)

The market risk (see box on the right) has three components: volatility risk, delisting risk and takeover exposure. When compared to its closest competitor in terms of similarity, Alphabet Inc is 1.03 times less riskier than Baidu Inc. The main difference is a higher continuation rating. Alphabet Inc's volatity compared to the market index ETF, shown below, is high with a cumulative frequency of negative returns 4.7 % points above the ETF.



C15. Volatility compared to market ETF



Sentiment

The current investor sentiment in relation to Alphabet Inc is bullish, and with a positive outlook. It may change abruptly by some unknown forthcoming corporate action or event. Meanwhile, the short term trend measured through technical indicators shows some appreciation in the last month.

The current sentiment (SMC = 85/100) in relation to Alphabet Inc is assessed on the basis of its current valuation and forecasts, complemented by technical indicators. Its evolution depicted in chart C16, shows a rising trend, mainly as a result of an improvement in the technicals rating (SMS).

Valuation

The valuation sentiment (SMW = 90/100) is positive, supported by a combination of high multiples, attractive price and a significant outperformance likelihood (see chart C12, page 7).

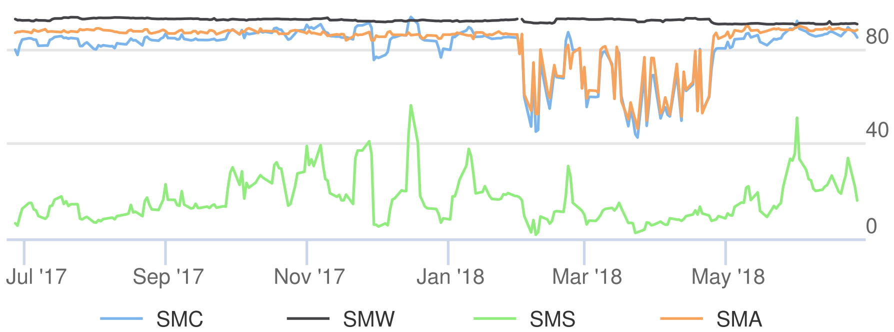
Technicals

The outlook in terms of technical analysis (chart C17), price targets and market trend shows a positive trend in the last quarter. This is reinforced by a positive trend in recent SADIF estimates and it is dampened by a declining valuation

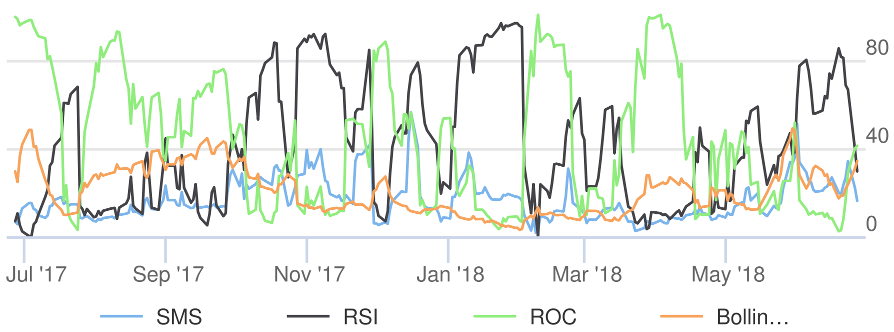
Outperformance likelihood

When compared to its closest competitor, Baidu Inc, Alphabet Inc exhibits greater undervaluation and is more likely to outperform the market in the long term. Finally, an important complement to gauge investor sentiment is given below through the list of recent major buyers and sellers.

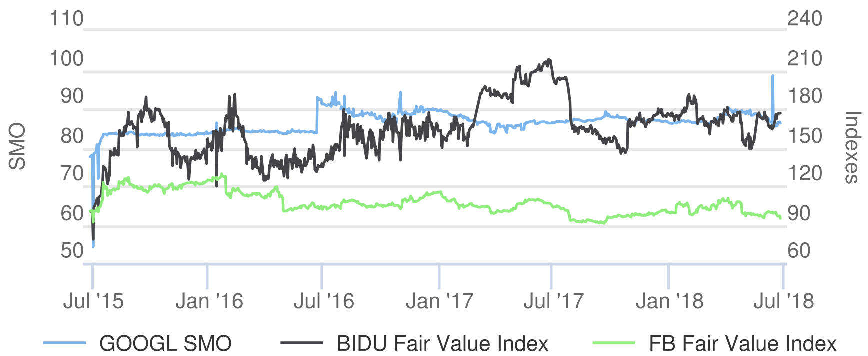
C16. Overall Investor Sentiment (SMC) and its constituents



C17. Technical Analysis Sentiment (SMS) and its constituents



C18. Outperformance (SMO) and Fair Value exchange indexes



Major Buyers		Major Sellers	
Investor Name	Shares	Investor Name	Shares
Capital Research Global Investors	+0.78M	Magellan Asset Management Limited	-1.86M
OppenheimerFunds, Inc.	+0.58M	Fidelity Management & Research Company	-1.07M
Norges Bank Investment Management (NBIM)	+0.49M	State Street Global Advisors (US)	-0.57M
Susquehanna International Group, LLP	+0.47M	Marshall Wace LLP	-0.36M
The Vanguard Group, Inc.	+0.38M	Goldman Sachs & Company, Inc.	-0.29M

Estimates

The company's business outlook is positive and, based on an improving trend in our estimates, is likely to improve. Earnings per share is stable, while its book value per share is rising. The impact on market multiples is favorable. Our target price has an implicit annual CAGR of 24.4%, significantly above that of the analyst consensus.

Overall, our rating for business outlook (SMA = 88/100) has improved in the last quarter due mostly to an improvement in the financial estimates (see chart C16, page 9).

Revenue

Alphabet Inc is currently earning 27.31% on revenue of 34,424.0 million.

T5. Quarterly Revenue Per Share

Year	Q1	Q2	Q3	Q4
2018	48.819	51.389f	54.094f	-
2017	35.356	37.306	39.705	47.109
2016	28.371	30.902	32.315	38.388

This revenue translates into an earnings yield of 2.53% and a return on equity of 10.3% over the last twelve months. The corresponding EPS trend can be seen in table T6.

Earnings

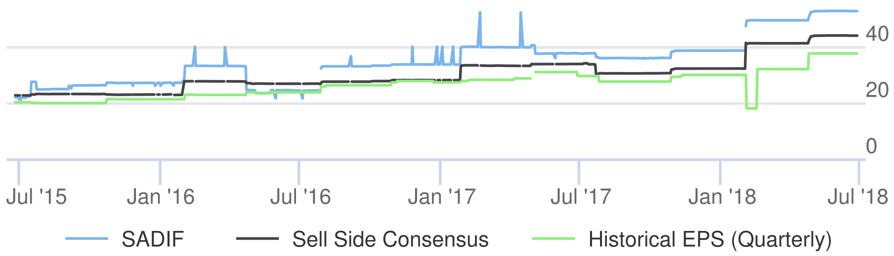
Over the last two quarters available, Alphabet Inc's earnings per share improved to 13.332. As shown in table T6, this represents an improvement in relation to its earnings one year ago.

Our estimation, shown in table T6, is that quarterly earnings may fall to 13.018 during the coming semester. Our estimate is 8.83 above the current consensus estimate.

T6. Quarterly EPS

Year	Q1	Q2	Q3	Q4
2018	13.332	11.410f	13.018f	-
2017	7.729	5.009	9.566	-4.348
2016	6.016	6.999	7.246	7.713

C19. SADIF and Sell Side consensus estimates vs historical EPS



Book Value

The stock is trading at 30.0 times earnings and5.0 times book value, with a rising trend.
The trend in Alphabet Inc's market and book values, allow investors to gauge how the market values the company's growth. Comparing the two most recent quarters with the previous two, we see that book values have increased by 3.1% while the company's market value has increased by 37.27%. Moreover, the gap between the two widened in the last month.

T7. Quarterly BVS

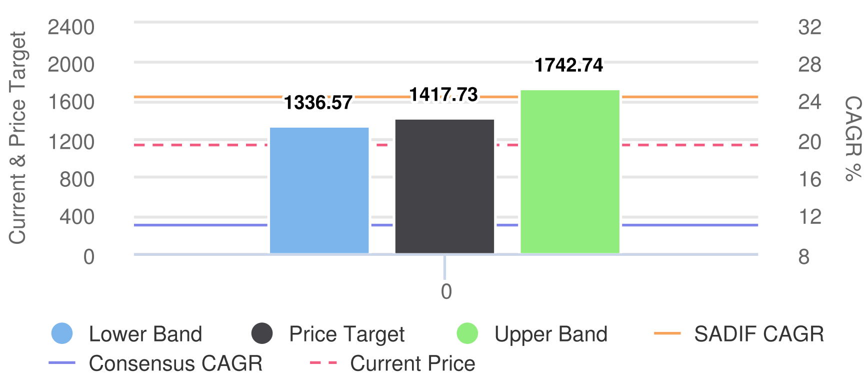
Year	Q1	Q2	Q3	Q4
2018	228.077	239.965f	252.834f	-
2017	206.469	210.782	223.243	219.552
2016	176.701	183.511	192.004	201.087

Price Targets

We use the estimates above and the outperformance likelihood rating (SMO) to derive Alphabet Inc's price target. We do not take a view on the market direction. Investors expecting the market to rise (or fall) significantly should increase (decrease) the price target accordingly.

Chart C20 shows that we expect the stock price to appreciate by 285.108 in absolute terms to reach 1417.728. And, in relation to its current level (1132.620), we estimate a potential gain of 25.2% over the coming year. The corresponding CAGR value of the analyst consensus is lower at 11.20%.The lower and upper bounds shown suggest good price target reliability.

C20. Price Targets



Recommendations

Alphabet Inc rates as a good investment. Compared to the analyst consensus, our recommendation is more favorable.The comparison with its closest competitor also shows a better rating. The main contributor to this rating is its current safety.

The current SMR rating is 92/100. Chart C22 shows the SMR trend compared to the sell side recommendation values depicted with the half-year lead time. Our last SMR revision was upward, and the month-to-month trend is positive.

T8. History of up(down)grades *

Date	Trend	SADIF Rating
09 May 2018	⬆	Good
03 Apr 2018	⬇	Above Average
09 Feb 2017	⬆	Good

Conclusions

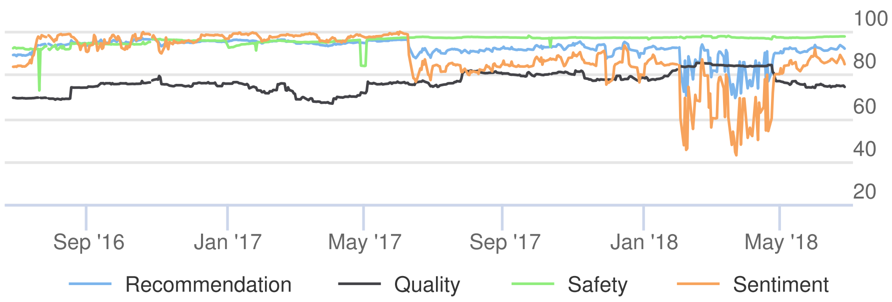
Alphabet Inc is a high quality company. Despite weak business rating, it has strong financials and good corporate governance. In terms of risk, Alphabet Inc, is very safe. With low operational risk, it has low information risk and low market risk. The current market sentiment in relation to the company is positive notwithstanding unfavorable technical indicators, positive estimates and an attractive valuation. The trend in Alphabet Inc fair value exchange rate against its closest rated-competitor, Baidu Inc, has been appreciating over the past 2 weeks. When compared to its closest competitor, Baidu Inc, Alphabet Inc shows greater undervaluation and is more likely to outperform the market. The company's share price has risen over the past year, but we believe underlying fundamentals to be the primary determinant of long-term performance.

The likelihood of Alphabet Inc stock to outperform the market – as measured by the Outperformance StockMark (SMO) is well above average with a rating of 75/100.

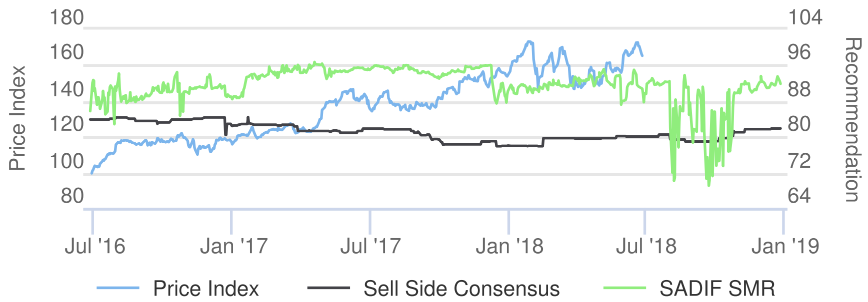
The market risk associated with holding the shares – as measured by the StockMarks Market Risk (SMD3) – is low with a rating of 92/100.

Overall, we believe Alphabet Inc to be a good long-term investment.

C21. SADIF overall Rating (SMR) and its drivers



C22. Price Index (RHS) vs. Recommendations (LHS)



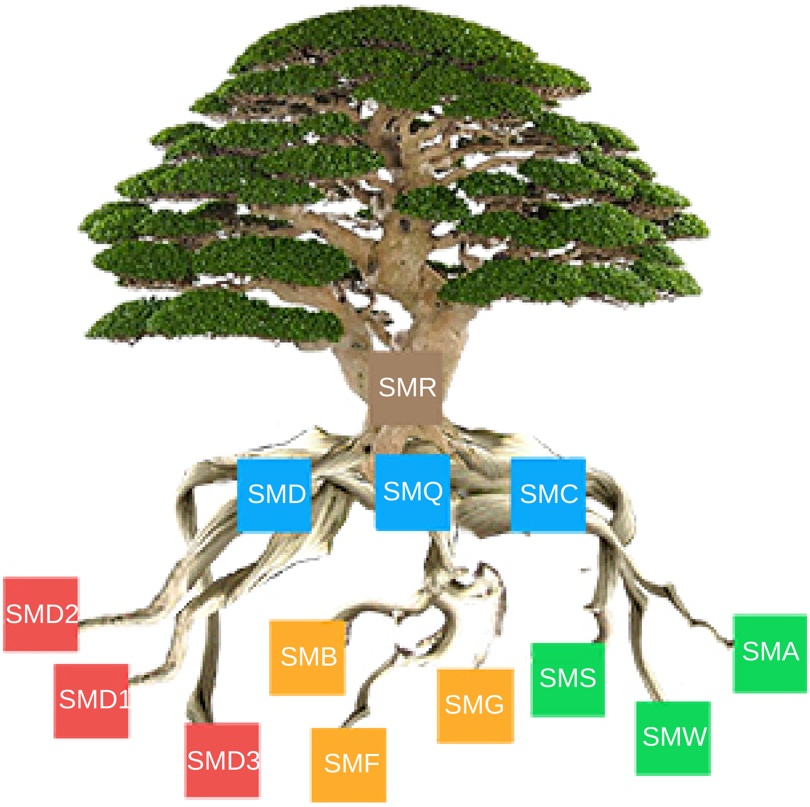
About Stock Recommendations

Traditionally research providers make recommendations standardized as analyst consensus on a scale of 1 to 5 as shown below. We use a similar rating - SMR StockMarks™ – with 5 categories, ranging from good to risky.

1. Rating	2. Rating	3. Rating	4. Rating	5. Rating
Strong Buy and/or Very Positive	Buy and/or Positive	Hold and/or Neutral	Sell and/or Negative	Strong Sell and/or Very Negative
Strong Buy and/or Very Positive		Hold and/or Neutral	Sell and/or Negative	
1				
Good	Above Average	Average	Below Average	Risky
100-85 StockMarks	85-51 StockMarks	51-16 StockMarks	16-9 Stockmarks	9-0 StockMarks

* Current Ratings are not stricly comparable to those published before 8 Dec 2016 due to changes in methodology.

The StockMarks™ Ratings



SMR	SMR	A SADIF recommendation based on equal weighting of company ratings for quality (SMQ), safety (SMD) and investor sentiment (SMC). Investors with different strategies (e.g. growth or safety) should reweight accordingly.
Recommendation (SMR)	SMQ	A company's overall quality rating based on its ratings for business, financials and governance.
	SMD	A company's overall safety rating based on its ratings for operational, information and market risk.
	SMC	A company's overall sentiment rating based on investors' ratings for its current valuation, estimates and technical indicators.
Quality (SMQ)	SMB	A company's business quality based on its ratings for revenue growth, cash conversion and level of leverage.
	SMF	A company's financial quality based on its ratings for financial strength, efficiency and performance.
	SMG	A company's governance quality based on its ratings for earnings quality, compensation policy and tunnelling risk. For most companies, the rating includes only the earnings quality rating (SMI).
Safety (SMD)	SMD1	A company's operational safety based on its ratings for revenue growth, leverage adequacy and financial strength.
	SMD2	A company's informational safety based on its rating for earnings quality, data availability and reliability.
	SMD3	A company's market safety based on its ratings for its continuation as a listed company, its exposure to takeover bids and its stock price volatility.
Sentiment (SMC)	SMW	A company's valuation attractiveness based on the ratings for its current price multiples, outperformance likelihood and price attractiveness.
	SMA	A company's current estimates based on the ratings for its current outlook, estimates forecasts and consensus recommendations.
	SMS	A company's technical indicators rating based on the current values for Bollinger Bands, rates of change and relative strength indexes.

Today's must-reads, expertly curated by O'Neil Research Analysts. Trend Watch.

Trend Watch

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Every winning stock begins with what's NEW or what's NEXT

June 26, 2018

Romeo Alvarez 310.448.6913

AI

Google Is Training Machines to Predict When a Patient Will Die - AI advances by the 'Medical Brain' team could help the internet giant finally break into the health-care business. (Bloomberg)

Autos

Faraday Future announces $2 billion in financing to bring its electric vehicles to market. (Electrek)

Start Your Engines: The Second Wave of Luxury Electric Cars - Old guard auto makers are mounting a challenge to Tesla with their own premium EVs. (WSJ)

Simple Self-Driving Shuttles Become First Robot Rides in Detroit. (Bloomberg)

Pizza Delivery May Be Entering a New Era - Pizza companies are testing the use of driverless vehicles to get their product to you. But there are still some kinks to work out. (WSJ)

This road in Sweden charges electric vehicles as they drive on it. (CNBC)

IPO Is First Stop for GM Self-Driving Unit - Separating out the business would provide greater financial flexibility. (Bloomberg)

Electric Vehicles on the Road Are Set to Triple in Two Years. (Bloomberg)

Tech companies form alliance to create networking for autonomous vehicles. (Venturebeat)

Media/Entertainment

Buying Instagram is probably the smartest thing Facebook has ever done - the app is estimated to be worth $100 billion. (Theverge)

Instagram launches IGTV app for creators, 1-hour video uploads - Instagram is ready to compete head-on with YouTube. (Techcrunch)

Ubisoft Believes Next Gen Is the Last for Consoles as Microsoft Looks Beyond Platforms. (Variety)

Retail

The Future Of The Shopping Mall Is Not About Shopping. (Forbes)

Starbucks closures and D.C. restaurant minimum-wage hike are two sides of same coin. (Marketwatch)

Amazon Announces Next Whole Foods Delivery Expansion - Prime Now Grocery is expanding to Chicago, Houston, Indianapolis, Minneapolis and San Antonio. (Pymnts)

Other/Miscellaneous

With the threat of declining sales looming large, the alcohol industry may have little choice but to partner with cannabis companies. (Motleyfool)

A Marijuana-Derived Medication Is Now Approved For Sale in the U.S. (Futurism)

SoftBank Wants to Build the Future. Here Are Some New Bets It Could Make. (Newyorktimes)

One photo shows that China is already in a cashless future. (Businessinsider)

"America is a country of innovators. It's your job as a stock trader to find new innovative companies, charts in each cycle" - William O'Neil

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O'Neil Market View
EQUITY RESEARCH
WILLIAM O'NEIL+CO.

June 22, 2018

United States

The U.S. market remains in a Confirmed Uptrend. The S&P 500 is holding support at 2743, while the Nasdaq remains just 1% off all-time highs. Distribution is elevated, however one day did expire at the close Friday to take the count back down to six on the S&P 500. Another distribution day is also set to expire at the close Tuesday. Leadership is mixed with the majority still holding up well. Software ideas, however, did take a hit this week, pulling back off extended levels and likely set to consolidate gains over the next several weeks. Going forward, we will be looking for the market to avoid further distribution and for the majority of leading ideas to continue holding above short-term levels of support.

Stocks on our U.S. Focus List: Current Sentiment

Our USFL of 73 ideas (one net addition) lost 1.7% on average this week, underperforming the S&P 500 (-0.9%) and the Nasdaq (-0.7%).

Actionable Focus List ideas: Activision Blizzard (**ATVI**), Alibaba (**BABA**), Alphabet (**GOOGL**), Arista Networks (**ANET**), At Home (**HOME**), Autodesk (**ADSK**), Continental Resources (**CLR**), Diamondback Energy (**FANG**), Fleetcor Technologies (**FLT**), Global Payments (**GPN**), Home Depot (**HD**), Nextera Energy (**NEP**), ON Semiconductor (**ON**), Paycom Software (**PAYC**), Paypal (**PYPL**), PRA Health Sciences (**PRAH**), SS&C Technologies (**SSNC**), Supernus Pharmaceuticals (**SUPN**), Unitedhealth (**UNH**), Western Alliance Bancorp (**WAL**), Worldpay (**WP**)

By Sector

We did see early signs of rotation to close the week. Energy, which has been lagging over the past month, rallied on Friday. **FANG** and **CLR** both regained their respective 50-DMA, while **WRD** is attempting to regain that same level. **NEP** also broke out into a new YTD high on Friday, before pulling back at the close. Financial also fared well this week, with Payment Processors still leading. **FLT** broke out after being added to the S&P 500, while **MA**, **V**, **PYPL**, **SQ,** and **WP** remain at or near new highs. Banks still remain mostly sideways. Health Care ideas also continue to stand out, as the majority of USFL ideas held their ground despite the general market pullback. **EW**, **PRAH**, **ILMN**, **ABMD**, **IDXX,** and **ALGN** all remain at or near new highs. **VRTX** is also now rounding out the ride side of a new base after trading below both its 50- and 200-DMA over the last few weeks. Conversely, USFL software ideas pulled back after big runs over the past month. **RHT** gapped down ~14% post earnings, while **SPLK** and **RP** both broke their respective 50-DMA on very heavy volume. Most other ideas including **RNG**, **NOW**, **ADBE**, **TYL**, and **TEAM** are pulling back off all-time highs and now testing support at the 50-DMA.

New Ideas or Deletions

We added Arista Networks (ANET) and Autodesk (ADSK) and removed Red Hat (RHT) from the U.S. Focus List this week.

Developed Markets

Twenty-two developed markets declined 1.1% on average this week, reversing gains from last week. Nine markets are in a Confirmed Uptrend, including four in an Uptrend Under Pressure. Six markets are in a Rally Attempt, while seven markets are in a Downtrend.

The iShares Developed Market Index (EFA) declined 2.9% this week. The index continues to trade below 200-DMA support and is 10% off highs. The index is in a Downtrend. One positive note, it did hold February lows and bounced by 1.3% on higher-than-average volume on Friday.

Key Developed Markets

EMEA

As of Thursday's close, the Stoxx 600 fell 1.0% this week despite bouncing by 1% on Friday. The index is right at its 200-DMA and 1% below its 50-DMA. There were several status downgrades across Europe. We moved France, Germany, Switzerland, Austria, and Belgium to a Downtrend. We also moved the U.K., the Netherlands, Finland, and Luxembourg to Under Pressure. Out of the 16 European indices, six are in a Confirmed Downtrend, and four are Under Pressure.

Sixteen European markets dropped 1.2% on average. Most of the markets ended in the red except the U.K. (+0.3%) and Denmark (+0.2%). Germany (-3.4%), Finland (-2.7%), and France (-2.4%) were among the worst performers in the region.

- France's services PMI for June rose to 56.4, while consensus was expecting a reading of 54.3. The manufacturing PMI declined more than expected, coming in at 53.1, versus expectations of 54.0.
- In Germany, the services PMI for June was higher than expected at 53.9, compared with consensus expectations of 52.2. Similar to France, Germany's manufacturing PMI declined more than expected, coming in at 55.9, versus expectations of 56.3.
- The Bank of England left interest rates unchanged. The monetary policy committee voted 6-3 in favor of holding rates steady, compared with the 7-2 vote (in favor of holding rates steady) at the last policy meeting. The pound rallied against the dollar on Thursday based on the more hawkish voting pattern.
- Eurozone consumer confidence declined more than expected in June, coming in at -0.5. Consensus had called for -0.1.
- Israel's economy expanded at an annualized pace of 4.5% in Q1, according to the second estimate, unchanged from the previous quarter. The reading was ahead of the preliminary estimate of 4.2% growth.

APAC

Five APAC markets declined 1.0% on average, extending losses from the previous week. Hong Kong (-3.2%), Singapore (-2.1%), and Japan (-1.5%) lagged, while Australia (+1.9%) and New Zealand (+0.1%) closed in the green.

- New Zealand's GDP grew 0.5% q/q in the first quarter, matching consensus estimates.
- Japan's CPI rose 0.7% y/y in May, more than consensus estimates of 0.3%. Food and transportation costs increased rapidly, while for housing they increased more slowly.
- Japan's trade deficit increased sharply to ¥578.3B in May from ¥204.4B a year ago. This exceeded market expectations of a ¥235B deficit and resulted principally from a surge in imports.
- Hong Kong's inflation increased 2.1% y/y in May, up from 1.9% in April.
- The unemployment rate in Hong Kong remained unchanged at 2.8% in May.

Stocks on our Global Focus List for Developed Markets: Current Sentiment

For the trailing five-day period through Thursday (Asia's full week), the 73 ideas (three removals) on our GFL DM declined 1.1% on average, in line with the EFA benchmark.

Weekly outperformers included Australia – six stocks gained 2.2% on average; and Japan – 11 stocks gained 1.5% on average. Underperformers included Switzerland – six stocks lost 5.0% on average; the U.K. – four stocks lost 4.7% on average; Germany – five stocks lost 4.42% on average; and France – nine stocks lost 2.6% on average.

Stock Leaders included:

- GMO Payment (GMOP.JP): 11.1% gain, all-time high weekly close
- En-Japan (ENJP.JP): 8.4% gain, retook 10-WMA
- Synlait Milk (SMLZ.NZ): 6.8% gain, all-time high weekly close
- Teleperformance (ROFR.FR): 6.9% gain, all-time high weekly close

Actionable Developed Market Focus List ideas: Asahi Intecc (AS@H.JP), Benefit One (BONE.JP), Cochlear (COH.AU), Ipsen (IPN.FR), Kose (OSEC.JP), Premium Brands (PBH.CA), Swedish Orphan Biovitrum (SOBI.SE), Tosho (T@SH.JP)

Stock Laggards included:

- Sunny Optical Tech. (SOPT.HK): 11.0% loss, breached 10-WMA
- Cie Automotive (AFR.ES): 9.3% loss, breached 10-WMA
- Zhongsheng Group (ZSG.HK): 9.1% loss, 13% off highs
- Vat (VACN.CH): 8.8% loss, removed from list, breached 10-WMA

By Sector

Our GFL DM versus the iShares Developed Market Index is:

- Overweight – Consumer Cyclical/Retail, Technology, Health Care, and Utility.
- Underweight – Capital Equipment, Consumer Staple, Financial, Energy, and Basic Material.

New Ideas or Deletions

This week we removed Livzon Pharmaceutical (LVZN.HK), Xinyi Glass (XINY.HK), and Vat Group (VACN.CH) from the Focus List.

Emerging Markets

Twenty-four emerging markets dropped 1.6% on average. Nine markets are in a Confirmed Uptrend, including five in an Uptrend Under Pressure. Five markets are in a Rally Attempt, while ten markets are in a Downtrend.

The iShares Emerging Market Index (EEM) declined 2.9% this week, its second week of sharp losses. The index closed at its lowest level since August 2017. A stronger U.S. dollar in addition to weakening local emerging markets has combined to send the index 16% off highs. In addition, the 50-DMA continued to remain below the 200-DMA, representing a downward-trending level of resistance.

Key Emerging Markets

APAC

APAC markets continued the negative action from last week and declined 3.4% on average. All the markets closed in the red, except India (+0.2%). The Philippines (-6.2%), China (-5.6%), and Pakistan (-4.7%) dragged down the performance of the region.

- In May, Malaysia’s CPI increased 1.8% y/y, in line with consensus estimates. The rise was due to increasing transport prices.
- The Philippines central bank raised its key benchmark rate by 25bps to 3.5%, in line with street expectations.
- In May, Taiwan’s seasonally adjusted employment rate came in at 3.69%, unchanged from the previous month.
- Thailand’s central bank kept its benchmark interest rate unchanged at 1.5%. The rate has remained unchanged since 2015.
- India’s bank loans rose 12.7% y/y in the two weeks to June 9, compared with a 13.1% y/y increase in the previous period.
- Indonesia's Jakarta SE Composite Index closed down sharply by 2.87% this week, and continued to be in a Rally Attempt. It is trading 1.31% below its 10-WMA and 4.48% below its 40-WMA.

EMEA

Markets in EMEA edged down 0.2%. Greece (+1.6%), Turkey (+1.1%) and Egypt (+0.8%) were the outperformers, whereas Hungary (-2.3%), Poland (-1.7%), and the Czech Republic (-1.3%) offset the gains.

- Inflation in South Africa eased to 4.4% y/y in May from 4.5% in March and below market expectations of 4.6%.
- Retail sales in Turkey rose 8.0% y/y in April, following an upwardly revised 7.7% increase in March.

Americas

Emerging Americas markets declined 1.0% on average this week. Brazil (+0.3%) was the only market that closed in the green, while Peru (-1.9%), Chile (-1.5%), Mexico (-1.0%), and Colombia (-0.9%) dragged down the performance of the region.

- Brazil’s central bank kept interest rates unchanged at 6.5% on June 20, as expected by most economists. Despite higher import prices due to the weaker real, which hit a two-year low earlier this month, the central bank has stated that foreign exchange moves would drive monetary policy only if they affected inflation more broadly. Still, the bank said in its policy statement that the risk of the global economy pushing inflation higher in Brazil had increased since the bank’s May meeting, while the risk of inflation remaining below the bank’s target had fallen.
- Brazil’s inflation rate soared back to the central bank’s official target range in mid-June after a nationwide strike by truckers drove product shortages across the board. The benchmark IPCA index rose 1.11% from mid-May, above the median 1.0% forecast in a Reuters survey.
- The Brazilian economy expanded 0.46% from March to April, after three consecutive months of contraction, according to the central bank's Economic Activity Index. The economy grew 3.7% y/y and expanded 1.52% cumulatively over the last 12 months. With economic indicators trending downward this year, financial analysts lowered their GDP growth predictions for the year to 1.94%, in a central bank poll released last week. Last year, Brazil recorded GDP growth of 1%.
- Mexico’s central bank hiked borrowing costs for the second time this year as higher U.S. interest rates, global trade tensions, and the July 1 presidential election have put pressure on the peso. The bank raised the key interest rate a quarter-point to 7.75%, in line with consensus expectations. Mexico’s move Thursday was unanimous and came with a pledge by the central bank board to continue its prudent monetary policy. The decision also comes as President Donald Trump threatens to tear up NAFTA and as leftist Andres Manuel Lopez Obrador is likely to win the July 1 presidential election.

Stocks on our Global Focus List for Emerging Markets: Current Sentiment

For the trailing five-day period through Thursday (Asia's full week), the 30 ideas (two removals) on our GFL EM lost 1.1% on average, outperforming the EEM benchmark index.

Weekly outperformers included Malaysia – two stocks gained 0.5% on average; and South Africa – two stocks gained 0.20% on average. Underperformers included Taiwan – two stocks fell 3.1% on average; South Korea – seven stocks fell 1.3% on average; and India – 18 stocks fell 1.1% on average.

Stock Leaders included:

- Koh Young Technology (KYX.KR): 14.5% gain, broke out of a flat base
- Samsung Electro Mechanics (SEM.KR): 3.1% gain, 4% off highs
- Top Glove (PTOGL.MY): 2.8% gain, an all-time high weekly close

Actionable Emerging Markets Focus List ideas: Asian Paints (API.IN), Berger Paints (BPI.IN), Clicks (CLSJ.ZA), Edelweiss (EWC.IN), Hdfc Bank (HFC.IN), Jsw Steel (JVS.IN), Page Industries (PI1.IN), Reliance Industries (REL.IN), SKC Kolon PI (SKJ.KR), Sundram Fasteners (SMF.IN)

Stock Laggards included:

- Jejuair (JJU.KR): 13.7% loss, undercut its 10-WMA
- Jin Air (LVZ.KR): 11.0% loss, removed from list
- Gruh Finance (GRU.IN): 5.7% loss, 18% off highs
- Avenue Supermarts (AS.IN): 4.7% loss, 7% off highs

By Sector

Our GFL EM versus the iShares Emerging Market Index is:

- Overweight – Basic Materials, Retail/Consumer Cyclical, Transportation, Consumer Staple, Capital Equipment, Health Care, and Utility.
- Underweight – Energy, and Technology.
- Balanced – Financial.

New Ideas or Deletions

This week we removed Airtac International (AIG.TW) and Jin Air (LVZ.KR) from the Focus List.

Google LLC

Strategic SWOT Analysis Review

Report Code: GDTC2633703SA
Published: June 2018

GlobalData

Company Snapshot

1600 Amphitheatre Parkway	**Phone**	+1 650 2530000	**Revenue**	109,652 (million USD)
Mountain View, CA	**Fax**		**Net Profit**	NA
94043	**Website**	www.google.com	**Employees**	NA
United States	Exchange		**Industry**	Technology and Communications

Company Overview

Google LLC (Google), a subsidiary of Alphabet Inc., is a leading provider of search and advertising services on the internet. The company focuses on business areas such as advertising, search, platforms and operating systems, and enterprise and hardware products. Its portfolio of products and services include Google Web Search, Google Chrome, Google Docs, Google Calendar, Google Images, Google Finance, Google Books, Google News, Google Earth, Google Play, AdMob, Google Maps, Google Videos, Google Reader, Blogger, Google Wallet, Gmail, Google Groups, and YouTube. The company offers online display advertising services through its AdSense and AdWords programs.

Key Executives

Name	Title
Sundar Pichai	Chief Executive Officer
Nick Fox	Vice President, Communications Products
Diane B. Greene	Senior Vice President
Ruth M. Porat	Chief Financial Officer
Caesar Sengupta	Vice President, Product Management

Source: Company Website, Primary and Secondary Research, GlobalData

Key Competitors

SAP SE
Salesforce.Com Inc
Oracle Corporation
Microsoft Corp
International Business Machines Corp

Source: Company Website, Primary and Secondary Research, GlobalData

SWOT Analysis

Google LLC, SWOT Analysis

Strengths	**Weaknesses**
Revenue Performance	Legal Proceedings
Penetration of Android Operating System	Boycott by Major Advertisers
Opportunities	**Threats**
Next Billion Users Initiative	Regulatory Affairs: EU Antitrust Rules
Exploring Artificial Intelligence (AI)	Intense Competition

Source: Company Website, Primary and Secondary Research, GlobalData

Recent Developments

May 29,2018	E.ON brings innovative ‘Project Sunroof’ technology to Britain in partnership with Google and Tetraeder
May 18,2018	E.ON and Google deepen solar partnership around Project Sunroof
May 15,2018	Buying renewables the new way to get businesses back in the black
Apr 24,2018	Total To Develop Artificial Intelligence Solutions With Google Cloud

Source: Annual Report, Company Website, Primary and Secondary Research, GlobalData

Table of Contents

Table of Contents ... 3
List of Tables ... 5
List of Figures ... 5
Section 1 - About the Company ... 6
Google LLC - Key Facts ... 6
Google LLC - Key Employees ... 7
Google LLC - Key Employee Biographies ... 8
Google LLC - Key Operational Employees ... 9
Google LLC - Major Products and Services ... 10
Google LLC - History ... 12
Google LLC - Locations And Subsidiaries ... 28
Head Office ... 28
Other Locations & Subsidiaries ... 28
Section 2 – Company Analysis ... 32
Google LLC - Business Description ... 32
Business Description - Google Network Members' properties ... 32
Google Network Members' properties - Overview ... 32
Business Description - Google Properties ... 32
Google Properties - Overview ... 32
Business Description - Others ... 32
Others - Overview ... 32
Google LLC - Corporate Strategy ... 33
Google LLC - SWOT Analysis ... 34
SWOT Analysis - Overview ... 34
Google LLC - Strengths ... 34
Google LLC - Weaknesses ... 35
Google LLC - Opportunities ... 36
Google LLC - Threats ... 37
Google LLC - Key Competitors ... 38
Section 3 – Company's Mergers & Acquisitions, Capital Raising and Alliances ... 39
Google LLC, Transactions by Year, 2012 to YTD 2018 ... 39
Google LLC, Transactions by Type, 2012 to YTD 2018 ... 40
Google LLC, Transactions by Region, 2012 to YTD 2018 ... 41
Google LLC, Recent Transactions Summary ... 42
Acquisition ... 43
Alphabet Acquires Senosis Health ... 43
Google Acquires Lift Labs, Tremor-Canceling Device Company ... 44
Partnerships ... 45
Candi Controls Forms Partnership with Google Cloud Platform ... 45
E.ON Forms Partnership with Google ... 46
Venture Financing ... 47
Lift Labs Raises US$1 Million In Seed Funding ... 47
Section 4 – Company's Recent Developments ... 48
May 29, 2018: E.ON brings innovative 'Project Sunroof' technology to Britain in partnership with Google and Tetraeder ... 48
May 18, 2018: E.ON and Google deepen solar partnership around Project Sunroof ... 49
May 15, 2018: Buying renewables the new way to get businesses back in the black ... 50
Apr 24, 2018: Total To Develop Artificial Intelligence Solutions With Google Cloud ... 51
Apr 12, 2018: Scientists teach computers how to analyze brain cells ... 52
Apr 11, 2018: Google breaks ground on $600m data centre in Alabama ... 54
Apr 04, 2018: Buying 100 percent renewable energy: Google ... 55
Apr 04, 2018: Google hits clean energy target ... 56
Apr 03, 2018: Google shakes up leadership to sharpen focus on AI ... 57

Mar 20, 2018: AkzoNobel, DSM, Google and Philips receive first power from new Dutch wind farm Bouwdokken 58
Feb 27, 2018: Healthcare Ready Partners with Google to Help Improve Future Disaster Response Efforts 60
Jan 12, 2018: Google maps visionary joins Clearpath advisory board 61
Dec 12, 2017: DNAnexus Integrates Google Brain's DeepVariant, a New Deep Learning Technology, onto Its Cloud-Based Platform 62
Dec 04, 2017: DeepVariant: Highly Accurate Genomes With Deep Neural Networks 63
Nov 30, 2017: EDF Renewable Energy Signs Agreement with Google to Supply 200 Megawatts of Wind Energy 64
Nov 30, 2017: Avangrid inks PPAs with Google for South Dakota wind farms 65
Nov 30, 2017: Grand River Dam Authority to supply even more renewable energy to Google with new Oklahoma wind farm ... 66
Nov 30, 2017: Iberdrola signs a long-term renewable energy sales agreement with Google 67
Nov 23, 2017: Nautilus Medical collaborates with Google Cloud for secure radiology storage and image exchange 68
Nov 08, 2017: Zebra Medical Vision to Collaborate with Google Cloud to Bring a Transparent All-in-One Model to Healthcare.. 69
Oct 23, 2017: EPA Honors 2017 Green Power Leaders 70
Oct 12, 2017: Puppet adds new products, partnerships and executives as company ushers in new era of automation 72
Jul 07, 2017: Google to purchase power from Eneco's solar plant in Netherlands 74
Section 5 – Appendix 75
Methodology 75
About GlobalData 75
Contact Us 75
Disclaimer 75

List of Tables

Google LLC, Key Facts........ 6
Google LLC, Key Employees 7
Google LLC, Key Employee Biographies 8
Google LLC, Key Operational Employees 9
Google LLC, Major Products and Services........ 10
Google LLC, History 12
Google LLC, Other Locations 28
Google LLC, Subsidiaries 30
Google LLC, Key Competitors........ 38
Google LLC, Transactions by Year, 2012 to YTD 2018........ 39
Google LLC, Transactions by Type, 2012 to YTD 2018 40
Google LLC, Transactions by Region, 2012 to YTD 2018 41
Google LLC, Recent Transactions Summary........ 42

List of Figures

Google LLC, Transactions by Year, 2012 to YTD 2018........ 39
Google LLC, Transactions by Type, 2012 to YTD 2018 40
Google LLC, Transactions by Region, 2012 to YTD 2018 41

Section 1 - About the Company

Google LLC - Key Facts

Google LLC, Key Facts			
Corporate Address	1600 Amphitheatre Parkway, Mountain View, CA, 94043, United States		
Telephone	+1 650 2530000	**No. of Employees**	NA
Fax		**Fiscal Year End**	December
URL	www.google.com	**Revenue (in USD Million)**	109,652
Industry	Media, Technology, Telecommunications		
Locations	Argentina, Australia, Belgium, Brazil, Canada, China, Colombia, Czech Republic, Denmark, Egypt, Finland, France, Germany, Ghana, Greece, Hong Kong, Hungary, India, Ireland, Israel, Italy, Japan, Kenya, Malaysia, Mexico, Netherlands, New Zealand, Nigeria, North Korea, Norway, Poland, Portugal, Russia, Senegal, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States		

Source: Company Website, Primary and Secondary Research GlobalData

GlobalData

Google LLC - Key Employees

Google LLC, Key Employees				
Name	**Job Title**	**Board Level**	**Since**	**Age**
Sundar Pichai	Chief Executive Officer	Executive Board	2015	45
Nick Fox	Vice President Communications Products	Senior Management		
Diane B. Greene	Senior Vice President	Senior Management	2015	62
Ruth M. Porat	Chief Financial Officer, Senior Vice President	Senior Management	2015	60
Caesar Sengupta	Vice President Product Management	Senior Management		
Clay Bavor	Vice President Augmented and Virtual Reality	Senior Management		
Daniel Alegre	President Global Partnerships	Senior Management		
Donald Harrison	President Global Partnership and Corporate Development	Senior Management		
Eileen Naughton	Vice President People Operations	Senior Management		
Hiroshi Lockheimer	Senior Vice President Android, Chrome OS and Play	Senior Management		
Jen Fitzpatrick	Vice President Product and Engineering	Senior Management		
Kent Walker	General Counsel, Senior Vice President	Senior Management		
Kristen Gil	Vice President Business Operations	Senior Management		
Lorraine Twohill	Senior Vice President Global Marketing	Senior Management		
Philipp Schindler	Chief Business Officer, Senior Vice President Global Sales and Operations	Senior Management		
Rick Osterloh	Senior Vice President Hardware	Senior Management		
Sridhar Ramaswamy	Senior Vice President ADS and Commerce	Senior Management		
Susan Wojcicki	Chief Executive Officer YouTube	Senior Management		
Urs Holzle	Senior Vice President Technical Infrastructure	Senior Management		
Tian Lim	Vice President Google Play	Senior Management	2017	
Diane Bryant	Chief Operating Officer	Senior Management	2017	
Mzamo Masito	Chief Marketing Officer Sub-Saharan Africa	Senior Management	2018	
Injong Rhee	Head Internet of Things (IoT) Business	Senior Management	2018	
Jeff Dean	Head Search and AI	Senior Management	2018	
Source: Company Website, Primary and Secondary Research				GlobalData

Google LLC - Key Employee Biographies

Google LLC, Key Employee Biographies	
Sundar Pichai Job Title: Chief Executive Officer Board Level: Executive Board Since: 2015 Age: 45	Mr. Sundar Pichai has been the Chief Executive Officer of the company since 2015. Prior to this, he served as the Senior Vice President of Products from 2014 to 2015, and the Senior Vice President of Android, Chrome and Apps at Google from 2013 to 2014. He held several positions with Google including the Senior Vice President, Chrome and Apps; Senior Vice President, Chrome; and Vice President, Product Management. He joined Google in April 2004. Prior to this, he served in engineering and product management at Applied Materials, Inc., and management consulting at McKinsey & Company. Previously, Mr. Pichai served as a Director of Jive Software, Inc., from 2011 to 2013.
Ruth M. Porat Job Title: Chief Financial Officer, Senior Vice President Board Level: Senior Management Since: 2015 Age: 60	Ms. Ruth Porat has been the Chief Financial Officer and Senior Vice President of the company since 2015. Prior to this, she served as the Senior Vice President and Chief Financial Officer of the Alphabet since 2015. She also served as the Chief Financial Officer and the Executive Vice President of Morgan Stanley in 2010. Previously, she served as the Vice Chairman of Investment Banking from 2003 to 2009 and as Global Head of the Financial Institutions Group from 2006 to 2009.
Philipp Schindler Job Title: Chief Business Officer, Senior Vice President Global Sales and Operations Board Level: Senior Management	Mr. Philipp Schindler is the Chief Business Officer and the Senior Vice President of the Google. Prior to this, he served as the Senior Vice-President, Marketing & Sales, AOL Germany; Head of Marketing at CompuServe.
Diane Bryant Job Title: Chief Operating Officer Board Level: Senior Management Since: 2017	Ms. Diane Bryant has been the Chief Operating Officer of the company since November 2017. Prior to this, she served as a Vice President at Intel Corp. She also serves at United Technologies.
Source: Company Website, Primary and Secondary Research	GlobalData

Google LLC - Key Operational Employees

Google LLC, Key Operational Employees			
Name	**Job Title**	**Since**	**Age**
Lily Peng	Product - Google Brain AI research		
Source: Company Website, Primary and Secondary Research			GlobalData

Google LLC - Major Products and Services

Google is a global technology provider for connecting people with information. The major products and services offered by the company include the following:

Google LLC, Major Products and Services
Products:
Gmail
Toolbar
Custom Search Engines
Google Chrome
Webmasters/Site owners
Google Checkout Buyer
YouTube
Google Image Search
Google Book Search
Google Scholar
Google Base
Google Finance
Google News
Search Google Co-op
Custom Search
Google Video
Google Docs and Spreadsheets
Google Calendar
Google Desktop
Google Pack
Google Earth
Google Maps
Google Sketchup and Sketchup Pro
Google Checkout
Google Mobile
Google Labs
Google AdWords
Google AdSense

Android Operating System

Google Play

Google Wallet

Google Translate

Google Home

Google Drive

Daydream View

Gmail

Services:

Web Search

Social Networking

Online Services

Brands:

Google

YouTube

Source: Company Website, Primary and Secondary Research GlobalData

Google LLC - History

Google LLC, History		
2018	Acquisitions/Mergers/Takeovers	In February, Google agreed to acquire LogMeIn's division, Xively.
2018	Acquisitions/Mergers/Takeovers	In January, Google announced the acquisition of Relay Media to convert ordinary web-pages to AMP web-pages.
2018	Acquisitions/Mergers/Takeovers	In January, the company announced the acquisition of Redux to focus on audio and haptics services.
2018	Acquisitions/Mergers/Takeovers	In March, the company plans to acquire a GIF platform, Tenor, for Android, iOS and desktop.
2018	Acquisitions/Mergers/Takeovers	In May, the company agreed to acquire Velostrata, a cloud migration startup based in Israel.
2018	Commercial Operation	In April, the company opened a US$600 million data center on TVA Widow's Creek coal plant site in Bridgeport, Jackson County, Alabama, the US.
2018	Contracts/Agreements	In April, Google and American Medical Association (AMA) partnered to support inspire some new solutions for mobile health technology.
2018	Contracts/Agreements	In April, Google and Fitbit partnered for the innovation and transformation in digital health and wearables.
2018	Contracts/Agreements	In April, Google and Jobillico partnered to use Google for job search experience.
2018	Contracts/Agreements	In April, Google and McClatchy collaborated to develop a new subscription tool to easily access online McClatchy's 30 newsrooms.
2018	Contracts/Agreements	In April, Google Express and Christmas Central partnered to provide a universal shopping cart, Google Express Cart.
2018	Contracts/Agreements	In April, Google partnered with CyArk for preserving historical sites in Virtual Reality using CyArk's laser-scanning technology.
2018	Contracts/Agreements	In April, KBank partnered with Google Thailand, LINE and the Electronic Transactions Development Agency (ETDA) to launch the "K SME Good to Great" programme.
2018	Contracts/Agreements	In April, the company and Saudi Arabia partnered for cybersecurity training.
2018	Contracts/Agreements	In February, Airtel partnered with Micromax and Lava to provide 4G smartphones on Google's Android Go platform.
2018	Contracts/Agreements	In February, Essence's WeR@Home technology integrated with the Google Assistant, for WeR@Home customers to use the Google Assistant on their phone, voice-activated speaker to operate their Essence-based IoT solutions.
2018	Contracts/Agreements	In February, Google partnered with ARM, Cisco, and Intel to launch managed service for IoT device connecting and control, Cloud IoT Core.
2018	Contracts/Agreements	In February, the company and Amazon partnered for huge bills in a major shake-up of the UK tax system.
2018	Contracts/Agreements	In February, the company and Getty Images signed a global licensing partnership to use Getty Images' content within its various products and services for the company.
2018	Contracts/Agreements	In February, the company partnered with Xiaomi, Huawei and Samsung to provide its augmented reality services ARCore in China.
2018	Contracts/Agreements	In January, Google and Yocale collaborated for Google to launch Reserve in Canada.
2018	Contracts/Agreements	In January, Google Assistant agreed to collaborate with D-Link for its mydlink cameras.

2018	Contracts/Agreements	In January, Google Cloud and Globant collaborated to provide an end-to-end OTT platform solution for the media and entertainment industry.
2018	Contracts/Agreements	In January, Google Cloud and Tyco Retail Solutions collaborated for expanding its market presence in next-generation real-time analytics, and store execution and performance solutions.
2018	Contracts/Agreements	In January, Innit integrated with the Google Assistant to power Kitchen of the Future.
2018	Contracts/Agreements	In January, MobileIron and Google Cloud collaborated on a new end-to-end platform for enterprise cloud services.
2018	Contracts/Agreements	In January, YI Technology collaborated with Google's Virtual Reality (VR) for YI Horizon VR180 Camera.
2018	Contracts/Agreements	In March, Google and Amazon partnered for developing their own air traffic control network for low-level altitudes.
2018	Contracts/Agreements	In March, Google and Daimler signed strategic research partnerships in the quantum computing area.
2018	Contracts/Agreements	In March, Google and J&J partnered to launch low cost surgical robots.
2018	Contracts/Agreements	In March, Google and Rolls-Royce partnered to establish autonomous drone vessels.
2018	Contracts/Agreements	In March, Google entered into a license agreement with GIATA to utilize its descriptions and mapping content in Hotel advertisements.
2018	Contracts/Agreements	In March, Google introduced a new cloud-based API to address challenges in healthcare industry.
2018	Contracts/Agreements	In March, Google partnered with the US retailers in a new initiative that helps to boost sales in the online retail sector.
2018	Contracts/Agreements	In March, Syntel and Google Cloud partnered to deliver digital business solutions to adapt its cloud service offerings.
2018	Contracts/Agreements	In March, the company and Alibaba Cloud partnered for the cloud war with new Quantum computing moves.
2018	Contracts/Agreements	In March, the company and Tata Trusts signed an agreement to explore options to use latest solutions to access primary health and cancer care for poor in India.
2018	Contracts/Agreements	In March, the company and TravelClick partnered for enabling hoteliers for more direct bookings and revenue.
2018	Contracts/Agreements	In March, the company Carrefour partnered to develop an online voice assistant for its shoppers called Lea.
2018	Contracts/Agreements	In March, the company partnered with the US Department of Defense on machine learning for analyzing drone footage.
2018	Contracts/Agreements	In May, Google and NBCUniversal partnered to produce virtual reality content that gives a unique experience to audiences on some of their favorite networks and shows.
2018	Contracts/Agreements	In May, Intel, Google and Volvo Cars partnered to launch the new Android Operating System (OS) running through Google applications.
2018	Corporate Changes/Expansions	In April, the company launched the new Google Home, Home Mini smart speakers in New Delhi, India.
2018	Corporate Changes/Expansions	In January, Google launched the new Google Audiobooks in India.
2018	Corporate Changes/Expansions	In January, Google opened an office in Shenzhen, Guangdong Province, China.

2018	Corporate Changes/Expansions	In January, the company plans to open a new research center based on artificial intelligence in France.
2018	Corporate Changes/Expansions	In March, the company launched the new online resource center.
2018	Financing Agreements	In January, Trifacta raised US$48 million in venture financing led by the company, Ericsson, and others.
2018	Financing Agreements	In March, Ubiquity6 raised US$10.5 million in Series A funding led by Google's Gradient Ventures, LDVP, Kleiner Perkins and WndrCo.
2018	New Products/Services	In April, Google Analytics launched data retention control that are adjustable by the admins.
2018	New Products/Services	In April, the company developed prototype for a microscope system with artificial intelligence that automatically detects aid in cancer.
2018	New Products/Services	In April, the company launched the new TensorFlow hub for reusable machine learning models.
2018	New Products/Services	In February, Google introduced a custom silicon slab, the tensor processing unit, to improve the reading of street signs for the StreetView software.
2018	New Products/Services	In February, Google launched a new flight feature, to save time in booking a flight.
2018	New Products/Services	In February, Google launched the new mobile payment solution, Google Pay.
2018	New Products/Services	In February, Google launched the new virtual assistant, Assistant Go, for entry level Android devices users.
2018	New Products/Services	In February, the company introduced the new Pixel Visual Core, the artificial intelligence in Pixel 2 smart phone.
2018	New Products/Services	In February, the company launched the new Cloud IoT Core service that connects and manages IoT devices.
2018	New Products/Services	In February, the company launched the new lightweight Gmail Go app for Android, that allows to read and reply to messages offline.
2018	New Products/Services	In January, Google introduced a new AI tool, Cloud AutoML Vision, designed to simply train its machine learning systems on a photo dataset of their choosing.
2018	New Products/Services	In January, Google introduced the new Google "Clips" camera, that uses Artificial Intelligence (AI) to figure out when it should take a picture or video.
2018	New Products/Services	In January, the company developed a text-to-speech artificial intelligence system, Tacotron 2, that generates human-like articulation.
2018	New Products/Services	In January, the company introduced the new facial recognition feature on its Google Arts & Culture app.
2018	New Products/Services	In January, the company merged payment platforms under Google Pay brand with a new brand.
2018	New Products/Services	In March, Google introduced a new education tablet designed with Chrome OS.
2018	New Products/Services	In March, Google launched a machine learning education, Learn with Google AI, to support learning concepts, and to develop skills and apply Artificial Intelligence (AI) to real-world problems.
2018	New Products/Services	In March, Google launched a new open-source project, Agones, using cloud-based Kubernetes platform.
2018	New Products/Services	In March, Google launched its Cloud Text-to-Speech service that converts text to speech in IoT devices, voice systems.
2018	New Products/Services	In March, Google launched its new Bristlecone quantum processor, a gate-

		based processor.
2018	New Products/Services	In March, the company added a new service to its Google Assistant that helps its users to send and request money from the contacts in Android phone or iPhone.
2018	New Products/Services	In March, the company introduced a free app, Just a line, that helps to doodle in AR mode.
2018	New Products/Services	In March, the company launched new tools to introduce and discover Indian addresses on Google Maps adding voice navigation in six additional Indian languages.
2018	Plans/Strategy	In February, the company plans to launch the new Cloud TPU machine learning accelerators on the google Cloud Platform.
2018	Plans/Strategy	In March, Google plans to develop its data consulting services in Brazil.
2017	Acquisitions/Mergers/Takeovers	In August, Google acquired Senosis Health.
2017	Acquisitions/Mergers/Takeovers	In August, the company acquired artificial intelligence and selfie app startup, AIMatter.
2017	Acquisitions/Mergers/Takeovers	In January, the company acquired Fabric, mobile app developer platform, from twitter to join in Google's Developer Products Group.
2017	Acquisitions/Mergers/Takeovers	In July, the company acquired Halli Labs., a Bengaluru-based (Artificial Intelligence) startup.
2017	Acquisitions/Mergers/Takeovers	In March, Google acquired AppBridge, a Canada startup, to help in moving files from physical servers to G Suite apps including Google Drive.
2017	Acquisitions/Mergers/Takeovers	In March, the company acquired Kaggle Kernels, a data science community to Google cloud.
2017	Acquisitions/Mergers/Takeovers	In October, the company acquired Tiny Garage Labs, Inc., which develops a mobile application.
2017	Acquisitions/Mergers/Takeovers	In September, the company acquired the identity management company, Bitium.
2017	Acquisitions/Mergers/Takeovers	The company acquired Limes Audio, a Swedish sound company.
2017	Contracts/Agreements	In April, Android Pay joined with several banks including Bank of America, Bank of New Zealand, Discover, mBank and USAA for facilitating linking of cards with Android Pay
2017	Contracts/Agreements	In April, Google entered into an agreement with PayPal for allowing its consumers to use PayPal as payment process in Android Pay.
2017	Contracts/Agreements	In April, the company announced a collaboration agreement with comScore, to provide advertisers with greater visibility into the context in which their ads appear.
2017	Contracts/Agreements	In April, the company announced a partnership with Neustar, Inc., to help marketers more accurately analyze their marketing investments across multiple brands, channels and regions.
2017	Contracts/Agreements	In April, the company entered into a partnership with PayPal Holdings, Inc., on digital payments.
2017	Contracts/Agreements	In August, HARMAN International, subsidiary of Samsung Electronics Co Ltd, entered into agreement with Google for provision of three-month free subscription trial of the Google Play Music services to customers in 47 countries in Asia- Pacific, the Americas and Europe.
2017	Contracts/Agreements	In August, Pivotal collaborated with VMware and the company to launch the Pivotal Container Service (PKS) at VMworld.

2017	Contracts/Agreements	In August, the company and Codefresh collaborated to streamline application deployments on Kubernetes.
2017	Contracts/Agreements	In August, VMware announced expansion of partnership with Google for enabling unified endpoint management of Chrome devices by VMware workspace ONE powered by AirWatch.
2017	Contracts/Agreements	In August, Wal-Mart entered into a partnership with Google for provision of voice based shopping services to customers on Android.
2017	Contracts/Agreements	In December, DNAnexus partnered with Google to develop DeepVariant bioinformatics tool for genomic variation analysis.
2017	Contracts/Agreements	In December, MATRIXX Software launched its MATRIXX Digital Commerce on the Google Cloud Platform.
2017	Contracts/Agreements	In December, the company entered into an agreement with EDF Renewable Energy and Avangrid Renewables to purchase 396MW of clean energy.
2017	Contracts/Agreements	In February, FCA partnered with Google on the next-generation connected car systems powered by android.
2017	Contracts/Agreements	In February, LG Electronics in parttnership with the company to launch two new smartwatches, the LG Sport and LG Style.
2017	Contracts/Agreements	In January, Google and Fiant Chrysler Automaker collaborated to launch Android Nougat 7.0 powered 8.4-inch automotive infotainment in the vehicles.
2017	Contracts/Agreements	In July, Google entered into an agreement with Eneco to purchase green electricity from Sunport Delfzijl in Netherlands.
2017	Contracts/Agreements	In July, the company and Citrix extended their strategic relation, which helps to enables the customers to use Citrix Cloud platform.
2017	Contracts/Agreements	In June, the company to launch art and fashion platform along with the collaboration of 180 institutions.
2017	Contracts/Agreements	In March, Dome9 Security integrated with the Google Cloud Platform.
2017	Contracts/Agreements	In March, Google and SAP partnered to offer an innovative solution to privacy of customers' sensitive data on a public cloud platform.
2017	Contracts/Agreements	In March, Google and Veritas partnered for 360 Data Management capacities to Google Cloud Platform and G Suite customers.
2017	Contracts/Agreements	In March, Google entered into a collaboration with Rackspace to offer new managed services for Google cloud platform customers.
2017	Contracts/Agreements	In March, Google partnered with Emirates to showcase virtual reality 3D painting tools and an e-book reading lounge at its Emirates Airline Festival of Literature.
2017	Contracts/Agreements	In March, Google signed a partnership with SAP to offer its in-memory database SAP HANA through other solutions.
2017	Contracts/Agreements	In March, Looker introduced a suite of Looker Blocks compatible with Google BigQuery Data Transfer service, designed to provide the tools for enhancing critical data analysis for marketers.
2017	Contracts/Agreements	In March, the company and Trifacta, Inc., collaborated to build Google Cloud Dataprep.
2017	Contracts/Agreements	In May, CIBC partnered with Google to launch Android Pay for all its clients.
2017	Contracts/Agreements	In May, the company announced a partnership with Google Maps.
2017	Contracts/Agreements	In May, the company entered into a partnership with E.ON, to introduce Sunroof, a solar-energy data platform, outside the US.

2017	Contracts/Agreements	In May, the company partnered with Volvo Cars to build Android into next generation connected cars.
2017	Contracts/Agreements	In May, the company's self-driving-car technology company and signed a deal with Lyft for the development and testing of autonomous-car technology.
2017	Contracts/Agreements	In May,the company and Qualcomm Technologies, Inc., collaborated to develop a daydream standalone VR headset developed by the Qualcomm Snapdragon 835 VR platform.
2017	Contracts/Agreements	In November, Kroger Co. entered into a collaboration agreement with Google Cloud Platform.
2017	Contracts/Agreements	In November, the company and Nautilus Medical collaborated for secure radiology storage and image exchange.
2017	Contracts/Agreements	In November, the company and Zebra Medical Vision collaborated to bring a transparent all-in-one model to healthcare.
2017	Contracts/Agreements	In November, the company collaborated with CANDI to simplify the connection of smart building devices and data to Apps
2017	Contracts/Agreements	In November, the company entered into a partnership with Volkswagen Group, on quantum computers.
2017	Contracts/Agreements	In November, the company signed a long-term renewable energy sales agreement with Iberdrola SA.
2017	Contracts/Agreements	In October, Target Corporation announced deepening of partnership with Google for expansion of Target's voice- activated shopping on Google Express and addition of Target REDcard as a payment option in 2018.
2017	Contracts/Agreements	In October, the company and Cisco signed a partnership to deliver a hybrid cloud solution.
2017	Contracts/Agreements	In October, the company and Time Inc., partnered to launch Adapt Video, a proprietary video advertising tool.
2017	Contracts/Agreements	In October, the company entered into a partnership with Target, for voice-assisted shopping and nationwide delivery.
2017	Contracts/Agreements	In October, the company paired up with Rolls-Royce to develop autonomous ship solutions.
2017	Contracts/Agreements	In September, Ayla Networks selected Google Home voice integration added to its offerings that supports smart home cloud-based voice services.
2017	Contracts/Agreements	In September, Cleartrip and Google Flights entered into an agreement for expansion of services of Google Flights in India.
2017	Contracts/Agreements	In September, Google entered into an agreement to acquire a part of HTC Corp.’s engineering and design teams for US$1.1 billion to support the US internet giant’s nascent hardware business.
2017	Contracts/Agreements	Puppet entered into collaboration with Google Cloud for quick access of Google Cloud Platform (GCP) services to its customers.
2017	Corporate Changes/Expansions	In February, Google established a new office in the Philippines.
2017	Corporate Changes/Expansions	In February, the company announced the launch of its smart speaker in the UK.
2017	Corporate Changes/Expansions	In July, the company opened a new cloud Platform (GCP) in London.
2017	Corporate Changes/Expansions	In June, the company launched its cloud platform in Singapore.
2017	Corporate Changes/Expansions	In November, the company announced to open a new office in Tokyo, Japan.
2017	Corporate Changes/Expansions	In September, the company announced to open a new cloud platform in Germany.

2017	Corporate Changes/Expansions	In September, the company announced to open a new office in Berlin.
2017	Corporate Changes/Expansions	In September, the company changed its name from Google Inc. to Google LLC.
2017	New Products/Services	In April, the company announced to provide its reach in India with neural machine translation technology.
2017	New Products/Services	In April, the company launched new translation technology for nine Indian languages.
2017	New Products/Services	In August, the company and Xiaomi paired up to launch Xiaomi A1smartphone.
2017	New Products/Services	In August, the company collaborated with Litera Corp to bring professional document comparison to G suite.
2017	New Products/Services	In August, the company launched a reality platform for Android.
2017	New Products/Services	In December, Google introduced an open source artificial intelligence tool, Deep Variant, that is used to create a picture of a person's genetic blueprint using sequencing data.
2017	New Products/Services	In December, the company launched a new cryptocurrency pricing tool.
2017	New Products/Services	In December, the company launched new screening system to fight fake news.
2017	New Products/Services	In July, the company and Tri Alpha Energy (TAE) announced to develop a new computer algorithm to accelerate experiments on plasmas.
2017	New Products/Services	In July, the company launched its new Backup and Sync desktop application, which helps to upload files and photos to the cloud.
2017	New Products/Services	In July, the company launched Trusted Contacts location sharing app on the iOS App store.
2017	New Products/Services	In June, the company announced to launch Daydream view VR headset in India.
2017	New Products/Services	In June, the company introduced its third developer preview of Android O.
2017	New Products/Services	In June, the company launched YouTube party app for the iPhone.
2017	New Products/Services	In March, Google introduced its new globally distributed database, Cloud Spanner.
2017	New Products/Services	In March, the company announced to offer new Android wear 2.0 connect smartwatch.
2017	New Products/Services	In March, the company announced to offer P2P payments to Gmail Android app customers.
2017	New Products/Services	In March, the company introduced the new Google Pixel 2.
2017	New Products/Services	In May, Rambus company paired up with Google and Interac Association to enable Interac debit card support for Android Pay in Canada.
2017	New Products/Services	In May, the company and PayPal Holdings, Inc. announced the launch of new joint mobile shopping strategy using fingerprints.
2017	New Products/Services	In May, the company announced a partnership with Weebly to offer Android Pay to digital enabled customers.
2017	New Products/Services	In May, the company announced the availability of its Android Pay app in Russia.
2017	New Products/Services	In May, the company announced to offer a new machine learning service.

2017	New Products/Services	In May, the company launched its mesh Wi-Fi system in Canada.
2017	New Products/Services	In May, VMware introduced Workspace ONE, a new initiative for Chromebooks in enterprise by entering into a partnership with Google
2017	New Products/Services	In November, the company launched Resonance Audio, a new spatial audio SDK.
2017	New Products/Services	In October, the company announced to launch a personalized phishing protection and updated security checkup tool.
2017	New Products/Services	In October, the company launched a new Chromebook called the google Pixelbook.
2017	New Products/Services	In October, the company launched NoSQL document database Firebase platform for app developers.
2017	New Products/Services	In September, the company and Levi's announced to launch a smart jean jacket for US$350.
2017	New Products/Services	In September, the company launched a mobile payments and commerce app called Tez.
2017	New Products/Services	In September, the company launched Android One Moto X4 smartphone for Fi users.
2017	Plans/Strategy	In April, Google plans to build a new data center in Reno, Nevada, the US.
2017	Plans/Strategy	In August, the company planned to invest US$50 million in the U.S. and Europe to train job seekers.
2017	Plans/Strategy	In December, the company plans to open an artificial intelligence research center in China.
2017	Plans/Strategy	In February, Google plans to expand its carpool service on its Waze navigation app, to compete with Uber and Lyft and similar apps.
2017	Plans/Strategy	In February, the company announced plans to divest its Terra Bella business, to Planet Labs.
2017	Plans/Strategy	In February, the company announced to sells Terra Bella, a satellite imaging business, to Planet Labs, a San Francisco-based private satellite operator.
2017	Plans/Strategy	In February, the company plans to introduce its wearable platform, Android Wear 2.0.
2017	Plans/Strategy	In June, the company planned for King's Cross Campus in London.
2017	Plans/Strategy	NetEase announced to launch Google Play in China.
2016	Acquisitions/Mergers/Takeovers	The company acquired Cronologics a smartwatch technology company, to boost the search giant's ailing Android Wear platform.
2016	Acquisitions/Mergers/Takeovers	The company acquired Synergyse a provider of interactive training services for google apps.
2016	Acquisitions/Mergers/Takeovers	The company acquired Web-based URL scanner VirusTotal, to improve browser security.
2016	Acquisitions/Mergers/Takeovers	The company announced the acquisition of Pie, a Singapore-based business messaging start-up.
2016	Contracts/Agreements	In April, Google and the Hong Kong Trade Development Council partnered to provide online marketing channels to support Hong Kong small- and medium-sized enterprises.
2016	Contracts/Agreements	In April, the company and TIE Kinetix entered into a strategic collaboration for Google Adwords.
2016	Contracts/Agreements	In January, the company and Kronos SaaShr, Inc., entered into a partnership

		to develop innovative workforce management solutions to small and midsize businesses.
2016	Contracts/Agreements	In November, Vodafone Business Services, enterprise arm of Vodafone India, entered into alliance with Google to provide cloud based G Suite access services to Vodafone enterprise customers in India.
2016	Contracts/Agreements	In October, Google partnered with three shopping platforms; Magento, BigCommerce, and PrestaShop, to offer easy online selling.
2016	New Products/Services	In February, the company paired up with Agiloft, Inc., to offer top-rated security option.
2016	Other	The company along with Alibaba Group and other investors invested US$793.5 million in Magic Leap, Inc., a startup company.
2016	Patent Grant	The company secured patent for bus detection on autonomous vehicles.
2015	Acquisitions/Mergers/Takeovers	The company acquired Granata Decision Systems, a Toronto-based technology start-up company.
2015	Acquisitions/Mergers/Takeovers	The company acquired intellectual property of JVL Ventures, LLC.
2015	Acquisitions/Mergers/Takeovers	The company acquired Launchpad Toys, a mobile app maker.
2015	Acquisitions/Mergers/Takeovers	The company acquired Odysee, a photo backup and sharing app for smartphones.
2015	Acquisitions/Mergers/Takeovers	The company acquired Pixate, a mobile app prototyping tool.
2015	Acquisitions/Mergers/Takeovers	The company acquired Pulse.io Inc., which specializes in making applications faster and more responsive.
2015	Acquisitions/Mergers/Takeovers	The company acquired Red Hot Labs Inc., a provider of Toro service for application developers.
2015	Acquisitions/Mergers/Takeovers	The company acquired Skillman & Hackett and Thrive Audio.
2015	Acquisitions/Mergers/Takeovers	The company acquired Timeful to increase its mobile services and product offerings.
2015	Acquisitions/Mergers/Takeovers	The company acquired Toro, a mobile marketing company, which helps developers market their apps on social media platforms like Facebook.
2015	Acquisitions/Mergers/Takeovers	The company announced the acquisition of Agawi., a specialist in streaming native mobile apps.
2015	Acquisitions/Mergers/Takeovers	The company announced the acquisition of Lumedyne Technologies.
2015	Acquisitions/Mergers/Takeovers	The company announced the acquisition of Softcard Technology, an NFC-based mobile payment service.
2015	Acquisitions/Mergers/Takeovers	The company sets plans to acquire minority stake in the Lake Turkana Wind Power Project in Kenya.
2015	Acquisitions/Mergers/Takeovers	The company was acquired by Alphabet Inc., a conglomerate company based in the US.
2015	Contracts/Agreements	In August, Google and ClearStory Data collaborated for speed data analysis on large, diverse data to answer latest business questions.
2015	Contracts/Agreements	In December, Google purchased wind and solar power projects totalling 842MW.
2015	Contracts/Agreements	In December, Google signed a deal with EDF Renewable Energy to purchase renewable energy for its data center.
2015	Contracts/Agreements	In October, Google partnered with Udacity to launch a new program, the Tech Entrepreneur Nanodegree, that helps in teaching students on how to

		develop sustainable revenue-generating businesses.
2015	Contracts/Agreements	In September, Eolus entered into a power purchase agreement with Google to purchase all of the clean, renewable electricity generated by the new 76MW wind farm at Jenasen in Sweden.
2015	Contracts/Agreements	The company agreed to join forces with The US Federal Railroad Administration to enable rail crossings safer for drivers and passengers.
2015	Contracts/Agreements	The company along with Facebook, Inc., LinkedIn and Twitter partnered with BNP Paribas to expand its digital presence worldwide.
2015	Contracts/Agreements	The company collaborated with SolarCity Corp., to jointly establish a fund worth US$750 million in residential solar projects.
2015	Contracts/Agreements	The company entered into a co-development agreement with Toumaz Limited for Cast-for-Audio technology.
2015	Contracts/Agreements	The company entered into a partnership with ChowNow, an online ordering platform, to bring Google Wallet for thousands of independent restaurants across the US.
2015	Contracts/Agreements	The company entered into a partnership with Johnson & Johnson Limited for development of innovative robotics tools.
2015	Contracts/Agreements	The company entered into a strategic collaboration with Ethicon, Inc., to work with the Life Sciences team on advancing surgical robotics.
2015	Contracts/Agreements	The company extended its partnership with TravelClick, Inc., to allow 'one-click' mobile web bookings through Google Wallet.
2015	Contracts/Agreements	The company joined forces with BlackBerry Limited to manage the devices equipped with Android.
2015	Contracts/Agreements	The company joined forces with CBT Nuggets, an on-demand video training programme provider, to deliver training courses for Google Cloud Platform.
2015	Contracts/Agreements	The company joined forces with Ingenico Group to assist online merchants strengthen their business abroad with Export Accelerator joint program.
2015	Contracts/Agreements	The company joined forces with Lending Club, a peer-to-peer lending firm, to deliver its partners with small business loans.
2015	Contracts/Agreements	The company partnered with ClearStory Data, Inc., to combine their Spark-Powered Data Analysis with its Cloud Dataflow to speed data analysis on large, diverse data.
2015	Contracts/Agreements	The company partnered with JDA Software Group, Inc., where the company will provide a uniquely scalable and flexible technology platform via the cloud to support JDA's future application development and delivery.
2015	Contracts/Agreements	The company partnered with Nestle to launch YouTube my break limited edition KITKAT packs.
2015	Contracts/Agreements	The company signed a definitive agreement to collaborate with Google, Inc., to work with the Life Sciences team on advancing surgical robotics to benefit surgeons, patients and health care systems.
2015	Contracts/Agreements	The company signed a memorandum of understanding with the state government of Telangana to cunstruct the biggest campus of Asia in Hyderabad, Telangana, India, with an investment of US$155.5 million.
2015	Contracts/Agreements	The company signed an agreement with WePay whereby WePay will provide payment services to integrate Google Wallet Instant Buy into its checkout experience.
2015	Contracts/Agreements	The company's Google Earth Outreach program entered into a partnership with Aclima, Inc., to map and understand urban air quality.
2015	Corporate Changes/Expansions	The company launched Gmail payment service in the UK.

2015	Corporate Changes/Expansions	The company launched Google Compare Auto Insurance website to compare car insurance and buy policies.
2015	Corporate Changes/Expansions	The company opened 'The Google shop' in London
2015	Corporate Changes/Expansions	The company opened a new campus at Boulder, Colorado.
2015	New Products/Services	In December, Google has unveiled a new tool, the tool, Google Cloud Vision API.
2015	New Products/Services	The company announced to launch a new information kit on health and fitness in the search tool as well as through a new app.
2015	New Products/Services	The company introduced a new user consent policy for publishers and site visitors of European Union.
2015	New Products/Services	The company launched a new feature called 'Purchases on Google,' which allows shopper to buy items directly from mobile search ads.
2015	New Products/Services	The company launched a specialized Android tablet, where doctors could record medical info from inside the high-risk zone and then send it wirelessly to servers on the outside.
2015	New Products/Services	The company launched Classroom-Labeled Mobile Application.
2015	New Products/Services	The company launched Eddystone, an open source and cross-platform Bluetooth LE beacon standard.
2015	New Products/Services	The company launched its Google Play Gift Cards in India.
2015	New Products/Services	The company launched PerfKit, an open-source cloud-benchmarking tool.
2015	New Products/Services	The company launched the Android M Developer Preview 2, an improved version of its Android M preview.
2015	Other	The company announced to invest US$600 million in new data center on Tennessee Valley Authority coal plant site.
2015	Patent Grant	The company secured patent grant from the US Patent and Trademark Office for pedestrians protection system.
2015	Plans/Strategy	In November, the company plans to launh Google Play store in China.
2015	Plans/Strategy	The company announced to acquire Dunnhumby.
2015	Plans/Strategy	The company announced to establish a data centre at former coal-burning power plant in Jackson County, Alabama, the US.
2015	Plans/Strategy	The company announced to launch Android Pay, a mobile payments system.
2015	Plans/Strategy	The company announced to launch self-driving cars by 2020
2015	Plans/Strategy	The company announced to launch solar-powered planes to provide wireless Internet service in the world's unconnected areas.
2015	Plans/Strategy	The company announced to restart its Glass project.
2015	Plans/Strategy	The company planned to launch a 'modular' smartphone in Puerto Rico, a United States territory.
2015	Plans/Strategy	The company planned to sell wireless phone service directly to the customers.
2014	Acquisitions/Mergers/Takeovers	Google announced the acquisition of cyber security start-up Impermium in a bid to improve its abuse monitoring efforts.
2014	Acquisitions/Mergers/Takeovers	The company acquired Baarzo, a video search startup.

2014	Acquisitions/Mergers/Takeovers	The company acquired cloud monitoring service Stackdriver.
2014	Acquisitions/Mergers/Takeovers	The company acquired drone maker Titan Aerospace, a solar-powered drone maker.
2014	Acquisitions/Mergers/Takeovers	The company acquired Firebase, a cloud service provider, to assist developers build realtime apps.
2014	Acquisitions/Mergers/Takeovers	The company acquired Gecko Design, a mechanical engineering and product design company.
2014	Acquisitions/Mergers/Takeovers	The company acquired Jetpac, a popular photo analyzing application.
2014	Acquisitions/Mergers/Takeovers	The company acquired Lift Labs and as a result of transaction Lift Labs will continue to make and sell the product, and Lift Labs team will be incorporated into Google X’s life sciences group.
2014	Acquisitions/Mergers/Takeovers	The company acquired Rangespan, a retail forecasting firm in the UK.
2014	Acquisitions/Mergers/Takeovers	The company acquired RelativeWave for the development of Mac app called Form.
2014	Acquisitions/Mergers/Takeovers	The company acquired restaurant website builder, Appetas.
2014	Acquisitions/Mergers/Takeovers	The company acquired stake in a Silicon Valley-based robotics company, Savioke.
2014	Acquisitions/Mergers/Takeovers	The company acquired Zync Inc., a Video, Special-Effects Startup company.
2014	Acquisitions/Mergers/Takeovers	The company entered into an agreement to acquire Nest Labs, Inc. for US$3.2 billion.
2014	Business / Operations Closure	The company closed its first social network, Orkut.
2014	Contracts/Agreements	The company agreed to acquire equity interest in Panhandle II Wind farm situated in the US, from Pattern Energy Group Inc., for a purchase consideration of US$75 million.
2014	Contracts/Agreements	The company collaborated with Tata Communications to provide ‘Cloud Interconnect' over the Internet.
2014	Contracts/Agreements	The company entered into 10-year cross-license agreement with LG Electronics to cover a broad range of products and technologies.
2014	Contracts/Agreements	The company entered into a partnership with SkyTruth, a digital mapping firm and Oceana, ocean conservation and advocacy organization, to develop Global Fishing Watch.
2014	Contracts/Agreements	The company entered into an agreement with Lenovo under which Lenovo will acquire Motorola Mobility smartphone business from Google.
2014	Contracts/Agreements	The company's Google Wallet was selected by Blackhawk Network, Inc., a prepaid and payments network, it allows the customers to spend and track gift card balances on mobile devices.
2014	Contracts/Agreements	The company-owned Nest Labs acquired Revolv, a developer of smart-home automation products.
2014	Corporate Changes/Expansions	The company launched Android TV.
2014	New Product Approvals	The company launched Chromecast Web TV streaming dongle.
2014	New Products/Services	The company along with SunPower Corp. launched a new program which will provide financing to support approximately US$250 million of residential solar lease projects in the US.
2014	New Products/Services	The company introduced Street View Imagery feature in Google Maps, which allows users to see the latest image of a particular place and an older image

		of the same place.
2014	New Products/Services	The company launched 'Google Fit Health Tracking App', a health and fitness software application.
2014	New Products/Services	The company launched first 'Android Wear update' it offers support for GPS features, offline music playback and Bluetooth.
2014	New Products/Services	The company launched Gmail 5.0 latest version of the Gmail app.
2014	New Products/Services	The company launched Nexus 9 tablet and Nexus 6 smartphone.
2014	Other	A consumer rights law firm, filed a national class-action lawsuit against Google, claiming that the company unlawfully denies payments to thousands of website owners and operators who place ads on their sites sold through Google AdWords.
2014	Patent Grant	Google and Apple agreed to settle patent litigation.
2014	Plans/Strategy	The company announced to merge Wallet application with Google Glass.
2014	Plans/Strategy	The company planned to enhance its shopping service
2014	Plans/Strategy	The company planned to invest US$1 billion to launch satellites.
2013	Acquisitions/Mergers/Takeovers	The company acquired a Canadian startup, which specializes in getting machines to understand what people are trying to say.
2013	Acquisitions/Mergers/Takeovers	The company acquired a portfolio of U.S. patents and patent applications from SR Tech Group LLC.
2013	Acquisitions/Mergers/Takeovers	The company acquired Flutter, a gesture recognition company.
2013	Acquisitions/Mergers/Takeovers	The company acquired Israeli mapping startup Waze, an online real-time mapping service provider.
2013	Acquisitions/Mergers/Takeovers	The company acquired WIMM Labs, a android smartwatch manufacturer.
2013	Contracts/Agreements	The company entered into an agreement with GROUPE OPEN SA, pursuant to which Groupe Open SA will its customers a cloud-based multi-services solution.
2013	Contracts/Agreements	The company entered into an agreement with Himax Technologies Inc, pursuant to which Google will invest in Himax Technologies Inc's subsidiary, Himax Display Inc.
2013	Contracts/Agreements	The company's Google Play and Telenor ASA's Telenor Norway entered into a collaboration to enable Android mobile users to find relevant apps in Google Play.
2012	Acquisitions/Mergers/Takeovers	Google acquired Nik Software, which makes photo editing application Snapseed.
2012	Acquisitions/Mergers/Takeovers	Google completed the acquisition of Motorola Mobility Holdings, a manufacturer of telecommunications equipment. The acquisition was mainly focused at strengthening the Android ecosystem and improving mobile computing capabilities.
2012	Acquisitions/Mergers/Takeovers	The company acquired a BufferBox, a provider of lockers to receive e-commerce shipments.
2012	Acquisitions/Mergers/Takeovers	The company acquired mobile office software company, Quickoffice.
2012	Acquisitions/Mergers/Takeovers	The company acquired TxVia, a payment services company.
2012	Acquisitions/Mergers/Takeovers	The company acquired Wildfire, a provider of social media marketing tools.

2012	Acquisitions/Mergers/Takeovers	The company completed the acquisition of VirusTotal, a provider of anti-virus engines from third-party providers.
2012	Asset Purchase	The company acquired Milk Inc., for worth USD30 million.
2012	Contracts/Agreements	The company also entered into a definitive agreement with John Wiley & Sons Inc, to procure the assets of its Travel business.
2012	Contracts/Agreements	The company also signed an Internet AdSense advertising agreement with Jobookit Holdings Ltd, under which, the company will add its advertising links to Jobookit's Exact Me website.
2012	Contracts/Agreements	The company extended its desktop search agreement with Opera Software ASA for a period of 2 months.
2012	Contracts/Agreements	The company extended its strategic partnership with Daimler. Under the terms of the partnership, Google will provide Daimler with an access to a suite of application programming interfaces (APIs) for map-related applications in Daimler vehicles.
2012	Contracts/Agreements	The company signed a strategic agreement with Opera Software ASA to integrate the Opera mobile and desktop browsers with Google search.
2012	New Products/Services	The company launched a new platform, Google Play. Under this platform, the company integrates all its application such as books, music and movies.
2011	Acquisitions/Mergers/Takeovers	Google and Real Estate Opportunities Limited entered into an agreement to sell Montevetro, Dublin's tallest commercial office building, to Google.
2011	Acquisitions/Mergers/Takeovers	The company acquired digital coupon and loyalty program provider, Zave Networks.
2011	Acquisitions/Mergers/Takeovers	The company acquired eBook Technologies Inc, to deliver richer reading experience to its customers on electronic readers, tablets and other portable devices.
2011	Contracts/Agreements	The company entered into a low-income housing tax credit investment partnership with AEGON USA Realty Advisors, LLC, a commercial real estate investment and management arm of AEGON companies.
2011	Contracts/Agreements	The company entered into a partnership with Booktopia Pty Ltd., an online retailer, to sell ebooks.
2011	Contracts/Agreements	The company entered into a partnership with Gilt City, delivers access for unique lifestyle experience, to provide expanded deal services.
2011	New Products/Services	The company’s Android team launched Ice Cream Sandwich with focus on improved sharing through Google+.
2010	Acquisitions/Mergers/Takeovers	Google acquired Widevine, an anti-piracy company.
2010	Acquisitions/Mergers/Takeovers	The company acquired On2 Technologies, Inc. valued at approximately US$124.6 million.
2010	Acquisitions/Mergers/Takeovers	The company acquired Picnik, a site enabling you to edit your photos in the cloud, without leaving your browser.
2010	Acquisitions/Mergers/Takeovers	The company acquired Slide, a social technology company with an extensive history of building new ways for people to connect with others across numerous platforms online.
2010	Acquisitions/Mergers/Takeovers	The company signed an agreement to acquire ITA, a software company specializing in organizing airline data, including flight times, availability and prices.
2010	Contracts/Agreements	Google Inc., Brocade Communications Systems, Inc., Santur Corporation and JDS Uniphase Corporation entered into a multi-source agreement (the 10X10 MSA) to establish compatible sources of low-power, low-cost, pluggable 100G optical transceivers based on 10 optical lanes at 10G.

2009	Acquisitions/Mergers/Takeovers	Google announced to acquire On2 Technologies, a leading developer of video compression technology. The transaction is valued at approximately US$106.5 million.
2009	Acquisitions/Mergers/Takeovers	The company signed an agreement to acquire AdMob, a mobile display ad technology provider, to enhance its existing expertise and technology in mobile advertising.
2009	Contracts/Agreements	The company entered into a retail partnership with Best Buy Mobile, a unit of Best Buy Co. Inc., to distribute Google Mobile App on smartphones.
2009	Contracts/Agreements	The company entered into partnership with Verizon.
2009	New Products/Services	Google announced the launch of Google Toolbar 6 Beta for Internet Explorer to host new features and making search and navigation faster, stronger, and easier.
2009	New Products/Services	The company launched its Picasa for Mac, free software that helps Mac users easily organize their photos in one place, edit pictures, and share them online with friends, family, and the world.
2008	Acquisitions/Mergers/Takeovers	Google completed the acquisition of DoubleClick
2008	Contracts/Agreements	The company's Google Health product partnered with CVS Caremark, retail and health care firm, to securely store, organize and manage medical records of users.
2008	New Products/Services	A new version of Google Earth was launched.
2008	New Products/Services	Google Sites was launched following the acquisition of JotSpot.
2008	New Products/Services	The company launched Google Finance China, which enables Chinese investors to get stock and mutual fund data.
2008	New Products/Services	The company launched Google Health, enabling people to collect, store, and manage their medical records and health information online.
2007	Contracts/Agreements	Google entered into a partnership with LG Electronics.
2007	Contracts/Agreements	The company signed a strategic alliance with Salesforce.com.
2007	Corporate Awards	The company received 'Ritz Interactive Partner of the Year Award' from Ritz Interactive.
2006	Acquisitions/Mergers/Takeovers	Google signed partnership with Warner Music Group Corporation and Sony BMG.
2006	Acquisitions/Mergers/Takeovers	The company acquired YouTube, an online video-sharing site.
2006	Contracts/Agreements	Google and eBay signed a multi-year agreement to benefit both companies' collective communities of users, merchants and advertisers around the globe.
2006	Contracts/Agreements	Google signed a partnership agreement with MTV Networks.
2006	Incorporation/Establishment	The company established its operations in India and China.
2006	New Products/Services	The company launched Checkout, a merchant payment solution.
2006	New Products/Services	The company launched Google Docs & Spreadsheets.
2006	New Products/Services	The company launched Google Video Store, its open video marketplace.
2005	Acquisitions/Mergers/Takeovers	Google acquired Urchin Software, a web analytics company.
2005	Contracts/Agreements	Google and NASA signed a memorandum of understanding (MOU).

2005	Contracts/Agreements	The company signed an agreement with Sun Microsystems (Sun Micro).
2005	New Products/Services	Google Sitemaps, Google Talk, Google Desktop, and Google Blog were launched by the company.
2005	New Products/Services	The company launched Google Video, Google Maps, and Google Web Accelerator.
2004	Acquisitions/Mergers/Takeovers	The company acquired Keyhole, a digital and satellite mapping company.
2004	Acquisitions/Mergers/Takeovers	The company acquired Picasa, a California-based digital photo management company.
2004	Contracts/Agreements	The company signed agreements with the libraries of Harvard, Stanford, the University of Michigan, the University of Oxford, and The New York Public Library.
2004	New Products/Services	Google launched its desktop search, a beta-based web application.
2004	New Products/Services	The company launched its Gmail service.
2004	Stock Listings/IPO	The company issued Initial Public Offerings and listed on the NASDAQ Stock Exchange.
2003	Acquisitions/Mergers/Takeovers	The company acquired Pyra Labs.
2002	New Products/Services	The company launched online shopping service, Froogle, news feeds, and Google News.
2001	Acquisitions/Mergers/Takeovers	Google acquired Deja.com's Usenet archive.
2001	New Products/Services	The company launched Google Labs to develop new products.
2001	New Products/Services	The company released wireless search technology for i-Mode mobile phones.
2000	Contracts/Agreements	The company signed partnership agreements with Yahoo, Chinese portal NetEase and NEC's Biglobe portal.
2000	Corporate Awards	Google was awarded the Webby Award and a People's Voice Award for technical achievement.
2000	Corporate Changes/Expansions	The company moved its headquarters to Mountain View, California.
1999	Corporate Changes/Expansions	The company moved its headquarters to University Avenue in Palo Alto, California.
1998	Incorporation/Establishment	Google LLC was incorporated.

Source: Company Website, Primary and Secondary Research — GlobalData

Google LLC - Locations And Subsidiaries

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Other Locations & Subsidiaries

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Kirkland
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98033
United States
Tel: +1 425 7395600
Fax: +1 425 9689399

Source: Company Website, Primary and Secondary Research GlobalData

GlobalData

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Fax: +1 650 2530001
Url: www.youtube.com

Adscape Media, Inc.
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CA
94103
United States
Tel: +1 415 5033915
Url: www.adscapemedia.com

Teracent Corporation
400 South El Camino Real
Suite 575
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94402
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Tel: +1 650 525 9900
Fax: +1 650 475 5634
Url: www.teracent.com

ImageAmerica, Inc.
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Kaggle Inc.
United States
Url: www.kaggle.com

Google Ireland Holdings
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United States
Tel: +1 415 8945438
Url: www.google.com/liftware

Tenor Inc
Suite 206
525 Brannan Street
San Francisco
CA
94107
United States
Url: www.tenor.com

Google International LLC
DE
United States

AppBridge Software, Inc.

Senosis Health
Seattle
WA
United States
Url: https://www.senosishealth.com/

Tiny Garage Labs, Inc (60dB)
2421 Park Boulevard

Palo Alto, CA 94306

United States
Url: 60db.co

Relay Media, Inc.
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Palo Alto
CA
94306
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Url: www.relaymedia.com

Redux (UK)
United Kingdom
Tel: +44 1480 477 522

Xively
United States

Source: Company Website, Primary and Secondary Research GlobalData

Section 2 – Company Analysis

Google LLC - Business Description

Google LLC (Google) is a global technology company, which provides internet products such as Search, Ads, Commerce, Maps, YouTube, Google Cloud, Android, Chrome, Google Play and hardware products.

The company operates through three business segments: Google Properties, Google Network Members' Properties, and Others. In FY2017, Google Properties accounted for 71% of the company's total revenue, followed by Google Network Members' Properties (16%) and Others (13%).

The company conducts research and development (R&D) activities on improving the performance of products and developing new technologies. The R&D team of the company initiated several projects to enhance and develop various products and technologies in the areas of artificial intelligence (AI), virtual reality, Big Data, and others.

The company has business presence worldwide and its products and services are available in several languages and in various countries, regions, and territories.

Business Description - Google Network Members' properties

Google Network Members' properties - Overview

Offers services such as AdWords, AdSense, AdMob and DoubleClick's AdExchange.

AdWords is an auction-based advertising program that allows advertisers to create suitable text-based advertisements. Google AdSense comprises Google AdSense for Search, an online service for distributing related ads from the company's advertisers for displaying the search results on the Google network members' websites and Google AdSense for Content analyzes the meaning of the content on the web page and provide related ads based on the meaning of such content. AdMob enables app developers to generate insights about their users. An AdExchange is a technology platform that facilitates the buying and selling of media advertising inventory from multiple ad networks.

Business Description - Google Properties

Google Properties - Overview

Provides services through its owned and operated properties such as Gmail, Maps, YouTube, Google Chrome, and Google Play.

Google Maps offers services such as GPS navigation, traffic alerts, and transit directions. Gmail is a free, advertising-supported email service developed by Google. Through Google Play, customers can subscribe to access millions of songs. The users can discover, watch, and share favorite videos and music through YouTube. Google Chrome is a simple and secure browser.

Business Description - Others

Others - Overview

Provides apps, in-app purchases, and digital content in the Google Play store; and hardware services. Google's apps include Google Allo, a smart messaging app and Google Duo, a video calling app.

Google LLC - Corporate Strategy

Google focuses on establishing itself as a major enterprise vendor supplying future technology. The company leverages its cloud platform to meet the requirements of developers and penetrate into the enterprise market. It focuses on strategic enterprise business drivers such as cost savings through its Google Cloud Platform to increase value proposition of its customers. Google also plans to create and manage digital apps for both segments of customers including enterprise digital professional and the enterprise developer.

The company adopts inorganic growth strategy to expand its expertise in engineering and other functional areas. Google's major acquisitions are focused on strengthening its cloud customer base, app-based solutions, life-science businesses, and broaden its portfolio of patented technology. In March 2018, the company acquired Tenor Inc., a developer of the GIF keyboards, which could complements its services that are offered to the users.

Google LLC - SWOT Analysis

SWOT Analysis - Overview

Google LLC (Google) is global technology leader focused on web search and advertising services. Strong revenue performance, dominance in search engine market, and robust research and development capabilities are the company's major strengths, whereas involvement in lawsuits, and update patching issues remain major areas of concern. Focus on artificial intelligence market; next billion users' initiative and cloud computing market are likely to offer growth opportunities to the company. However, intense competition, security breaches, and stringent regulations could affect its business operations.

Google LLC - Strengths

Strength - Revenue Performance

The company's total revenue increased from US$89,463 million in FY2016 to US$109,652 million in FY2017, an annual growth of 22.5%. Revenue growth was due to 20.1% increase in advertising revenue, which increased from US$79,383 million in FY2016 to US$95,375 million in FY2017. Growth in the advertising revenues was contributed from the increase in the YouTube engagement ad's and mobile search queries. Growth in the revenue was also due to improvements made to ad formats and delivery related initiatives. Higher advertising revenue also resulted from growth in the higher programmatic advertising buying and AdMob. There was also US$4,197 million increase in the Google Other revenue from Google cloud offerings, hardware sales, and Google Play app.

Strength - Penetration of Android Operating System

Google's Android operating system (OS) has emerged as the leading mobile OS worldwide. The OS is expected to gain more market share in the global smartphone market in the future. According to Google, the monthly activation of Android devices reached over two billion worldwide. The Android users download over 1.5 billion apps and games from the Google Play store monthly. In addition to this, the company introduced an enhanced version of android operating system- Android P equipped with new gesture navigation, screen notch support, AI powered smart replies, task predictions extended battery life, and tools that stops smartphone addictions. In May 2018, the Google collaborated with Qualcomm Technologies, Inc., on project Treble, which aims at making Android P accessible on Snapdragon platforms. Android holds strong market share across various geographies worldwide. According to in-house research, it has 85% share in smartphone OS market in Asia-Pacific and Latin America each, 79% in Central and Eastern Europe, 68% each in Western Europe, and Africa and Middle East, 64% in North America, and 56% in Australia.

Strength - Research and Development (R&D) Capabilities

Strong R&D capabilities enable the company to implement innovative technologies and deliver advanced products and services that meet its customers' critical needs. Google has robust research and development (R&D) capabilities, which focus on improving the performance of products and developing new technologies. The company's R&D activities endeavor to develop new online advertising offerings and enhance its technological advantages. It enables to overcome the technical barriers encountered in the commercialization of search, advertising, operating systems and platforms, and enterprise. The R&D team of the company initiated several projects to enhance and develop various products and technologies. Google focuses on improving the performance of its Voice Search to enable users to quickly find what they look for. Its Google Assistant allows users to type or talk with in a natural conversational way to search and find actual results.

Google LLC - Weaknesses

Weakness - Legal Proceedings

The lawsuits filed against the company could affect the company's bottom line performance. In April 2018, Google was sued by its competitor, Oracle America Inc., for copying of 37 packages of Java application programming interface (API) for use in its Android platform. In January 2018, the company was sued by its former employee James Damore. In this lawsuit, Google was alleged for systematic race, gender, and political bias against white, male, and conservative employees. In March 2018, Google was sued by Oracle America, Inc in the US District Court for the Northern District of California. In the lawsuit, Oracle alleged Google for infringing copyrights of its 37 packages of its Java Application programming interface (API Packages) into Google's Android operating system. In addition to this, in February 2018, lawsuit was filed against Google for selling defective Pixel and Pixel XL smartphones by its users. In this case, the company was alleged for knowingly selling Pixel and Pixel XL smartphones to its users although several users had given complaints about the faulty microphones.

Weakness - Boycott by Major Advertisers

Google has recently faced boycott of its search engine and video platform YouTube by major advertisers such as AT&T, Verizon, Johnson & Johnson, Wal-Mart, L'Oreal, Tesco, Sainsbury Lloyd's of London, Audi, Volkswagen, the BBC, the Guardian newspaper, Marks & Spencer, HSBC, RBS, Havas and the British government. In March 2017, these advertisers pulled their ads after finding their ads were running alongside extremist and hate-filled content. Though Google ensured its clients for not placing their ads alongside unsavory videos, it needed improvement of its automated programs to place advertisement on videos.

Google LLC - Opportunities

Opportunity - Next Billion Users Initiative

Google plans to provide equal access to the internet to people living in any part of world under its initiative of reaching the next billion users. As part of its initiative, the company focuses on addressing the issues of connectivity and low bandwidth in emerging countries. It has launched a project, CSquared to build fiber and wifi networks across various cities of Uganda and Ghana to provide faster and reliable network to the users. Its Project Loon comprises a network of balloons, which are sent up to the stratosphere for providing internet services in rural and remote areas worldwide where traditional means fails to reach. The company develops low cost operating system to help mobile manufacturers develop cheap smartphone. It also focuses on improving results of Google searches in developing countries by increasing search speeds and reducing data usages. Google intends to strengthen its presence in Southeast Asia especially Singapore, which strengthens its network to serve emerging markets such as India and Indonesia. The company decentralizes its decision making process that enable managers to localize products to meet the requirements of relevant market. In FY2017, Google strengthened its NBU initiative by introducing Google Assistant, Files Go, a file management app and Tez, an easy bill payments app in India, which already had 400 million internet users as of December 2017.

Opportunity - Exploring Artificial Intelligence (AI)

The company’s open-source software library for Machine Intelligence (ML), TensorFlow allows it to explore the capabilities of AI to conduct numerical computation using data flow graphs. Google rebranded its research division as Google AI, which develops TensorFlow for facilitating ML and deep neural networks research. It helps in detecting skin cancer and preventing blindness in diabetics along with making language translation easier. In November 2017, the company introduced TensorFlow v1.4, which is equipped with the additional functionalities such as eager execution for interactive imperative style programming, XLA, an optimized compiler, and TensorFlow Lite, a lightweight solution for mobile and embedded devices. The company also expanded its TensorFlow model repository with various models, including TensorFlow Lattice and TensorFlow Object Detection API. In addition to this, Google introduced deeplearn.js, an open-source hardware implementation of deep learning API’s in the browser. It also plans to deploy TensorFlow models directly into the deeplearn.js environment in FY2018. In December 2017, the company planned to establish a new Google AI Center in Beijing, China. In July 2017, Google acquired Halli Labs, a Bengaluru-based start-up, which leverages AI and ML techniques to allow people to solve old age problems.

Opportunity - Cloud Computing Market

Cloud-based operations enable enterprises to scale their operations instantly, handle demand fluctuations, and access systems and services over a variety of devices at a lower cost. According to an in-house research, the global cloud computing market is expected to grow at a CAGR of 28.3% to reach US$69,929.6 million by 2022 from US$18,687.2 million in 2017. During 2017-2022 forecast period, in terms of variants of cloud, Software-as-a-Service (SaaS) is expected to be the major contributor with market share of 53.2%, followed by Infrastructure-as-a-Service (IaaS) with 24.3%, and Platform-as-a-Service with 22.5% respectively. The US is expected to account for 58.3% market share, followed by Europe (19.6%), Asia-Pacific (12.8%), Rest of the World (9.2%), and the Middle East (0.2%) during 2017-2022. The company undertook several initiatives to improve the performance of its cloud platform. In January 2018, Google introduced a new digital store, which offers cloud-based software to all organizations. In line to this, the company collaborated with MobileIron, Inc., to integrate its cloud Orbitera commerce platform with MobileIron’s app distribution, security and analytics capabilities.

Google LLC - Threats

Threat - Regulatory Affairs: EU Antitrust Rules

In February 2018, Google was imposed a fine of INR1,360 million by the India's antitrust regulator for infringing anti-trust conduct. The company was fined for using unfair business practices in the Indian local market for online search. The penalty amounted to 5% of the company's average revenue generated from India. The complaint was filed by Matrimony.com and Consumer Unity and Trust Society (CUTS) against Google LLC, Google India Pvt. Ltd and Google Ireland Ltd. In June 2017, the European Union (EU) levied a penalty of EUR2.4 billion on Google to create dominant position in comparison shopping service market by artificially manipulating its search engine results. In its investigation, the commission found that Google was dominating general internet search markets with a market share of approximately 90% in all 31 countries in EU. It alleged that the company created this dominating position by promoting its own comparison shopping service in its search results, and demoting those of competitors. The commission found that Google's practice resulted in sudden decline in traffic on some of the competitors' websites ranging from 85% in the UK, to 92% in Germany and 80% in France. The commission gave 90 days to the company to adopt legal trade practices and comply with its decisions. Any non-compliance will result in imposition of fine upto 5% of the average daily worldwide turnover of its parent company, Alphabet. Though Google plans to appeal against the commission's decision such issues could affect its operational performance.

Threat - Intense Competition

Google operates in a highly competitive market which could affect its business and operating results. The company witnesses competition from general purpose search engines including Baidu, Inc. and Microsoft's Bing. It also witnessed competition from recently introduced Google Assistant and competitors AI apps such as Siri, Cortana and Alexa. In June 2018, Apple introduced MacOS 'Mojave', an operating system with unique features, which is more user-friendly and secured compared to Google's Android. In January 2018, Microsoft announced to acquire Avere Systems, a hybrid cloud data storage service provider to strengthen its presence in media and entertainment industry.

Google faces stiff competition in cloud computing business where top 10 vendors attract a significant proportion of the overall market. According to in-house research, the top ten cloud computing vendor accounts for 55.7% to the total market size. The market is dominated by vendors such as Amazon Web Services (AWS), Salesforce.com, Microsoft, IBM, and SAP with respective market share of 11.9%, 9.4%, 7%, 6.8%, and 3.8%. Google holds a market share of just 3.7%, requiring the company to increase investments in this market, which has been witnessing consolidation.

Threat - Security Breaches

The company's products and services involve in the storage and transmission of users' and customers' proprietary information. Google's security measures could be breached due to the actions of outside parties, employee error, malfeasance, and as a result an unauthorized party could obtain access to the company's data or users' data. Also, its clients are subject to laws and regulations in the US and other jurisdictions designed to protect privacy of their personal information. The experienced computer programmers and hackers could pierce its network security and misappropriate confidential information, create system disruptions and cause shutdowns.

In May 2017, the Google Docs users received an email accompanying an invitation to open and edit a Google documents with subject line, 'has shared a document on Google Docs with you'. The mail had a HTML code, if clicked, providing hackers the access of reading, sending, deleting and managing emails connected to the Google Docs account.

NOTE:
The above strategic analysis is based on in-house research and reflects the publishers opinion only

Google LLC - Key Competitors

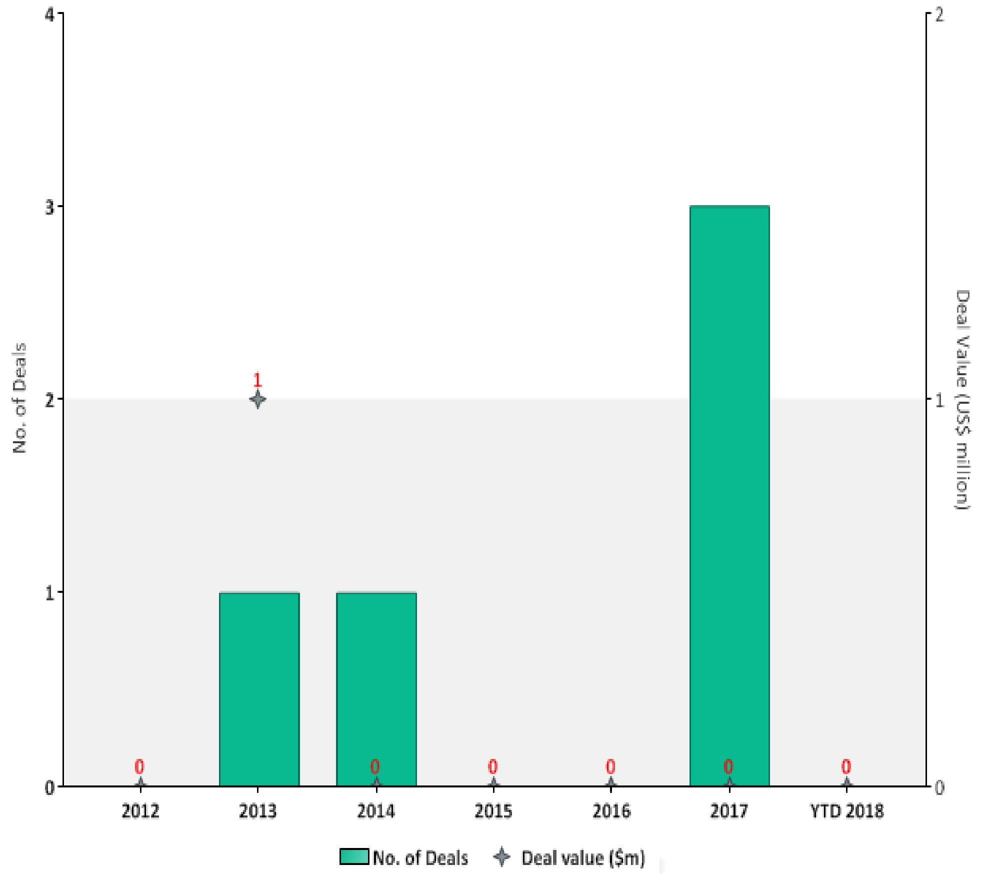
Google LLC, Key Competitors		
Name	**Headquarters**	**Revenue (US$ m)**
Amazon.com Inc	United States	177,866
Baidu, Inc.	China	9,995
Facebook Inc	United States	40,653
Fujitsu Limited	Japan	41,635
International Business Machines Corp	United States	79,139
Microsoft Corp	United States	89,950
Oracle Corporation	United States	37,728
Salesforce.Com Inc	United States	8,392
SAP SE	Germany	26,450

Source: Company Website, Primary and Secondary Research GlobalData

Section 3 – Company's Mergers & Acquisitions, Capital Raising and Alliances

Google LLC, Transactions by Year, 2012 to YTD 2018

Google LLC, Transactions by Year, 2012 to YTD 2018



Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed. Above data is extracted from GlobalData's Deals and Alliances Profile. GlobalData

Google LLC's, deal volume increased from zero deals in 2016 to three deals in 2017. No deals were reported by the company in YTD 2018.

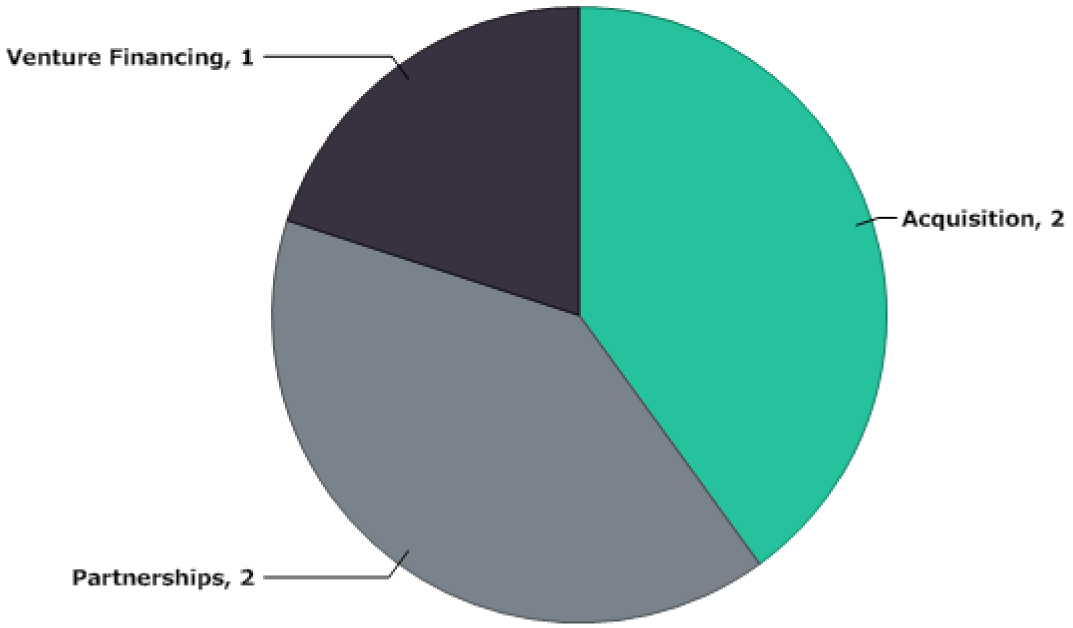
Google LLC, Transactions by Year, 2012 to YTD 2018

YEAR	No. of Deals	Deal value ($m)
2012	0	NA
2013	1	1
2014	1	NA
2015	0	NA
2016	0	NA
2017	3	NA
YTD 2018	0	NA

Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed.Above data is extracted from GlobalData's Deals and Alliances Profile. GlobalData

Google LLC, Transactions by Type, 2012 to YTD 2018

Google LLC, Transactions by Type, 2012 to YTD 2018



Note: Deals include all announced deals from 2011 onwards GlobalData
Above data is extracted from GlobalData's Deals and Alliances Profile.

Google LLC's deals activity has been reportedly focusing on acquisition and partnerships with two deals each during the period 2012 to YTD 2018.

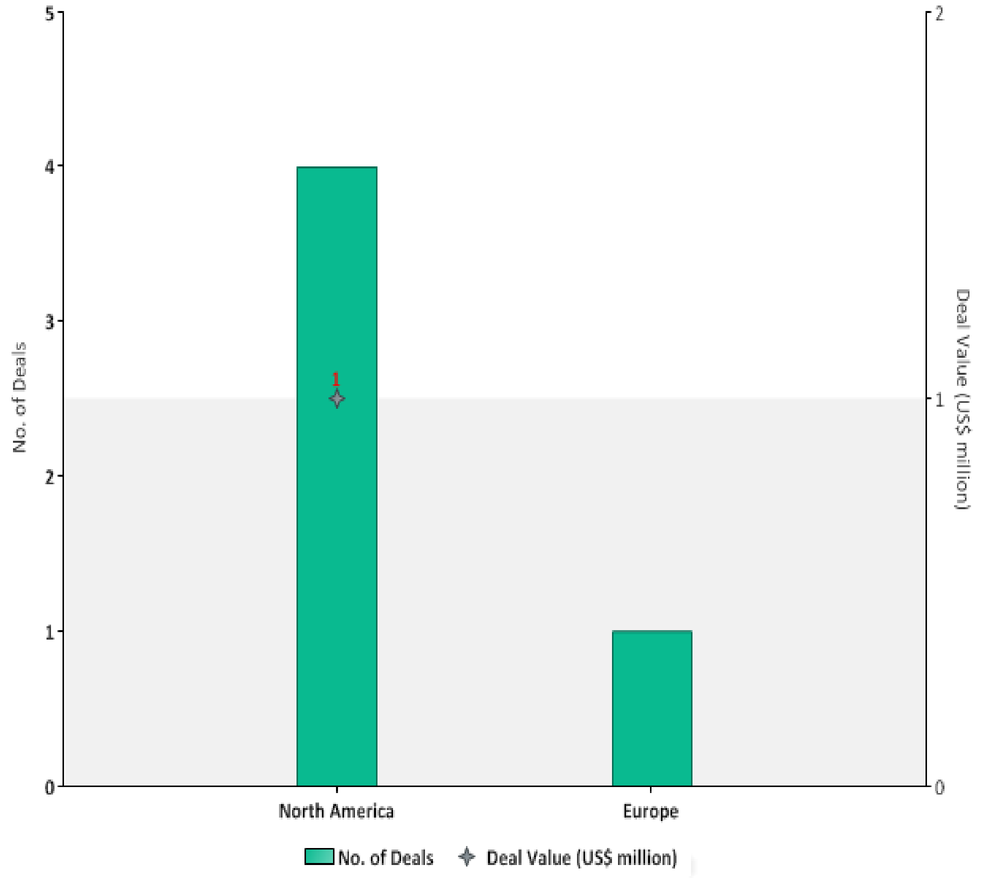
Google LLC, Transactions by Type, 2012 to YTD 2018

Deal type	No. of Deals	Deal Value (US$ million)
Acquisition	2	
Partnerships	2	
Venture Financing	1	1

Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed.Above data is extracted from GlobalData's Deals and Alliances Profile. GlobalData

Google LLC, Transactions by Region, 2012 to YTD 2018

Google LLC, Transactions by Region, 2012 to YTD 2018



Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed. Above data is extracted from GlobalData's Deals and Alliances Profile. GlobalData

Google LLC, deals activity has been reportedly focusing on North America with four deals worth $1 million during the period 2012 to YTD 2018.

Google LLC, Transactions by Region, 2012 to YTD 2018		
Region	**No. of Deals**	**Deal Value (US$ million)**
North America	4	1
Europe	1	

Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed.Above data is extracted from GlobalData's Deals and Alliances Profile. GlobalData

GlobalData

Google LLC, Recent Transactions Summary

Google LLC, Recent Transactions Summary				
Deal Date	**Deal type**	**Deal Status**	**Deal Headline**	**Deal Value (US $ million**
16-Nov-2017	Partnerships	Completed	Candi Controls Forms Partnership with Google Cloud Platform	
13-Aug-2017	Acquisition	Completed	Alphabet Acquires Senosis Health	
03-May-2017	Partnerships	Completed	E.ON Forms Partnership with Google	
10-Sep-2014	Acquisition	Completed	Google Acquires Lift Labs, Tremor-Canceling Device Company	
18-Sep-2013	Venture Financing	Completed	Lift Labs Raises US$1 Million In Seed Funding	1.00

Note: Deals include all announced deals from 2011 onwards, deal values included wherever disclosed.
Above data is extracted from GlobalData's Deals and Alliances Profile.

GlobalData

Acquisition

Alphabet Acquires Senosis Health

Alphabet Acquires Senosis Health			
Deal Type	Acquisition	**Deal Sub Type**	100% Acquisition
Deal in Brief			
Alphabet Inc., a global technology company and a holding company of Google, has acquired Senosis Health, a health start up company.			
Deal Information			
Deal Status	Completed		
Completed Date	13-Aug-2017		
% Acquired	100		
Companies Information			
Acquirer Company Information			
Company Name	Alphabet Inc		
Business Description			
Alphabet Inc. (Alphabet), the holding company of Google, is a global technology company. It offers a wide range of products and platforms including Search, Maps, Ads, Gmail, Google Play, Android, Commerce, Google Cloud, Chrome, YouTube and hardware products such as Pixel 2 phone, Pixelbook laptop and other related products. The company also provides Internet products such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo, and X. It also offers online advertising services through its AdSense and AdWords, Internet and TV services and licensing and research and development services. Alphabet is also involved in investing in infrastructure, data management, analytics and artificial intelligence (AI). The company has business operations worldwide. Alphabet is headquartered in Mountain View, California, the US.			
Target Company Information			
Company Name	Senosis Health	**Parent**	Google LLC
Source: GlobalData			

Google Acquires Lift Labs, Tremor-Canceling Device Company

Google Acquires Lift Labs, Tremor-Canceling Device Company			
Deal Type	Acquisition	**Deal Sub Type**	100% Acquisition
Deal in Brief			
Google Inc., a provider of search and advertising services on the Internet, through its division Google X, has acquired Lift Labs, a health technology company. Following the transaction, Lift Labs will continue to make and sell the product, and Lift Labs team will be incorporated into Google X's life sciences group.Lift Labs developed a special spoon designed to make it easier to eat for people with diseases like Parkinson's or essential tremor. Lift Lab's product, called Liftware, vibrates to stabilize tremors, countering the movements of a patient's hand as he or she raises the spoon to the mouth. This transaction enables Google to expand healthcare focus by providing Liftware system for people with Parkinson's or essential tremor who could benefit from using tremor-canceling devices.			
Deal Rationale			
This transaction enables Google to expand healthcare focus by providing Liftware system for people with Parkinson's or essential tremor who could benefit from using tremor-canceling devices.			
Deal Information			
Deal Status	Completed		
Completed Date	10-Sep-2014		
% Acquired	100		
Companies Information			
Acquirer Company Information			
Company Name	Alphabet Inc		
Business Description			
Alphabet Inc. (Alphabet), the holding company of Google, is a global technology company. It offers a wide range of products and platforms including Search, Maps, Ads, Gmail, Google Play, Android, Commerce, Google Cloud, Chrome, YouTube and hardware products such as Pixel 2 phone, Pixelbook laptop and other related products. The company also provides Internet products such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo, and X. It also offers online advertising services through its AdSense and AdWords, Internet and TV services and licensing and research and development services. Alphabet is also involved in investing in infrastructure, data management, analytics and artificial intelligence (AI). The company has business operations worldwide. Alphabet is headquartered in Mountain View, California, the US.			
Target Company Information			
Company Name	Lift Labs	**Parent**	Google LLC
Source: GlobalData			

Partnerships

Candi Controls Forms Partnership with Google Cloud Platform

Candi Controls Forms Partnership with Google Cloud Platform			
Deal Type	Partnership		
Deal in Brief			
Candi Controls, Inc., (CANDI) a clean technology company, has formed partnership with Google Cloud Platform, to launch a new solution that simplifies the connection of smart building devices and data to apps.Through the integration of Google Pub/Sub and CANDI's PowerTools, IoT developers and service providers can more easily connect to edge data, link directly into Google's Cloud Platform toolset, and drive business value across the IoT ecosystem. The solution is designed with out-of-the-box support for smart buildings, which includes reference designs and sensor kits for energy, HVAC, and equipment management using Intel BMP gateways.			
Deal Information			
Deal Status	Completed		
Completed Date	16-Nov-2017		
Companies Information			
Partner Company Information			
Company Name	Candi Controls, Inc.		
Business Description			
Candi Controls, Inc. is a cloud-based software as a service (SaaS) company that connects devices and data in mainstream commercial buildings to cloud-based services for energy and facilities management.			
Company Name	Google LLC	**Parent**	Alphabet Inc
Business Description			
Google LLC (Google), a subsidiary of Alphabet Inc., is a leading provider of search and advertising services on the internet. The company focuses on business areas such as advertising, search, platforms and operating systems, and enterprise and hardware products. Its portfolio of products and services include Google Web Search, Google Chrome, Google Docs, Google Calendar, Google Images, Google Finance, Google Books, Google News, Google Earth, Google Play, AdMob, Google Maps, Google Videos, Google Reader, Blogger, Google Wallet, Gmail, Google Groups, and YouTube. The company offers online display advertising services through its AdSense and AdWords programs. Google is headquartered in Mountain View, California, the US.			
Source: GlobalData			

E.ON Forms Partnership with Google

E.ON Forms Partnership with Google			
Deal Type	Partnership	**Deal Sub Type**	Other
Deal in Brief			
E.ON SE, a power generation, distribution and transmission company, a renewable energy company, has formed partnership with Google, Inc., a US-based Internet technology and advertising company, to jointly offer the Sunroof platform in Germany.Under the partnership, around seven million buildings are covered by the sunroof platform, including those in major urban areas like Munich, Berlin, Rhine-Main and the Ruhr. Using this technology, homeowners can easily and precisely determine their home's potential solar capacity and generate plans for installing a solar system. The sunroof platform brings together technologies like Google Earth & Maps, 3D models, and machine learning in order to answer inquiries as precisely as possible. Sunroof calculates how much sunlight falls on a roof during the course of a year. It takes into account weather data, the position of the sun in different seasons, the area and slope of the roof as well as shadows from surrounding buildings or trees. Then sunroof converts the data on sunlight into energy and calculates the potential cost savings.On May 18, 2018, E.ON and Google have announced that they have extended the one-year program until the end of 2018. In addition, E.ON and Google are making their sunroof platform available to the homeowners in Great Britain. At the same time, E.ON and Google are preparing the market launch in Italy.			
Deal Information			
Deal Status	Completed		
Completed Date	03-May-2017		
Companies Information			
Partner Company Information			
Company Name	E.ON SE		
Business Description			
E.ON SE (E.ON), formerly E.ON AG, is an energy company that generates electricity, produces, stores, transports and supplies gas, and conducts trading, carbon sourcing, and electricity and gas distribution. It generates power from diverse fuel sources including wind, hydro, nuclear, coal, natural gas, oil, solar and biomethane. The storage and transport operations of the company include underground gas storage reservoirs and interests in the Nord Stream AG. The company trades gas, electricity, biomass, coal, freight and carbon allowances. It operates an electricity distribution network in Europe and the US and gas distribution network in Europe. E.ON is headquartered in Essen, Germany.			
Company Name	Google LLC	**Parent**	Alphabet Inc
Business Description			
Google LLC (Google), a subsidiary of Alphabet Inc., is a leading provider of search and advertising services on the internet. The company focuses on business areas such as advertising, search, platforms and operating systems, and enterprise and hardware products. Its portfolio of products and services include Google Web Search, Google Chrome, Google Docs, Google Calendar, Google Images, Google Finance, Google Books, Google News, Google Earth, Google Play, AdMob, Google Maps, Google Videos, Google Reader, Blogger, Google Wallet, Gmail, Google Groups, and YouTube. The company offers online display advertising services through its AdSense and AdWords programs. Google is headquartered in Mountain View, California, the US.			
Source: GlobalData			

GlobalData

Venture Financing

Lift Labs Raises US$1 Million In Seed Funding

Lift Labs Raises US$1 Million In Seed Funding			
Deal Type	Venture Financing	**Deal Sub Type**	Seed
Deal in Brief			
Lift Labs, a developer of a suite of home health hardware, raised US$1m in seed funding round. This finance was provided by Silicon Valley-based angel investors. The company intends to use the proceeds to launch Liftware, a spoon that detects and autocorrects for hand tremors, in the market; and to expand its business.Anupam Pathak, CEO of Lift Labs, said, "It's a first round of private money after being funded by the grant. The government is now handing off support to private investors. A lot of it is going to our manufacturing costs. There's significant amount of capital required, especially since we're doing the bulk of our manufacturing here. The funding is basically just to pay engineering support, manufacturing support and also help with marketing and developing the business. It's a modest amount, but we think that it will get us out there and allow us to begin to expand the business to future products we'll be developing."			
Deal Rationale			
The company intends to use the proceeds to launch Liftware, a spoon that detects and autocorrects for hand tremors, in the market; and to expand its business.			
Deal Information			
Deal Status	Completed		
Deal Finance	None		
Completed Date	18-Sep-2013		
Deal Financials			
Deal Value (US$ m)	1		
Companies Information			
Target Company Information			
Company Name	Lift Labs	**Parent**	Google LLC
Source: GlobalData			

Section 4 – Company's Recent Developments

May 29, 2018: E.ON brings innovative 'Project Sunroof' technology to Britain in partnership with Google and Tetraeder

Ground-breaking solar technology, 'Google's Project Sunroof', is being made available to residents in Britain for the first time, thanks to a partnership between E.ON, Google and software provider Tetraeder. Project Sunroof from Google is an easy-to-use online tool which allows homeowners to calculate the savings they could make by installing solar technology in their homes.
As the first energy supplier to offer a personalised solar savings estimator in Britain, E.ON is giving homeowners the opportunity to take power into their own hands and get the detailed information they need to make informed decisions about whether solar technology could be a viable option for them. This initiative supports the UK's target to produce 30% renewable energy by 20201.

E.ON is committed to providing smarter, sustainable solutions for its customers. The innovative Project Sunroof tool uses Google Earth, Google Maps and Machine Learning to estimate how much solar potential a house has by examining the property's surroundings, weather data, sun positioning, and roof area/angle. Believed to be the most advanced technology of its kind, the tool can even assess the impact of shade from a single tree on the solar output potential of a particular property.

Michael Lewis, Chief Executive of E.ON UK said: "Last year, we successfully launched Google's Project Sunroof in Germany and we're delighted to bring this exciting new technology to British homeowners too. At E.ON, we're aiming to create a better tomorrow by offering customers smarter, innovative solutions like Google's Project Sunroof and Solar and Storage, our solar PV and battery offering.

"The launch of Project Sunroof is also part of our ongoing efforts to bring fresh digital solutions to market for the benefit of our customers. We're proud to be the first company, working with Google and Tetraeder, to launch Project Sunroof – a service which is easy to use and highly effective in giving people the in-depth and personalised information they need to make well-informed decisions about whether solar technology is the right solution for them.

Homeowners in certain regions2 can now visit eon-solar.co.uk to use Google's Project Sunroof to learn about the solar potential for their home. The tool not only calculates potential cost savings quickly, it also allows people to sign up and begin their solar panel installation process.

People who take E.ON Solar and Storage could make significant savings on their electricity bills as well as earning money through the FiT scheme. Together this could save and earn typical customers £630 a year3.

Nicole Lombardo, Business Development & Partnerships of Google, said: "At Google, we're deeply committed to sustainability and having a positive impact on the environment. We are excited to help people in the UK make more informed choices about installing solar panels on their rooftops and transition to renewable energy sources.

Stephan Wilforth, Managing Director of Tetraeder, said: "Since the beginning of the 2010's, we've been developing our own software for the most accurate and efficient forecast of solar yield on roofs to help calculate the cost-effectiveness of PV installations. Our goal is to give homeowners the best possible support when deciding on their own PV system. We are proud to be able to provide our outstanding technology in partnership with E.ON and Google for the British people.

May 18, 2018: E.ON and Google deepen solar partnership around Project Sunroof

The solar partnership between E.ON and Google is developing into a European success story. Since May 2017, the joint Sunroof platform, which determines the solar potential of millions of buildings, has been bringing new solar energy systems onto German roofs. Homeowners can be happy: the one-year programme will be extended until the end of 2018.

In addition, the success in the European pioneer market of Germany is now being exported. Over the coming weeks, Sunroof is being made available to homeowners in Great Britain. At the same time, E.ON and Google are preparing the market launch in Italy. As in Germany, E.ON will be the first energy company in Britain and Italy to offer its customers a digital assessment of the PV potential of their homes – simple, free of charge and personally tailored.

In Germany the website www.eon-solar.de has established itself as the first address for interested parties who want to take their power supply into their own hands. Well over 10,000 customers have requested a detailed initial analysis of their roof's solar potential. Sunroof is thus making a significant contribution to E.ON's strong annual revenues growth of 150 percent in its solar business. E.ON's goal is to become Germany's market leader in photovoltaics in 2019 the latest.

All you have to do is enter your address online. Based on a few additional parameters, the construction of a solar energy system can be planned. Sunroof's websites combine technologies such as Google Earth and Google Maps, 3D models and machine learning, i.e. automated software improvement, to provide an accurate estimate of a home's individual solar potential. Sunroof calculates how much sunlight falls on each roof during the year. It takes into account weather data, the position of the sun at different seasons, the area and inclination of the roof as well as the shade of surrounding buildings or trees. In the end, Sunroof "translates" the determined amount of light into energy and the potential cost savings. The data are calculated by the software company tetraeder as an additional Partner in the sunroof project.

Based on this data, customers in Germany can request a complete package consisting of a photovoltaic module and the E.ON SolarCloud, optionally with Aura battery storage. In addition, E.ON provides a "sunshine guarantee" to ensure that the solar system achieves the calculated yields. The company compensates for lower values financially.

May 15, 2018: Buying renewables the new way to get businesses back in the black

While President Trump is trying to recapture the glory days of coal, some of the biggest companies in the United States are helping to move the country towards the future by buying and using more clean energy.
Tech giants Google and Apple had both set a target to get all of their power from clean energy, and they both exceeded that target this year – well ahead of schedule.

By signing power purchase agreements (PPAs) to buy their power from big wind and solar farms, Google and Apple are now the world's largest buyers of renewable energy, with Google currently pipping Apple for top spot. This has allowed both corporations to clean up their emissions while also controlling their costs.

Google paves the path to PPAs

Google began to explore PPAs in 2009, and signed its first agreement with a 114 MW wind farm in Iowa in the following year. Over the next six years, Google signed an additional 20 agreements, totalling nearly 2.6 GW of renewable energy generation around the world. By 2017, Google was buying more renewable energy than it needed to power its entire business, including its offices and data centres. This is a remarkable achievement considering that in 2015 its data centres consumed a similar amount of energy to the entire city of San Francisco.

Apple takes a bite out of emissions

Less than a week after Google announced that it had reached its 100 per cent renewable energy goal, Apple CEO Tim Cook also announced that his company's global facilities were now completely powered by renewable energy. This includes Apple's retail stores, data centres, offices and co-located facilities in 43 countries. And the tech giant has also taken the next step by asking its suppliers to do the same.

To date, Apple has 25 operational renewable energy projects globally, adding up to 626 MW of generating capacity. With another 15 projects currently under construction, Apple's clean energy generation will eventually total 1.4 GW across 11 countries. In addition, Apple has signed a PPA with the Montague Wind Power Project, a 200 MW wind farm in Oregon that is set to come online by the end of 2019. Apple's emission reduction efforts resulted in the company stopping 1.5 million metric tons of greenhouse gases from being emitted into the atmosphere in 2017.

Corporate PPAs Down Under

Back in Australia, it's clear that the wheels are in motion when it comes to corporate PPAs. The Melbourne Renewable Energy Project (MREP) is a prime example of this, with 14 organisations coming together to purchase renewable energy from various projects. This ground-breaking agreement between different sectors in the economy is guaranteed to bring returns for the entire renewable energy industry. MREP involves organisations such as RMIT University, NAB and the City of Melbourne joining with energy partner Pacific Hydro through its retail arm Tango Energy. Pacific Hydro will build an 80 MW wind farm in the north-west of Victoria that will sell clean energy to the MREP partners. This will translate into an emission reduction of 96,800 tonnes per year over the lifespan of the decade-long deal.

Corporate PPAs are a sophisticated way for businesses to enter the renewable energy market and drive down their emissions and power costs. Whether you're a large global player such as Google or Apple, a participant in an innovative new renewable energy partnership in Melbourne or a large beer brewer such as Carlton United Breweries (CUB), corporate PPAs are a win-win for all involved. Corporate PPAs allow renewables to flourish due to increased demand and investment, while reducing emissions and costs at the same time. As a recent report by the Climate Council found, almost half of Australia's major businesses are moving towards clean energy in some form.

So maybe it's time to stop trying to resurrect the glory days of our coal-driven past and start thinking forward to the glory days of clean energy. They're just around the corner.

Apr 24, 2018: Total To Develop Artificial Intelligence Solutions With Google Cloud

Total and Google Cloud have signed an agreement to jointly develop artificial intelligence (A.I.) solutions applied to subsurface data analysis for oil and gas exploration and production.
The agreement focuses on the development of A.I. programs that will make it possible to interpret subsurface images, notably from seismic studies (using Computer Vision technology) and automate the analysis of technical documents (using Natural Language Processing technology). These programs will allow Total's geologists, geophysicists, reservoir and geo-information engineers to explore and assess oil & gas fields faster and more effectively.

Under this partnership, Total geoscientists will work side-by-side with Google Cloud's machine learning experts within the same project team based in Google Cloud's Advanced Solutions Lab in California.

"Total is convinced that applying artificial intelligence in the oil and gas industry is a promising avenue to be explored for optimizing our performance, particularly in subsurface data interpretation. We are excited to work with Google Cloud towards this goal. This builds on the strategy being developed at Total, where A.I. is already used, for example, in predictive maintenance at facilities,said Marie-No&eumllle Semeria, Senior Vice President, Group CTO at Total.

"We believe that the combination of Total's geoscience expertise and Google's artificial intelligence skills will ensure the project's success. Our ambition is to give our geoscience engineers an A.I. personal assistant in the next few years that will free them up to focus on high value-added tasks.said Kevin McLachlan, Senior Vice President Exploration for Exploration & Production at Total.

"We are thrilled to welcome Total in our Advanced Solutions Labs for the development of A.I. solutions,said Paul-Henri Ferrand, President of Global Customer Operations Google Cloud. "We are keen to engage our best A.I. engineers to work with Total's geosciences' experts.

Artificial Intelligence Applied to Exploration & Production at Total

Total started applying artificial intelligence to characterize oil & gas fields using machine learning algorithms in the 1990s.

In 2013, Total used machine learning algorithms to implement predictive maintenance for turbines, pumps and compressors at its industrial facilities, thus generating savings of several hundred million dollars.

Today, Total teams are exploring multiple machine learning and deep learning applications such as production profile forecasting, automated analysis of satellite images or analysis of rock sample images.

Apr 12, 2018: Scientists teach computers how to analyze brain cells

In the early days of neuroscience research, scientists painstakingly stained brain cells and drew by hand what they saw in a microscope. Fast forward to 2018 and machines may be able to learn how to do that work. According to a new study in Cell, it may be possible to teach machines how to pick out features in neurons and other cells that have not been stained or undergone other damaging treatments.
According to a new study in Cell, it may be possible to teach machines how to pick out features in neurons and other cells that have not been stained or undergone other damaging treatments. The study was partially funded by the National Institute of Neurological Disorders and Stroke (NINDS), part of the National Institutes of Health.

"This approach has the potential to revolutionize biomedical research,said Margaret Sutherland, Ph.D., program director at the NINDS.

"Researchers are now generating extraordinary amounts of data. For neuroscientists, this means that training machines to help analyze this information can help speed up our understanding of how the cells of the brain are put together and in applications related to drug development.

A dish, or culture, of neuronal cells appears uniform to the naked eye and the different, individual cells in it cannot be seen. Ever since the late nineteenth century when pioneering neuroscientists, Santiago Ramon y Cajal and Camillo Golgi, drew the earliest maps of the nervous system, scientists have been developing dyes and staining methods to help distinguish the structures in the brain, including different types of cells and their state of health. However, many of these methods involve harsh chemicals that fix, or freeze, cells in an unnatural state or damage living cells after multiple stains have been applied. The traditional techniques also limit the details scientists can observe.

A team led by Steven Finkbeiner, M.D., Ph.D., director and senior investigator at the Gladstone Institutes in San Francisco, and professor of neurology and physiology at the University of California, San Francisco, explored whether computers could be trained to identify structures in unstained cells.

"Every day our lab had been creating hundreds of images, much more than we could look at and analyze ourselves. One day, a couple of researchers from Google knocked on our door to see if they could help us,said Dr. Finkbeiner, the senior author of the study.

The researchers used a method called Deep Learning, which relies on principles of machine learning, a type of artificial intelligence in which machines can learn from data and make decisions. Facial recognition software is an example of machine learning.

Using Deep Learning, Dr. Finkbeiner's team trained a computer program to analyze brain cells by showing it stained and unstained images. Then, to test whether the program had learned anything, the researchers challenged it with new unlabeled images.

After the first round of training, the program identified where cells were located in the culture dish by learning to spot a cell's nucleus, a round structure that contains genetic information and serves as the cell's command center. During additional experiments, Dr. Finkbeiner's group increased the complexity of the features the program was looking for and successfully trained it to distinguish dead cells from living cells, as well as to identify specific types of brain cells. In addition, the program learned to differentiate between axons and dendrites, which are two specific types of extensions on neurons. According to the results, the program was successful in predicting structures in unlabeled tissue.

"Deep Learning takes an algorithm, or a set of rules, and structures it in layers, identifying simple features from parts of the image, and then passes the information to other layers that recognize increasingly complex features, such as patterns and structures. This is reminiscent of how our brain processes visual information,said Dr. Finkbeiner. "Deep Learning methods are able to uncover much more information than can be seen with the human eye.

Dr. Finkbeiner and his team noted that the main drawback to using this technology is that the training datasets need to be very large, ideally around 15,000 images. In addition, there may be a risk to overtraining the programs, that they become so specialized they can only identify structures in a particular set of images or in images generated in a particular way, and not make predictions about more general images, which could limit the use of this technology.

Dr. Finkbeiner and his colleagues plan to apply these methods to disease-focused research.

"Now that we showed that this technology works, we can start using it in disease research. Deep Learning may spot something in cells that could help predict clinical outcomes and can help us screen potential treatments,said Dr. Finkbeiner.

More research is needed to refine the technology and make it more widely available.

This study was supported by NINDS (NS091046, NS083390, NS101995), the NIH's National Institute on Aging (AG065151, AG058476), the NIH's National Human Genome Research Institute (HG008105), Google, the ALS Association, and the Michael J. Fox Foundation.

Apr 11, 2018: Google breaks ground on $600m data centre in Alabama

Google has broken ground on a $600m data centre on the old TVA Widow's Creek coal plant site in Bridgeport, Jackson County, Alabama. The project, being established as part of Google's expansion to 14 new data centres and offices across the US, will create as many as 100 full-time jobs with potential for growth in the future.

The Bridgeport data centre, being constructed on a 360-acre site, will be a hub for Internet traffic and Alabama's first large-scale data centre. The project was announced in June 2015.

Construction of the new data centre is expected to take 12 to 15 months.

The Tennessee Valley Authority (TVA) is working with Google to provide renewable energy for the facility.

Google Cloud head of global technology partnerships Nan Boden said: "Google is committed to investing in Jackson County to create new economic and educational opportunities for the people of Alabama and the surrounding region.

"As a native Alabamian, I am so proud to be part of the effort to bring this Google data centre to life in the coming months and years.

The company said that the new data centre will feature modern energy efficiency. The Alabama facility will become Google's 14th data centre globally and the eighth in the US.

Alabama Governor Kay Ivey said: "As one of the world's most dynamic and innovative technology companies, Google's products touch billions of people across the globe every single day.

"We're proud that Alabama is playing an important role in Google's future growth, and we look forward to seeing this data centre operation help power that growth.

Mayor David 'Bubba' Hughes said: "This is a big day for Bridgeport because it helps our city in many different ways. Having Google in our community will bring us great jobs and offer real opportunities for our young people.

"Google is a generous supporter of schools, and the company's presence will help us recruit other high-tech companies.

Apr 04, 2018: Buying 100 percent renewable energy: Google

A little over a year ago, we announced that we were on track to purchase enough renewable energy to match all the electricity we consumed over the next year. We just completed the accounting for Google’s 2017 energy use and it’s official—we met our goal. Google’s total purchase of energy from sources like wind and solar exceeded the amount of electricity used by our operations around the world, including offices and data centers.
Today, we have contracts to purchase three gigawatts (3GW) of output from renewable energy projectsno corporate purchaser buys more renewable energy than we do. To date, our renewable energy contracts have led to over $3 billion in new capital investment around the world.

The road to 100 percent

We've been working toward this goal for a long time. At the outset of last year, we felt confident that 2017 was the year we'd meet it. Every year, we sign contracts for new renewable energy generation projects in markets where we have operations. From the time we sign a contract, it takes one to two years to build the wind farm or solar field before it begins producing energy. In 2016, our operational projects produced enough renewables to cover 57 percent of the energy we used from global utilities. That same year, we signed a record number of new contracts for wind and solar developments that were still under construction. Those projects began operating in 2017–and that additional output of renewable energy was enough to cover more than 100 percent of what we used during the whole year.

We say that we "matchedour energy usage because it's not yet possible to "powera company of our scale by 100 percent renewable energy. It's true that for every kilowatt-hour of energy we consume, we add a matching kilowatt-hour of renewable energy to a power grid somewhere. But that renewable energy may be produced in a different place, or at a different time, from where we're running our data centers and offices. What's important to us is that we are adding new clean energy sources to the electrical system, and that we're buying that renewable energy in the same amount as what we're consuming, globally and on an annual basis.

Looking ahead

We're building new data centers and offices, and as demand for Google products grows, so does our electricity load. We need to be constantly adding renewables to our portfolio to keep up. So we'll keep signing contracts to buy more renewable energy. And in those regions where we can't yet buy renewables, we'll keep working on ways to help open the market. We also think every energy buyer–individuals and businesses alike–should be able to choose clean energy. We're working with groups like the Renewable Energy Buyers Alliance and Re-Source Platform to facilitate greater access to renewably-sourced energy.

This program has always been a first step for us, but it is an important milestone in our race to a carbon-free future. We do want to get to a point where renewables and other carbon-free energy sources actually power our operations every hour of every day. It will take a combination of technology, policy and new deal structures to get there, but we're excited for the challenge. We can't wait to get back to work.

Apr 04, 2018: Google hits clean energy target

Google has achieved the 100% renewable energy target it committed to more than a year ago. The internet giant's senior vice-president of technical infrastructure Urs Holzle said that over the course of 2017, for every kilowatt hour of electricity consumed,...

Apr 03, 2018: Google shakes up leadership to sharpen focus on AI

John Giannandrea will step down as the company’s AI and search chief.
Internet giant Google is making changes at the top to become a leading player in artificial intelligence (AI).

As part of a top level shake up, John Giannandrea will exit from his role as Google's AI and search chief.

Google, which had combined its search and artificial intelligence units in early 2016, is now taking a U-turn by splitting them into two separate divisions to sharpen its focus on the emerging technology.

Giannandrea was earlier responsible for both the units and he will now be making way for two new leaders for the search and AI divisions.

Jeff Dean, who is currently leading Google Brain project, will get the additional responsibility of heading a dedicated AI unit for the search engine company.

On the other hand, Ben Gomes, the current head at search engineering will lead Google's search division as vice president.

As far as Giannandrea is concerned, the veteran computer scientist will stay on with Google, serving the company in a different role.

Known for his expertise in machine learning, Giannandrea had joined in Google about eight years ago, following the search engine company's acquisition of Freebase developer Metaweb Technologies.

The technology, which was developed by Giannandrea and others at the San Francisco-based startup, is considered to be the basis of the "Knowledge Graphfeature that was introduced by Google in 2012.

Knowledge Graph, which is shown on the right side of the search engine results page, was launched to improve Google's search results by pulling out information collected from multiple sources into a box.

In the recent times, Google has made it clear that improving its artificial intelligence capabilities will be its top strategy. To support that, its parent company Alphabet has pumped in huge amounts of money into machine learning and other capabilities.

Mar 20, 2018: AkzoNobel, DSM, Google and Philips receive first power from new Dutch wind farm Bouwdokken

AkzoNobel Specialty Chemicals, DSM, Google and Philips have started receiving power from the Bouwdokken wind farm in the Netherlands – a milestone achievement resulting from a unique green energy purchasing consortium they jointly established. All four companies consume a substantial amount of power in the Netherlands, and by working together they are making a significant contribution to delivering on the Netherlands' renewable energy target of 14% by 2020.
In October 2016 and January 2017, the companies signed two long-term power purchase agreements (PPAs) that enabled construction of two Dutch wind farm projects – Krammer and Bouwdokken. These wind farms, both of which are located in the southwest of the Netherlands, have a total capacity of over 140 MW, enough to power approximately 140,000 households.

It is the first time that a group of multinationals in the Netherlands have teamed up to negotiate long-term PPAs directly with project developers, bypassing the involvement of an energy utility company. The Rocky Mountain Institute's (RMI) Business Renewables Center, a leading independent authority on sustainability, says the consortium is among the earliest examples of aggregated corporate demand successfully participating in clean energy markets worldwide.

"This marks the next big step towards a new way of supplying energy for Dutch industry,said Marcel Galjee, Energy Director at AkzoNobel Specialty Chemicals, on behalf of the consortium. "We brought together a group of companies that is united in its sustainability leadership. We believe it is of utmost importance to join forces and come up with innovative partnerships to achieve the sustainability goals of our companies as well as those set out in the Paris climate agreement.

Harry Coorens, VP Procurement Sustainability at Royal DSM added: "The collaboration and progress as shown in this initiative is well recognized outside the Netherlands. I receive questions from all over the world to explain this success story. It is a prime example to show an industry drive and collaboration that supports a mutual goalcreating a cleaner environment for people today and generations to come. Looking back historically, it's interesting to note that this project was developed near the Delta Works, another visionary feat that is highly regarded outside the Netherlands.

Marc Oman, &lrmEU Energy Lead, of Google Global Infrastructure said: "In 2017, Google purchased enough renewable energy to match 100 percent of our consumption for global operations. Success with this consortium plays a meaningful part in our global clean energy plans, and as a company, we are continuing to push innovation for corporate renewable energy procurement.

As a purpose-driven health technology company, a healthy planet is central to our mission, and we are making good progress to decouple economic growth from our environmental impact. All our operations in the United States are already powered by wind energy, and through this unique consortium, also our operations in the Netherlands will soon be completely powered by green electricity.

Simon Braaksma

Senior Director of Group Sustainability at Philips

Simon Braaksma, Senior Director of Group Sustainability at Philips said: "As a purpose-driven health technology company, a healthy planet is central to our mission, and we are making good progress to decouple economic growth from our environmental impact. All our operations in the United States are already powered by wind energy, and through this unique consortium, also our operations in the Netherlands will soon be completely powered by green electricity.

All four companies are also members of the RE100, a collaborative global initiative uniting more than 100 businesses committed to 100% renewable electricity, working to massively increase demand for - and delivery of - renewable energy.

AkzoNobel Specialty Chemicals, which already sources some 45% of its energy from renewable sources, will use the green energy chiefly to produce chlorine, caustic soda and 'green' hydrogen at its site in Rotterdam, all essential raw materials in the chemical industry.

DSM uses the renewable energy as an addition to its commitment to purchase electricity from renewable sources to manufacture products in health, nutrition and materials and create solutions that nourish, protect and improve performance.

Google will supply its datacenter in the Netherlands with energy from the grid on which the wind farms are producing electricity.

When both Dutch windfarms are fully operational, 100% of Philips' activities in the Netherlands will be powered by Dutch wind energy, an important milestone in the company's ambition to become carbon neutral by 2020.

The Bouwdokken wind farm is owned and constructed by E-Connection on the Neeltje Jans artificial island, which is part of the so-called Delta Works – a series of construction projects that protect the southwest of the Netherlands from the sea. Wind Cooperation Zeeuwind is a 25% shareholder of the wind farm, which consists of 7 turbines of 4.2 megawatt each.

Feb 27, 2018: Healthcare Ready Partners with Google to Help Improve Future Disaster Response Efforts

Healthcare Ready, a nonprofit focused on improving the resiliency of healthcare systems to better meet health needs amid disaster, today announced its partnership with Google to develop a proof of concept for refining future disaster response through data analytics and collaboration. Healthcare Ready developed a case study that outlines the impact of its partnership to help improve the future of disaster relief and response.

Google's aggregated search trends, paired with Healthcare Ready's Rx Open data, an interactive map that shows the operating status of pharmacies in areas impacted by disaster, provided a better understanding of where limited healthcare access and high-density patient areas were centered in relation to open pharmacies, shelters and dialysis centers. This intersection of information helped Healthcare Ready prioritize where to direct resources and send patients.

"The goal of our partnership is to automate and refine available data that can be utilized during future disasters and to ensure we are addressing patient needs in real time," said Nicolette Louissaint, Ph.D., executive director of Healthcare Ready. "The results of our work together provide an excellent example of how leveraging health data and technology can improve public health efforts, especially in times of disaster and uncertainty. We are thrilled to continue this collaboration into the future with the goal of improving our ability to meet patient needs amid disasters."

Rx Open tracked more than 16,000 chain and community pharmacies from California to Florida and Puerto Rico during the 2017 hurricane season. The tool, which is free to use, helps direct patients and first-responders to vital medications, while providing public agencies and private sector partners insight into pharmacy status and healthcare recovery. Daily updates for more than 100 days of activation ensured that Rx Open remained a useful tool for quick decisions during the 2017 response and recovery efforts.

"During Hurricane Harvey, Google partnered with the Pharmaceutical Research and Manufacturers of America (PhRMA) and Healthcare Ready to provide real-time medical Search Trends in the Houston area," said Courtney Rose, industry director for Google Government, Advocacy, and Elections. "This allowed the Healthcare Ready team to find patterns in zip codes affected by the hurricane and deploy resources to increase access to medicine. Users turn to Google Search for information in their moments of need and we're thankful to partner with PhRMA and Healthcare Ready on the analysis of this data, and for their real-time response to the people in Houston."

By partnering with Google, Healthcare Ready strengthened its Rx Open data by overlaying a map with aggregated Google Search Trends from hurricane-impacted communities searching for healthcare and hurricane assistance. In the future, this data could pinpoint strained areas early in response and recovery efforts so that facilities can be resupplied before medication shortages and life-threatening situations arise.

Healthcare Ready works through its member organizations, including PhRMA, the Biotechnology Innovation Organization (BIO), the Healthcare Distributors Alliance (HDA), the National Association of Chain Drugs Stores (NACDS), Amgen, and the American Red Cross to protect patient access to medicines and healthcare during emergencies.

Jan 12, 2018: Google maps visionary joins Clearpath advisory board

Clearpath is proud to welcome former vice president of Google’s and Uber’s Mapping divisions, Brian McClendon, to its board of advisors. McClendon will provide insight and expertise on mapping technologies to the company's OTTO Motors industrial division and Clearpath Robotics research solutions division. He joins advisory board member and Tesla co-founder Marc Tarpenning, who currently advises on electric vehicle technologies.

"It's often overlooked, but self-driving vehicles rely upon digital mountains of very specialized mapping data in order to operate,said Matt Rendall, Chief Executive Officer at Clearpath. "Brian is a visionary in the world of mapping technology. His expertise and mentorship will help us build truly world-class mapping technology and we could not be more excited to have him join us.

McClendon has built a career as an entrepreneur and technical leader in geographic information systems (GIS). In 2004, his digital mapping startup, Keyhole, was acquired by Google and became the foundation for Google Earth. During a 10-year tenure at Google, he became the vice president of Google Maps, Earth and Street View. He joined Uber in 2015 as vice president of Mapping and most recently stepped down to return to his hometown in Kansas to become a research professor at the University of Kansas. McClendon serves on the advisory board for the University of Kansas, was inducted into the National Academy of Engineering in 2015 and has also been recognized by the United Nations as a "Champion of the Earth," its top environmental prize.

McClendon will advise the team on mapping technologies, software architecture and engineering leadership as they continue to develop strategies for accurate, scalable mapping capability of the OTTO self-driving vehicle.

"What's exciting to me about Clearpath is that they are building their mapping system and database from scratch,explains McClendon. "This presents a really exciting opportunity to innovate and guide the next generation of technology with the next generation of company.

Dec 12, 2017: DNAnexus Integrates Google Brain's DeepVariant, a New Deep Learning Technology, onto Its Cloud-Based Platform

DNAnexus, the global leader in genome informatics and data management, announced the availability of the DeepVariant bioinformatics tool on the DNAnexus Platform.

Developed by researchers at Google, DeepVariant is a deep learning technology that uses deep neural networks to call genetic variants from next-generation sequencing data. An earlier version of DeepVariant won the PrecisionFDA Truth Challenge Award for overall accuracy in calling variants in individual genomes. This process is essential to determine what makes an individual genetically unique, and is essential in helping scientists locate genes associated with disease. The release from Google marks the first time this deep learning method has been made fully available to the community.

"The tools of machine intelligence promise to increase the productivity of our life sciences discovery and development pipelines, and to improve the efficacy and efficiency of healthcare delivery," said Dr. Vikram (Vik) Bajaj, Managing Director at Foresite Capital Management and former Chief Scientific Officer at Verily Life Sciences. "DeepVariant is one of the first tools to deliver on that promise by making the critical first step to more accurately identify genetic differences among individuals. By making a reference implementation broadly accessible, I believe Google and DNAnexus will accelerate a growing body of research that requires high quality genomic information."

DeepVariant applies the Inception TensorFlow framework, which was originally developed to perform image classification. This represents the information as images like what a clinician would look at from a genome browser and then learns the signatures of variant and non-variate images. By cross-applying this technology in only a short development time, DeepVariant can outperform methods that developers have been working on for a decade. The technology was initially described in a December 2016 pre-publication paper hosted on bioRxiv (doi: 10.1101/092890).

"Deep learning-based data analysis tools have tremendous potential in driving further advances in our understanding of disease biomarkers. DNAnexus is able to host scalable architecture to support these complex technologies," said Richard Daly, CEO of DNAnexus. "We are pleased to offer DNAnexus customers integrated access to DeepVariant, a significant advance in the state-of-the-art."

DNAnexus is providing early access to DeepVariant through an initial Pilot Program. To request access to DeepVariant on DNAnexus please sign up here. For more information about DeepVariant and the DNAnexus Platform, please visit our blog.

Dec 04, 2017: DeepVariant: Highly Accurate Genomes With Deep Neural Networks

Across many scientific disciplines, but in particular in the field of genomics, major breakthroughs have often resulted from new technologies. From Sanger sequencing, which made it possible to sequence the human genome, to the microarray technologies that enabled the first large-scale genome-wide experiments, new instruments and tools have allowed us to look ever more deeply into the genome and apply the results broadly to health, agriculture and ecology.

One of the most transformative new technologies in genomics was high-throughput sequencing (HTS), which first became commercially available in the early 2000s. HTS allowed scientists and clinicians to produce sequencing data quickly, cheaply, and at scale. However, the output of HTS instruments is not the genome sequence for the individual being analyzed – for humans this is 3 billion paired bases (guanine, cytosine, adenine and thymine) organized into 23 pairs of chromosomes. Instead, these instruments generate ~1 billion short sequences, known as reads. Each read represents just 100 of the 3 billion bases, and per-base error rates range from 0.1-10%. Processing the HTS output into a single, accurate and complete genome sequence is a major outstanding challenge. The importance of this problem, for biomedical applications in particular, has motivated efforts such as the Genome in a Bottle Consortium (GIAB), which produces high confidence human reference genomes that can be used for validation and benchmarking, as well as the precisionFDA community challenges, which are designed to foster innovation that will improve the quality and accuracy of HTS-based genomic tests.

Today, we announce the open source release of DeepVariant, a deep learning technology to reconstruct the true genome sequence from HTS sequencer data with significantly greater accuracy than previous classical methods. This work is the product of more than two years of research by the Google Brain team, in collaboration with Verily Life Sciences. DeepVariant transforms the task of variant calling, as this reconstruction problem is known in genomics, into an image classification problem well-suited to Google's existing technology and expertise.

We started with GIAB reference genomes, for which there is high-quality ground truth (or the closest approximation currently possible). Using multiple replicates of these genomes, we produced tens of millions of training examples in the form of multi-channel tensors encoding the HTS instrument data, and then trained a TensorFlow-based image classification model to identify the true genome sequence from the experimental data produced by the instruments. Although the resulting deep learning model, DeepVariant, had no specialized knowledge about genomics or HTS, within a year it had won the the highest SNP accuracy award at the precisionFDA Truth Challenge, outperforming state-of-the-art methods. Since then, we've further reduced the error rate by more than 50%.

DeepVariant is being released as open source software to encourage collaboration and to accelerate the use of this technology to solve real world problems. To further this goal, we partnered with Google Cloud Platform (GCP) to deploy DeepVariant workflows on GCP, available today, in configurations optimized for low-cost and fast turnarounds using scalable GCP technologies like the Pipelines API. This paired set of releases provides a smooth ramp for users to explore and evaluate the capabilities of DeepVariant in their current compute environment while providing a scalable, cloud-based solution to satisfy the needs of even the largest genomics datasets.

DeepVariant is the first of what we hope will be many contributions that leverage Google's computing infrastructure and ML expertise to both better understand the genome and to provide deep learning-based genomics tools to the community. This is all part of a broader goal to apply Google technologies to healthcare and other scientific applications, and to make the results of these efforts broadly accessible.

Nov 30, 2017: EDF Renewable Energy Signs Agreement with Google to Supply 200 Megawatts of Wind Energy

EDF Renewable Energy has signed an agreement to supply Google, a subsidiary company of Alphabet with 200 megawatts (MW) of wind energy generated from the new Glaciers Edge Wind Project in Iowa.

Glaciers Edge Wind Project, located in Cherokee County in the northwest portion of the state, is expected to create more than 150 jobs during the construction phase along with millions of dollars injected into the local economy. Once the wind farm comes online, anticipated in December 2019, the additional capacity will help Google reach its goal of purchasing enough renewable energy to match its energy consumption for global operations.

Dai Owen, Director, Power Marketing for EDF RE commented, "The strong U.S. wind market relies in part on America's corporate sector and companies like Google, who through the purchase of wind energy demonstrate leadership in the drive for a low-carbon economy. Their commitment allows Glaciers Edge to proceed, providing an economic boost to the Iowa economy, through new construction and operations jobs, expanded tax base, and recurring, long-term income for participating landowners.

"Renewables from projects like Glaciers Edge bring value to our business as we scale and accelerate investment in the communities where we operate,said Gary Demasi, Google's director of global infrastructure. "With solar and wind declining dramatically in cost and propelling significant employment growth, the transition to clean energy is driving unprecedented economic opportunity and doing so faster than we ever anticipated.

EDF RE and Google forged a relationship in December 2012, when Google made an approximate $200 million equity investment in EDF RE's Spinning Spur Wind Project, located in Oldham County, Texas. The business partnership progressed in 2016 with the power purchase agreement for the Great Western Wind Project in Oklahoma which supplies Google with 225 MW of clean electricity.

EDF RE is a leading developer among corporate buyers of renewables which demonstrates the trust that environmentally-conscious companies place in EDF RE to deliver value. The Company's growing North America portfolio of corporate purchasers includes Google, Microsoft, Salesforce, Procter & Gamble, Kimberly-Clark, Walmart and Yahoo.

Glaciers Edge will bring the EDF RE's portfolio of wind project development in Iowa to 1.1 GW.

Nov 30, 2017: Avangrid inks PPAs with Google for South Dakota wind farms

Avangrid Renewables has signed its first major wind contracts with Google for 196MW of new South Dakota wind power.
The power purchase agreements will cover the full output of Avangrid Renewables' Coyote Ridge and Tatanka Ridge Wind Farms in Brookings and Deuel counties, each 98 MW, just northeast of Brookings, east of I-29. The two wind farms would produce enough energy each year to power the equivalent of more than 50,000 average households with clean, homegrown energy. Once the wind farms come online, the additional capacity will help Google reach its goal of purchasing enough renewable energy to match its energy consumption for global operations.

"Renewables from projects like Coyote Ridge and Tatanka Ridge bring value to our business as we scale and accelerate investment in the communities where we operate,said Gary Demasi, Google's director of global infrastructure. "With solar and wind declining dramatically in cost and propelling significant employment growth, the transition to clean energy is driving unprecedented economic opportunity and doing so faster than we ever anticipated.

Avangrid Renewables anticipates that the two wind farms would contribute more than $40 million over their lifetimes in combined land lease and tax payments.

"Working with partners like Google who have made a commitment to 100% renewable energy for their global operations is exciting and inspiring,said Avangrid Renewables President and CEO Laura Beane. "This partnership creates a positive impact in these local communities, delivering jobs, new investment and economic development for rural America while advancing our country's energy independence.

In addition to these new projects, Avangrid Renewables already owns and operates the 210 MW Buffalo Ridge II project in Brookings and Deuel counties, the 50.4 MW Buffalo Ridge I project southeast of the proposed Coyote Ridge project, and 50 MW from the 150 MW MinnDakota Wind Farm in Brookings County. Upon commercial operation for Coyote Ridge and Tatanka Ridge, the company will own and operate more than 500 MW of wind power in South Dakota. Avangrid Renewables is finalizing its development work at the Coyote Ridge and Tatanka Ridge projects and expects to be in full construction by 2019.

Nov 30, 2017: Grand River Dam Authority to supply even more renewable energy to Google with new Oklahoma wind farm

The Grand River Dam Authority (GRDA) announced that it has signed a contract with Google for 140 megawatts (MW) of The Red Dirt Wind Farm.
The Red Dirt Wind Farm is a 300-megawatt facility located in Oklahoma's Kingfisher and Logan counties. Constructed by the project owner and eventual operator, Enel Green Power North America, Inc., the wind farm will be operational by the end of 2017 and will bring GRDA's total wind generation capacity (combined across several wind farms in Oklahoma) to approximately 385 MW.

"This is another important milestone in GRDA's continued pursuit of more renewable energy in our generation portfolio,said GRDA Chief Executive Officer Dan Sullivan. "The commitment that our partner Google has made to utilizing renewables has always been an important factor in that pursuit.

Once the wind farm comes online, by the end of 2017 the additional capacity will help Google reach its goal of purchasing enough renewable energy to match its energy consumption for global operations.

"Renewables from projects like Red Dirt bring value to our business as we scale and accelerate investment in the communities where we operate,said Gary Demasi, Google's director of global infrastructure. "With solar and wind declining dramatically in cost and propelling significant employment growth, the transition to clean energy is driving unprecedented economic opportunity and doing so faster than we ever anticipated.

In addition to its power purchase agreement with Red Dirt, GRDA also has a power purchase agreement with the Canadian Hills Wind Farm, near El Reno, Oklahoma. GRDA has been supplying Google's electricity needs in MAIP since the data center began operations in 2011.

Nov 30, 2017: Iberdrola signs a long-term renewable energy sales agreement with Google

Iberdrola, through its subsidiary Avangrid Renewables, has signed its first two large contracts for the supply of renewable energy with the American multinational Google.
Under the terms of the agreement signed between the two companies, Iberdrola will supply Google with a total of 196 megawatts (MW) of renewable energy from the Coyote Ridge and Tatanka Ridge wind farms. Each of them will have 98 MW of installed capacity.

These two new facilities, which will be located in the counties of Brookings and Deuel in the state of South Dakota, will produce renewable energy equivalent to the average annual consumption of more than 50,000 North American households.

Through this agreement, Google will move towards meeting its ambitious energy consumption targets through renewable sources in all of its global operations.

"Renewables from projects like Coyote Ridge and Tatanka Ridge bring value to our business as we scale and invest in the communities where we operate,said Gary Demasi, Google's director of global infrastructure.

Contracts such as the one signed with Google are denominated in the United States as Power Purchase Agreements (PPAs) and guarantee the profitability of the energy facilities in this country in the long term.

Iberdrola has already signed PPAs in most of its US renewable facilities, which have provided great stability to its investments in this strategic market for the company, being one of the main pillars of its commitment to the country.

GlobalData

Nov 23, 2017: Nautilus Medical collaborates with Google Cloud for secure radiology storage and image exchange

Nautilus Medical in collaboration with Google Cloud Technology Partner program is releasing a more robust image exchange and DICOM and patient information storage and distribution system.
The release will be available at the 2017 RSNA Show at Chicago's McCormick Place November 26th-30th.

As one of the largest exchange providers, Nautilus Medical is utilizing the broad technology within Google services to provide a comprehensive image management platform that is used by hundreds of imaging sites today.

"Our focus is to bring best in breed services, speed and security to the healthcare market in a platform that anyone can use without the typical high expense and lack of features," says Nautilus CEO Timothy Kelley. He continued, "Our customers don't have concerns over security, large upfront costs and lengthy commitments."

Nautilus' easy to use medical information exchange solutions utilize hardware signatures, key strokes, and mouse movements to create unique private keys that ensures foolproof data security.

The company's million-dollar insurance policy for breach protection is testimony to their security capability. An extensive number of features are included that quickly improve workflow and the ability of caregivers to assemble and distribute patient images and data easily.

With built-in routing, editing, and anonymization features, Nautilus improves communication between caregivers and patients. Utilizing their 'print to DICOM' feature, users can print documents, reports, or images of various types as a DICOM file into a patient folder to ensure a complete view of the patient.

The relationship between Nautilus and Google will deliver more capabilities to more sites including underserved professionals in offices that could use this powerful platform, but do not have a budget for more expensive offerings.

Nautilus' pay-per-use model is very attractive to facilities and individuals looking to reduce cost while not sacrificing quality.

For more information about the new collaboration, come visit us at Google Cloud booth 8161 at the Radiological Society of North America (RSNA) annual meeting in Chicago from November 26 to December 1.

Healthcare Tech Outlook recently named Nautilus Medical "Top 10 Medical Imaging Solution Providers - 2017" since Nautilus will have a vital impact on medical imaging for saving cost, speed to care, security and ease of use. Nautilus software is used by more than 700 sites with thousands of users including 33 of the top 50 medical centers in the US.

Nov 08, 2017: Zebra Medical Vision to Collaborate with Google Cloud to Bring a Transparent All-in-One Model to Healthcare

Zebra Medical Vision, a leading deep learning imaging analytics company, is announcing that all its current and future radiology algorithms will be enabled on the Google Cloud as part of its new AI1 offering to global health providers.
A pioneer in the field of machine and deep learning for medical imaging, Zebra-Med is driving transparency in its business model to encourage faster global adoption of advanced tools that can improve health. With over 450 new petabytes per year in imaging data, based on IDC's health insights 2017, the amount of imaging storage is expected to double in the next 5 years and substantially challenge health providers to keep track of scaling their storage and IT infrastructure , hence the cloud opportunity.

Over the last two decades, the demand for imaging services has been increasing, outpacing the supply of qualified physicians, stretching providers and radiologists to constantly produce more output, without compromising patient care. By adopting new technology, health providers can significantly enhance the capabilities of radiologists and enable better population health management. Automated Imaging Analytics tools such as Zebra-med's Deep Learning Engine will provide the needed clinical and computational horsepower to allow radiologists to make the next leap in patient care.

Using millions of longitudinal high quality imaging scans, Zebra-Med has been developing a deep learning engine that can automatically detect various medical findings in imaging scans. Current capabilities include automatic detection of liver, lung, cardiovascular, and bone disease all while new capabilities are constantly being released – covering breast cancer, lung cancer, brain trauma, hypertension, and other clinical areas. Zebra-Med's findings are integrated into the PACS system running on Google Cloud Platform, allowing radiologists to include them in their reading and reporting workflow. This automated assistance contributes to more comprehensive, quantitative, and consistent reporting, improving the output of radiologists and contributing to overall improved patient care. The company's Analytics Engine is deployed in more than 50 hospitals globally, and has analyzed more than 1M patient scans to date.

"With the AI1 all-in-one offering, enabled on Google Cloud, we can offer health providers ongoing population-health and clinical insights to improve patients' lives and reduce healthcare costs,says Elad Benjamin, Co-founder and CEO of Zebra Medical Vision. "We are making a commitment to provide our current tools, and all future ones, for a flat $1 USD per scan. By doing so we believe that a true difference can be made in the provision of radiology services worldwide.

Oct 23, 2017: EPA Honors 2017 Green Power Leaders

The U.S. Environmental Protection Agency (EPA) announces its 17th annual Green Power Leadership Awards, recognizing 19 Green Power Partners across the country – including Amphitheater Public Schools (Tuscon, AZ), Apple, Bainbridge Island (Washington), Capital One, the City of Houston (Texas), Google, Intel, L'Oreal, Microsoft, Lockheed Martin, and University of Missouri – for achievements in advancing the nation's voluntary green power market.
The award winners are being recognized for their efforts in expanding the domestic voluntary green power market. From using enough green power to meet 100 percent of electricity needs to signing long-term contracts to enable new green power projects, these organizations are demonstrating leadership by furthering the case for accessible, affordable green power use.

The winners for each of four award categories are:

Green Power Partner of the Year

-City of Houston, Texas purchased wind renewable energy certificates equal to 80 percent of the city's annual power use in 2016, and also entered into a power purchase agreement (PPA) that will supply the city with the output from 50 megawatts (MW) of solar power generated at a facility in Alpine, Texas, with anticipated savings to consumers of more than $1.9 million per year over the 20-year term.

-L'Oréal USA's manufacturing operation has since 2016 increased its use of green power from 33 percent up to 100 percent, and installed on-site solar panel arrays at its factories in Florence, Kentucky and North Little Rock, Arkansas, bring L'Oréal's total number of solar energy installations to 16 across the United States.

Green Power Community of the Year

-Bainbridge Island, Washington holds one of the highest community participation rates in the Puget Sound Energy's green power program, and all city facilities use 100 percent green power.

Direct Project Engagement

- Amphitheater Public Schools entered into a 25-year power purchase agreement for installed solar across 24 school sites and support facilities in 2016, supplying more than 65 percent of the school district's electricity demand.

-Apple Inc. generates more than 228 million kWh at its facilities and has built or contracted for 580 megawatts (MW) of solar PV and 200 MW of wind power to support its data centers and corporate offices in California, Oregon, Nevada, Arizona and North Carolina.

- Intel Corporation uses more than 3.8 billion KWh or green power annually in the U.S., through on-site projects, utility programs, and renewable energy certificates, and in 2016 added a 6.5 megawatt (MW) solar carport at its Folsom campus to its green portfolio.

-Iron Mountain Information Management, LLC's green power use accounts for 40 percent of its power requirements and is encouraging the development of new green power generation in the Mid-Atlantic region.

- Lockheed Martin Corporation procured green power for 20 percent of its total U.S. operations' electricity needs, and has 11 operational on-site green power installations.

-Stanford University's cutting-edge energy supply facility has district-level heat-recover and 72 megawatts of solar capacity, meeting more than 50 percent of the university's electricity needs.

- University of Missouri currently combines on-site generation and an innovative wind power purchase agreement (PPA) to purchase more than 90 million kilowatt-hours of green power, representing 36 percent of the university's campus electricity.

- Victor Valley Wastewater Reclamation Authority produced nearly 7.5 million kilowatt hours on-site, representing 74 percent of its own electricity, through an innovative Biogas-to-Energy Program.

Excellence in Green Power Use

- Capital One achieved its corporate energy goals three years early, including powering the company 100 percent with green power.

-Clif Bar & Company has sourced 100 percent green power for all its owned and operated facilities since 2003, and has developed innovative programs to support green power for its supply chain and employees.

- Equinix, Inc. was the first interconnection and data center to announce a goal of using 100 percent green power across its global footprint and has signed financial power purchase agreements for wind power that will, as of 2016, cover 80 percent of its U.S. load.

- Google Inc. procures more than 1.7 billion kilowatt-hours of green power for its operation, and is on track to achieve its commitment to power all of its operations with green power in 2017.

-Microsoft Corporation procured more than 3.3 billion kilowatt hours of green power last year for its domestic operations to expand its ongoing investment in building a cleaner, more responsible cloud.

- TOTO USA / Morrow, Georgia Facility uses green power for 100 percent of its facility electricity use, and was the first large-volume participant in Georgia Power's Simple Solar Program to meet 100 percent of its use through the purchase of RECs from certified solar power.

-University of California has made numerous large-scale investments in green power, including long-term power purchase agreements for 80 megawatts of with solar energy projects in California's Central Valley that began to come online in 2016 and represent the largest solar purchase ever made by a university in the United States.

-University of Tennessee, Knoxville became the largest college or university green power user in the partnership as of 2016, purchasing more than 250 million kilowatt hours of green power annually.

The U.S. Environmental Protection Agency (EPA) established the Green Power Partnership (GPP) in 2001 to protect human health and the environment by increasing organizations' voluntary green power use to advance the American market for green power and development of those resources. The program provides a framework that includes credible usage benchmarks, market information, technical assistance, and public recognition to companies and other organizations that use green power.

Oct 12, 2017: Puppet adds new products, partnerships and executives as company ushers in new era of automation

Puppet, the standard for automating the delivery and operation of the software that powers everything around us, announced new products, partnerships and executives as the company expands its global footprint and product portfolio.
"At Puppet, we strive to help our customers be successful on their automation journey, every single day," said Sanjay Mirchandani, CEO, Puppet. "I'm proud of the investments that we've made to deliver on Puppet's vision of making our customers more powerful through software. Today's announcements put Puppet in an even better position to help solve our customers' needs -- of today and tomorrow -- as they evolve their automation and DevOps practices."

In today's world where every company needs to behave like a software company, more than 75 of the Fortune 100 rely on Puppet to ship software faster. Puppet is helping its customers drive automation and deliver an unprecedented level of innovation for solving IT's toughest challenges. To help customers transform pockets of automation to automation that's pervasive throughout the software delivery lifecycle, Puppet is making new investments in product, strategic alliances, its leadership team and global expansion.

New products and offerings

As part of the company's strategic plans to make the shortest path to better software a reality for enterprises, Puppet also today announced a number of new products and updates to existing offerings. Recently, Puppet acquired Distelli, an innovative continuous delivery platform for developers and enterprises to expand automation across the entire software delivery lifecycle. Today, Puppet is introducing Distelli's products into Puppet's automaton portfolio:

Puppet Pipelines for Applications provides continuous integration and continuous delivery (CI/CD) capabilities for traditionally packaged applications.Puppet Pipelines for Containers, a platform for continuously delivering container-based applications across multiple Kubernetes clusters running on any cloud, or on-premises.Puppet Container Registry, an open source container registry that provides an easy way for software teams to host Docker images within their infrastructure and get a unified view of all their images stored in local and remote repositories.Puppet Discovery

In addition, Puppet today introduced Puppet Discovery, a new product that enables frictionless discovery of on-premises, cloud and container infrastructure, provides deep insights about that infrastructure, and helps customers bring it all under control. Download the technical preview here: https://puppet.com/products/puppet-discovery

Puppet Tasks

Released today, Puppet Tasks is a family of offerings which encompasses a new open source, agentless product as well as a set of capabilities in Puppet Enterprise that make it easy for organizations to get started with automation and expand its use across their infrastructure and applications.

Available today is Puppet Bolt, a simple, agentless open source task runner that enables users to execute ad hoc tasks such as troubleshooting systems, executing sequenced actions, or stopping and restarting services across remote machines via a command line interface (CLI) over SSH (Linux) or WinRM (Windows). Bolt can run scripts written in any framework and execute them on any supported platform.Available today in Puppet Enterprise 2017.3 is the Task Management capability. Task Management adds scale to execute tasks across hundreds of thousands of nodes, governance to enable control and auditability, and flexibility to run tasks from a web UI and filter and target infrastructure.Puppet Tasks are now supported and available in several modules on the Puppet Forge.

Puppet Enterprise 2017.3

In addition to the new Task Management capability, Puppet Enterprise 2017.3 also includes major enhancements:

Package Inspector: Makes it even easier to browse and search for packages discovered on nodes connected to Puppet Enterprise. Now you can quickly determine whether a package is already managed by Puppet Enterprise, and if so, identify its location and remediate any known vulnerabilities with Task Management.Puppet 5 Platform: The components of the core Puppet platform -- Puppet Agent, Puppet Server and PuppetDB -- have now moved to a more coordinated release model, with compatibility guarantees and consistent versioning among them. This enables customers to download, implement and upgrade the Puppet platform more easily without requiring additional testing and troubleshooting.Configuration Data: This new capability, Configuration Data, improves code reusability and makes it easier to configure nodes using either the node classifier or Hiera from the user interface.Japanese language support: Japanese language support has been enhanced to include additional translations of Task Management, module READMEs for Apache, Azure, and PostgreSQL, error and informational messages displayed when using the MySQL module, the text-based installer used to install Puppet Enterprise, the Learning VM, and the Code Manager user guide.New partnerships and strategic alliances

New offerings with Splunk, Google Cloud and Arm, plus new Technology Alliance Partners, make it easier for joint customers to spread automation across their organizations.

New alliance with Google Cloud: Puppet recently announced a new collaboration that enables Puppet customers to quickly adopt Google Cloud Platform (GCP) services, including its advanced machine learning and data analytics capabilities, while reducing IT costs and gaining the agility and flexibility of the cloud. Customers are now able to leverage a set of Google-developed modules that automate the provisioning, configuration, and ongoing management of GCP services to help Puppet customers quickly and effectively take advantage of GCP, including: Google Cloud Spanner, Google Cloud Pub/Sub and Google Stackdriver. Puppet Tasks are now included in several Google Cloud modules, including Google Compute Engine, Google Container Engine, Google Cloud Storage, and Google Cloud SQL.New Splunk Partnership: IT teams need a foundation for continuous analysis and automation across their entire organization. Splunk and Puppet have partnered to offer complementary solutions that address the need for real-time analysis and automation to help organizations transform their business and achieve success. This collaboration has resulted in a new integration new app and new technical add-on, available as the Splunk ITSI Module for Puppet Enterprise and the Splunk App and Add-On for Puppet Enterprise. The new Splunk IT Service Intelligence (ITSI) integration gives Splunk users the ability to take immediate action with the power of Puppet as the underlying action engine to remediate any vulnerability concerns without leaving Splunk, leading to the elimination of manual steps and faster delivery.New partners for DevOps: Puppet has added eleven important partners as part of its Technology Alliance Partner Program (TAPP): Barracuda, CloudPassage, Conjur/CyberArk, Cumulus Networks, Electric Cloud, F5, Intelliment Security, Onyx Point, Splunk, Praecipio Consulting, and Sensu.Collaboration with Arm: Arm®technology is at the heart of a computing and connectivity revolution that is transforming the way people live and businesses operate. Arm technology is enabling intelligence in over 100 billion devices today and securely powering products from the sensor to the smartphone to the supercomputer. In collaboration with Arm, later this year Puppet will release and support a new agent to manage infrastructure built on the 64-bit Arm architecture.Cloud and Container Updates

Puppet continues to invest in the cloud and container ecosystem with new offerings that enable customers to migrate to the cloud and adopt containers.

• New Blueshift modules: Puppet remains committed to helping enterprises adopt next generation technologies.

-- Kubernetes module: Installs and configures Kubernetes in a secure and highly reliable way.

-- Helm module: Installs, configures and manages the Helm package manager, and enables users to manage applications running on Kubernetes.

-- Docker module: The new Docker module includes major enhancements, including support for Puppet Code Manager, Docker Swarm mode and Docker Secrets.

-- Kream tool: A new open source tool that enables users to install and manage Kubernetes and Helm, and build a local development cluster.

• Updates to Puppet Azure module: The Puppet Azure module has been updated to include enhanced Disk storage and networking support and support for Azure tags.

New additions to Puppet's leadership team

Puppet is experiencing unprecedented growth in 2017 as adoption of Puppet Enterprise expands globally. Today, the company announced two executive appointments to strengthen its product and business development leadership. Samm DiStasio has been appointed vice president of business development and Matt Waxman has been named vice president of product management.

Giving back at PuppetConf 2017

Giving back is part of the fabric of Puppet's annual event which features programs that are connected to the company's vision to make people more powerful through software. At PuppetConf 2017, Puppet is giving back through a partnership with iDTech, a leading computer technology educator. Together Puppet and iDTech will donate nearly 40 scholarships globally to kids who otherwise can't afford to attend iDTech's coding camps.

Jul 07, 2017: Google to purchase power from Eneco's solar plant in Netherlands

Search engine giant, Google has entered into a power purchase agreement with Eneco to buy electricity generated from Sunport Delfzijl, the largest solar energy park in the Netherlands, for a period of ten years.

The agreement with Eneco is Google's fourth investment in sustainable energy in the Netherlands and the second agreement between Eneco and Google. The electricity generated by the solar park will help offset the energy consumption of Google's data centre located twenty kilometres further up in the Eemshaven.

Sunport: 30 hectares of solar panels

The solar park in Delfzijl contains around 123,000 solar panels on a terrain of 30 hectares (which equals about 65 soccer fields) and is expected to deliver approximately 27 Gigawatt Hours of green electricity. The data centre and the solar park are both located on the terrain of Groningen Seaports in the Delfzijl port area. Sunport Delfzijl is operational since the beginning of 2017. Sunport was developed and built by the German energy company Wirsol.

'Google is forward-thinking to use locally generated solar and wind energy to power its data centre, Bram Poeth, director of Eneco Commercial Clients, comments enthusiastically. "Google leads the way in providing a good example for the commercial sector, where we see a strong growth of the demand for sustainable energy. We are proud that we are able to contribute to making this possible. It is completely in line with our aim to connect our customers directly to local sustainable sources.'

A second sustainable energy agreement with Google

Marc Oman, EU Energy Lead at Google: 'We are proud that our data centre in the Eemshaven has been powered by renewable energy since day one thanks to our agreements with Dutch suppliers. After the agreement with Eneco for the delivery of wind energy from WindPark Delfzijl and the agreements with the wind parks Krammer and Bouwdokken, we are pleased that we can now also make use of solar energy. Worldwide, we have already contracted the delivery of 2.7 GW of green electricity, which makes Google the world's largest corporate purchaser of renewable energy. Contracts like this give companies like Eneco the economic certainty to invest in new renewable energy capacity.'

Section 5 – Appendix

The data and analysis within this report is driven by GlobalData.

GlobalData gives you key information to drive sales, investment and deal making activity in your business.

Our coverage includes 200,000 + reports on 185,000+ companies (including 150,000+ private) across 200+ countries and 29 industries. The key industries include Alternative Energy, Oil & Gas, Clean Technology, Technology and Telecommunication, Pharmaceutical and Healthcare, Power, Financial Services, Chemical and Metal & Mining.

Methodology

GlobalData company reports are based on a core set of research techniques which ensure the best possible level of quality and accuracy of data. The key sources used include:

- Company Websites
- Company Annual Reports
- SEC Filings
- Press Releases
- Proprietary Databases

Notes

- Financial information of the company is taken from the most recently published annual reports or SEC filings
- The financial and operational data reported for the company is as per the industry defined standards
- Revenue converted to USD at average annual conversion rate as of fiscal year end

About GlobalData

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June 19, 2018 | 20:13 ET | 20:13 ET~

Alphabet

BMO Capital Markets

GOOGL-NSDQ	Rating	Price: Jun-19	Target	Total Rtn
	Market Perform	$1,178.69	$1,100.00	-7%

Media & Internet

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Legal Entity: BMO Capital Markets Corp.

Breaking Out YouTube in Our Model

Bottom Line: In this 34-page deep dive, we provide detailed user, revenue, and gross profit estimates for YouTube and discuss its impact on consolidated company financials. We estimate YouTube generated ~$12.4B in advertising revenue in 2017 and see this growing to ~$24.7B by 2020. We believe non-advertising revenue (such as YouTube Premium/YouTube TV fees) totaled ~$700mm in FY17 and see this growing to ~$3.0B by FY20E. Despite higher revenue estimates, content acquisition costs/affiliate fees blunt the profit impact and we maintain our Market Perform rating.

Key Points

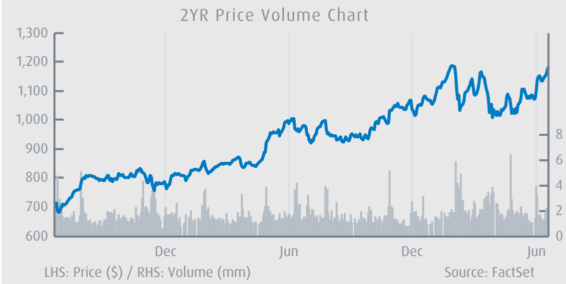
Key Usage Metrics. We estimate YouTube has ~2.2B monthly active users (MAUs) and that ~44% of MAUs, or ~1.0B, visit the site daily and are thus daily active users (DAUs). Our 2.2B estimate includes ~1.8B logged-in MAUs and ~400mm non logged-in MAUs. We estimate ~470B hours of videos were watched across YouTube in 2017 and see this breaking the 1.0T mark in 2020E driven by a growing user base and increased usage/viewership by existing users. We believe the average MAU watched ~42 minutes of YouTube videos/day in 2017 and see this breaking the 60-minute mark in 2019E.

Revenue Sharing. We believe the majority of revenue generated on YouTube is subject to revenue sharing arrangements with content creators/owners; we believe revenue share splits can vary, but the content creator/owner generally keeps 55% of net advertising revenue generated on/around their videos, while YouTube keeps the remaining 45%. GOOGL records all fees generated by YouTube as revenue, and recognizes the revenue-share payments (or affiliate fees in the case of YouTube TV) as content acquisition costs in other cost of revenue. We estimate content acquisition costs associated with YouTube were ~$6.8B in 2017 and see this growing to ~$15.3B by 2020E.

Impact on Consolidated Income Statement. We believe YouTube's growth and expansion into new revenue streams should support both Google properties revenue growth (for its advertising revenue) and Google Other revenue growth (for its subscription revenue). We also expect YouTube to pressure total company margins due primarily to revenue share agreements with content creators/owners.

Valuation. As a result of our detailed work, we are raising total company revenue estimates, primarily for growth of YouTube subscription fees, but due to offsetting content acquisition costs/affiliate fees, our adj. EBITDA/EPS estimates are slightly lower. Our target remains $1,100, implying 10.9x 2019E EV/adj. EBITDA and 23.5x GAAP P/E.

Key Changes			
Estimates	Q2/18E	2018E	2019E
EPS	$9.80	$45.36	$46.83
Previous	*$10.08*	*$46.04*	*$48.47*
EBITDA	$12,353	$50,709	$58,668
Previous	*$12,553*	*$51,225*	*$59,813*
Revenue	$32,285	$136,818	$162,665
Previous	*$32,231*	*$136,653*	*$161,750*



Company Data			in $
Dividend	$0.00	Shares O/S (mm)	694.5
Yield	0.0%	Market Cap (mm)	$818,657
AD Vol. (mm)	2.36	Net Debt (mm)	$(67,846)

BMO Estimates				in $
(FY-Dec.)	2017A	2018E	2019E	2020E
EPS	$18.00	$45.36↓	$46.83↓	$52.84↓
EBITDA	$43,476	$50,709↓	$58,668↓	$66,803↓
Revenue	$110,855	$136,818↑	$162,665↑	$189,904↑
CFPS	$39.73	$34.88↓	$44.99↓	$50.29↓
EV	$687,578	$687,578↑	$687,578↑	$687,578↑

Consensus Estimates				
	2017A	2018E	2019E	2020E
EPS		$43.95	$47.46	$55.48

Valuation				
	2017A	2018E	2019E	2020E
EV/EBITDA	15.8x	13.6x	11.7x	10.3x
P/E	NM	26.0x	25.2x	22.3x
P/CFPS	29.7x	33.8x	26.2x	23.4x

QTR. EPS	Q1	Q2	Q3	Q4
2017A	$7.73	$5.01	$9.57	$(4.35)
2018E	$13.33a	$9.80	$10.76	$11.47
2019E	$10.53	$11.15	$12.17	$12.98

Our Thesis

We believe Google can continue to grow revenue at 15-20% over the mid-term but believe the Street is underestimating potential margin degradation from the roll-out of lower margin products. Additionally, we believe the rise of Amazon's advertising business presents a longer-term headwind for the company.

Please refer to pages 35 to 37 for Important Disclosures, including Analyst's Certification.

Alphabet - Block Summary Model

Income Statement	2017A	2018E	2019E	2020E
Revenue	$110,855	$136,818	$162,665	$189,904
Operating Income	26,146	32,921	37,780	42,643
% operating income margin	23.6%	24.1%	23.2%	22.5%
Pre-Tax Income	27,193	37,675	39,854	45,219
Income Tax	(14,531)	(5,619)	(6,576)	(7,461)
Net Income	12,662	32,056	33,278	37,758
Shares outstanding	704	707	711	715
EPS	$18.00	$45.36	$46.83	$52.84
% growth	*-35.4%*	*152.1%*	*3.2%*	*12.8%*
Adj. EBITDA	$43,476	$50,709	$58,668	$66,803
% growth	*18.9%*	*16.6%*	*15.7%*	*13.9%*
Cash Flow Statement	**2017A**	**2018E**	**2019E**	**2020E**
Cash Flow From Operations	37,091	49,433	57,775	64,554
Cash Flow From Investments	(31,401)	(22,768)	(23,112)	(26,952)
Debt	(86)	1,313	0	0
Common stock dividends	0	0	0	0
Common equity/share buybacks	(8,212)	(9,331)	(8,000)	(8,000)
Cash Provided From Financing	(8,298)	(8,018)	(8,000)	(8,000)
Currency effect	405	165	0	0
Ending Cash Balance	10,715	29,527	56,190	85,792
Balance Sheet	**2017A**	**2018E**	**2019E**	**2020E**
Total Current Assets	124,308	145,268	175,739	209,948
Total Assets	197,295	236,646	279,874	328,858
Total Current Liabilities	24,183	29,783	33,998	39,011
Total Liabilities	44,793	52,592	60,120	67,478
Total Liabilities and Share Equity	197,295	236,646	279,874	328,858
Segment Details	**2017A**	**2018E**	**2019E**	**2020E**
Google Websites Revenue	77,788	96,581	114,835	133,452
Google Network Websites Revenue	17,587	19,580	21,171	22,653
Other Revenue	15,003	20,091	25,979	32,984
Total Google Segment Revenue	110,378	136,252	161,985	189,089
% Paid Click YoY Growth	53.7%	52.1%	40.9%	32.8%
% Cost Per Click YoY Growth	-21.3%	-16.8%	-13.8%	-12.3%
Other Bets Revenue	477	566	679	815
Google Adj. EBITDA	46,063	53,528	61,000	69,223
Other Bets Adj. EBITDA	(2,064)	(1,590)	(1,627)	(1,630)

Source: BMO Capital Markets, Company Reports

New Scenarios

Valuation

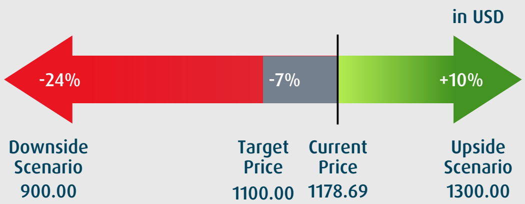
Our $1,100 target price is based on triangulating our DCF, P/E, and EV/EBITDA multiples analysis—and implies 10.9x 2019E EV/adj. EBITDA and 23.5x GAAP P/E.

Upside Scenario $1,300.00

Our upside scenario would see 2019E adj. EBITDA of $62B and a 12.6x multiple. Outperformance could be driven by 1) a stronger-than-expected advertising market and digital advertising growth; and 2) greater-than-expected growth from non-advertising businesses such as Cloud and hardware.

Downside Scenario $900.00

Our downside scenario would see 2019E adj. EBITDA of $55B and an 9.2x multiple. Underperformance could be driven by 1) slower-than-expected advertising revenue growth due to the emergence of Amazon's advertising business, 2) greater-than-expected mobile TAC, and; 3) increasing costs at Other Bets.



Key Catalysts

1) Material new revenue streams like Waymo commercialization or Maps monetization; 2) Growth of Google Preferred and the rollout of YouTube TV, which should position Google to take share of TV ad spending; and 3) Strong growth of Google Cloud, driven by the secular shift to the cloud, which could drive multiple expansion.

Company Description

Alphabet is a leading internet advertising and computing company. The company reports in two segments: 1) Google, which includes the Website, Network, and Other (including Cloud/Nest) sub-segments; and 2) Other Bets, which includes Access, Verily, and other early stage ventures. Google is headquartered in Mountain View, California.

GOOGL-NSDQ Research

Glossary

Company Models

Table of Contents

Introduction, Estimate Changes, and Valuation 4
Key Usage Metrics 6
YouTube's Impact on Consolidated Company Financials 9
YouTube Partner Program and Revenue Sharing 11
Using YouTube Content Acquisition Costs to "Sanity Check" Our Numbers 13
Detailed YouTube Revenue Breakdown 14
Advertising 15
Subscription 22
Other 31
Company Models 33

Introduction, Estimate Changes, and Valuation

YouTube's mission is "to give everyone a voice and show them the world" and it sets out to fulfil this mission by enabling users to find, upload, view, and share video content across the globe. YouTube has localized sites/apps in ~90 countries, including the United States, the U.K., Germany, Spain, France, Canada, Japan, and India, among others. It also has users in countries where it does not have a localized site; a notable exception to this is China, which has blocked access to YouTube since 2009 (but where illegal VPN activity likely still drives some traffic). YouTube offers a diverse set of video content, including from individual creators (both professional and non-professional), music companies, media/entertainment companies, and sports leagues, among others. These videos generally range from as little as a few seconds to as much as much as 12 hours, though there are exceptions to this rule.

We believe investors need to focus less on revenue ex-TAC and more on gross profit. This is largely due to the fact that revenue share/other content costs associated with YouTube show up in other cost of revenue and not in traffic acquisition costs (TAC). As YouTube continues to grow and rolls out new products (such as YouTube TV), we believe other cost of revenue will increase as a percentage of total company revenue (the rollout of the company's hardware business and growing data center/other operations costs will also contribute to this). In YouTube TV's case, we believe it is a negative gross margin product after accounting for affiliate fees (but before including advertising), so its adoption and growth will put pressure on total company gross margins.

We are raising our Google Other revenue estimates to better account for the rollout of YouTube TV, the expansion of YouTube Premium (formerly known as YouTube Red), and the rollout of YouTube Music Premium. Despite our higher revenue estimates, we are slightly lowering our adjusted EBITDA estimates due to associated content acquisition costs/affiliate fees and to better reflect investments in research/product development and sales and marketing expenses.

We expect total company GAAP gross margins to decline from 58.9% in 2017 to 56.0% in 2018E, 54.4% in 2019E, and 53.2% in 2020E. Despite gross margin deterioration, we expect GAAP gross profit dollars to increase from ~$65.3B in 2017 to $76.7B in 2018E, $88.5B in 2019E, and ~101.1B in 2020E. This is consistent with management's longer-term focus on growing *profit dollars* as opposed to maintaining or expanding margins.

We expect total company adjusted EBITDA margins to decline from 39.2% in 2017 to 37.1% in 2018E, 36.1% in 2019E, and 35.2% in 2020E. Despite adjusted EBITDA margin deterioration, we expect adjusted EBITDA dollars to increase from ~$43.5B in 2017 to ~$50.7B in 2018E, ~$58.7B in 2019E, and ~$66.8B in 2020E.

We believe out-year consensus revenue estimates are too low, while we believe out-year consensus adjusted EBITDA margins are too high. Consensus estimates call for a ~200bps decline in adjusted EBITDA margins in 2018, but only a ~20bps decline in 2019 and a ~50bps decline in 2020; we do not believe this properly reflects the rollout and higher growth rates of lower-margin products/services like YouTube, cloud services, and hardware. We believe consensus revenue estimates are too low for similar reasons.

Exhibit 1: Estimate Changes ($ millions, except per-share data)

$ in millions, except per share data	2QE New	2QE Old	2QE Cons.	3QE New	3QE Old	3QE Cons.	4QE New	4QE Old	4QE Cons.	2018E New	2018E Old	2018E Cons.
yoy Sites paid click growth	*54%*	*51%*	*na*	*51%*	*55%*	*na*	*47%*	*47%*	*na*	*52%*	*52%*	*na*
yoy Sites CPC growth	*-17%*	*-18%*	*na*	*-16%*	*-18%*	*na*	*-15%*	*-18%*	*na*	*-17%*	*-18%*	*na*
yoy Network impression growth	*0%*	*0%*	*na*	*0%*	*0%*	*na*	*1%*	*1%*	*na*	*0%*	*0%*	*na*
yoy Network CPM growth	*17%*	*17%*	*na*	*17%*	*17%*	*na*	*17%*	*17%*	*na*	*17%*	*17%*	*na*
Revenue by segment												
YouTube	3,556	*nm*	na	3,934	*nm*	na	5,596	*nm*	na	16,290	*nm*	na
Other Google properties	19,476	*nm*	na	20,266	*nm*	na	21,756	*nm*	na	80,290	*nm*	na
Google properties	23,031	23,031	na	24,200	24,200	na	27,352	27,352	na	96,581	96,581	95,696
Google Network	4,693	4,693	na	4,754	4,754	na	5,489	5,489	na	19,580	19,580	19,828
Google Other	4,443	4,389	na	4,921	4,908	na	6,373	6,274	na	20,091	19,926	19,955
Total Google	32,167	32,113	na	33,876	33,863	na	39,213	39,115	na	136,252	136,087	135,249
Other Bets	118	118	na	140	140	na	157	157	na	566	566	783
Gross revenue	32,285	32,231	32,251	34,016	34,003	33,796	39,370	39,272	38,944	136,818	136,653	136,032
Revenue ex TAC	25,756	25,702	25,641	27,217	27,204	26,935	31,542	31,444	31,123	109,373	109,208	108,446
Google adj. EBITDA	12,888	13,088	na	13,537	13,636	na	14,530	14,747	na	53,528	54,044	na
Other Bets adj. EBITDA	(381)	(381)	na	(374)	(374)	na	(460)	(460)	na	(1,590)	(1,590)	na
Adjusted EBITDA	12,353	12,553	12,178	13,008	13,107	12,865	13,905	14,122	13,615	50,709	51,225	50,608
GAAP EPS	$9.80	$10.08	$9.59	$10.76	$10.91	$10.45	$11.47	$11.72	$10.91	$45.36	$46.04	$44.07

$ in millions, except per share data	1QE New	1QE Old	1QE Cons.	2QE New	2QE Old	2QE Cons.	3QE New	3QE Old	3QE Cons.	4QE New	4QE Old	4QE Cons.	2019E New	2019E Old	2019E Cons.	2020E New	2020E Old	2020E Cons.
yoy Sites paid click growth	*45%*	*45%*	*na*	*43%*	*44%*	*na*	*40%*	*43%*	*na*	*37%*	*42%*	*na*	*41%*	*43%*	*na*	*33%*	*33%*	*na*
yoy Sites CPC growth	*-15%*	*-16%*	*na*	*-14%*	*-16%*	*na*	*-13%*	*-16%*	*na*	*-13%*	*-16%*	*na*	*-14%*	*-16%*	*na*	*-12%*	*-14%*	*na*
yoy Network impression growth	*2%*	*2%*	*na*	*3%*	*3%*	*na*	*3%*	*3%*	*na*	*3%*	*3%*	*na*	*3%*	*3%*	*na*	*3%*	*3%*	*na*
yoy Network CPM growth	*13%*	*13%*	*na*	*13%*	*13%*	*na*	*13%*	*13%*	*na*	*13%*	*13%*	*na*	*13%*	*13%*	*na*	*11%*	*11%*	*na*
Revenue by segment																		
YouTube	4,057	*nm*	na	4,470	*nm*	na	4,922	*nm*	na	6,909	*nm*	na	20,358	*nm*	na	24,717	*nm*	na
Other Google properties	22,495	*nm*	na	23,099	*nm*	na	23,683	*nm*	na	25,202	*nm*	na	94,478	*nm*	na	108,735	*nm*	na
Google properties	26,552	26,552	na	27,568	27,568	na	28,605	28,605	na	32,111	32,111	na	114,835	114,835	113,827	133,452	133,452	131,230
Google Network	4,969	4,969	na	5,092	5,092	na	5,182	5,182	na	5,928	5,928	na	21,171	21,171	21,932	22,653	22,653	23,991
Google Other	5,640	5,507	na	5,799	5,525	na	6,399	6,175	na	8,141	7,858	na	25,979	25,065	25,314	32,984	30,645	31,342
Total Google	37,161	37,027	na	38,459	38,186	na	40,186	39,962	na	46,179	45,897	na	161,985	161,071	159,901	189,089	186,750	186,125
Other Bets	180	180	na	142	142	na	168	168	na	189	189	na	679	679	966	815	815	1,226
Gross revenue	37,341	37,207	37,134	38,601	38,328	38,551	40,355	40,130	39,968	46,368	46,085	46,098	162,665	161,750	160,867	189,904	187,565	187,351
Revenue ex TAC	29,932	29,799	29,742	30,880	30,606	30,518	32,367	32,142	31,763	37,229	36,946	36,730	130,407	129,493	128,588	152,541	150,202	150,125
Google adj. EBITDA	14,252	14,490	na	14,788	15,039	na	15,444	15,766	na	16,516	16,851	na	61,000	62,145	na	69,223	70,547	na
Other Bets adj. EBITDA	(381)	(381)	na	(393)	(393)	na	(382)	(382)	na	(472)	(472)	na	(1,627)	(1,627)	na	(1,630)	(1,630)	na
Adjusted EBITDA	13,701	13,939	14,083	14,221	14,471	14,876	14,887	15,209	15,541	15,859	16,194	16,435	58,668	59,813	59,441	66,803	68,127	68,241
GAAP EPS	$10.53	$10.85	$10.45	$11.15	$11.57	$11.39	$12.17	$12.65	$12.41	$12.98	$13.39	$12.48	$46.83	$48.47	$47.45	$52.84	$54.98	$55.56

Source: Company reports, BMO Capital Markets and FactSet for consensus.

Our target price remains $1,100 and implies 10.9x 2019E EV/adj. EBITDA and 23.5x GAAP P/E. This compares to its peer group, which trades at 12.8x EV/EBITDA and 25.2x P/E.

Exhibit 2: Alphabet Valuation Summary ($ in millions, except per-share data)

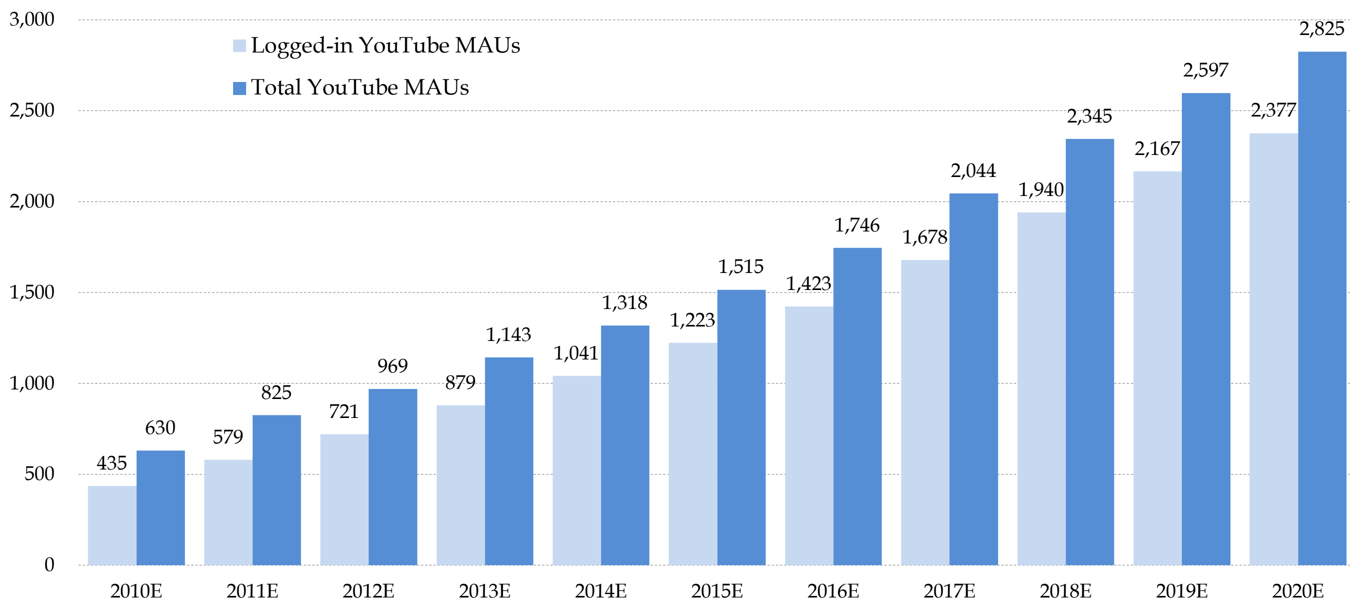
Valuation on 2019E	EV/EBITDA	GAAP P/E		DCF Summary		Triangulated	
Adjusted EBITDA	58,668			Terminal Mult.	12.5x	**Implied Tgt. Multiples**	
Target Multiple	11.0x	GAAP EPS	$46.83	Discount Rate	9.1%	EV/Revenue	3.9x
Enterprise Value	642,623	Target Mult.	23.5x	21-'24 FCF grth	9.0%	EV/EBITDA	10.9x
Net cash (debt), projected	141,115			25-'28 FCF grth	5.0%	GAAP P/E	23.5x
Equity value	783,739					GAAP PEG	nm
Price target	$1,103		$1,098		$1,099		**$1,100**
% potential appreciation	*(6.4%)*		*(6.8%)*		*(6.8%)*		***(6.7%)***

Source: Company reports, BMO Capital Markets estimates.

Key Usage Metrics

YouTube is a global platform, with more than 80% of YouTube's video views coming from outside the United States; we estimate YouTube has ~2.2B monthly active users (MAUs) worldwide. The company does not officially report an MAU number, but it often comments on it in blog posts and at conferences. Most recently, the company disclosed at its 2018 Brandcast event that it is now seeing 1.8B *logged-in* users every month. It is important to note that YouTube also has users visiting its site every month that are not logged-in, so the true MAU number is higher than 1.8B; we estimate ~400mm non logged-in MAUs to get to our ~2.2B total MAU estimate.

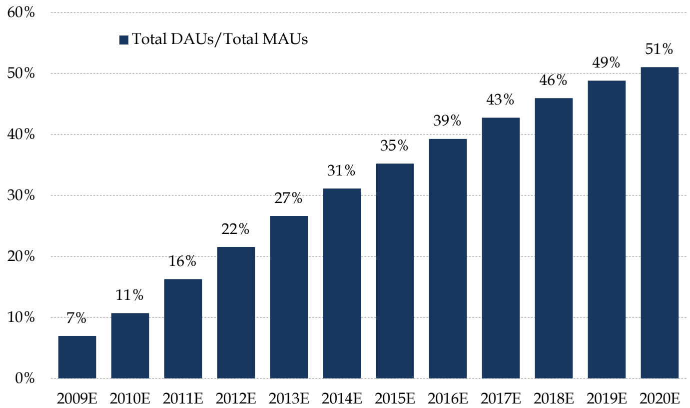
Exhibit 3: YouTube MAUs and Logged-in MAUs (in millions)



Source: Company comments, BMO Capital Markets estimates.

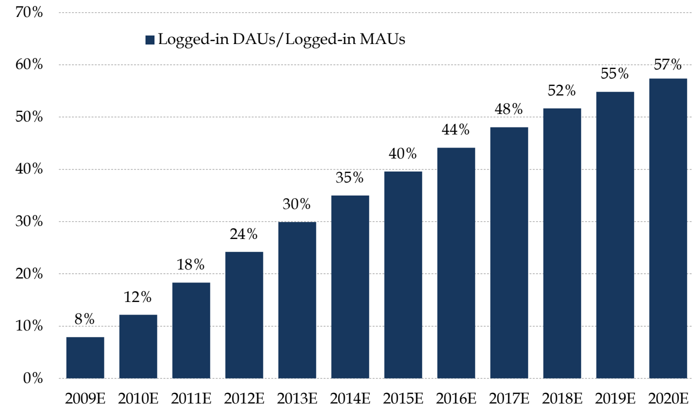
We estimate that ~44% of total MAUs visit the site daily and are thus daily active users (DAUs), totaling ~1.0B. This is largely based on third-party research and the percentage of Facebook's MAUs that are DAUs (which stood at ~66% in 1Q18). Our research shows that a higher percentage of Facebook's MAUs are DAUs than for YouTube. Additionally, we estimate that ~50% of logged-in MAUs visit the site daily and are thus logged-in DAUs. We believe that logged-in users are more likely to be a DAU than users that aren't logged-in.

Exhibit 4: Ratio of Total DAUs to Total MAUs



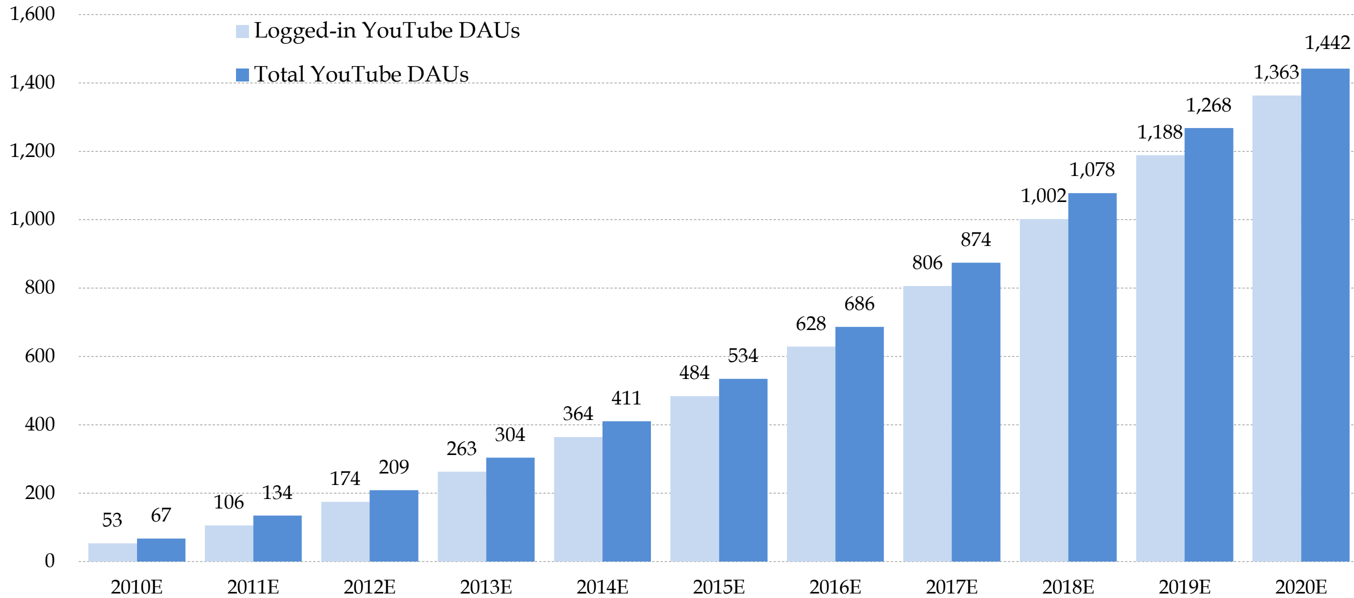
Source: BMO Capital Markets estimates.

Exhibit 5: Ratio of Logged-in MAUs to Logged-in DAUs



Source: BMO Capital Markets estimates.

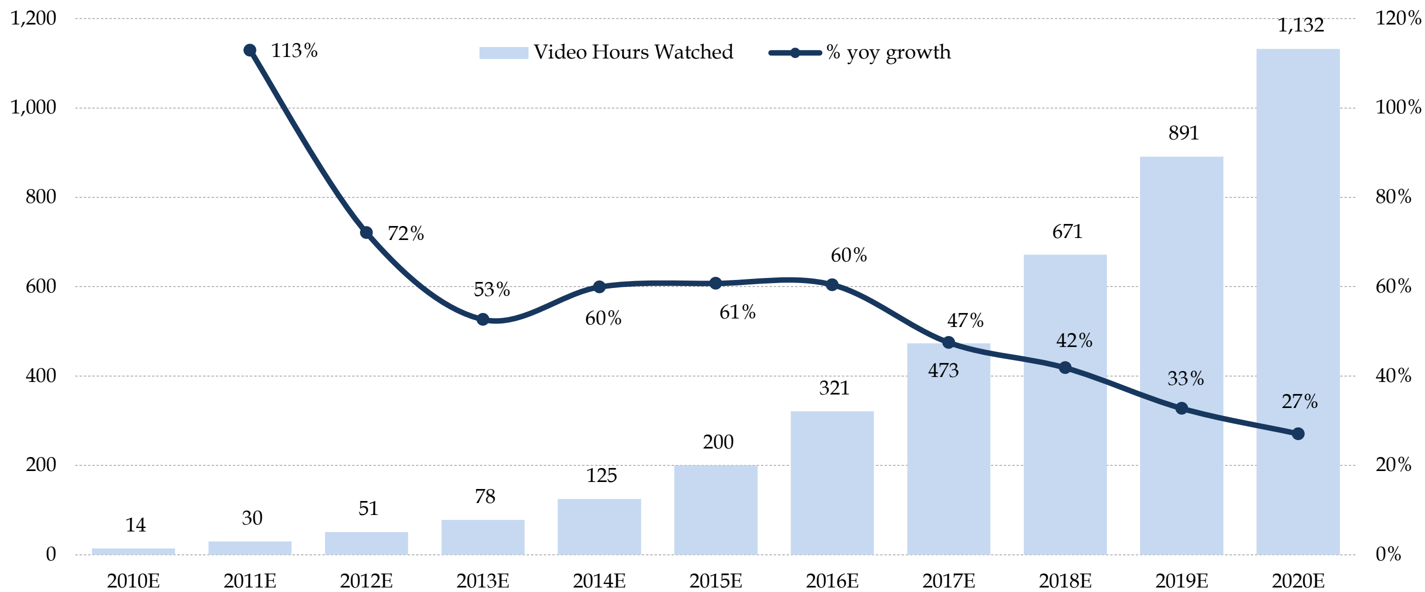
Exhibit 6: YouTube DAUs and Logged-in DAUs (in millions)



Source: BMO Capital Markets estimates.

We estimate YouTubers watched ~470B hours of video content in 2017 and see this breaking the 1.0T mark in 2020E. While the company does not officially report this metric, it often discloses key milestones. For example, the company disclosed in early 2017 that it broke the 1.0B hours per day watched milestone in 2016, or a 365B yearly hours watched run-rate. This followed the company's update in mid-2013 that YouTubers were watching more than 6B hours per month, or a 72B yearly hours watched run-rate. We believe the growth in viewership is coming from a combination of growing MAUs and growing average watch time per MAU. We believe the growth in viewership in recent years has been supported by the rollout of YouTube to emerging countries such as India.

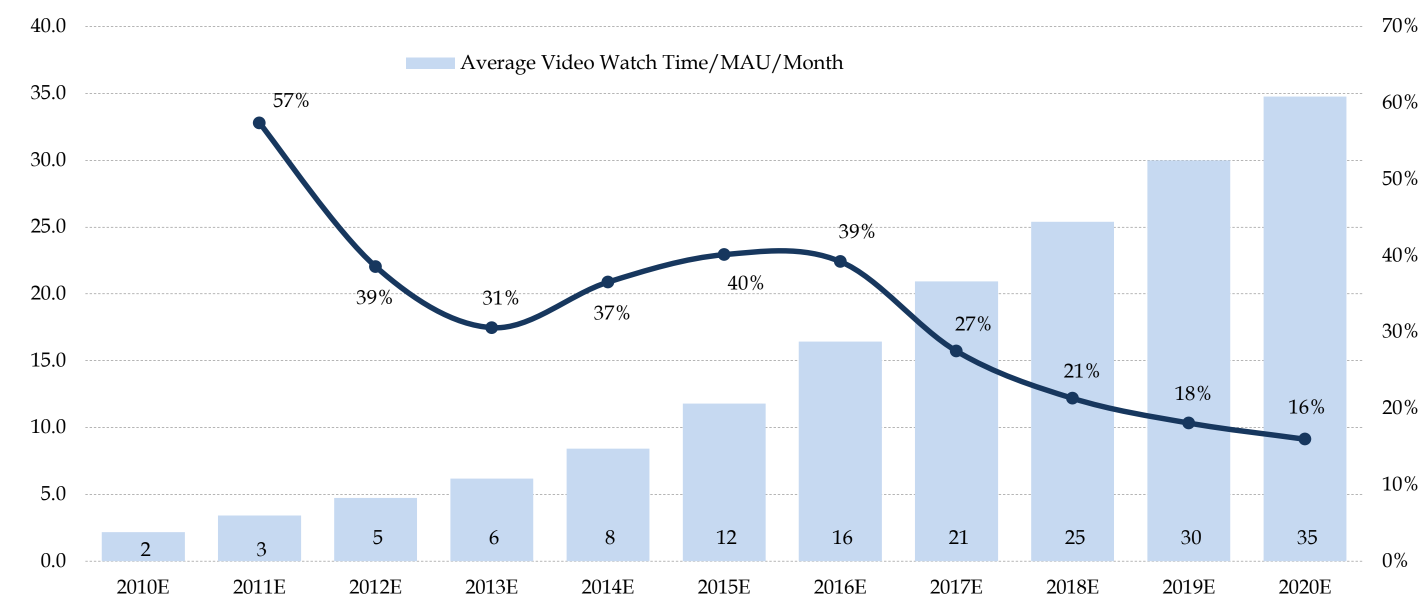
Exhibit 7: Video Watch Time (in billions)



Source: Company comments, BMO Capital Markets estimates.

We estimate the average YouTube MAU watched around 21 hours of YouTube content/month in 2017, or around 42 minutes a day. We estimate average viewership/month grew at a 38% CAGR between 2010 and 2017. We estimate the growth in average watch time has been driven by better video content, better bandwidth, site improvements, and the proliferation of mobile devices and apps, among other things.

Exhibit 8: Average Video Watch Time per MAU per Month (in hours)



Source: Company comments, BMO Capital Markets estimates.

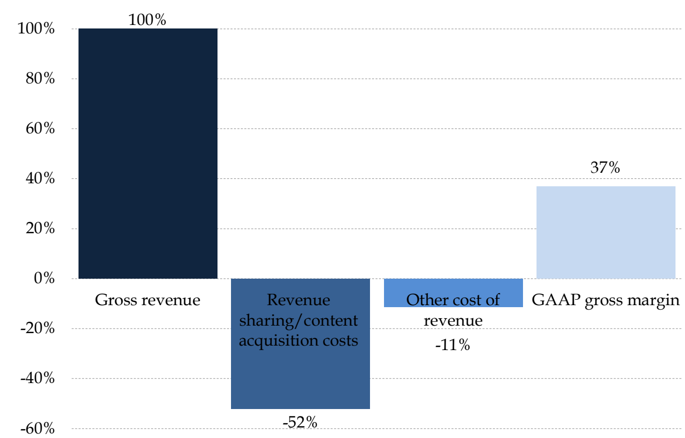
YouTube's Impact on Consolidated Company Financials

We estimate YouTube is growing faster than the company as a whole and thus should have an increasingly material impact on the consolidated financial statements overtime. From a revenue perspective, we believe YouTube's growth and expansion into new revenue streams should support both Google properties revenue (where YouTube advertising revenue is booked) and Google Other revenue growth (where YouTube subscription revenue is booked, i.e., YouTube TV, YouTube Premium, and YouTube Music Premium).

From a margin perspective, we expect YouTube to pressure total company margins over time due primarily to revenue share agreements with content creators/owners (which shows up in other costs of revenue on the income statement). As discussed below, we believe the majority of advertising revenue generated across YouTube is subject to revenue sharing with the content creators/owners and this split is generally 45% to YouTube, 55% to the content creator/owner.

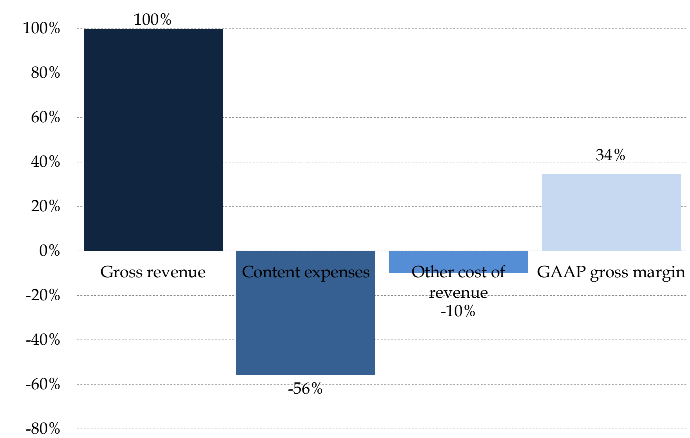
We estimate YouTube has ~37% GAAP gross margins, below total company gross margins of ~57%. We estimate that revenue sharing/other content acquisition costs make up ~52% of YouTube's gross revenue and that other cost of revenue items (such as cloud computing costs, YouTube Original content expenses, and payment processing fees, etc.) make up ~11% of gross revenue. Our 11% estimate is largely based off of Netflix. In 2017, content expenses accounted for ~56% of Netflix's gross revenue, while *other cost of revenue* items account for ~10%, equating to a ~34% GAAP gross margin for Netflix. We assume other cost of revenue for YouTube stands at ~11% of gross revenue, slightly higher than Netflix to account for content expenses associated with YouTube Originals (which would not be included in YouTube's revenue sharing/content acquisition costs discussed above).

Exhibit 9: Estimated Components of YouTube Cost of Revenue



Source: BMO Capital Markets estimates. As of FY17.

Exhibit 10: Components of Netflix Cost of Revenue

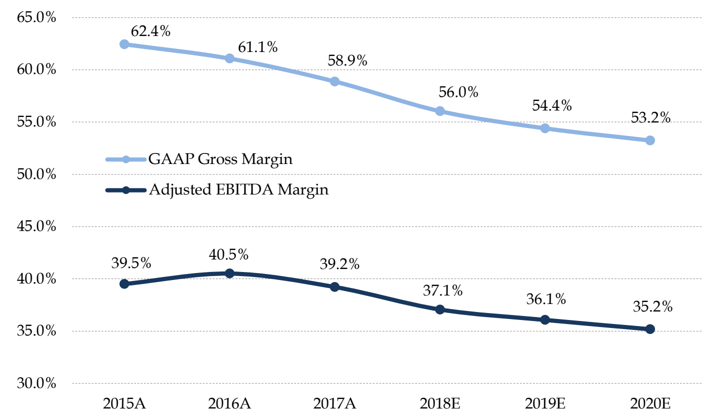


Source: Company reports. As of FY17.

Combined with the rollout of other lower-margin products (such as hardware), we expect Google gross margins to decline from 58.9% in 2017 to 53.2% in 2020E. While we have not broken out YouTube adjusted EBITDA on its own, we believe YouTube's growth will also pressure total company adjusted EBITDA margins and see them declining from 39.2% in 2017 to 35.2% in 2020E for similar reasons.

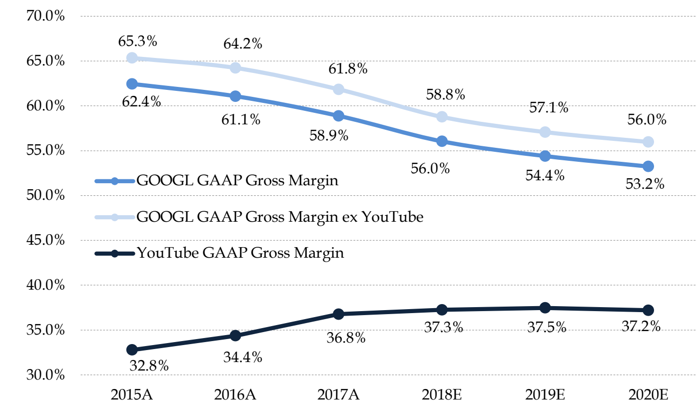
Despite the decline in margins, we do expect gross profit and adjusted EBITDA dollars to grow longer term. This is consistent with management's focus on longer-term revenue and *profit-dollar* growth (as opposed to margins).

Exhibit 11: GOOGL GAAP Gross Margin and Adjusted EBITDA Margin



Source: Company reports, BMO Capital Markets estimates.

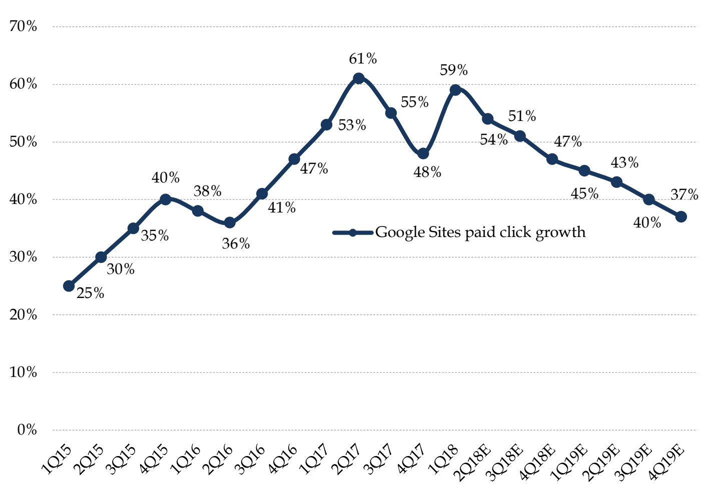
Exhibit 12: YouTube Gross Margin and GOOGL Gross Margin



Source: Company reports, BMO Capital Markets estimates.

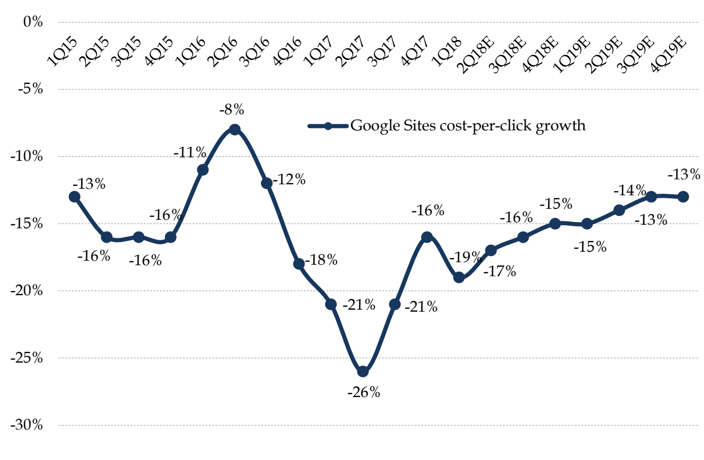
We believe growth in YouTube TrueView ads (more below) has been a key driver of the growth in Google Sites paid clicks and the decline in Google Sites cost-per-clicks. Included within Google's calculation of a "paid click" are clicks on TrueView video discovery ads and engagements with a TrueView in-stream ad (defined as a user choosing to not skip the ad). We believe the rollout of TrueView is helping drive strong Google Site's paid click growth. Additionally, while the company has never disclosed cost-per-clicks for Google search, they have said that TrueView ads have lower cost-per-clicks (i.e., cost-per-view) than its "other advertising platforms" (i.e., Google Search). As TrueView ads make up an increasingly higher proportion of Google's overall clicks (due to their higher growth rate versus Google overall), we expect cost-per-click growth to remain under pressure. We believe another important element to consider is the fact that a large portion of TrueView click growth is likely coming from emerging market countries, which monetize at lower rates than in the United States. We expect this to continue to put pressure on Google Site's cost-per-click growth while supporting paid click growth.

Exhibit 13: Google Sites Paid Click Growth



Source: Company reports, BMO Capital Markets estimates.

Exhibit 14: Google Sites Cost-Per-Click Growth



Source: Company reports, BMO Capital Markets estimates.

YouTube Partner Program and Revenue Sharing

We estimate ~51% of total advertising revenue generated by YouTube is shared with content creators. This is largely due to revenue share agreements with content creators who have chosen to monetize their content. These creators include individual content creators (and multi-channel networks), music companies, media/entertainment companies, and sports leagues, among others. The company discloses in the YouTube Partner Program terms of service that it will "pay you (i.e., the creator) 55% of net revenues recognized by YouTube from ads displayed or streamed by YouTube or an authorized third party on your content watch pages or in or on the YouTube video player in conjunction with the streaming of your content". It is important to note that YouTube also generates advertising revenue where it has 100% economics; we believe examples of this would include ads displayed on the YouTube homepage and in YouTube search results. This is largely why our estimate for the percent of advertising revenue paid out to content creators is less than the standard 55% revenue share rate.

Launched in 2007, the YouTube Partner Program (YPP) is a revenue sharing program that allows content creators to monetize their videos across YouTube. Through the program, content creators can submit their videos to be approved for monetization; once approval is granted, YouTube places advertisements inside or near the video of content creators, generally giving 55% of the net advertising revenue generated to the creator and keeping 45% for itself. Over the years, the program has evolved and most recently the company announced stricter criteria for monetization due to the issues surrounding advertisements showing up on videos with inappropriate content in them. The YouTube Partner Program is available in ~100 countries. We believe YouTube does not place ads on videos without the consent of the video uploader; we believe an exception to this relates to content for which the video uploader does not own all the rights. In such instances, we believe the rights holder of content in the video may choose to place ads on or around the video without the consent of the video uploader.

YouTube may have agreements with large content creators that fall outside of the scope of the YouTube Partner Program and could have more favorable revenue sharing agreements. While the company has never confirmed this, we believe large media/music companies and sports leagues could potentially garner more favorable terms than an individual content creator.

YouTube also shares revenue generated from YouTube Premium and from Sponsorship/SuperChat and pays fees to content creators whose content is available to buy/rent across YouTube as well as affiliate fees associated with YouTube TV. These fees likely make up a much smaller portion of YouTube's content acquisition costs, though their growth rate could accelerate as YouTube TV adoption grows. In YouTube TV's case, we estimate that all subscription fees and then some (i.e., operating at a loss from a subscription standpoint) are being paid out in the form of affiliate fees to specific networks. For YouTube Premium, the revenue share is similar to the revenue share associated with ad revenue generated on a creator's videos. For movie/TV show rentals/purchases and Sponsorship/SuperChat, we estimate the revenue share percentage is ~70% to the creator, 30% to YouTube (more akin to the economics in the Google Play App Store), though in certain cases we believe it could be based on a flat fee as opposed to a percentage of revenue.

We estimate content acquisition costs for YouTube account for ~28% of other cost of revenue but expect this percentage to trend up over time. Revenue shared with content creators and other content acquisition costs associated with YouTube show up in other cost of revenue, not in traffic acquisition costs. While the company does not break down cost of revenue into its main components, it does state in its 2017 10K that the primary components of other cost of revenue are:

1. Amortization of certain intangible assets;
2. Content acquisition costs primarily related to payments to content providers from whom we license video and other content for distribution on YouTube and Google Play (we pay fees to these content providers based on revenues generated or a flat fee);

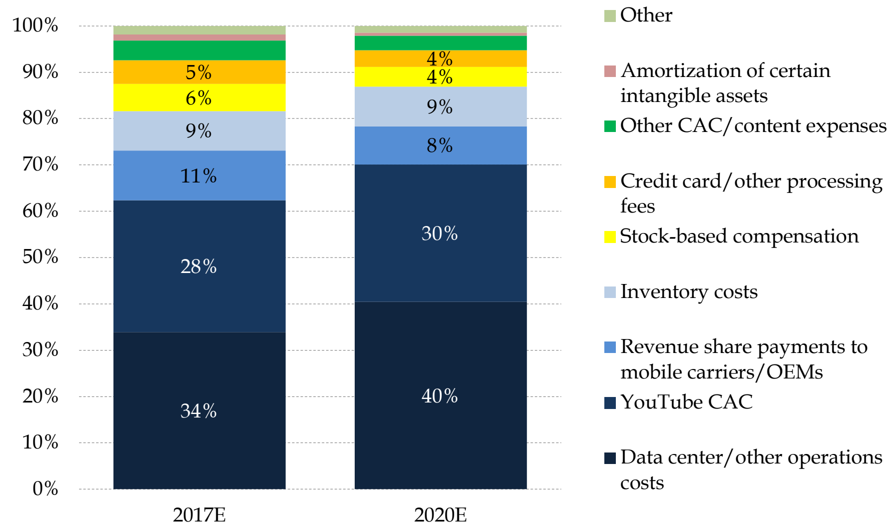
3. Credit card and other transaction fees related to processing customer transactions;

4. Expenses associated with our data center and other operations (including bandwidth, compensation expenses (including SBC), depreciation, energy, and other equipment costs); and

5. Inventory related costs for hardware we sell.

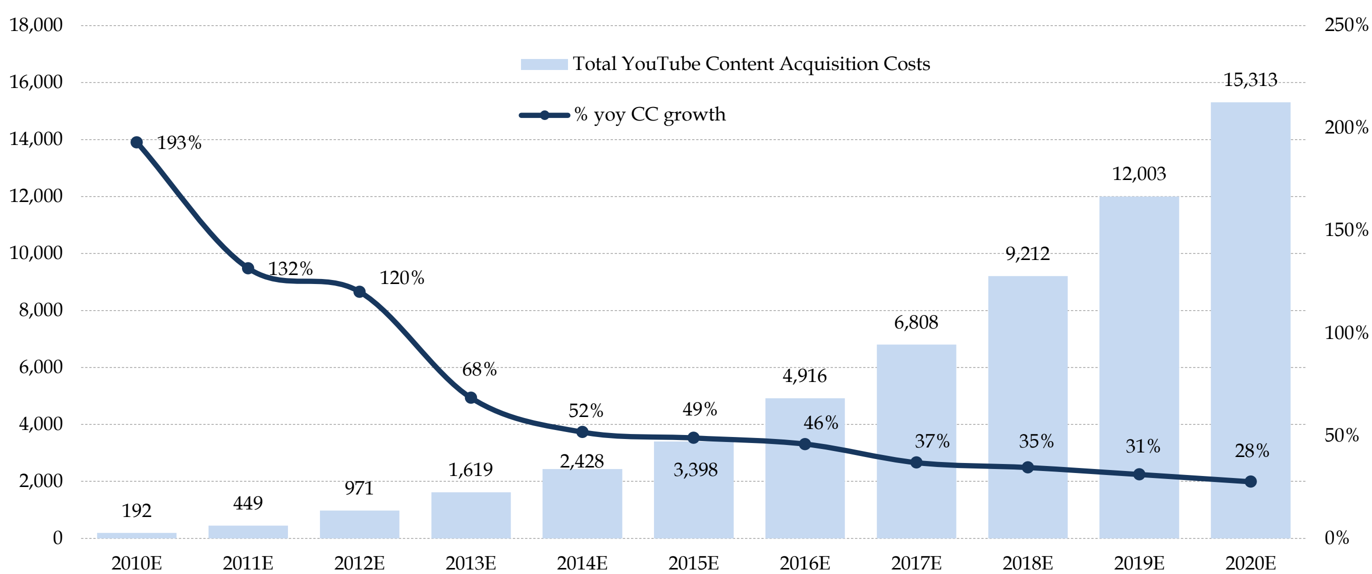
We believe other components of other cost of revenue include revenue share payments to mobile carriers and OEMs, largely associated with Google Play. Revenue share arrangements associated with Google search show up in traffic acquisition costs (TAC) and not in other cost of revenue. In Exhibit 15, we estimate the components of other cost of revenue.

Exhibit 15: Estimated Components of Other Cost of Revenue



Source: BMO Capital Markets estimates.

Exhibit 16: Estimated YouTube Content Acquisition Costs ($ in millions)



Source: Company comments, BMO Capital Markets estimates.

Using YouTube Content Acquisition Costs to "Sanity Check" Our Numbers

We estimate YouTube paid out $6.4B in advertising revenue to content creators in 2017; dividing this by our 51% estimate for the percent of advertising revenue paid out to creators in 2017 would equate to ~$12.4B in YouTube advertising revenue in 2017. We arrive at this number based on piecing together several data points from the company related to growth in advertising revenue and the revenue paid out to content partners, including:

1. "YouTube continues to see phenomenal growth as the premier global destination where people go to watch video"-3Q17 earnings call. We take this to mean YouTube is growing faster than Google Sites revenue growth of ~23%.

2. "YouTube revenues continue to grow at a significant rate, driven primarily by video advertising"-1Q17 earnings call. We take this to mean YouTube is growing faster than Google Sites revenue growth of ~21%.

3. "We've been growing 50% YoY for the past three years. Because of that, passing on the majority of revenue to content creators"-Robert Kyncl at Code/Media conference in 2015

4. "We continue to invest in our YouTube partners, and partner revenue has increased by more than 50% year over year"-4Q14 earnings call.

5. "Video ads, which include TrueView, now form a significant part of our YouTube and brand advertising and they're growing north of 75% year over year"-3Q13 earnings call

6. "In 2012, advertisements (including advertisements from more than 1,000 small advertisers every day) were shown on more than 3 billion YouTube views each week"-Google Research Paper: Empowering Online Advertisements by Empowering Viewers with the Right to Choose

7. "On YouTube, our top 100 global advertisers spent over 50% more in 2012 than it did in 2011"-4Q12 earnings call

8. "YouTube also generates healthy revenue for Google and our content partners—in fact, partner ad revenue has more than doubled for the fourth year in a row. One thing I've learned is that if you keep doubling things, it really adds up fast!"-2012 Founder's Letter

Exhibit 17: YouTube Advertising Revenue Sensitivity Analysis for 2017 ($ in millions)

Sensitivity Analysis		% of Other Cost of Revenue that is related to YouTube Advertising CAC						
YouTube Revenue Share		19.1%	21.6%	24.1%	26.6%	29.1%	31.6%	34.1%
	50.2%	9,195	10,396	11,596	12,797	13,997	15,198	16,398
	49.7%	9,104	10,292	11,481	12,669	13,858	15,047	16,235
	49.2%	9,014	10,191	11,368	12,545	13,722	14,898	16,075
	48.7%	8,926	10,092	11,257	**12,422**	13,588	14,753	15,919
	48.2%	8,840	9,994	11,148	12,303	13,457	14,611	15,765
	47.7%	8,756	9,899	11,042	12,185	13,328	14,471	15,614
	47.2%	8,673	9,805	10,937	12,069	13,202	14,334	15,466

Source: BMO Capital Markets estimates.

As mentioned above, YouTube also generates revenue from non-advertising sources, such as subscription fees and movie rentals/purchases. While we estimate the majority of YouTube revenue is generated from advertising, there are also other sources of revenue that needed to be accounted for when trying to estimate a total revenue estimate for YouTube. We estimate all other revenue sources for YouTube generated ~$700mm of revenue in 2017. Taking together with our $12.4B estimate for advertising revenue, we estimate YouTube as a whole generated ~$13.1B in 2017.

Exhibit 18: YouTube Total Revenue Sensitivity Analysis for 2017 ($ in millions)

Sensitivity Analysis		% of Other Cost of Revenue that is related to total YouTube CAC						
		21.0%	**23.5%**	**26.0%**	**28.5%**	**31.0%**	**33.5%**	**36.0%**
YouTube Revenue Share	**49.5%**	9,922	11,105	12,288	13,470	14,653	15,836	17,019
	49.0%	9,825	10,996	12,167	13,338	14,510	15,681	16,852
	48.5%	9,729	10,889	12,049	13,209	14,369	15,529	16,689
	48.0%	9,636	10,785	11,933	**13,082**	14,231	15,380	16,528
	47.5%	9,544	10,682	11,820	12,958	14,095	15,233	16,371
	47.0%	9,454	10,581	11,708	12,835	13,963	15,090	16,217
	46.5%	9,366	10,482	11,599	12,716	13,832	14,949	16,065

Source: BMO Capital Markets estimates.

Detailed YouTube Revenue Breakdown

Below, we provide an estimate for YouTube's revenue broken down by revenue stream. The three revenue streams include:

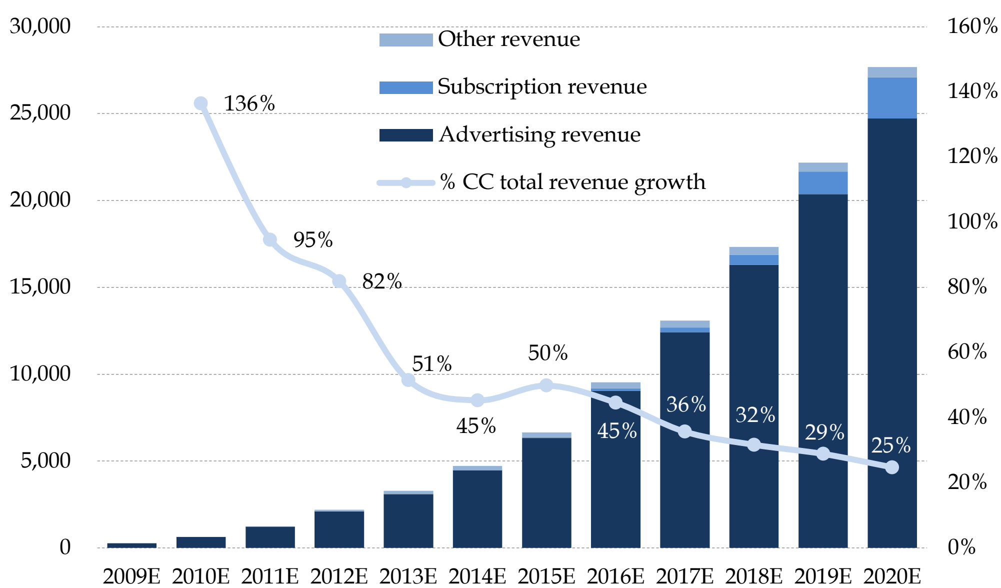
1. Advertising, which accounts for the vast majority of revenue;

2. Subscription, which includes YouTube Premium, YouTube Music Premium, and YouTube TV subscription fees and;

3. Other, which would include movie/TV show rentals/purchases as well as Sponsorship, pay-per-view (PPV) fees, and SuperChat.

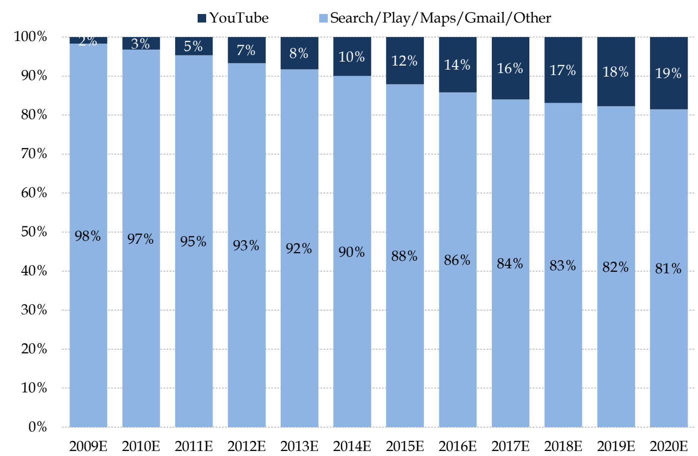
YouTube advertising revenue shows up in Google properties revenue while YouTube subscription/other revenue shows up in Google other revenue. We estimate advertising revenue generated across YouTube accounts for ~16% of Google properties revenue and that subscription/other YouTube fees account for ~4% of Google other revenue.

Exhibit 19: Estimated YouTube Revenue ($ in millions)



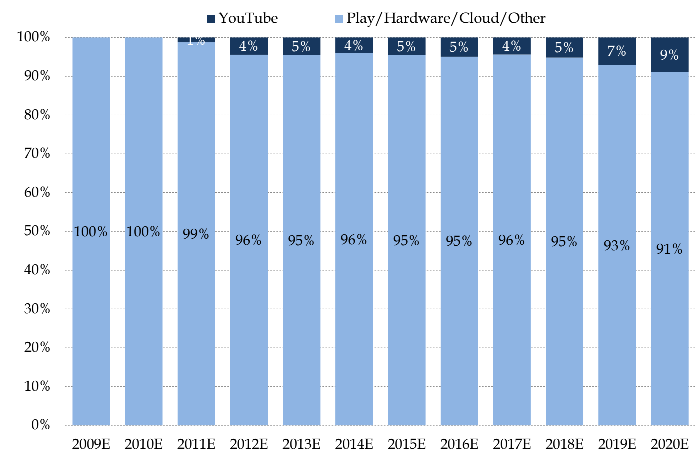
Source: BMO Capital Markets estimates.

Exhibit 20: Estimated Breakdown of Google Properties Revenue



Source: BMO Capital Markets estimates.

Exhibit 21: Estimated Breakdown of Google Other Revenue



Source: BMO Capital Markets estimates.

Advertising

We have broken YouTube's various ad formats down into five key categories:

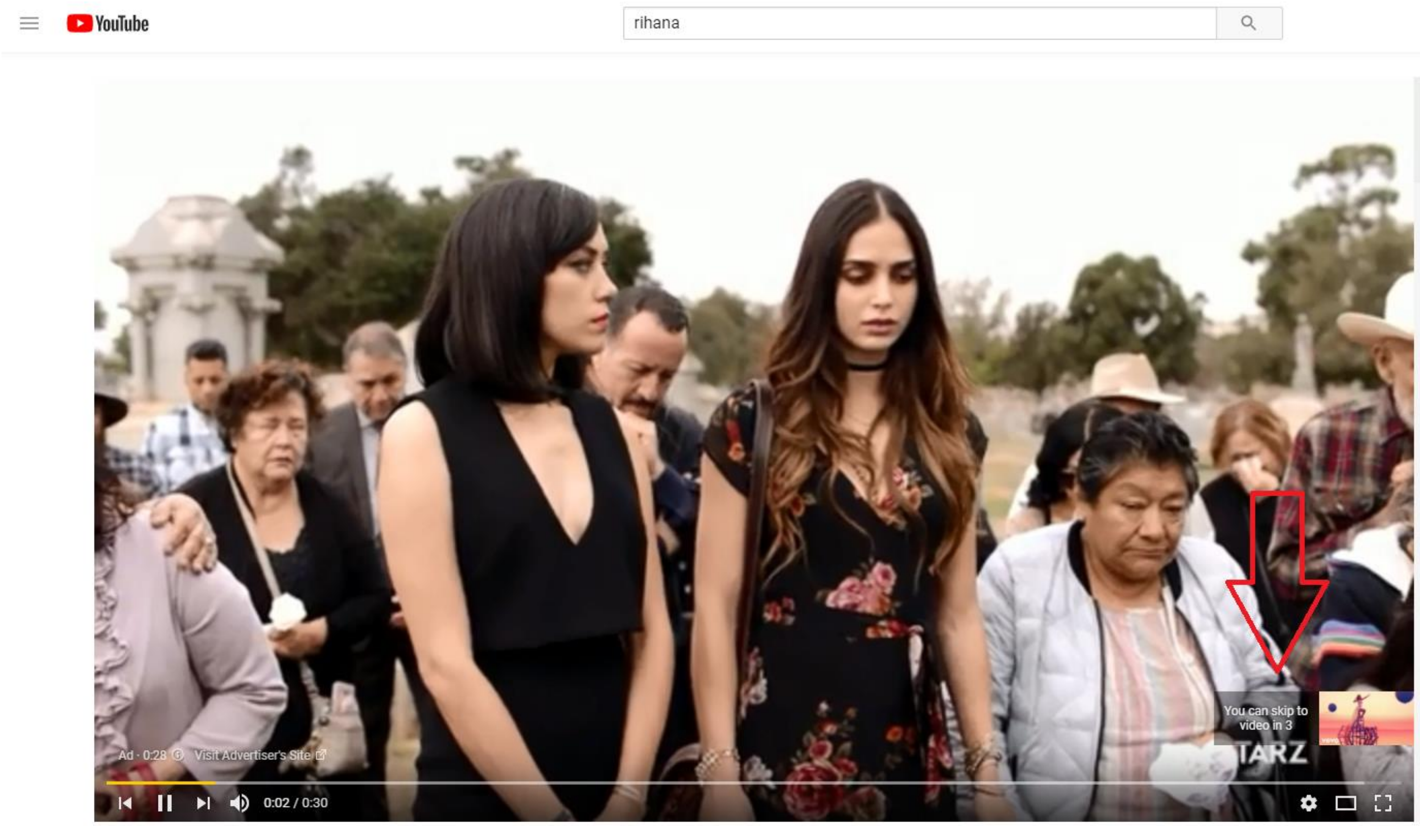
1. TrueView in-stream ads;
2. TrueView video discovery ads;
3. Other video ads;
4. Display/other ads; and
5. YouTube TV ads.

There are a myriad of other ways to break down YouTube's advertising products, but we believe this is a practical way to do so, particularly given our belief that TrueView in-stream ads account for the majority of YouTube's advertising revenue. Advertisements across YouTube are generally bought on a reserved basis (i.e., working directly with YouTube/Google through the Google Preferred Program) or through AdWords and DoubleClick Bid Manager.

TrueView In-Stream Ads

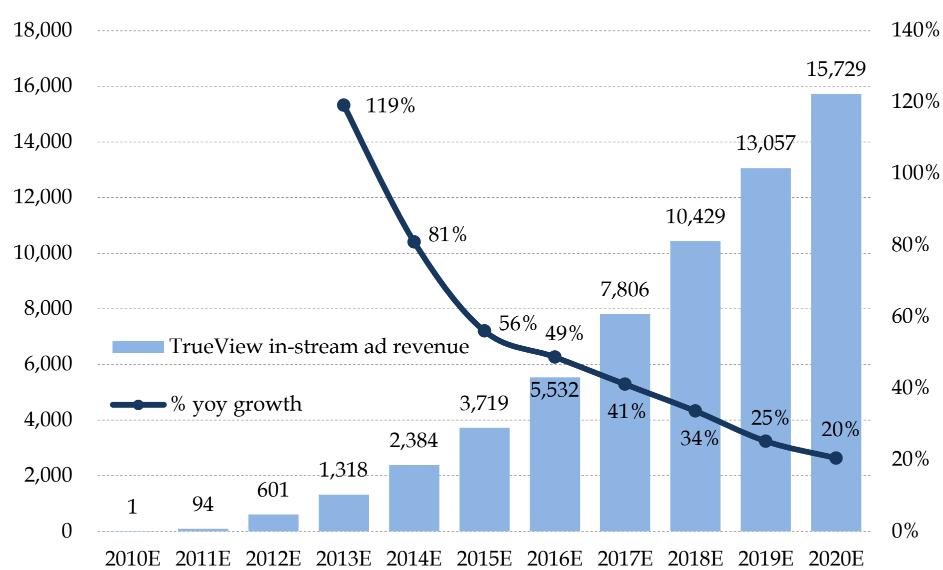
TrueView in-stream ads are skippable video ads that are billed on a cost-per-view basis and show up in the video player on the YouTube watch page. We believe this is the most common video advertising format on YouTube. These ads play before, during, or after a video is played on mobile, desktop, connected TV devices, and game consoles. When an ad is served in the video player, a user has the option to skip it after 5 seconds; advertisers are only charged if the viewer watches 30 seconds of the ad (or duration of the ad if it is shorter) or interacts with the ad in some way (e.g., clicks on a call-to-action overlay). We believe the CPV charged to advertisers can vary dramatically by country, device type, and time of the year, but we estimate they are in the $0.05 range overall. Advertisers also have the option to enhance their TrueView in-stream ads by using TrueView for action, TrueView for shopping, and TrueView for app promotion; these campaigns generally include call-to-action banners within a TrueView in-stream ad. If a user clicks on the banner, it is counted as a "view" and the advertiser is charged. The company also recently launched TrueView for reach; these are skippable in-stream ads that are billed on a CPM basis. Due to the difference in pricing model, revenue from these ads falls in our other video ad category below.

Exhibit 22: TrueView In-Stream Ad



Source: YouTube.com.

Exhibit 23: TrueView In-Stream Ad Revenue ($ in millions)

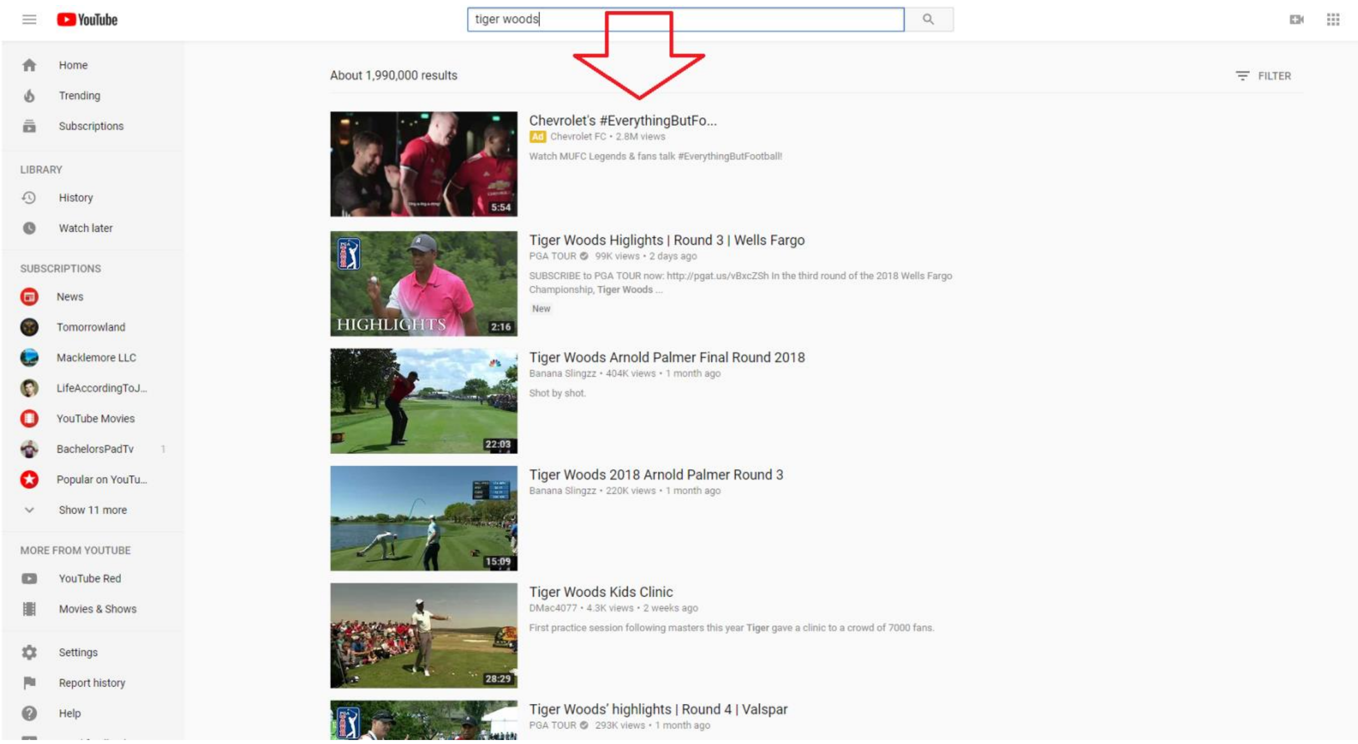


Source: BMO Capital Markets estimates.

TrueView Video Discovery Ads

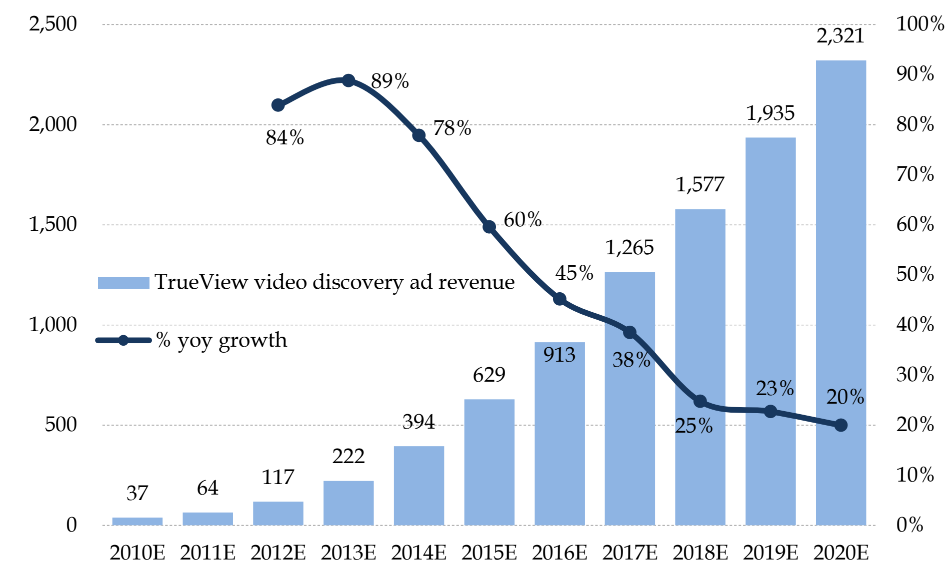
TrueView video discovery ads are a type of ad format that show up in YouTube search results, next to videos on the watch page, and on the YouTube mobile app homepage. These ads consist of a thumbnail image with text and are billed on a cost-per view basis as well. An advertiser is only charged when a user clicks on the thumbnail and begins watching the ad. Similar to TrueView in-stream ads, we believe the CPV can vary dramatically but estimate they are in the $0.04 range.

Exhibit 24: TrueView video discovery ad



Source: YouTube.com.

Exhibit 25: TrueView Video Discovery Ad Revenue ($ in millions)



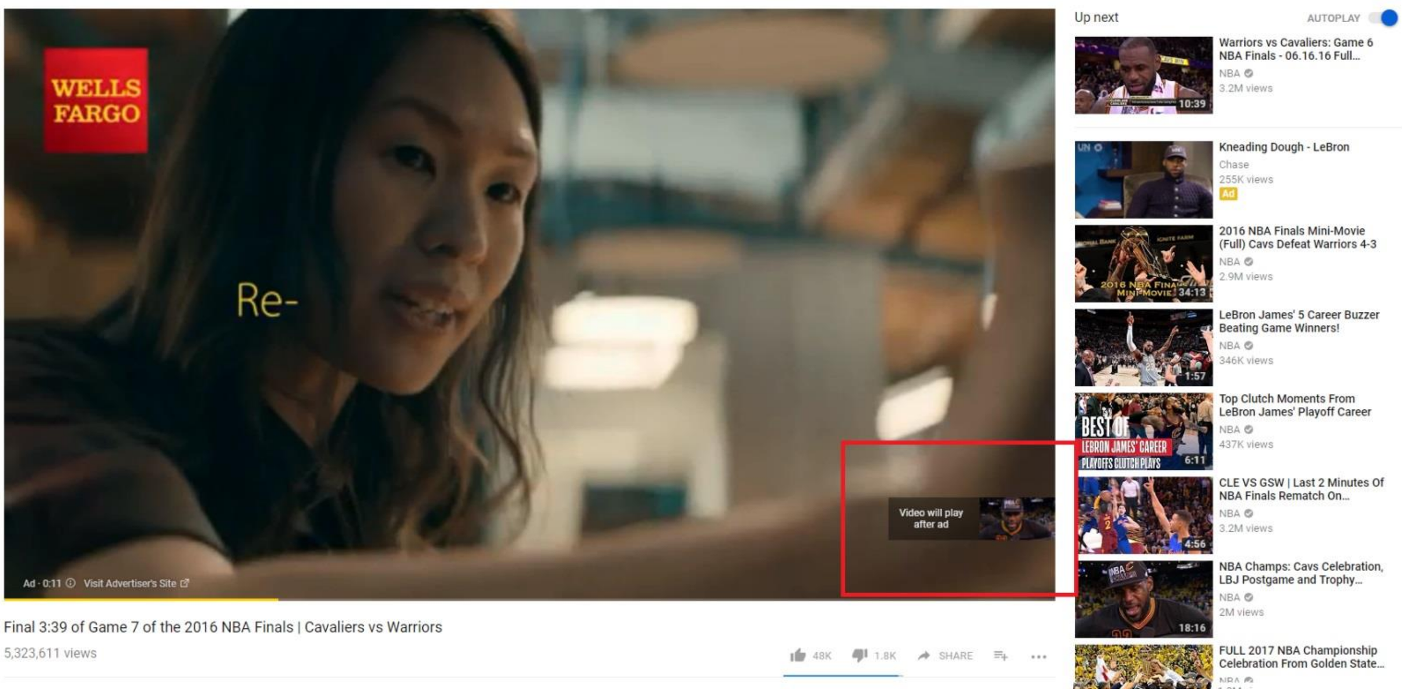
Source: BMO Capital Markets estimates.

Other Video Ads

Other video ads consist of all other video ad formats offered by the company, including non-skippable video ads and video mastheads. Non-skippable video ads come in several formats, such as six seconds or less (i.e., bumper ads) and pre, mid, and post roll. By nature, these ads are non-skippable and the advertiser is generally charged on a CPM basis. Video mastheads are homepage video ads that auto play for a configurable amount of time and are designed to look and feel native to YouTube and are bought on a cost-per-day basis.

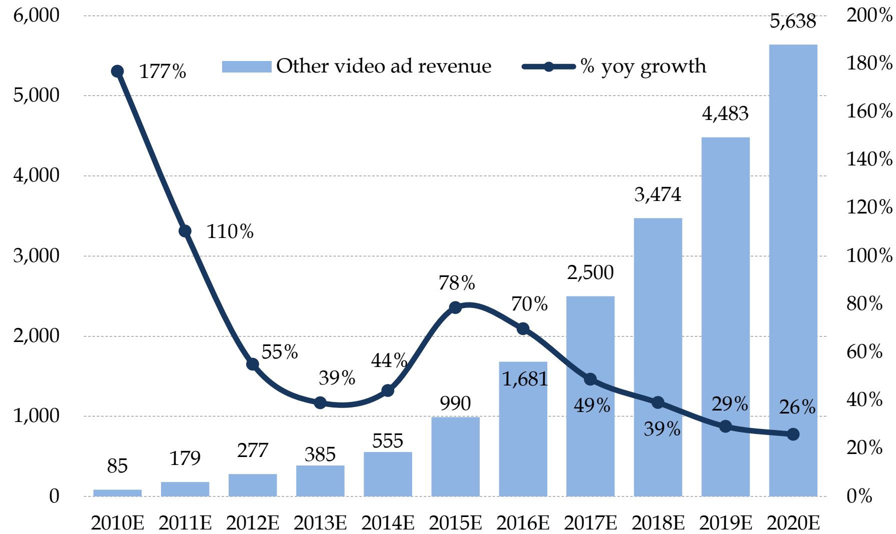
Other video ads would include Google Preferred, a video advertising offering that was launched in 2014, which aggregates YouTube's top content into easy-to-buy packages for advertisers. Through Google Preferred, advertisers are able to buy advertisements on the top 5% of content from different categories across YouTube such as Beauty & Fashion and Food & Recipes. We believe Google Preferred ads are generally non-skippable and 15-20 seconds in length and are similar to advertising on prime-time television. Google Preferred is offered in countries such as the United States, United Kingdom, Germany, Brazil, and Canada. Due to the premium nature of the offering, we believe Google Preferred garners premium CPMs relative to other video advertising formats. We believe the rollout of Google Preferred led to an acceleration in other video ad revenue growth starting in 2014.

Exhibit 26: Non-Skippable Video Ad



Source: YouTube.com.

Exhibit 27: Other Video Ad Revenue ($ in millions)

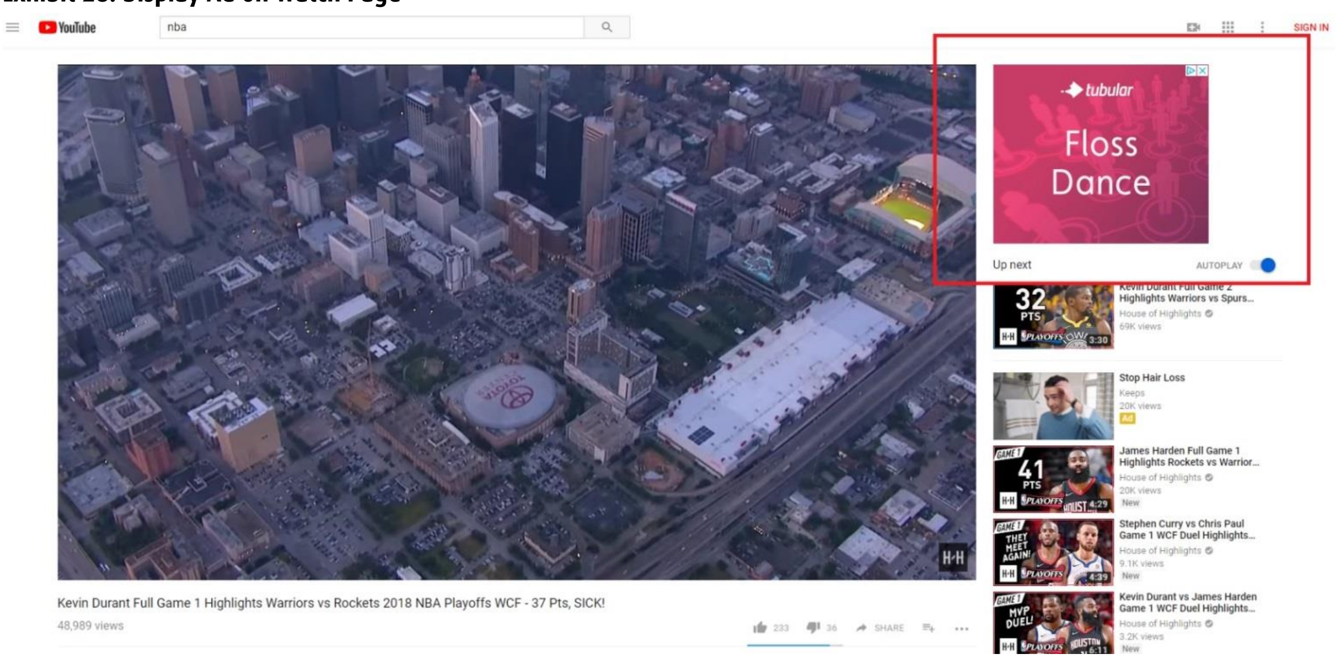


Source: BMO Capital Markets estimates.

Display/Other Ads

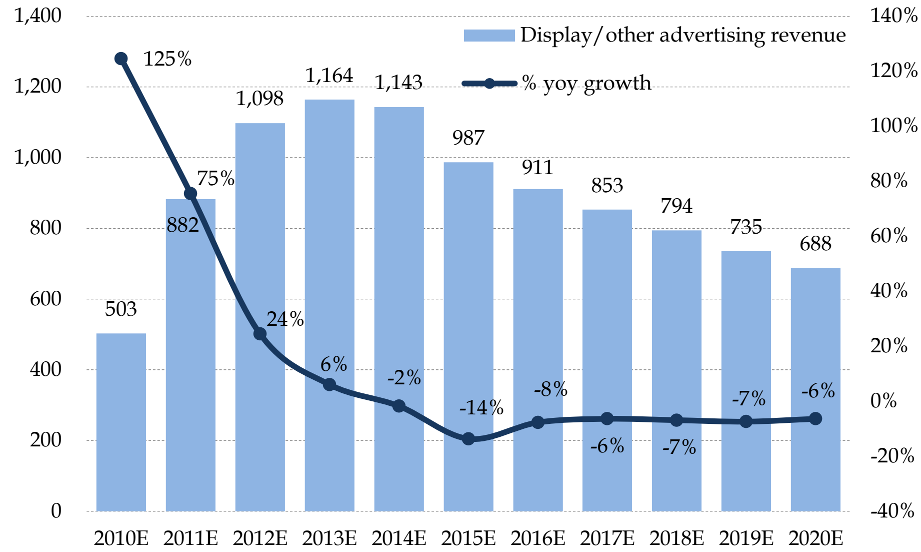
Display/other ads consist of a variety of non-video based ad formats that are generally either bought on CPM or CPC basis. These ads consist of display ads that show up to the right of the video player on desktop and laptop computers, overlays ads which appear across the bottom 20% of the video player on desktop and laptop computers, native mobile ads which appear below a video's metadata on mobile devices, and sponsored cards, which are ad formats that show up in the video player similar to overlay ads but on both desktop and mobile devices. We believe that the transition to mobile devices over the years has pressured display/other ad revenue growth.

Exhibit 28: Display Ad on Watch Page



Source: YouTube.com.

Exhibit 29: Display/Other Ad Revenue ($ in millions)

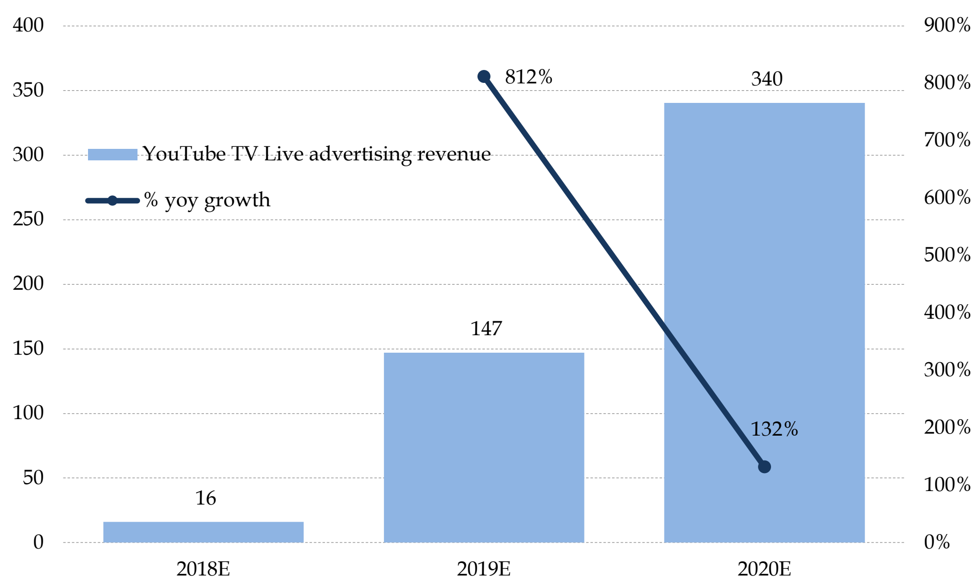


Source: BMO Capital Markets estimates.

YouTube TV Ads

In late April, the company announced that it will be adding ad inventory from some cable networks on YouTube TV to Google Preferred lineups. As a result, advertisers will soon be able to advertise on both the top YouTube content and traditional TV content in a single campaign; YouTube TV ads will be dynamically inserted so that advertisers can target specific audiences. Similar to other vMVPDs, we believe YouTube TV is allocated around two minutes of ad inventory per hour of live TV; up until this point, we do not believe they were filling their two minutes with advertisements. However, as evidenced in the April blog post, this will soon change and we model for this to occur in 4Q18. It is important to note that YouTube is currently generating ad revenue for YouTube content (as opposed to live TV) that is watched through the YouTube TV interface.

Exhibit 30: YouTube TV Ad Revenue From Live Portion ($ in millions)



Source: BMO Capital Markets estimates.

Exhibit 31: YouTube Advertising Model Part I ($ in millions)

$ in millions, except per share figures	Fiscal Year		2018E			Fiscal Year		2019E			Fiscal Year	Fiscal Year
	2017A	1QA	2QE	3QE	4QE	2018E	1QE	2QE	3QE	4QE	2019E	2020E
Advertising												
Ad impressions	602,409	194,241	224,010	247,450	274,314	940,015	290,620	323,840	347,301	373,499	1,335,260	1,760,945
% yoy growth	*58.7%*	*62.7%*	*57.2%*	*55.7%*	*51.1%*	*56.0%*	*49.6%*	*44.6%*	*40.4%*	*36.2%*	*42.0%*	*31.9%*
% of video views with TrueView ad	*6.8%*	*7.2%*	*7.9%*	*8.3%*	*8.4%*	*8.0%*	*8.4%*	*8.9%*	*9.1%*	*9.0%*	*8.9%*	*9.3%*
View rate	*23.6%*	*23.9%*	*23.8%*	*23.9%*	*24.0%*	*23.9%*	*24.2%*	*24.2%*	*24.3%*	*24.5%*	*24.3%*	*24.8%*
Monetized TrueView ads	142,088	46,327	53,202	59,017	65,698	224,244	70,185	78,207	84,394	91,320	324,107	436,212
% yoy growth	*62.3%*	*65.5%*	*58.5%*	*57.0%*	*53.0%*	*57.8%*	*51.5%*	*47.0%*	*43.0%*	*39.0%*	*44.5%*	*34.6%*
eCPV	$0.05	$0.04	$0.04	$0.04	$0.06	$0.05	$0.04	$0.04	$0.04	$0.05	$0.04	$0.04
eCPM	$12.96	$10.07	$10.05	$10.16	$13.51	$11.09	$8.62	$8.79	$9.05	$12.21	$9.78	$8.93
TrueView in-stream ad revenue	**7,806**	**1,957**	**2,252**	**2,513**	**3,707**	**10,429**	**2,505**	**2,847**	**3,145**	**4,561**	**13,057**	**15,729**
% growth	*41.1%*	*41.5%*	*34.7%*	*31.1%*	*30.8%*	*33.6%*	*28.0%*	*26.4%*	*25.1%*	*23.0%*	*25.2%*	*20.5%*
% sequential growth		*-31.0%*	*15.1%*	*11.6%*	*47.5%*		*-32.4%*	*13.7%*	*10.5%*	*45.0%*		
TrueView in-stream CAC	**(4,293)**	**(1,076)**	**(1,239)**	**(1,382)**	**(2,039)**	**(5,736)**	**(1,378)**	**(1,566)**	**(1,730)**	**(2,508)**	**(7,181)**	**(8,651)**
% growth	*41.1%*	*41.5%*	*34.7%*	*31.1%*	*30.8%*	*33.6%*	*28.0%*	*26.4%*	*25.1%*	*23.0%*	*25.2%*	*20.5%*
% gross revenue		*55.0%*	*55.0%*	*55.0%*	*55.0%*		*55.0%*	*55.0%*	*55.0%*	*55.0%*		
TrueView in-stream net ad revenue	**3,512**	**881**	**1,013**	**1,131**	**1,668**	**4,693**	**1,127**	**1,281**	**1,415**	**2,052**	**5,876**	**7,078**
% growth	*41.1%*	*41.5%*	*34.7%*	*31.1%*	*30.8%*	*33.6%*	*28.0%*	*26.4%*	*25.1%*	*23.0%*	*25.2%*	*20.5%*
% gross revenue	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*
Impressions	609,264	202,011	218,503	230,312	240,418	891,244	283,520	302,355	316,420	323,176	1,225,470	1,617,888
% yoy growth	*58.3%*	*53.9%*	*47.0%*	*44.5%*	*41.5%*	*46.3%*	*40.3%*	*38.4%*	*37.4%*	*34.4%*	*37.5%*	*32.0%*
Impressions/MAU	395	118	122	124	126	491	144	149	152	151	596	712
CTR	*4.2%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*
Monetized views/clicks	25,759	8,585	9,308	9,811	10,242	37,947	12,191	13,031	13,638	13,929	52,789	70,017
% yoy growth	*59.4%*	*55.0%*	*48.0%*	*45.5%*	*42.5%*	*47.3%*	*42.0%*	*40.0%*	*39.0%*	*36.0%*	*39.1%*	*32.6%*
eCPV	$0.05	$0.04	$0.04	$0.04	$0.05	$0.04	$0.03	$0.03	$0.03	$0.05	$0.04	$0.03
eCPM	$2.08	$1.62	$1.62	$1.63	$2.16	$1.77	$1.40	$1.44	$1.47	$1.97	$1.58	$1.43
TrueView video discovery ad revenue	**1,265**	**326**	**355**	**376**	**520**	**1,577**	**398**	**434**	**465**	**638**	**1,935**	**2,321**
% growth	*38.5%*	*32.5%*	*25.8%*	*21.5%*	*21.8%*	*24.7%*	*22.0%*	*22.4%*	*23.7%*	*22.6%*	*22.7%*	*19.9%*
% sequential growth		*-23.6%*	*8.7%*	*6.0%*	*38.3%*		*-23.5%*	*9.0%*	*7.2%*	*37.1%*		
TrueView video discovery CAC	**(412)**	**(106)**	**(116)**	**(123)**	**(170)**	**(514)**	**(130)**	**(142)**	**(152)**	**(208)**	**(631)**	**(757)**
% growth	*38.5%*	*32.5%*	*25.8%*	*21.5%*	*21.8%*	*24.7%*	*22.0%*	*22.4%*	*23.7%*	*22.6%*	*22.7%*	*19.9%*
% gross revenue		*32.6%*	*32.6%*	*32.6%*	*32.6%*		*32.6%*	*32.6%*	*32.6%*	*32.6%*		
TrueView video discovery net ad revenue	**852**	**220**	**239**	**253**	**351**	**1,063**	**268**	**293**	**314**	**430**	**1,304**	**1,565**
% growth	*38.5%*	*32.5%*	*25.8%*	*21.5%*	*21.8%*	*24.7%*	*22.0%*	*22.4%*	*23.7%*	*22.6%*	*22.7%*	*19.9%*
% gross revenue	*67.4%*	*67.4%*	*67.4%*	*67.4%*	*67.4%*	*67.4%*	*67.4%*	*67.4%*	*67.4%*	*67.4%*	*67.4%*	*67.4%*
Ad impressions/MAU	338	80	76	74	68	298	72	70	69	63	274	258
Ad impressions	520,539	136,690	136,234	137,743	130,693	541,360	142,157	141,684	143,253	135,921	563,014	585,535
% yoy growth	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*
eCPM	$1.64	$1.33	$1.37	$1.43	$1.74	$1.47	$1.19	$1.22	$1.27	$1.56	$1.31	$1.18
Display/other advertising revenue	**853**	**182**	**187**	**197**	**228**	**794**	**169**	**172**	**182**	**212**	**735**	**688**
% growth	*-6.4%*	*-8.5%*	*-6.4%*	*-6.4%*	*-6.4%*	*-6.9%*	*-7.3%*	*-8.0%*	*-7.4%*	*-7.0%*	*-7.4%*	*-6.4%*
% sequential growth		*-25.1%*	*2.5%*	*5.1%*	*16.0%*		*-25.8%*	*1.8%*	*5.7%*	*16.5%*		
Display/Other CAC	**(380)**	**(82)**	**(84)**	**(88)**	**(103)**	**(357)**	**(76)**	**(77)**	**(82)**	**(95)**	**(331)**	**(309)**
% growth	*-3.3%*	*-6.5%*	*-5.1%*	*-5.8%*	*-6.4%*	*-6.0%*	*-7.3%*	*-8.0%*	*-7.4%*	*-7.0%*	*-7.4%*	*-6.4%*
% gross revenue		*45.0%*	*45.0%*	*45.0%*	*45.0%*		*45.0%*	*45.0%*	*45.0%*	*45.0%*		
Display/Other net ad revenue	**473**	**100**	**103**	**108**	**125**	**437**	**93**	**95**	**100**	**117**	**404**	**379**
% growth	*-8.8%*	*-10.0%*	*-7.4%*	*-6.9%*	*-6.4%*	*-7.6%*	*-7.3%*	*-8.0%*	*-7.4%*	*-7.0%*	*-7.4%*	*-6.4%*
% gross revenue	*55.5%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*

Source: BMO Capital Markets Estimates.

Exhibit 32: YouTube Advertising Model Part II ($ in millions)

$ in millions, except per share figures	Fiscal Year		2018E			Fiscal Year		2019E			Fiscal Year	Fiscal Year
	2017A	1QA	2QE	3QE	4QE	2018E	1QE	2QE	3QE	4QE	2019E	2020E
Ad impressions	140,641	44,828	46,173	50,900	54,444	196,345	59,173	60,026	66,170	70,232	255,601	324,069
% yoy growth	48.0%	46.0%	43.0%	37.5%	34.0%	39.6%	32.0%	30.0%	30.0%	29.0%	30.2%	26.8%
Ad impressions/MAU	91.2	26.1	25.9	27.5	28.5	108.2	30.0	29.6	31.7	32.8	124.2	142.5
% of video views with ad	1.6%	1.7%	1.6%	1.7%	1.7%	1.7%	1.7%	1.6%	1.7%	1.7%	1.7%	1.7%
eCPM	$17.77	$16.50	$16.50	$16.66	$20.65	$17.69	$16.28	$16.45	$16.51	$20.50	$17.54	$17.40
Ad impressions/MAU	91	26	26	28	28	108	30	30	32	33	124	143
Other video ad revenue	2,500	740	762	848	1,124	3,474	963	987	1,092	1,440	4,483	5,638
% growth	48.7%	46.9%	42.6%	37.1%	33.4%	39.0%	30.2%	29.6%	28.8%	28.1%	29.1%	25.8%
% sequential growth		-12.3%	3.0%	11.3%	32.6%		-14.3%	2.5%	10.6%	31.8%		
Other video CAC	(1,287)	(382)	(395)	(440)	(585)	(1,802)	(501)	(513)	(568)	(749)	(2,331)	(2,932)
% growth	49.6%	47.7%	43.5%	38.2%	34.5%	40.0%	31.0%	30.1%	29.1%	28.1%	29.4%	25.8%
% gross revenue		51.7%	51.8%	51.9%	52.0%		52.0%	52.0%	52.0%	52.0%		
Other video net ad revenue	1,213	357	367	408	540	1,672	462	474	524	691	2,152	2,706
% growth	47.8%	46.0%	41.5%	36.0%	32.1%	37.9%	29.4%	29.1%	28.6%	28.1%	28.7%	25.8%
% gross revenue	48.5%	48.3%	48.2%	48.1%	48.0%	48.1%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
YouTube TV advertising												
Minutes of inventory per hour					2	2	2	2	2	2	2	2
Average ad length (seconds)					30	30	30	30	30	30	30	30
Average hours watched/sub/day					1.8	1.8	2.1	2.2	2.2	2.3	2.2	2.4
% growth										23.4%	20.0%	7.9%
Total ad impressions					517	517	801	1,017	1,236	1,504	4,558	9,554
% growth										191.0%	782.2%	109.6%
eCPM					$31.2	$31.2	$27.0	$28.5	$30.5	$39.0	$32.2	$35.6
% growth										25.0%	3.3%	10.5%
YouTube TV Live advertising revenue/net ad revenue					16	16	22	29	38	59	147	340
% yoy growth										263.8%	811.7%	131.6%
% sequential growth							34.2%	34.0%	30.1%	55.5%		
Total video advertising revenue	10,305	2,696	3,014	3,361	4,848	13,919	3,490	3,863	4,275	6,059	17,687	21,707
% growth	42.9%	42.9%	36.6%	32.6%	31.8%	35.1%	29.4%	28.2%	27.2%	25.0%	27.1%	22.7%
% sequential growth		-26.7%	11.8%	11.5%	44.2%		-28.0%	10.7%	10.6%	41.7%		
Total other advertising revenue	2,117	509	542	573	748	2,371	567	606	647	850	2,670	3,009
% growth	16.1%	14.2%	12.4%	10.2%	11.6%	12.0%	11.5%	11.9%	13.0%	13.6%	12.6%	12.7%
% sequential growth		-24.1%	6.5%	5.7%	30.7%		-24.2%	6.9%	6.7%	31.3%		
Total advertising revenue	12,422	3,205	3,556	3,934	5,596	16,290	4,057	4,470	4,922	6,909	20,358	24,717
% growth	37.5%	37.4%	32.3%	28.8%	28.7%	31.1%	26.6%	25.7%	25.1%	23.5%	25.0%	21.4%
% yoy CC growth	35.9%	32.1%	30.7%	29.9%	29.5%	30.3%	29.6%	26.7%	25.1%	23.5%	25.8%	21.4%
% sequential growth		-26.3%	10.9%	10.6%	42.3%		-27.5%	10.2%	10.1%	40.4%		
YouTube advertising CAC	(6,372)	(1,647)	(1,833)	(2,033)	(2,896)	(8,409)	(2,084)	(2,298)	(2,531)	(3,560)	(10,474)	(12,649)
% yoy growth	38.7%	38.7%	33.3%	29.7%	29.2%	32.0%	26.6%	25.4%	24.5%	22.9%	24.6%	20.8%
% yoy CC growth	37.2%	33.4%	31.7%	30.8%	30.0%	31.2%	29.6%	26.4%	24.5%	22.9%	25.4%	20.8%
% sequential growth		-26.5%	11.3%	10.9%	42.4%		-28.0%	10.3%	10.1%	40.7%		
% gross revenue	51.3%	51.4%	51.6%	51.7%	51.7%	51.6%	51.4%	51.4%	51.4%	51.5%	51.5%	51.2%
YouTube Net Ad Revenue	6,050	1,558	1,723	1,900	2,700	7,881	1,973	2,171	2,391	3,349	9,883	12,068
% yoy growth	36.2%	36.1%	31.2%	27.8%	28.2%	30.3%	26.6%	26.1%	25.8%	24.0%	25.4%	22.1%
% yoy CC growth	34.6%	30.8%	29.6%	28.9%	29.0%	29.5%	29.6%	27.1%	25.8%	24.0%	26.2%	22.1%
% sequential growth		-26.0%	10.6%	10.3%	42.1%		-26.9%	10.1%	10.1%	40.1%		
% gross revenue	48.7%	48.6%	48.4%	48.3%	48.3%	48.4%	48.6%	48.6%	48.6%	48.5%	48.5%	48.8%

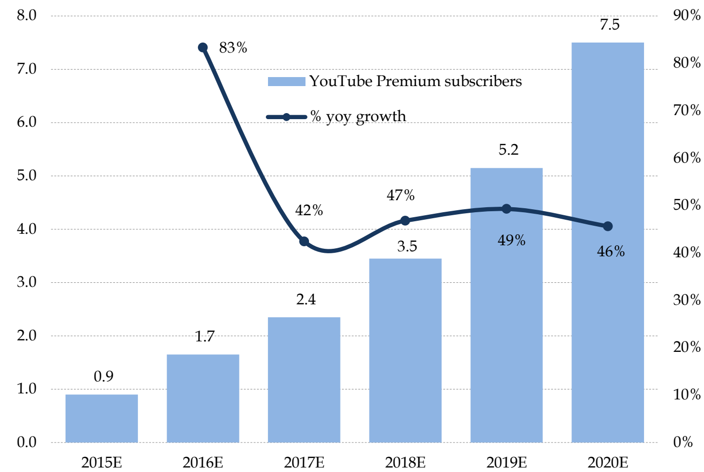
Source: BMO Capital Markets Estimates.

Subscription

YouTube Premium (Formerly YouTube Red)

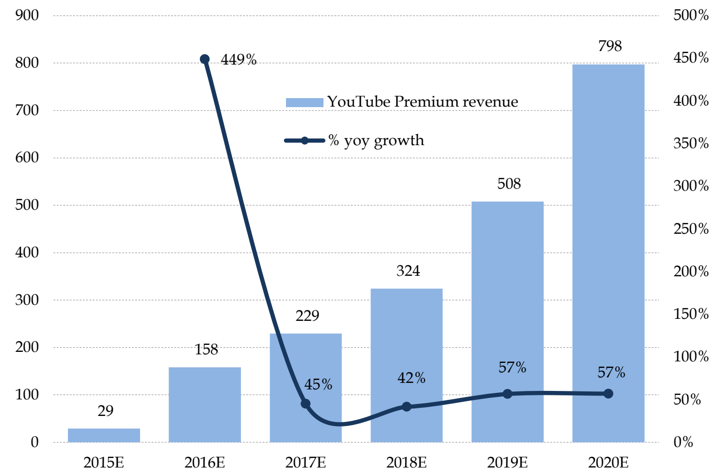
YouTube Premium is a paid subscription service that provides ad-free viewing to users across YouTube in 17 countries, including the U.S., U.K., Canada, and Germany. YouTube Premium was previously called YouTube Red and originally cost $9.99 per month in the United States. In conjunction with the announcement of YouTube Music Premium, the company announced that YouTube Red was being renamed YouTube Premium and that YouTube Premium subscribers would receive all the benefits of a YouTube Music Premium membership in addition to the benefits of a former YouTube Red subscription (i.e., ad-free videos, background play, downloads, YouTube Originals, Google Play music subscription at no additional cost). The company also announced it was increasing the price of a membership from $9.99 to $11.99 in the United States. YouTube Premium is available in 17 countries, which compares to the five countries where YouTube Red was available. We see the rollout of YouTube Premium to additional countries supporting an acceleration in YouTube Premium subscriber growth.

Exhibit 33: YouTube Premium Subscribers (in millions)



Source: BMO Capital Markets estimates.

Exhibit 34: YouTube Premium Revenue ($ in millions)



Source: BMO Capital Markets estimates.

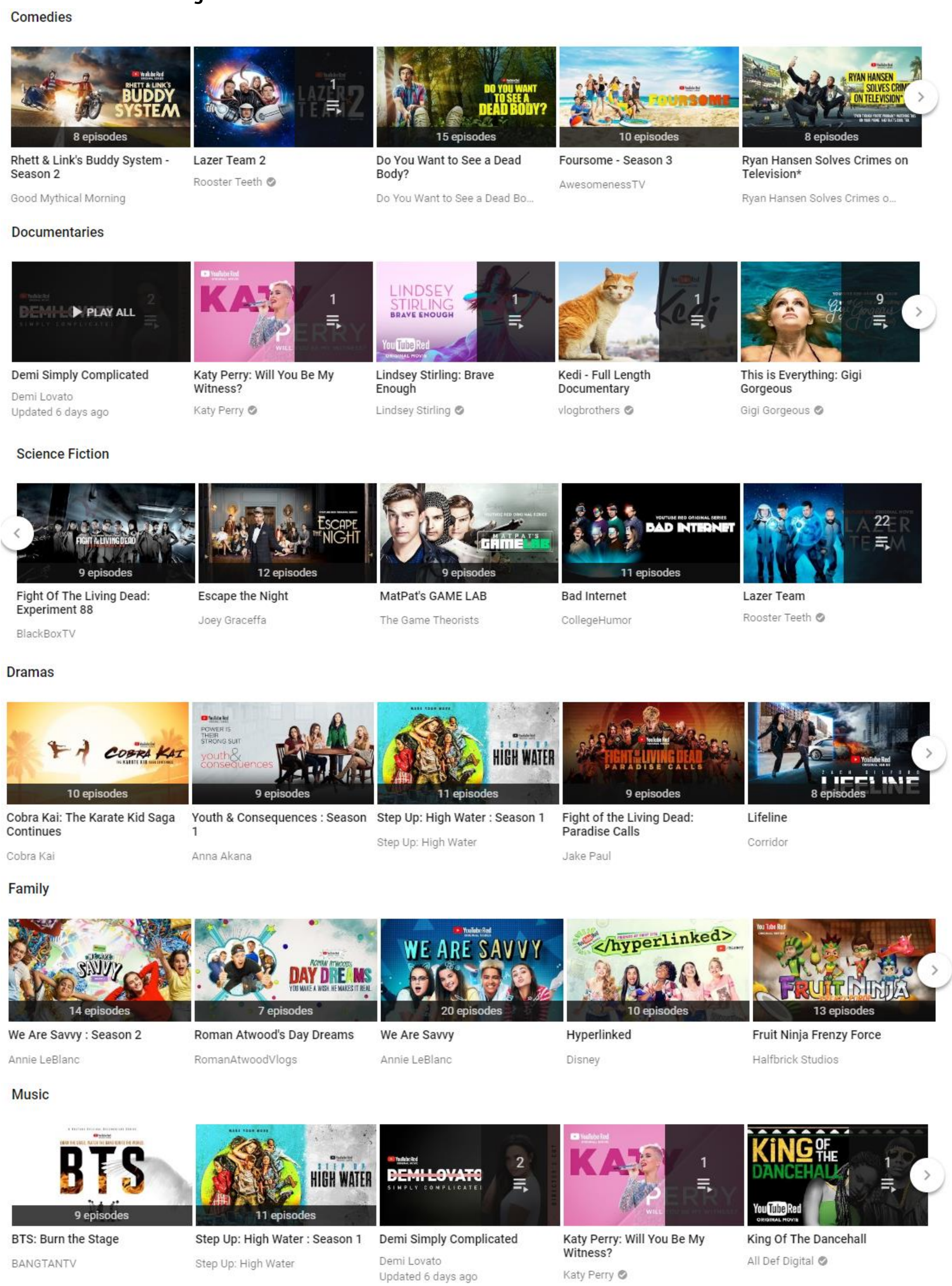
YouTube Premium subscribers receive access to YouTube Originals, the company's own original programming available exclusively to YouTube Premium subscribers. YouTube Originals include full length movies and TV shows across different genres that feature YouTube stars and Hollywood actors, among others. YouTube Originals are available for purchase in select countries where YouTube Premium is not available. Starting in 2017, YouTube began offering ad-supported original content that YouTube users can watch for free.

Exhibit 35: YouTube Premium Model ($ in millions)

$ in millions, except per share figures	Fiscal Year 2017A	2018E 1QA	2QE	3QE	4QE	Fiscal Year 2018E	2019E 1QE	2QE	3QE	4QE	Fiscal Year 2019E	Fiscal Year 2020E
YouTube Premium												
Ending paying YouTube Premium subs	2.35	2.55	2.65	3.00	3.45	3.45	3.90	4.10	4.45	5.15	5.15	7.50
% growth	*42.4%*	*37.8%*	*32.5%*	*39.5%*	*46.8%*	*46.8%*	*52.9%*	*54.7%*	*48.3%*	*49.3%*	*49.3%*	*45.6%*
Average paying YouTube Premium subs	2.00	2.45	2.60	2.83	3.23	2.78	3.68	4.00	4.28	4.80	4.19	6.29
% growth	*48.8%*	*40.0%*	*35.1%*	*36.1%*	*43.3%*	*38.8%*	*50.0%*	*53.8%*	*51.3%*	*48.8%*	*50.9%*	*50.3%*
YouTube Premium monthly cost		$9.6	$9.6	$9.9	$10.0		$10.0	$10.1	$10.1	$10.3		
% growth		*0.0%*	*0.0%*	*3.1%*	*4.2%*		*4.7%*	*5.2%*	*2.5%*	*3.0%*		
YouTube Premium revenue	229	70	74	83	96	324	110	121	130	148	508	798
% growth	*45.1%*	*40.0%*	*35.1%*	*40.4%*	*49.3%*	*41.5%*	*57.1%*	*61.9%*	*55.2%*	*53.3%*	*56.6%*	*57.0%*
% sequential growth		*8.9%*	*6.1%*	*12.1%*	*15.3%*		*14.5%*	*9.4%*	*7.4%*	*13.9%*		
YouTube Premium CAC	(126)	(39)	(41)	(46)	(53)	(178)	(61)	(66)	(71)	(81)	(279)	(439)
% yoy growth	*45.1%*	*40.0%*	*35.1%*	*40.4%*	*49.3%*	*41.5%*	*57.1%*	*61.9%*	*55.2%*	*53.3%*	*56.6%*	*57.0%*
% sequential growth		*8.9%*	*6.1%*	*12.1%*	*15.3%*		*14.5%*	*9.4%*	*7.4%*	*13.9%*		
% gross revenue	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*
YouTube Premium net revenue	103	32	34	38	43	146	50	54	58	66	229	359
% yoy growth	*45.1%*	*40.0%*	*35.1%*	*40.4%*	*49.3%*	*41.5%*	*57.1%*	*61.9%*	*55.2%*	*53.3%*	*56.6%*	*57.0%*
% sequential growth		*8.9%*	*6.1%*	*12.1%*	*15.3%*		*14.5%*	*9.4%*	*7.4%*	*13.9%*		
% gross revenue	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*

Source: BMO Capital Markets Estimates.

Exhibit 36: YouTube Originals



Source: YouTube.com.

Direct competitors to YouTube Premium include SVOD providers (for its ad-free video viewing) and subscription on-demand music streaming services (for its on-demand music listening), among others. These would include the likes of Amazon, Netflix, Apple, Spotify, Pandora, and Hulu (though there are a number of other competitors as well).

Exhibit 37: Selected Domestic Subscription Video On Demand Providers (SVOD)

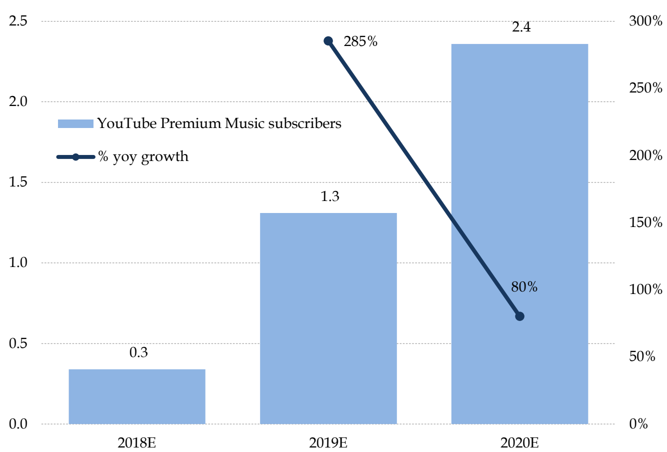
Service	Parent	Launch	Content	Price/month
NETFLIX	Netflix	2007	Licensed and original series and films. Pricing for 1-screen SD, 2-screen HD (Standard) and 4-screen Ultra HD plans	$7.99/$9.99/$13.99
amazon instant video	Amazon	2011	Licensed and original series and films and live sports. Bundled with Amazon Prime membership	$8.99
hulu	Disney, 21st Century Fox, Comcast, Time Warner	2007	Licensed and original series and films. Pricing for ad-supported and (exceptions for a few shows) commercial free tiers	$7.99/$11.99
YouTube	YouTube	2015	Ad-free video, downloads and background listening, millions of songs on demand and original video content. Non-music capabilities on Premium plan	$9.99/$11.99
HBO NOW	Time Warner	2015	HBO library on demand and selected first-run programs in real time with network	$14.99
SHOWTIME	CBS	2015	East and West coast linear feeds and Showtime's library on demand	$10.99
starz	Starz	2016	Starz library and live simulcasts as well as downloads for most content	$8.99
CINEMAX	Time Warner	2016	Licensed films and original series	$9.99
CBS ALL ACCESS	CBS	2014	Library on-demand and live feeds in participating markets. Includes tiers with/without ads on-demand	$5.99/$9.99
NOW	Univision	2015	Primetime library on demand and live simulcasts of Univision and Unimas (premium tier) in participating markets + 72-hour replay	$2.99/$7.99
NOGGIN	Viacom	2015	Nick Jr. programming library, educational content and music videos	$5.99
sundance now DOC CLUB	AMC	2012	Curated films and series	$6.99
SHUDDER	AMC	2015	Curated horror films	$4.99
BOOMERANG	Time Warner	2017	Looney Tunes, Hanna Barbera and MGM libraries	$4.99
ACORN tv	RLJ Entertainment	2011	Licensed and original series from Britain and other English-language markets abroad	$4.99
britbox POWERED BY BBC & itv	BBC, ITV, AMC Networks	2017	Classic series and selected first-run shows from Britain	$6.99
crunchyroll	Ellation	2006	Asian anime, drama and manga. Premium tier gives VIP perks including merchandise and convention access	$6.95/$11.95
DRAMA FEVER	Time Warner	2009	Intl' licensed and original series/films (Korean dramas, telenovelas etc.). Rookie (less ads, exclusive series/films), Idol (no ads, Chromecast) and Superstar (merch/invites)	$0.99/$4.99/$9.99
CuriosityStream	Curiosity Project	2015	Licensed and original documentary content. Tiered prices for SD;HD;Ultra HD/4K	$2.99/$5.99/$11.99
TRIBECA SHORTLIST	Lionsgate, Tribeca	2015	Curated films from Lionsgate/Tribeca/Others and original content. Offline playback enabled	$5.99
MACHINIMA	Time Warner	2015	Original web-series including syndicated library and exclusive content	$1.99
VRV	Ellation	2016	Combo Pack includes Crunchyroll, MONDO, Funimation, Rooster Teeth, Cartoon Hangover, Nerdist, Geek & Sundry and Tested. Services also available a-la-carte	$9.99

Source: Company websites, company comments, BMO Capital Markets estimates.

YouTube Music Premium

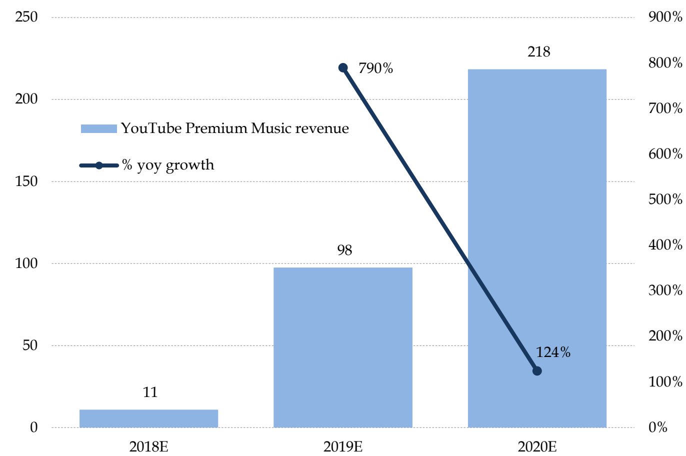
[Announced](#) in May 2018, YouTube Music Premium is a music streaming service that provides ad-free listening, background play, and downloads. YouTube Music Premium costs $9.99 a month in the United States. If a user does not want to pay $9.99 a month, they can access an ad-supported version for free. Existing Google Play Music subscribers get access to YouTube Music Premium for free. While nothing has changed with a Google Play Music subscription, we wouldn't be surprised to see Google Play Music rolled up into YouTube Premium overtime. As of June 19, 2018, YouTube Music Premium is available in 16 countries.

Exhibit 38: YouTube Music Premium Subscribers (in millions)



Source: BMO Capital Markets estimates.

Exhibit 39: YouTube Music Premium Revenue ($ in millions)



Source: BMO Capital Markets estimates.

Exhibit 40: YouTube Music Premium Model ($ in millions)

$ in millions, except per share figures	Fiscal Year	2018E				Fiscal Year	2019E				Fiscal Year	Fiscal Year
	2017A	1QA	2QE	3QE	4QE	2018E	1QE	2QE	3QE	4QE	2019E	2020E
YouTube Music Premium												
Ending paying YouTube Music Premium subs			0.03	0.19	0.34	0.34	0.64	0.89	1.07	1.31	1.31	2.36
% growth								*2866.7%*	*478.4%*	*285.3%*	*285.3%*	*80.2%*
% of MAUs												
Average paying YouTube Music Premium subs			0.02	0.11	0.26	0.13	0.49	0.77	0.98	1.19	0.86	1.92
% growth								*5000.0%*	*811.6%*	*353.3%*	*567.2%*	*123.8%*
YouTube Music Premium monthly cost			$9.5	$9.5	$9.5		$9.5	$9.5	$9.5	$9.5		
% growth								*0.0%*	*0.0%*	*0.0%*		
Total subscription LPU			$7.1	$7.2	$7.2		$7.2	$7.3	$7.3	$7.3		
% yoy growth								*1.9%*	*1.6%*	*1.6%*		
YouTube Music Premium revenue			**0**	**3**	**7**	**11**	**14**	**22**	**28**	**34**	**98**	**218**
% growth								*5000.0%*	*811.6%*	*353.3%*	*789.6%*	*123.8%*
% sequential growth				*616.7%*	*144.2%*		*86.7%*	*56.1%*	*28.1%*	*21.4%*		
YouTube Premium Music CAC			**(0)**	**(2)**	**(6)**	**(8)**	**(11)**	**(17)**	**(21)**	**(26)**	**(75)**	**(169)**
% yoy growth								*5095.2%*	*826.1%*	*360.5%*	*800.3%*	*126.1%*
% sequential growth				*621.4%*	*145.8%*		*87.2%*	*56.5%*	*28.6%*	*22.2%*		
% gross revenue			*75.0%*	*75.5%*	*76.0%*	*75.8%*	*76.2%*	*76.4%*	*76.7%*	*77.2%*	*76.7%*	*77.5%*
YouTube Premium Music net revenue			**0**	**1**	**2**	**3**	**3**	**5**	**7**	**8**	**23**	**49**
% yoy growth								*4714.4%*	*767.0%*	*330.7%*	*756.0%*	*116.2%*
% sequential growth				*602.3%*	*139.2%*		*85.1%*	*54.8%*	*26.5%*	*18.8%*		
% gross revenue			*25.0%*	*24.5%*	*24.0%*	*24.2%*	*23.8%*	*23.6%*	*23.3%*	*22.8%*	*23.3%*	*22.5%*

Source: BMO Capital Markets Estimates.

Direct competitors to YouTube Music Premium include subscription on-demand music streaming services. The main competitors would include Spotify, Apple, Pandora, and Amazon. YouTube Music Premium would also compete against terrestrial radio, satellite radio, and internet radio providers. Below we compare YouTube Music Premium to other on-demand music streaming services.

Exhibit 41: Selected Subscription On-Demand Streaming Music Services

Service	Base/Free Tier	Paid Tier 1	Paid Tier 2	Availability
Spotify	**Spotify** *(Free)* Curated and personalized music stations built from library of 35 million+ songs, podcasts and video content. Includes audio, display and video ads and on-demand listening on desktop and tablet	**Spotify Premium** *($9.99/mo; $99/yr; $4.99/mo Student)* Spotify with no ads, mobile on-demand access and offline listening	**Spotify Premium for Family** *($14.99/mo)* Supports up to 6 separate accounts	61 countries
	Beats1 Radio *(Free)* 24/7 DJ Hosted Radio Station	**Apple Music** *($9.99/mo; $99/yr; $4.99/mo Student)* 45 million+ songs on-demand ad-free, offline listening, Beats 1 radio + curated and custom stations by artist, genre, mood or activity, original series and concerts, and exclusive releases	**Apple Music Family Plan** *($14.99/mo)* Supports access for up to 6 users, including sharing of iTunes purchases	118 countries
music | unlimited	**Amazon Prime Music** *(Free with Prime Subscription)* 1 million+ songs on demand ad-free, curated and personalized radio stations with unlimited skips, and offline listening	**Amazon Music Unlimited** *($7.99/mo; $79/yr for Prime Members, $9.99/mo w/o Prime, $3.99/mo Echo only)* Prime Music with tens of millions of songs in place of limited catalogue	**Amazon Music Unlimited Family Plan** *($14.99/mo; $149/yr)* Supports access for up to 6 users	33 countries
Google Play Music YouTube	**Google Play Music** *(Free)* Ad-supported internet radio with curated and personalized stations by artist, song or genre. Available only in US, Canada and India	**Google Play Music All Access** *($9.99/mo)* Google Play Music with no ads, 40 million+ songs on-demand, offline listening and bundled subscription to YouTube Music Premium where available	**Google Play Music All Access Family** *($14.99/mo)* Supports access for up to 6 users on up to 10 devices each	63 countries
DEEZER	**Deezer Radio** *(Free)* Ad-supported access to 43 million songs including curated and personalized stations (*Mixes, Flow*), user-built playlists in shuffle mode on desktop and tablet and up to 6 skips per hour. Unavailable in US	**Deezer Premium** *($9.99/mo)* Deezer with no-ads, unlimited on-demand access, HQ sound and offline listening	**Deezer Family** *($14.99/mo)* Adds access for up to 6 users and Kids-only profiles	185 countries
P PANDORA	**Pandora Radio** *(Free)* Personalized music and comedy stations created by song/artist/genre sampling library of 1 million+ songs and 35,000+ comedy tracks. Includes, audio, display and video ads	**Pandora Plus** *($4.99/mo; $54.89/yr)* Pandora Radio with no ads, high quality audio, unlimited skips and replays and offline listening	**Pandora Premium** *($9.99/mo;$109.89/yr, $14.99/mo Family)* Pandora Radio with no ads, HQ audio, unlimited skips and replays, offline listening, and on-demand access to catalog of 40 million songs. Supports up to 6 users.	U.S.
napster	**Napster unRadio** *(Free)* Internet radio built from library of 30 million+ songs with curated and personalized stations, no ads, unlimited skips and downloads of up to 25 favorites	**Napster Premier [Premier +1]** *($9.99/mo; $95.90/yr [$14.99/mo])* Adds unlimited on-demand access, compatibility on computers and connected platforms, offline listening and Kids Mode [Premier + 1 enables streaming in 2 locations at once]	**Napster Family** *($14.99/mo+)* Supports up to 5 accounts [doesn't support multiple streams by default]	31 countries
TIDAL	**Tidal Premium** *($9.99/mo, $4.99/mo Student, $5.99/mo Military)* Ad-free on-demand access to 50 million songs and 200,000 music videos including curated playlists, offline listening and exclusive releases	**Tidal HiFi** *($19.99/mo, $9.99/mo Student, $11.99/mo Military)* Adds Hi-Fi sound quality	**Tidal Family** *($14.99/mo Premium, $29.99/mo HiFi)* Supports up to 5 additional users	52 countries

Source: Company releases and BMO Capital Markets.

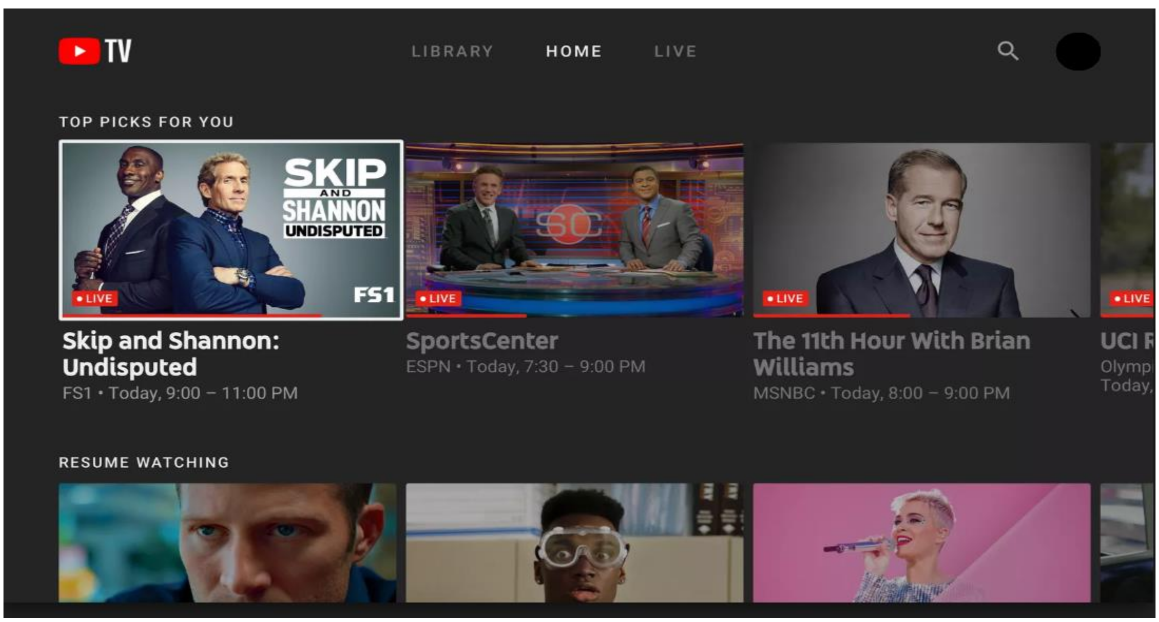
YouTube TV

YouTube TV is a live streaming TV service that costs $40 a month and is available in select cities throughout the United States. YouTube TV subscribers can watch live TV from 60+ networks, can record a program and add it to their library, can watch video on demand, and can watch YouTube videos. YouTube TV subscribers get access to YouTube Originals. Additional premium networks like SHOWTIME are available for an additional monthly charge. Live TV programming on YouTube TV includes advertisements similar to a traditional TV package; additionally, YouTube videos that are accessed through the YouTube TV interface include advertisements (unless the YouTube TV subscriber is also a YouTube Premium subscriber). Subscribers can watch YouTube TV on phones, tablets, computers, and TVs. Subscribers can use YouTube TV and Google Home together and can control YouTube TV via voice commands through Google Assistant on a Google Home device.

Exhibit 42: Networks Included in YouTube TV Offering

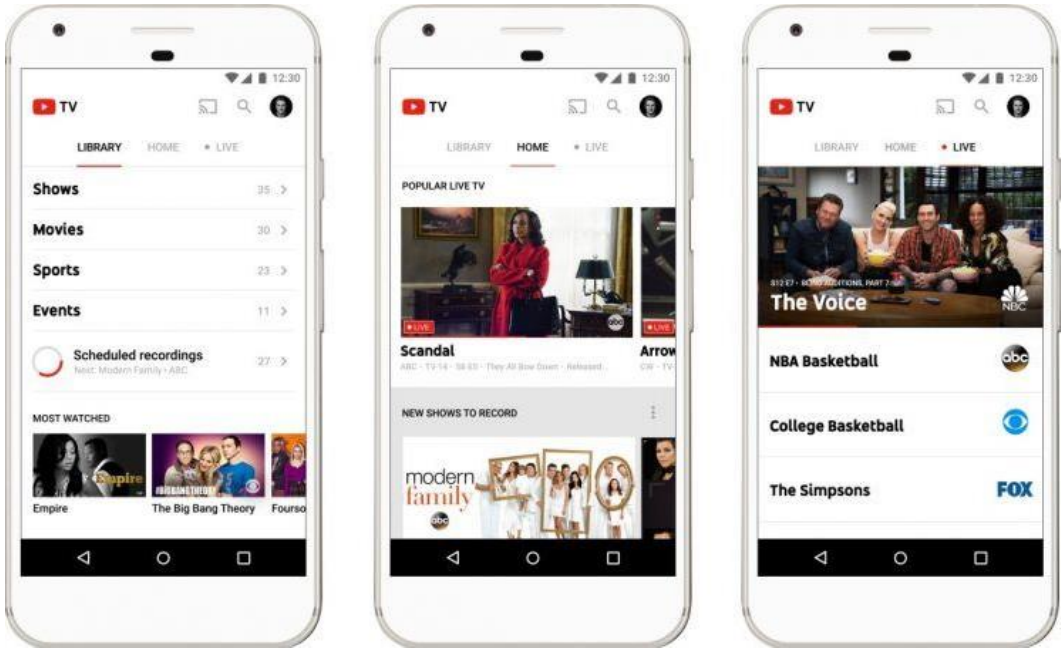
Source: YouTube.

Exhibit 43: YouTube TV Interface on a TV



Source: YouTube.

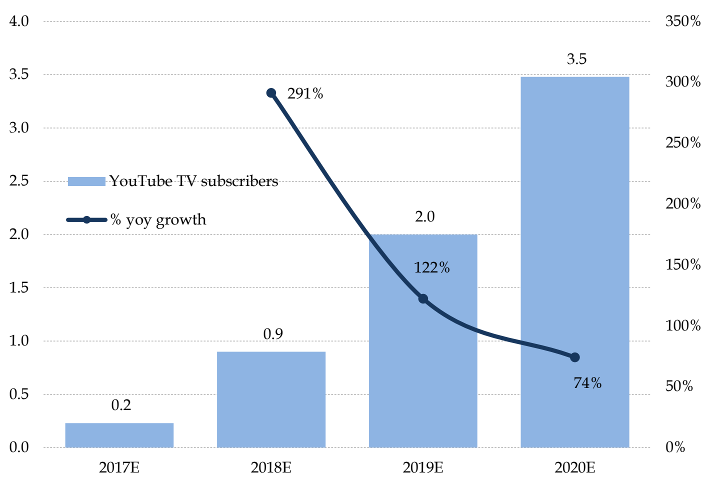
Exhibit 44: YouTube TV Interface on a Mobile Device



Source: YouTube.

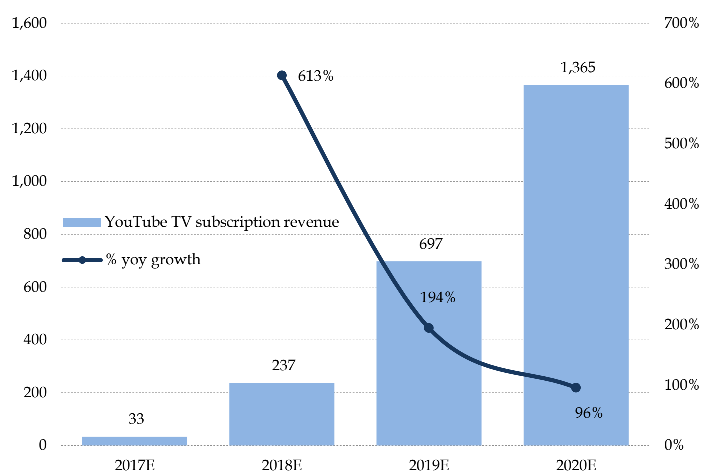
YouTube TV pays fees to national cable networks, regional sports networks, and broadcast networks to include their programming in a YouTube TV subscription. We assume the fees YouTube pays to its content partners are in line with the rates paid by traditional distributors. We estimate YouTube TV operates at a slight loss after accounting for these fees. We believe profitability longer term will need to be driven by price increases or advertising. We believe it's important to note that YouTube TV could increase the viewership of core YouTube videos through the YouTube TV interface and that this could drive incremental advertising revenue for the company (in addition to their two minutes of ad inventory on the Live portion of YouTube TV).

Exhibit 45: YouTube TV Subscribers (in millions)



Source: BMO Capital Markets estimates.

Exhibit 46: YouTube TV Subscription Revenue ($ millions)



Source: BMO Capital Markets estimates.

Exhibit 47: YouTube TV Model ($ in millions)

$ in millions, except per share figures	Fiscal Year		2018E			Fiscal Year		2019E			Fiscal Year	Fiscal Year
	2017A	1QA	2QE	3QE	4QE	2018E	1QE	2QE	3QE	4QE	2019E	2020E
YouTube TV												
Ending paying YouTube TV subs	0.23	0.35	0.48	0.66	0.90	0.90	1.18	1.40	1.68	2.00	2.00	3.48
% growth			700.0%	388.9%	291.3%	291.3%	237.1%	191.7%	154.5%	122.2%	122.2%	74.0%
Average paying YouTube TV subs	0.10	0.29	0.42	0.57	0.78	0.51	1.04	1.29	1.54	1.84	1.43	2.78
% growth			1283.3%	484.6%	327.4%	397.2%	258.6%	210.8%	170.2%	135.9%	177.9%	94.6%
YouTube TV monthly cost		$35.4	$37.0	$38.0	$38.5		$39.0	$40.0	$40.0	$40.0		
% growth			5.7%	8.6%	10.0%		10.2%	8.1%	5.3%	3.9%		
YouTube TV subscription revenue	**33**	**31**	**46**	**65**	**90**	**232**	**122**	**155**	**185**	**221**	**682**	**1,333**
% growth			1362.4%	534.7%	370.1%	612.5%	295.1%	236.0%	184.4%	145.1%	194.1%	95.5%
% sequential growth		60.7%	49.6%	41.1%	38.6%		35.1%	27.2%	19.4%	19.5%		
YouTube TV add-ons												
SHOWTIME subs	0.01	0.01	0.02	0.03	0.04	0.04	0.05	0.06	0.08	0.09	0.09	0.17
% growth			941.3%	495.2%	348.7%		270.9%	220.1%	178.8%	142.9%	142.9%	81.4%
% total subs	3.8%	4.0%	4.1%	4.2%	4.3%	4.3%	4.4%	4.5%	4.6%	4.7%	4.7%	4.9%
Average subs		0.01	0.02	0.02	0.03		0.05	0.06	0.07	0.09		
% growth			791.0%	623.9%	400.1%		300.5%	241.2%	195.9%	157.9%		
Monthly ARPU		$11.0	$11.0	$11.0	$11.0		$11.0	$11.0	$11.0	$11.0		
SHOWTIME revenue	**0**	0	1	1	1	**3**	1	2	2	3	**9**	**18**
Fox Soccer Plus subs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.04
% growth			918.2%	566.7%	381.6%		335.7%	262.5%	205.5%	158.3%	158.3%	89.0%
% total subs	0.7%	0.7%	0.7%	0.8%	0.8%	0.8%	0.8%	0.9%	0.9%	0.9%	0.9%	1.0%
Average subs		0.00	0.00	0.00	0.01		0.01	0.01	0.01	0.02		
% growth			753.8%	674.8%	443.0%		353.9%	292.0%	228.5%	177.5%		
Monthly ARPU		$15.0	$15.0	$15.0	$15.0		$15.0	$15.0	$15.0	$15.0		
Fox Soccer Plus revenue	**0**	0	0	0	0	**1**	0	0	1	1	**2**	**5**
Shudder subs	0.00	0.01	0.01	0.02	0.02	0.02	0.03	0.04	0.05	0.06	0.06	0.11
% growth			1015.2%	570.5%	411.7%		306.1%	248.7%	200.2%	153.6%	153.6%	86.0%
% total subs	2.0%	2.2%	2.3%	2.4%	2.6%	2.6%	2.7%	2.8%	2.8%	2.9%	2.9%	3.1%
Average subs		0.01	0.01	0.01	0.02		0.03	0.03	0.04	0.05		
% growth			846.5%	701.8%	466.5%		345.0%	272.3%	220.1%	172.6%		
Monthly ARPU		$5.0	$5.0	$5.0	$5.0		$5.0	$5.0	$5.0	$5.0		
Shudder revenue	**0**	0	0	0	0	**1**	0	1	1	1	**2**	**5**
Sundance Now subs	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.07
% growth			1277.8%	682.2%	438.0%		282.1%	229.3%	186.4%	149.2%	149.2%	90.0%
% total subs	1.2%	1.5%	1.6%	1.6%	1.7%	1.7%	1.7%	1.8%	1.8%	1.9%	1.9%	2.0%
Average subs		0.00	0.01	0.01	0.01		0.02	0.02	0.03	0.03		
% growth			1075.0%	852.4%	518.2%		335.8%	251.1%	204.1%	164.6%		
Monthly ARPU		$7.0	$7.0	$7.0	$7.0		$7.0	$7.0	$7.0	$7.0		
Sundance Now revenue	**0**	0	0	0	0	**1**	0	0	1	1	**2**	**5**
YouTube TV add-on revenue	**1**	**1**	**1**	**1**	**2**	**5**	**3**	**3**	**4**	**5**	**15**	**32**
% yoy growth			824.8%	667.5%	429.4%	656.6%	318.8%	253.9%	205.1%	163.8%	213.1%	110.1%
% sequential growth		74.1%	50.9%	42.2%	41.7%		37.7%	27.5%	22.6%	22.5%		
Total YouTube TV subscription revenue	**33**	**31**	**47**	**66**	**92**	**237**	**124**	**158**	**189**	**226**	**697**	**1,365**
% yoy growth			1345.3%	537.0%	371.2%	613.4%	295.6%	236.4%	184.8%	145.5%	194.5%	95.8%
% sequential growth		61.0%	49.6%	41.1%	38.7%		35.1%	27.2%	19.4%	19.5%		
YouTube TV CAC/affilifate fees	**(32)**	**(40)**	**(57)**	**(81)**	**(113)**	**(290)**	**(145)**	**(184)**	**(218)**	**(260)**	**(806)**	**(1,652)**
% yoy growth			1669.1%	751.9%	493.8%	815.0%	265.7%	225.2%	169.3%	130.4%	178.3%	104.9%
% sequential growth		109.0%	42.4%	43.1%	39.5%		28.7%	26.7%	18.5%	19.3%		
% gross revenue	95.4%	126.2%	120.2%	121.9%	122.5%	122.4%	116.7%	116.2%	115.2%	115.0%	115.6%	121.0%
YouTube TV net revenue	**2**	**(8)**	**(9)**	**(15)**	**(21)**	**(53)**	**(21)**	**(26)**	**(29)**	**(34)**	**(109)**	**(287)**
% yoy growth			-16245.7%	-1670.8%	-3951.8%	-3583.6%	151.6%	169.7%	98.4%	63.5%	105.8%	163.1%
% sequential growth		-1631.9%	15.1%	52.9%	42.9%		0.1%	23.4%	12.5%	17.7%		
% gross revenue	4.7%	-26.8%	-20.6%	-22.3%	-23.0%	-22.8%	-17.1%	-16.5%	-15.6%	-15.4%	-16.0%	-21.5%

Source: BMO Capital Markets estimates.

Direct competitors to YouTube TV include other virtual multichannel video programming distributors (vMVPDs). These would include the likes of Sling TV, DirecTV Now, PlayStation Vue, and Hulu with Live TV, among others. Below is a quick summary of YouTube TV versus its primary competitors.

Exhibit 48: Selected Virtual Multichannel Video Programming Distributors (vMVPDs)

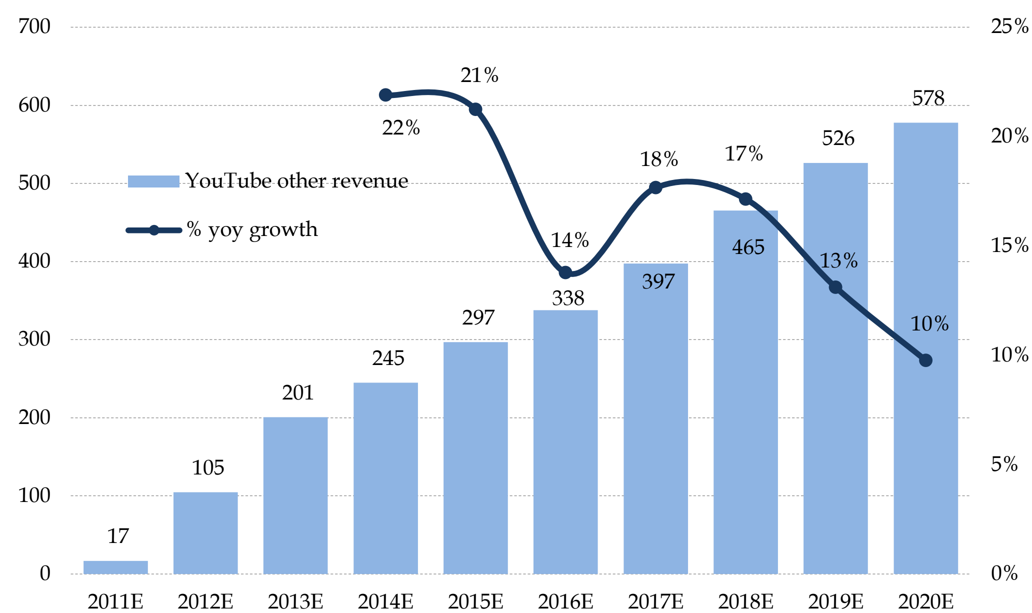
	sling	DIRECTV NOW	hulu	YouTube TV	PlayStation Vue	fubo TV
Tiers (monthly cost)	Sling Orange ($20); Sling Blue ($25); Sling Orange + Blue ($40)	Live a Little ($35); Just Right ($50); Go Big ($60); Gotta Have It! ($70)	Limited Commercials on SVOD ($39.99); No Commercials on SVOD ($44.99)	$40	Access ($34.99); Core ($44.99); Elite ($54.99); Ultra ($74.99)	fubo ($44.99); fubo Extra ($49.99)
Channels (Starting Tier)	30+	60+	50+	60+	40+	70+
Expansion Packs	Yes	No	No	No	Yes	Yes
National Broadcast Networks	ABC (Orange Only), FOX (Blue Only), NBC (Blue Only), Univision, Unimas	CBS, NBC, FOX, ABC, CW, MyNetworkTV, Telemundo, Univision, Unimas	CBS, NBC, FOX, ABC, CW, Telemundo, MyNetworkTV	CBS, NBC, FOX, ABC, CW, Telemundo, MyNetworkTV	CBS, NBC, FOX, ABC, Telemundo, MyNetworkTV	CBS, NBC, FOX, CW, MyNetworkTV, Telemundo, Univision, Unimas
Broadcast Affiliations	82	275	613	461	207	288
RSNs	Blue Only	Yes	Yes	Yes	Core and higher	Yes
Add-ons	HBO, Showtime, Starz, Cinemax, Epix, NBA League Pass/Team Pass, others	HBO, Starz, Cinemax	HBO, Showtime, Cinemax	Showtime, Fox Soccer Plus, Shudder, Sundance Now	HBO, Showtime, Cinemax, Epix Hits, Fox Soccer Plus	Showtime
Exclusives/Originals	NA	Audience Network	SVOD original content	LAFC, Seattle Sounders, Orlando SC local MLS channels; YouTube Premium original content	NA	MSG Networks, Sports Illustrated TV
Concurrent Streams	1 on Orange, 3 on Blue	2 (3 for $5/mo)	2 (Unlimited in-home and 3 out-of-home for $14.99/mo)	3	5	2 (3 for $5.99/mo)
Network VOD	Yes	Yes	Yes	Yes	Yes	Yes
DVR	50 hours ($5/mo). Unavailable for Disney/ESPN networks	20 hours up to 30 days (free). 100 hours up to 90 days ($10/mo)	50 hours (free). 200 hours ($14.99/mo)	Unlimited storage up to 9 months (free)	Unlimited storage up to 500 shows up to 28 days (free)	30 hours (free). 500 hours ($9.99/mo)
Fast Forward on DVR	Yes	Yes	No	For shows unavailable on-demand	For shows unavailable on-demand. None for FOX, FX, FXX	Yes

Source: Company websites, company comments, BMO Capital Markets estimates.

Other

YouTube also generates revenue from users renting and purchasing movies and TV shows as well as from Sponsorships, PPV fees, and Super Chat, among others. We do not believe this is currently a material revenue stream for the company and see YouTube generating $465mm in "Other" revenue in FY18. We believe revenue share agreements are generally 70% to the content owner/creator and 30% to YouTube, though we believe they can vary depending on specific agreements.

Exhibit 49: YouTube Other Revenue ($ in millions)



Source: BMO Capital Markets estimates.

Exhibit 50: YouTube Other Revenue Model ($ in millions)

$ in millions, except per share figures	Fiscal Year 2017A	2018E 1QE	2QE	3QE	4QE	Fiscal Year 2018E	2019E 1QE	2QE	3QE	4QE	Fiscal Year 2019E	Fiscal Year 2020E
Other revenue												
% of MAUS renting movies/TV show		0.4%	0.4%	0.4%	0.4%		0.4%	0.4%	0.4%	0.4%		
Transactions during period		2	2	2	2		2	2	2	2		
Average price		$3.6	$3.6	$3.6	$3.6		$3.7	$3.7	$3.7	$3.7		
Movie/TV show rental revenue	**174**	**49**	**49**	**51**	**53**	**202**	**55**	**56**	**57**	**59**	**227**	**249**
% growth	*19.6%*	*16.6%*	*16.8%*	*16.1%*	*14.7%*	*16.0%*	*14.2%*	*12.9%*	*12.0%*	*11.3%*	*12.6%*	*9.5%*
% of MAUS purchasing movies/TV show		0.2%	0.2%	0.2%	0.2%		0.2%	0.2%	0.2%	0.2%		
Purchases during period		2	2	2	2		2	2	2	2		
Average price		$11.0	$11.2	$11.2	$11.2		$11.1	$11.3	$11.3	$11.3		
Movie/TV show purchase revenue	**187**	**49**	**52**	**54**	**56**	**212**	**54**	**57**	**58**	**60**	**229**	**241**
% growth	*12.7%*	*13.4%*	*13.7%*	*13.0%*	*11.6%*	*12.9%*	*9.8%*	*8.7%*	*7.8%*	*7.1%*	*8.3%*	*5.2%*
PPV/Sponsorship/Super Chat	**36**	12	13	13	14	**52**	16	17	18	19	**70**	**88**
% growth	*38.5%*	*50.0%*	*44.4%*	*44.4%*	*40.0%*	*44.4%*	*35.8%*	*32.3%*	*34.6%*	*35.7%*	*34.6%*	*25.6%*
YouTube other revenue	**397**	**110**	**115**	**118**	**123**	**465**	**126**	**130**	**133**	**138**	**526**	**578**
% growth	*17.7%*	*18.0%*	*17.9%*	*17.2%*	*15.6%*	*17.1%*	*14.6%*	*13.2%*	*12.6%*	*12.2%*	*13.1%*	*9.8%*
% sequential growth		*3.6%*	*4.3%*	*3.2%*	*3.7%*		*2.7%*	*3.0%*	*2.7%*	*3.3%*		
YouTube other CAC	**(278)**	**(77)**	**(80)**	**(83)**	**(86)**	**(326)**	**(88)**	**(91)**	**(93)**	**(96)**	**(368)**	**(404)**
% yoy growth	*17.7%*	*18.0%*	*17.9%*	*17.2%*	*15.6%*	*17.1%*	*14.6%*	*13.2%*	*12.6%*	*12.2%*	*13.1%*	*9.8%*
% sequential growth		*3.6%*	*4.3%*	*3.2%*	*3.7%*		*2.7%*	*3.0%*	*2.7%*	*3.3%*		
% gross revenue	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*
YouTube other net revenue	**119**	**33**	**34**	**35**	**37**	**140**	**38**	**39**	**40**	**41**	**158**	**173**
% yoy growth	*17.7%*	*18.0%*	*17.9%*	*17.2%*	*15.6%*	*17.1%*	*14.6%*	*13.2%*	*12.6%*	*12.2%*	*13.1%*	*9.8%*
% sequential growth		*3.6%*	*4.3%*	*3.2%*	*3.7%*		*2.7%*	*3.0%*	*2.7%*	*3.3%*		
% gross revenue	*30.0%*	*30.0%*	*30.0%*	*30.0%*	*30.0%*	*30.0%*	*30.0%*	*30.0%*	*30.0%*	*30.0%*	*30.0%*	*30.0%*

Source: BMO Capital Markets estimates.

Company Models

Exhibit 51: Alphabet Income Statement ($ millions, except per-share data)

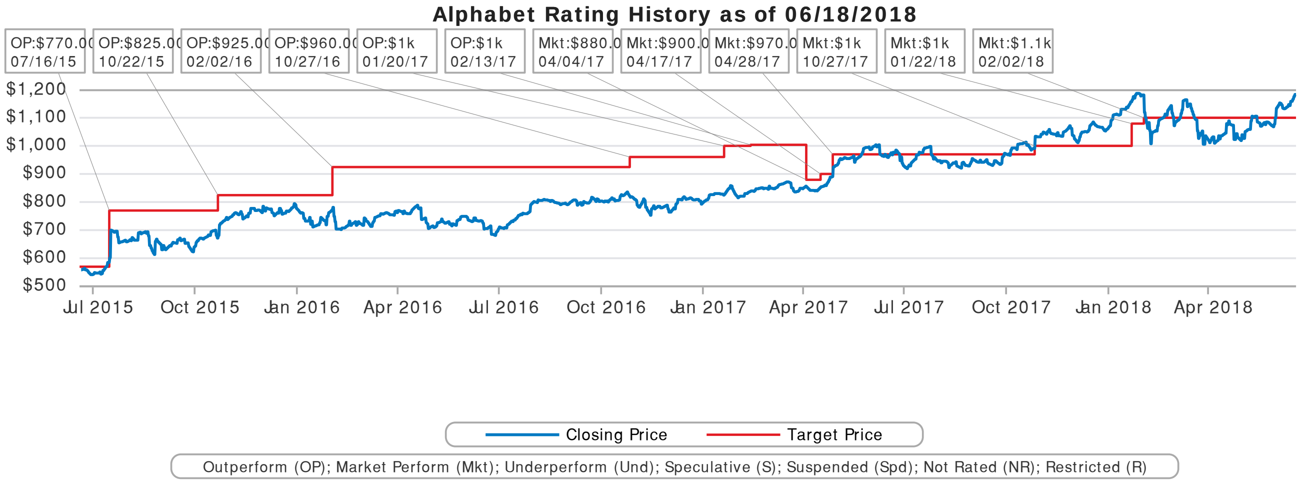
$ in millions, except per share figures	Fiscal Year		2018E			Fiscal Year		2019E			Fiscal Year	Fiscal Year
December fiscal year	2017A	1QA	2QE	3QE	4QE	2018E	1QE	2QE	3QE	4QE	2019E	2020E
Revenue												
Google												
Google properties	77,788	21,998	23,031	24,200	27,352	96,581	26,552	27,568	28,605	32,111	114,835	133,452
Google Network Members' properties	17,587	4,644	4,693	4,754	5,489	19,580	4,969	5,092	5,182	5,928	21,171	22,653
Google other	15,003	4,354	4,443	4,921	6,373	20,091	5,640	5,799	6,399	8,141	25,979	32,984
Google segment revenues	*110,378*	*30,996*	*32,167*	*33,876*	*39,213*	*136,252*	*37,161*	*38,459*	*40,186*	*46,179*	*161,985*	*189,089*
Other Bets	477	150	118	140	157	566	180	142	168	189	679	815
Gross revenue	**110,855**	**31,146**	**32,285**	**34,016**	**39,370**	**136,818**	**37,341**	**38,601**	**40,355**	**46,368**	**162,665**	**189,904**
% yoy growth	*22.8%*	*25.8%*	*24.1%*	*22.5%*	*21.8%*	*23.4%*	*19.9%*	*19.6%*	*18.6%*	*17.8%*	*18.9%*	*16.7%*
% sequential growth		*-3.6%*	*3.7%*	*5.4%*	*15.7%*		*-5.2%*	*3.4%*	*4.5%*	*14.9%*		
TAC to Google Network Members	(12,641)	(3,386)	(3,436)	(3,491)	(4,052)	(14,366)	(3,659)	(3,765)	(3,842)	(4,418)	(15,684)	(16,952)
TAC to distribution partners	(9,031)	(2,902)	(3,093)	(3,309)	(3,776)	(13,080)	(3,750)	(3,956)	(4,146)	(4,721)	(16,573)	(20,411)
Revenue ex TAC	**89,183**	**24,858**	**25,756**	**27,217**	**31,542**	**109,373**	**29,932**	**30,880**	**32,367**	**37,229**	**130,407**	**152,541**
% yoy growth	*21.4%*	*23.5%*	*23.1%*	*22.2%*	*21.9%*	*22.6%*	*20.4%*	*19.9%*	*18.9%*	*18.0%*	*19.2%*	*17.0%*
% sequential growth		*-3.9%*	*3.6%*	*5.7%*	*15.9%*		*-5.1%*	*3.2%*	*4.8%*	*15.0%*		
% margin	*80.5%*	*79.8%*	*79.8%*	*80.0%*	*80.1%*	*79.9%*	*80.2%*	*80.0%*	*80.2%*	*80.3%*	*80.2%*	*80.3%*
Other costs of revenue (data centers, c.c. fees, etc.)	(23,911)	(7,179)	(7,379)	(7,798)	(10,346)	(32,702)	(9,369)	(9,573)	(10,060)	(12,918)	(41,919)	(51,448)
Net revenue	**65,272**	**17,679**	**18,377**	**19,419**	**21,196**	**76,671**	**20,563**	**21,307**	**22,307**	**24,310**	**88,488**	**101,093**
% yoy growth	*18.4%*	*18.2%*	*17.5%*	*16.8%*	*17.4%*	*17.5%*	*16.3%*	*15.9%*	*14.9%*	*14.7%*	*15.4%*	*14.2%*
% sequential growth		*-2.1%*	*3.9%*	*5.7%*	*9.2%*		*-3.0%*	*3.6%*	*4.7%*	*9.0%*		
Gross margin	*58.9%*	*56.8%*	*56.9%*	*57.1%*	*53.8%*	*56.0%*	*55.1%*	*55.2%*	*55.3%*	*52.4%*	*54.4%*	*53.2%*
Operating expenses												
Research & development	(16,625)	(5,039)	(5,150)	(5,273)	(5,488)	(20,949)	(5,788)	(6,053)	(6,194)	(6,538)	(24,573)	(28,721)
Sales & marketing	(12,893)	(3,604)	(3,665)	(3,815)	(4,662)	(15,746)	(4,533)	(4,569)	(4,542)	(5,486)	(19,130)	(22,484)
General & adminstrative	(6,872)	(2,035)	(1,650)	(1,620)	(1,750)	(7,055)	(1,770)	(1,710)	(1,735)	(1,790)	(7,005)	(7,245)
Other	(2,736)	0	0	0	0	0	0	0	0	0	0	0
Total operating costs	(36,390)	(10,678)	(10,465)	(10,707)	(11,900)	(43,751)	(12,090)	(12,332)	(12,472)	(13,814)	(50,708)	(58,450)
Operating income/EBIT ex one-time items	**28,882**	**7,001**	**7,912**	**8,712**	**9,296**	**32,921**	**8,473**	**8,975**	**9,836**	**10,496**	**37,780**	**42,643**
% growth	*21.8%*	*6.6%*	*15.2%*	*11.9%*	*21.3%*	*14.0%*	*21.0%*	*13.4%*	*12.9%*	*12.9%*	*14.8%*	*12.9%*
% margin	*26.1%*	*22.5%*	*24.5%*	*25.6%*	*23.6%*	*24.1%*	*22.7%*	*23.3%*	*24.4%*	*22.6%*	*23.2%*	*22.5%*
Reported operating income/EBIT	**26,146**	**7,001**	**7,912**	**8,712**	**9,296**	**32,921**	**8,473**	**8,975**	**9,836**	**10,496**	**37,780**	**42,643**
Other (expenses)/income												
Interest income	1,312	399	409	429	464	1,702	497	536	556	605	2,194	2,696
Interest expense	(109)	(30)	(30)	(30)	(30)	(120)	(30)	(30)	(30)	(30)	(120)	(120)
FX losses, net	(121)	(24)	0	0	0	(24)	0	0	0	0	0	0
Realized gain (loss)	(159)	2,985	0	0	0	2,985	0	0	0	0	0	0
Other	124	212	0	0	0	212	0	0	0	0	0	0
Interest and other income (expense), net	1,047	3,542	379	399	434	4,755	467	506	526	575	2,074	2,576
Other one-time, pre-tax expense	0	0	0	0	0	0	0	0	0	0	0	0
Pre-tax income ex one-time items	**29,929**	**10,543**	**8,291**	**9,110**	**9,731**	**37,675**	**8,940**	**9,481**	**10,362**	**11,072**	**39,854**	**45,219**
Reported pre-tax income	**27,193**	**10,543**	**8,291**	**9,110**	**9,731**	**37,675**	**8,940**	**9,481**	**10,362**	**11,072**	**39,854**	**45,219**
Cash taxes	(3,651)	(1,634)	(1,285)	(1,412)	(1,508)	(5,840)	(1,386)	(1,470)	(1,606)	(1,716)	(6,177)	(7,009)
Non-cash taxes	(10,880)	492	(83)	(91)	(97)	221	(89)	(95)	(104)	(111)	(399)	(452)
Reported taxes	(14,531)	(1,142)	(1,368)	(1,503)	(1,606)	(5,619)	(1,475)	(1,564)	(1,710)	(1,827)	(6,576)	(7,461)
Tax effect of one-time items	9,323	0	0	0	0	0	0	0	0	0	0	0
Taxes ex items	(5,208)	(1,142)	(1,368)	(1,503)	(1,606)	(5,619)	(1,475)	(1,564)	(1,710)	(1,827)	(6,576)	(7,461)
Effective tax rate ex items	*17.4%*	*10.8%*	*16.5%*	*16.5%*	*16.5%*	*14.9%*	*16.5%*	*16.5%*	*16.5%*	*16.5%*	*16.5%*	*16.5%*
Effective reported tax rate	*53.4%*	*10.8%*	*16.5%*	*16.5%*	*16.5%*	*14.9%*	*16.5%*	*16.5%*	*16.5%*	*16.5%*	*16.5%*	*16.5%*
Other one-time expense after tax	0	0	0	0	0	0	0	0	0	0	0	0
Net income ex one-time items	**24,721**	**9,401**	**6,923**	**7,607**	**8,125**	**32,056**	**7,465**	**7,917**	**8,652**	**9,245**	**33,278**	**37,758**
% growth	*26.9%*	*73.3%*	*20.9%*	*13.0%*	*18.8%*	*29.7%*	*-20.6%*	*14.3%*	*13.7%*	*13.8%*	*3.8%*	*13.5%*
% margin	*22.3%*	*30.2%*	*21.4%*	*22.4%*	*20.6%*	*23.4%*	*20.0%*	*20.5%*	*21.4%*	*19.9%*	*20.5%*	*19.9%*
Reported GAAP net income	**12,662**	**9,401**	**6,923**	**7,607**	**8,125**	**32,056**	**7,465**	**7,917**	**8,652**	**9,245**	**33,278**	**37,758**
Basic shares outstanding	693	695	696	697	698	696	699	700	701	702	700	704
Diluted shares outstanding	704	705	706	707	708	707	709	710	711	712	711	715
Diluted EPS ex one-time items	**$35.14**	**$13.33**	**$9.80**	**$10.76**	**$11.47**	**$45.36**	**$10.53**	**$11.15**	**$12.17**	**$12.98**	**$46.83**	**$52.84**
% yoy growth	*26.0%*	*72.5%*	*20.4%*	*12.5%*	*18.3%*	*29.1%*	*-21.0%*	*13.7%*	*13.1%*	*13.1%*	*3.2%*	*12.8%*
% sequential growth		*37.5%*	*-26.5%*	*9.7%*	*6.7%*		*-8.3%*	*5.9%*	*9.1%*	*6.7%*		
Reported GAAP diluted EPS	**$18.00**	**$13.33**	**$9.80**	**$10.76**	**$11.47**	**$45.36**	**$10.53**	**$11.15**	**$12.17**	**$12.98**	**$46.83**	**$52.84**
% yoy growth	*-35.4%*	*72.5%*	*95.7%*	*12.5%*	*363.9%*	*152.1%*	*-21.0%*	*13.7%*	*13.1%*	*13.1%*	*3.2%*	*12.8%*
Non-GAAP operating income and EBITDA												
Cost of revenue stock comp - Google	(1,403)	(449)	(430)	(381)	(390)	(1,649)	(518)	(496)	(440)	(449)	(1,903)	(2,168)
R&D stock comp	(3,789)	(1,212)	(1,161)	(1,029)	(1,053)	(4,455)	(1,399)	(1,340)	(1,188)	(1,214)	(5,141)	(5,855)
Sales and marketing stock comp	(1,235)	(395)	(378)	(336)	(343)	(1,452)	(456)	(437)	(387)	(396)	(1,676)	(1,909)
G&A stock comp	(1,253)	(401)	(384)	(340)	(348)	(1,474)	(463)	(443)	(393)	(402)	(1,700)	(1,937)
Total stock-based compensation	(7,679)	(2,457)	(2,353)	(2,087)	(2,134)	(9,031)	(2,836)	(2,717)	(2,407)	(2,461)	(10,421)	(11,868)
Other	0	0	0	0	0	0	0	0	0	0	0	0
Non-GAAP operating income	**36,561**	**9,458**	**10,265**	**10,798**	**11,430**	**41,951**	**11,309**	**11,692**	**12,243**	**12,957**	**48,201**	**54,511**
% growth	*20.2%*	*10.3%*	*15.7%*	*12.5%*	*20.2%*	*14.7%*	*19.6%*	*13.9%*	*13.4%*	*13.4%*	*14.9%*	*13.1%*
% margin	*33.0%*	*30.4%*	*31.8%*	*31.7%*	*29.0%*	*30.7%*	*30.3%*	*30.3%*	*30.3%*	*27.9%*	*29.6%*	*28.7%*
Add-back: Depreciation & amortization	6,915	1,986	2,088	2,210	2,475	8,758	2,392	2,528	2,644	2,902	10,466	12,292
Adjusted EBITDA	**43,476**	**11,444**	**12,353**	**13,008**	**13,905**	**50,709**	**13,701**	**14,221**	**14,887**	**15,859**	**58,668**	**66,803**
% yoy growth	*18.9%*	*13.5%*	*17.7%*	*14.5%*	*20.5%*	*16.6%*	*19.7%*	*15.1%*	*14.4%*	*14.1%*	*15.7%*	*13.9%*
% sequential growth		*-0.8%*	*7.9%*	*5.3%*	*6.9%*		*-1.5%*	*3.8%*	*4.7%*	*6.5%*		
% margin	*39.2%*	*36.7%*	*38.3%*	*38.2%*	*35.3%*	*37.1%*	*36.7%*	*36.8%*	*36.9%*	*34.2%*	*36.1%*	*35.2%*

Source: Company reports and BMO Capital Markets estimates.

Exhibit 52: Alphabet Cash Flow Statement ($ millions, except per-share data)

$ in millions, except per share figures	Fiscal Year		2018E			Fiscal Year		2019E			Fiscal Year	Fiscal Year
December fiscal year	2017A	1QA	2QE	3QE	4QE	2018E	1QE	2QE	3QE	4QE	2019E	2020E
Cash from operations												
Reported GAAP net income	12,662	9,401	6,923	7,607	8,125	32,056	7,465	7,917	8,652	9,245	33,278	37,758
D & A of property and equipment	6,103	1,791	1,883	2,005	2,270	7,948	2,182	2,318	2,434	2,692	9,626	11,432
Amortization of intangible and other assets	812	195	205	205	205	810	210	210	210	210	840	860
Depreciation & amortization	*6,915*	*1,986*	*2,088*	*2,210*	*2,475*	*8,758*	*2,392*	*2,528*	*2,644*	*2,902*	*10,466*	*12,292*
Stock-based compensation expense	7,679	2,457	2,353	2,087	2,134	9,031	2,836	2,717	2,407	2,461	10,421	11,868
Deferred income taxes	258	(18)	83	91	97	253	89	95	104	111	399	452
Other	331	(3,249)	0	0	0	(3,249)	0	0	0	0	0	0
Changes in working capital												
Accounts receivables	(3,768)	1,700	(657)	(867)	(2,959)	(2,783)	1,171	(524)	(856)	(3,385)	(3,593)	(4,381)
Income taxes, net	8,211	782	664	697	732	2,875	769	807	847	890	3,313	2,345
Prepaid revenue share, expenses and other assets	(2,164)	(241)	(78)	(65)	(66)	(449)	(107)	(81)	(68)	(69)	(326)	(341)
Accounts payable	731	122	74	100	600	896	126	74	100	600	900	900
Accrued expenses and other liabilities	4,891	(1,142)	159	708	1,890	1,615	(829)	441	614	1,641	1,867	2,540
Accrued revenue share	955	(286)	(494)	173	535	(72)	(203)	126	175	601	700	747
Deferred revenue	390	130	18	87	268	503	(101)	63	88	301	350	374
Other working capital	0	0	0	0	0	0	0	0	0	0	0	0
Cash from operating activities	**37,091**	**11,642**	**11,133**	**12,827**	**13,831**	**49,433**	**13,607**	**14,163**	**14,708**	**15,298**	**57,775**	**64,554**
Cash from investments												
Core CAPEX	(12,619)	(7,669)	(4,700)	(4,863)	(4,909)	(22,141)	(5,200)	(5,550)	(5,813)	(5,909)	(22,472)	(26,272)
Other Bets CAPEX	(493)	(55)	(75)	(75)	(75)	(280)	(85)	(85)	(85)	(85)	(340)	(380)
Reconciling items	(72)	425	25	25	25	500	25	25	25	25	100	100
Total capital expenditures	(13,184)	(7,299)	(4,750)	(4,913)	(4,959)	(21,921)	(5,260)	(5,610)	(5,873)	(5,969)	(22,712)	(26,552)
Purchases of marketable securities	(92,195)	(8,849)	0	0	0	(8,849)	0	0	0	0	0	0
Maturities and sales of marketable securities	73,959	9,351	0	0	0	9,351	0	0	0	0	0	0
Investments in non-marketable equity securities	(1,252)	171	0	0	0	171	0	0	0	0	0	0
Cash collateral received from securities lending	0	0	0	0	0	0	0	0	0	0	0	0
Investments in reverse repurchase agreements	0	0	0	0	0	0	0	0	0	0	0	0
Net acquisitions/other investing	1,271	(1,220)	(100)	(100)	(100)	(1,520)	(100)	(100)	(100)	(100)	(400)	(400)
Cash from investments	**(31,401)**	**(7,846)**	**(4,850)**	**(5,013)**	**(5,059)**	**(22,768)**	**(5,360)**	**(5,710)**	**(5,973)**	**(6,069)**	**(23,112)**	**(26,952)**
Cash from financing												
Debt	(86)	1,313	0	0	0	1,313	0	0	0	0	0	0
Convertible debt	0	0	0	0	0	0	0	0	0	0	0	0
Preferred/other financing	0	0	0	0	0	0	0	0	0	0	0	0
Dividends	0	0	0	0	0	0	0	0	0	0	0	0
Common equity	(8,212)	(3,331)	(2,000)	(2,000)	(2,000)	(9,331)	(2,000)	(2,000)	(2,000)	(2,000)	(8,000)	(8,000)
Financing cash flow	**(8,298)**	**(2,018)**	**(2,000)**	**(2,000)**	**(2,000)**	**(8,018)**	**(2,000)**	**(2,000)**	**(2,000)**	**(2,000)**	**(8,000)**	**(8,000)**
Currency effect	405	165	0	0	0	165	0	0	0	0	0	0
Cash flow from discontinued operations	0	0	0	0	0	0	0	0	0	0	0	0
Net change in cash	(2,203)	1,943	4,283	5,814	6,772	18,812	6,247	6,453	6,735	7,229	26,663	29,602
Cash, beginning of period	12,918	10,715	12,658	16,941	22,755	10,715	29,527	35,774	42,227	48,962	29,527	56,190
Cash, end of period	**10,715**	**12,658**	**16,941**	**22,755**	**29,527**	**29,527**	**35,774**	**42,227**	**48,962**	**56,190**	**56,190**	**85,792**
Bottom Up Free Cash Flow												
Reported GAAP net income	12,662					32,056					33,278	37,758
+ Depreciation & amortization	6,915					8,758					10,466	12,292
+ Stock compensation	7,679					9,031					10,421	11,868
+ Non-cash taxes	10,880					(221)					399	452
- Captial expenditures	(13,184)					(21,921)					(22,712)	(26,552)
+ Adjustment	0					0					0	0
Free Cash Flow	**24,952**					**27,703**					**31,852**	**35,818**
FCF/diluted share	**$35.46**					**$39.20**					**$44.82**	**$50.12**
FCF/diluted share growth	*0.0%*					*10.5%*					*14.3%*	*11.8%*
Top Down Free Cash Flow (BMO Method)												
Adjusted EBITDA	43,476					50,709					58,668	66,803
- Interest expense	1,312					1,702					2,194	2,696
- Cash taxes	(3,651)					(5,840)					(6,177)	(7,009)
- Capital expenditures	(13,184)					(21,921)					(22,712)	(26,552)
+ Adjustment	0					0					0	0
Free Cash Flow	**27,953**					**24,650**					**31,972**	**35,938**
FCF/diluted share	**$39.73**					**$34.88**					**$44.99**	**$50.29**
FCF/diluted share growth	*7.0%*					*-12.2%*					*29.0%*	*11.8%*
Free Cash Flow #3 (Company method)												
Cash from Operations	37,091	11,642	11,133	12,827	13,831	49,433	13,607	14,163	14,708	15,298	57,775	64,554
- Capital expenditures	(13,184)	(7,299)	(4,750)	(4,913)	(4,959)	(21,921)	(5,260)	(5,610)	(5,873)	(5,969)	(22,712)	(26,552)
+ Adjustment	0	0	0	0	0	0	0	0	0	0	0	0
Free Cash Flow	**23,907**	**4,343**	**6,383**	**7,914**	**8,872**	**27,512**	**8,347**	**8,553**	**8,835**	**9,329**	**35,063**	**38,002**
FCF/diluted share	**$33.98**	**$6.16**	**$9.04**	**$11.19**	**$12.53**	**$38.93**	**$11.77**	**$12.04**	**$12.42**	**$13.10**	**$49.34**	**$53.18**
FCF/diluted share growth	*-8.1%*	*-38.6%*	*39.1%*	*24.3%*	*48.2%*	*14.6%*	*91.1%*	*33.2%*	*11.0%*	*4.6%*	*26.7%*	*7.8%*

Source: Company reports and BMO Capital Markets estimates.



Source: FactSet, BMO Capital Markets

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Methodology and Risks to Target Price/Valuation for Alphabet (GOOGL-NSDQ)

Methodology: We derive our target price for GOOGL shares by triangulating the values derived by our discounted cash flow model and comparable multiple analysis on an EV/EBITDA and P/E basis.

Risks: The primary downside risks to our target price are: 1) margins declining faster than expected due to revenue mix; and 2) potential regulatory or antitrust action, particularly in Europe. Upside risk to our target price and Market Perform rating include: 1) greater-than-expected roll-out of Promoted Places on Maps, and 2) acceleration of enterprise Cloud services.

Distribution of Ratings (June 18, 2018)

Rating category	BMO rating	BMOCM US Universe*	BMOCM US IB Clients**	BMOCM US IB Clients***	BMOCM Universe****	BMOCM IB Clients*****	StarMine Universe
Buy	Outperform	49.0%	20.6%	54.8%	50.8%	56.6%	55.3%
Hold	Market Perform	48.7%	16.4%	43.3%	46.9%	42.2%	39.7%
Sell	Underperform	2.3%	15.4%	1.9%	2.3%	1.2%	5.0%

* Reflects rating distribution of all companies covered by BMO Capital Markets Corp. equity research analysts.

** Reflects rating distribution of all companies from which BMO Capital Markets Corp. has received compensation for Investment Banking services as percentage within ratings category.

*** Reflects rating distribution of all companies from which BMO Capital Markets Corp. has received compensation for Investment Banking services as percentage of Investment Banking clients.

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Ratings Key (as of October 2016)

We use the following ratings system definitions:
OP = Outperform - Forecast to outperform the analyst's coverage universe on a total return basis;
Mkt = Market Perform - Forecast to perform roughly in line with the analyst's coverage universe on a total return basis;
Und = Underperform - Forecast to underperform the analyst's coverage universe on a total return basis;
(S) = Speculative investment;
Spd = Suspended - Coverage and rating suspended until coverage is reinstated;
NR = No Rated - No rating at this time; and
R = Restricted - Dissemination of research is currently restricted.

BMO Capital Markets' seven Top 15 lists guide investors to our best ideas according to different objectives (CDN Large Cap, CDN Small Cap, US Large Cap, US Small Cap, Income, CDN Quant, and US Quant have replaced the Top Pick rating).

Prior BMO Capital Markets Rating System

(April 2013 - October 2016)
http://researchglobal.bmocapitalmarkets.com/documents/2013/rating_key_2013_to_2016.pdf

(January 2010 - April 2013)
http://researchglobal.bmocapitalmarkets.com/documents/2013/prior_rating_system.pdf

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Internet

COMPANY UPDATE

SIG SUSQUEHANNA FINANCIAL GROUP, LLLP

Alphabet: 2Q18 SEM Check

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Call to action

We remain Positive on Google following our conversation with a leading SEM (>$1b in ad spend), and are comfortable with our 2Q18 gross advertising revenue growth estimate of 16% y/y ex-FX (vs. 21% y/y in 1Q18) and sites revenue growth of 19% y/y ex-FX (vs. 23% y/y in 1Q18). The spend data appears in-line with expectations, driven by continued PLA strength and GOOGL's numerous small tech optimizations. Given the volatility in SEM numbers, we generally view the data as directional.

HIGHLIGHTS

- 2Q shows modest deceleration, in-line with expectations. Overall, commentary from our conversation seems to suggest that 2Q is tracking roughly in-line with expectations. Specifically, our check commented that 2Q spend decelerated by approximately two points, coming in-line with expectations of high-teens y/y growth. The key drivers for overall growth continue to be PLAs (continues to grow faster than text ads) and the cumulative effect of GOOGL's numerous but relatively more minor "under the hood" ad optimizations. Historically, our check's data, while U.S. only and more retail focused, has been a helpful proxy for Google's ad revenue growth.

- Outlook remains constructive, continues to expect modest deceleration for 2H. Our check expects spend growth to decelerate modestly in 2H (one to two points per quarter). However, incremental optimizations could potentially provide growth tailwinds. Of note GOOGL's key advertising conference will be held July 9-11, and GOOGL has historically announced its key innovations/optimizations at this event. We believe our and investor estimates already largely reflect the expected deceleration. Note that we are modeling 21% sites growth for 2H18, compared to 24% for 1H.

Continued on the next page

Catalysts

Continued strength in mobile search, YouTube, Google Play and Ad Tech; share buyback or dividend; and tighter expense management.

Downside or Upside risk

We believe the trough of the historical forward multiples represents the likely downside risk scenario. Using a blended ~9x 2019 EV/EBITDA and ~18x 2019 P/E, we believe the downside is $930.

Alphabet

Symbol	GOOGL
Rating	Positive
Price	$1,183.58
Price target	$1,250.00
Downside/ Upside risk	$930.00
Risk	Downside Risk

Company market data

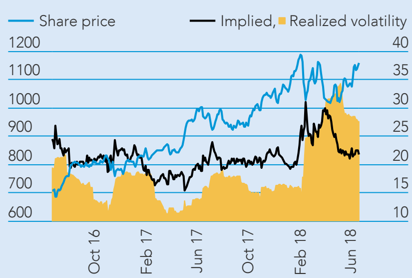
52 week range	$1,198.00-$915.31
Shares out.	694.549mm
Market cap.	822,054mm
Average daily trading volume	2,137,143
Beta	1.27
PT Upside/Downside ratio:	0.26:1

Calendar year December

	2017		2018e
Net Rev ($)	Actual	Prior	Current
Q1	20,121		24,858A
Q2	20,919		25,241
Q3	22,270		27,048
Q4	25,873		31,629
FY Net Rev	89,183		108,776
EBITDA ($)	43,211		48,905
EPS	41.16		48.61

Derivatives

Volume (contracts)	47,243
Skew rank (2yr %-tile)	30.95



HIGHLIGHTS

Continued from previous page

- PLA growth remains robust. While PLA growth decelerated in 2Q, our check noted that growth continues to meaningfully outpace overall GOOGL spend growth. In terms of AMZN competition, our check is not seeing any incremental share shift away from PLAs into AMZN sponsored search, and does not expect to see any in the near to medium term. In terms of AMZN spending on PLAs, our check noted that AMZN did stop spending on PLAs for a brief period but has since returned, and remains focused on specific categories, primarily home goods.
- Ad optimizations. While GOOGL has been relatively quiet in terms of significant ad optimizations in recent quarters, our check did note that the cumulative impact of the recent smaller optimizations and "under the hood" improvements to ad tech and the Adwords UI appear to be driving modest incremental spend growth. Our check sees potential for the recently introduced Shopping Actions ads, but strategy for integration into the SERP remains unclear and could be a potential hurdle, given GOOGL will have to carefully manage any potential impacts to the core CPC-based PLA units.

Please contact us if you would like further information regarding our checks.

Price target valuation and risks

Alphabet(GOOGL, Price: $1,183.58, Price Target: $1,250.00):

Our $1,250 price target is based on SOTP. This target equates to ~13x 2019 EV/EBITDA of $58 billion, ~6x 2019 EV/sales of $129 billion, and ~24x 2019 EPS of $53.24, which all appear reasonable relative to Google's growth/margin profile and comp set.

Several growth drivers are becoming clearer and the new CFO appears to be striking a more disciplined tone around expense management and seems open to a more shareholder-friendly capital allocation approach. As such, we believe Alphabet should continue to trade at the high end of its historical forward multiple range. We include comparables as part of our valuation analysis, though acknowledge that Alphabet's scale, growth and margin profile make comp-based valuation analysis less relevant.

Risks: Widening gap between mobile and desktop monetization, steeper than expected growth deceleration in search, TAC or margin forecasts, competition from Facebook, potential regulatory (such as EU) changes, legal or tech trends, corporate governance.

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SFG employs the following rating system:

Positive: We expect this stock to appreciate by at least 15% over the next 12 months.

Neutral: We expect this stock to perform within a range of +/-15 percentage points over the next 12 months.

Negative: We expect this stock to depreciate by at least 15% over the next 12 months. .

Suspended: The previously published rating and/or estimates are currently suspended and under review.

Prior to July 2015 our rating system also required a 20% +/- expected return over 12 months to initiate with a Positive/Negative rating.

Defined Credit Terms

Gross debt + preferred TEV: (Gross Debt + Preferred) / Total Enterprise Value (expressed as a %).

Net debt/EBITDA: Net Debt (gross debt less cash on hand) / EBITDA = forward year EBITDA estimate.

Free cash flow: Forward EBITDA estimate less cash taxes less cash interest less total capex.

FCF yield: FCF Yield ((FCF/ Fully Diluted shares outstanding/current share price) (expressed as a %)).

YTM: Yield-to-maturity ("YTM") implied by any of its bonds outstanding that are due in 5 years ((or closest to)(expressed as a %)).

5-yr treasury yield: 5-year US Treasury yield (expressed as a %).

Volatility Definitions

Volume: The 20-day average option contract volume for the symbol.

Skew Rank: The current day's Skew values compared to the past year's worth of skew values and then rank the current day's value. Past year in the calculation is 252 previous trading days which includes the last trading day.

Implied Volatility: Implied Volatility is the at-the-forward volatility level implied by market option prices for 90 days. While implied volatility is specific to the time frame selected, it is always presented as an annualized standard deviation.

Realized Volatility: It is the Realized Volatility of a financial instrument over 90 days. Generally, this measure is calculated by determining the average deviation from the average price of a financial instrument in the given time period. This measure is frequently compared with implied volatility to determine if options prices are over- or undervalued. It is also known as historical volatility.

Ratings Distribution & Investment Banking Disclosure

Covered companies in each Category	Investment banking client in each category
Positive (Buy) 53.73% (137)	Positive (Buy) 0.00% (0)
Neutral (Hold) 43.53% (111)	Neutral (Hold) 0.00% (0)
Negative (Sell) 2.75% (7)	Negative (Sell) 0.00% (0)

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Rating and Price Target History for: Alphabet (GOOGL) as of 06-18-2018

First Read

Alphabet Inc.

Frenemies Narrative Goes Global

Alphabet Provides a Path to Omnichannel Retail Through Partnerships

Beginning in August '17, Alphabet has announced a series of partnership investments in the broader retail/eCommerce landscape. Among the announced & discussed partnerships are: 1) Walmart (Aug'17); 2) Target (Oct'17); 3) Costco; 4) Flipkart (May'18) – while not confirmed, press reports (link) have pointed toward a possible $1-2bn investment by GOOG into WMT's acquisition of Flipkart; 5) Carrefour (June'18); and today, JD.com. In our opinion, the recurring theme in all of these partnerships remains GOOG's desire to promote omnichannel retail strategies.

JD Investment – Logical Extension of a Recent Theme

On June 18th, GOOG announced that they would invest $550mm in JD.com (27.1mm new Class A shares @ $40.58/ADS) as part of a broader strategic partnership. The companies plan to collaborate on a range of initiatives & retail solutions around the world, incl., SEA, US & Europe. Specifically, the companies expect to partner on next-gen retail infrastructure solutions and JD will make a selection of products available on Google Shopping in multiple regions. GOOG did not gain any representation on JD's board as a result of the investment. We don't expect the announcement to have a material impact on GOOG's business in the short/medium term.

Remember It's Still About Search & Google Assistant

Looking out over the next 5+ years, we see this push by Alphabet as a mixture of offense/defense moves (protection of search in product discovery vs. extension of personalized mobile computing solutions). As a partner, GOOG is offering an array of products/services that can assist offline/online retailers as they increasingly compete against the global scale of AMZN & BABA: mobile search, location based discovery (Maps, local inventory ads), logistics (Google Express), cloud computing (GCP) & brand building (YouTube, GDN). In addition, we see partnerships with retailers as a means for GOOG to expand distribution for its hardware products – Google Home & Home Mini, mobility products (Pixel branded devices) – with recent press reports (link) indicating that Google exceeded market share of connected home devices (vs. AMZN) in Q1'18.

Valuation: Buy Rated, $1,360 PT

Our PT is based on an equal blend of EV/GAAP EBITDA and EV/(FCF-SBC) multiples.

Equities

Americas
Internet Services

12-month rating	**Buy**
12m price target	US$1,360.00
Price	US$1,152.26

RIC: GOOG.O **BBG:** GOOG US

Trading data and key metrics

52-wk range	US$1,175.84-898.70
Market cap.	US$812bn
Shares o/s	705m (COM)
Free float	79%
Avg. daily volume ('000)	1,828
Avg. daily value (m)	US$1,946.5
Common s/h equity (12/18E)	US$178bn
P/BV (12/18E)	4.6x
Net debt / EBITDA (12/18E)	NM

EPS (UBS, diluted) (US$)

	12/18E	
	UBS	Cons.
Q1	13.33	13.33
Q2E	9.58	9.60
Q3E	10.63	10.43
Q4E	10.12	10.90
12/18E	43.66	43.98
12/19E	45.76	47.32
12/20E	51.48	55.47

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Highlights (US$m)	12/15	12/16	12/17	12/18E	12/19E	12/20E	12/21E	12/22E
Revenues	60,646	73,479	89,183	108,868	129,636	147,616	165,548	185,944
EBIT (UBS)	19,360	23,716	26,146	31,461	36,919	41,760	46,595	52,111
Net earnings (UBS)	15,826	19,478	12,662	30,829	32,503	37,060	41,642	46,862
EPS (UBS, diluted) (US$)	22.84	27.88	18.06	43.66	45.76	51.48	57.00	63.19
DPS (US$)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net (debt) / cash	67,846	82,398	97,902	114,300	147,688	188,466	232,617	282,306

Profitability/valuation	12/15	12/16	12/17	12/18E	12/19E	12/20E	12/21E	12/22E
EBIT margin %	31.9	32.3	29.3	28.9	28.5	28.3	28.1	28.0
ROIC (EBIT) %	39.8	43.5	47.0	53.0	56.2	58.8	58.4	57.7
EV/EBITDA (core) x	14.3	14.6	16.6	17.5	14.9	13.2	11.8	10.6
P/E (UBS, diluted) x	26.4	26.7	51.0	26.4	25.2	22.4	20.2	18.2
Equity FCF (UBS) yield %	3.9	5.0	3.7	3.4	4.8	5.3	5.8	6.5
Net dividend yield %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Company accounts, Thomson Reuters, UBS estimates. UBS adjusted EPS is stated before goodwill-related charges and other adjustments for abnormal and economic items at the analysts' judgement. Valuations: based on an average share price that year, (E): based on a share price of US$1,152.26 on 15 Jun 2018 19:35 EDT

www.ubs.com/investmentresearch

Forecast returns

Forecast price appreciation	+18.0%
Forecast dividend yield	0.0%
Forecast stock return	+18.0%
Market return assumption	7.6%
Forecast excess return	+10.4%

Valuation Method and Risk Statement

The rapid pace of evolution in the Internet and Technology sectors, including the emergence of new competition and new form factors of hardware devices, could cause a shift in user behavior that diverts traffic away from Alphabet. Additional key risks include regulatory scrutiny over anti-competitive practices, intellectual property claims, a failure to effectively integrate and manage acquisitions, macroeconomic impacts on global advertising budgets, currency fluctuations, interruption of information technology and communications systems (i.e., natural disasters, terrorism, denial of service attacks, etc.), damage to the Google brand, concentrated voting control, and regulatory risks (particularly ongoing antitrust investigations in the EU).

We use an equal blend of EV/GAAP EBITDA multiple and EV/(FCF-SBC) multiple to value Alphabet.

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12-Month Rating	Definition	Coverage[1]	IB Services[2]
Buy	FSR is > 6% above the MRA.	46%	25%
Neutral	FSR is between -6% and 6% of the MRA.	39%	23%
Sell	FSR is > 6% below the MRA.	15%	12%
Short-Term Rating	**Definition**	**Coverage[3]**	**IB Services[4]**
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 31 March 2018.
1:Percentage of companies under coverage globally within the 12-month rating category.
2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.
3:Percentage of companies under coverage globally within the Short-Term rating category.
4:Percentage of companies within the Short-Term rating category for which investment banking (IB) services were provided within the past 12 months.

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UBS Securities LLC: Eric J. Sheridan; Alexandra Kasper. **UBS AG Hong Kong Branch:** Jerry Liu.

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Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
Alphabet Inc.[6a, 6b, 7, 16, 22, 26]	GOOG.O	Buy	N/A	US$1,152.26	15 Jun 2018
JD.com[7, 16, 22]	JD.O	Buy	N/A	US$43.59	15 Jun 2018

Source: UBS. All prices as of local market close.
Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date

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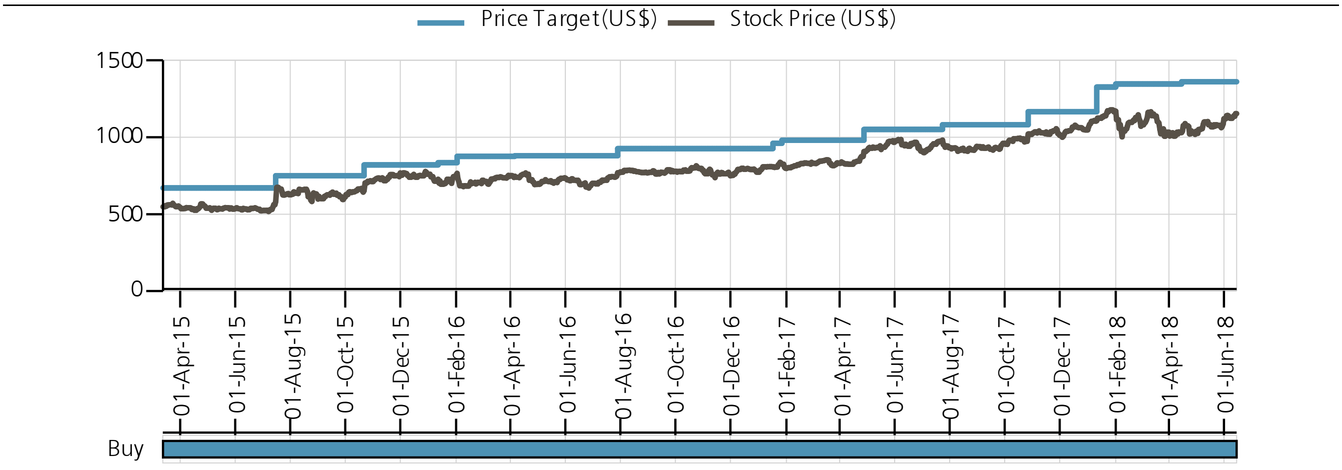
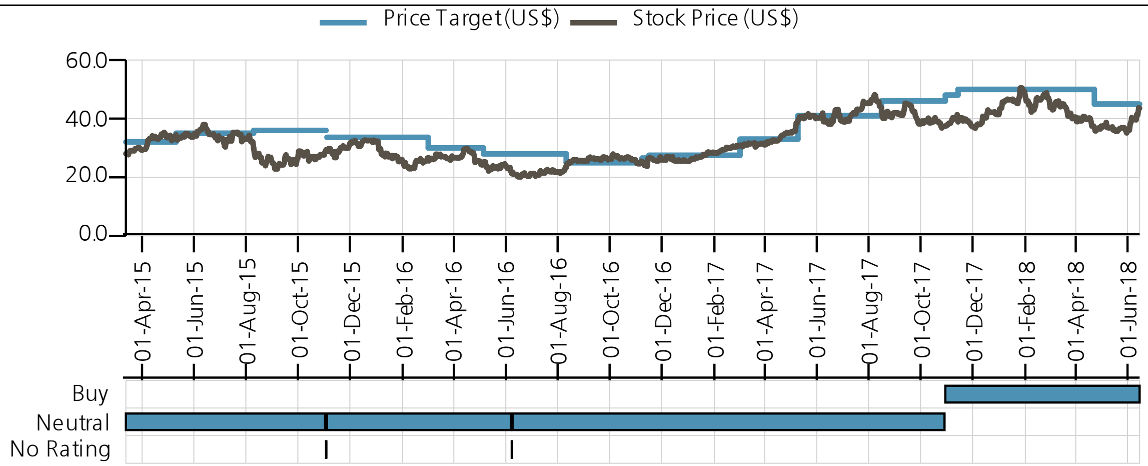
Alphabet Inc. (US$)



Date	Stock Price (US$)	Price Target (US$)	Rating
2015-03-13	547.32	670.0	Buy
2015-07-16	579.85	750.0	Buy
2015-10-22	651.79	820.0	Buy
2016-01-12	726.07	835.0	Buy
2016-02-02	764.65	875.0	Buy
2016-04-06	745.69	880.0	Buy
2016-07-29	768.79	925.0	Buy
2017-01-17	804.61	960.0	Buy
2017-01-27	823.31	980.0	Buy
2017-04-28	905.96	1050.0	Buy
2017-07-24	980.34	1080.0	Buy
2017-10-27	1019.27	1165.0	Buy
2018-01-11	1105.52	1325.0	Buy
2018-02-01	1167.7	1345.0	Buy
2018-04-15	1029.27	1360.0	Buy

Source: UBS; as of 15 Jun 2018

JD.com (US$)



Date	Stock Price (US$)	Price Target (US$)	Rating
2015-03-13	28.08	32.0	Neutral
2015-05-11	34.46	35.0	Neutral
2015-08-10	30.06	36.0	Neutral
2015-11-03	29.37	-	No Rating
2015-11-04	29.27	33.6	Neutral
2016-03-02	26.64	30.0	Neutral
2016-05-06	25.2	28.0	Neutral
2016-06-08	21.24	-	No Rating
2016-06-09	21.71	28.0	Neutral
2016-08-11	23.29	25.0	Neutral
2016-11-08	25.44	26.5	Neutral
2016-11-16	26.51	27.5	Neutral
2017-03-03	30.93	33.0	Neutral
2017-05-10	39.32	41.0	Neutral
2017-08-16	43.65	46.0	Neutral
2017-10-30	37.42	48.0	Buy
2017-11-14	38.9	50.0	Buy
2018-04-23	37.0	45.0	Buy

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UBS

Alphabet Inc.

Recommendation	Price	12-Mo. Target Price	Report Currency	Investment Style
STRONG BUY ★★★★★	$1183.58 (as of Jun 18, 2018 4:00 PM ET)	$1235.00	USD	Large-Cap Growth

Equity Analyst Scott Kessler

UPDATE: PLEASE SEE THE ANALYST'S LATEST RESEARCH NOTE IN THE RESEARCH NOTES SECTION

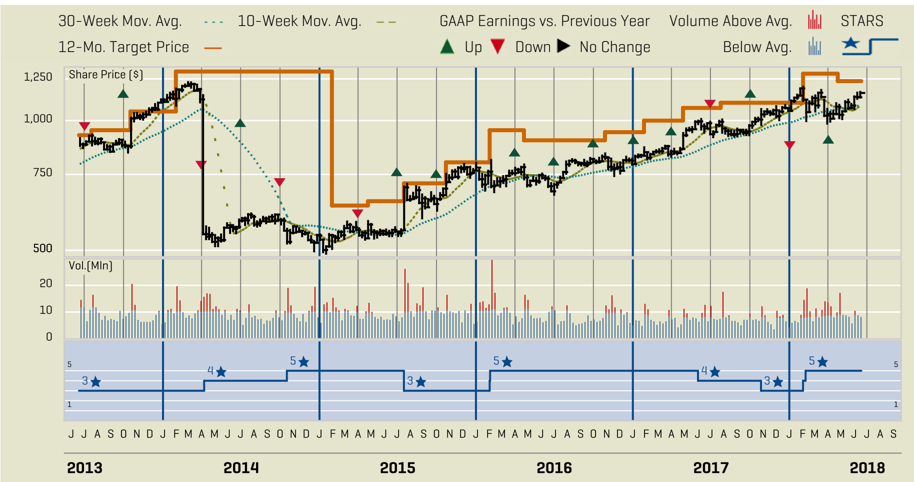
GICS Sector Information Technology
Sub-Industry Internet Software & Services

Summary Alphabet is the world's largest Internet company, specializing in search and advertising.

Key Stock Statistics (Source: CFRA, S&P Global Market Intelligence (SPGMI), Company Reports)

52-Wk Range	**$1,198.0 - 915.3**	Oper. EPS 2018**E**	**42.58**	Market Capitalization[B]	**$802.7**	Beta	**1.09**
Trailing 12-Month EPS	**23.62**	Oper. EPS 2019**E**	**47.05**	Yield [%]	**NA**	3-Yr Proj. EPS CAGR[%]	**20**
Trailing 12-Month P/E	**49.08**	P/E on Oper. EPS 2018**E**	**27.23**	Dividend Rate/Share	**NA**	SPGMI's Quality Ranking	**B+**
$10K Invested 5 Yrs Ago	**$26,458**	Common Shares Outstg.[M]	**694.55**	Institutional Ownership [%]	**70**		

Price Performance



Source: CFRA, S&P Global Market Intelligence
Past performance is not an indication of future performance and should not be relied upon as such.
Analysis prepared by Equity Analyst **Scott Kessler** on Apr 24, 2018 10:49 AM, when the stock traded at **$1073.81.**

Highlights

- We project revenues will rise 23% in 2018, 17% in 2019, and 18% in 2020. We see revenue growth driven by pricing improvements in mobile and increasing traction across display offerings, most notably YouTube. We see a weak U.S. dollar as a positive for top-line growth.
- EBITDA margins trended lower through 2017, reflecting a less favorable revenue mix and an increase in traffic acquisition costs. We also note continuing spending related to new offerings and government inquiries/investigations, especially those involving the European Commission (we point to a related 2.4 billion euro fine, accounted for as a value of $2.7 billion, announced in June 2017). However, we see stability of around 38% annually through 2020.
- In February 2017, GOOGL announced an $8.6 billion stock buyback. In May 2012, GOOGL acquired Motorola Mobility for $12.5 billion. In April 2013, GOOGL sold Motorola's Home unit to Arris in a deal valued at $2.4 billion. In October 2014, GOOGL sold the remainder of Motorola for some $2.9 billion. However, GOOGL retained considerable intellectual property, despite selling related businesses.

Investment Rationale/Risk

- We see healthy growth, with opportunities related to mobile, video (YouTube, in particular), and cloud, while anticipating continued pricing improvements. We think CFO Ruth Porat, who held the same role at Morgan Stanley and joined in May 2015, has contributed to greater transparency and more expense discipline. Nonetheless, we see continuing aggressive investments. In August 2015, GOOGL announced it would change its name to Alphabet and that Google would be its primary operating business. We see GOOGL benefiting from the new U.S. tax law, which will allow it to repatriate what we expect to be tens of billions of dollars in foreign capital, for domestic investment.
- Risks to our recommendation and target price include the potential for market share losses, excess expenditures associated with expansion, and adverse legal/regulatory developments.
- Our 12-month target price is $1,235. Global Internet peers recently had a median forward P/E of 32.8X and a P/E-to-growth (PEG) ratio of 1.2. Applying these multiples to GOOGL and averaging the outputs resulted in our target. GOOGL recently had $103 billion in cash and investments.

Analyst's Risk Assessment

LOW | **MEDIUM** | HIGH

Our risk assessment reflects significant competition, substantial and increasing investment and related new offerings and considerable ongoing legal and regulatory matters, including antitrust matters in Europe.

Revenue/Earnings Data

Revenue (Million U.S. $)

	1Q	2Q	3Q	4Q	Year
2018	31,146	--	--	--	--
2017	24,750	26,010	27,772	32,323	110,855
2016	20,257	21,500	22,451	26,064	90,272
2015	17,258	17,727	18,675	21,329	74,989
2014	15,420	15,955	16,523	--	66,001
2013	12,951	13,107	13,754	--	55,519

Earnings Per Share (U.S. $)

	1Q	2Q	3Q	4Q	Year
2019	**E** 10.19	**E** 10.97	**E** 11.73	**E** 11.66	**E** 47.05
2018	13.33	**E** 9.64	**E** 10.44	**E** 10.98	**E** 42.58
2017	7.73	5.01	9.57	-4.35	18.00
2016	6.02	7.00	7.25	7.62	27.88
2015	5.10	5.69	5.73	7.06	23.59
2014	5.21	4.98	4.25	--	19.82

Fiscal year ended Dec 31. Next earnings report expected: Late Jul. EPS Estimates based on CFRA's Operating Earnings; historical GAAP earnings are as reported in Company reports.

Dividend Data

No cash dividends have been paid in the last year.

Alphabet Inc.

Business Summary April 24, 2018

CORPORATE OVERVIEW. Alphabet (formerly Google) is a global technology company whose stated mission is to organize the world's information and make it universally accessible and useful. GOOGL has amassed and maintains the Internet's largest index of information (consisting of billions of items, including Web pages, images and videos), and makes most of it freely accessible and usable to anyone with online access. GOOGL's websites are a leading Internet destination, and the Google brand is one of the most recognized in the world. International sources contribute more than half of revenues.

In October 2015, the company changed its name to Alphabet, as part of a new operating structure. Alphabet consists of Google, which includes Google Maps, YouTube, Chrome and Android, as well as less-related assets and offerings, including connected-home company Nest, the company's investment arms and a number of emerging/"moonshoot" initiatives. We think the realignment should offer more transparency into GOOGL's operations and assets. Google co-founders Larry Page and Sergey Brin are Alphabet's CEO and President, respectively, and Sundar Pichai is Google's CEO.

GOOGL's advertising program, called AdWords, enables advertisers to present online ads when users are searching for related information. Advertisers employ GOOGL's tools to create text-based ads, bid on keywords that trigger display of their ads and set daily spending budgets. Ads are ranked for presentation based on the maximum cost per click set by the advertiser, click-through rates and other factors used to determine ad relevance. This process is designed to favor the most relevant ads. GOOGL's AdSense technology enables Google Network websites to provide targeted ads from AdWords advertisers.

GOOGL acquired Motorola Mobility in May 2012 for $12.5 billion. Motorola manufactures smartphones, tablets, and set-top boxes. We expect Motorola to account for 7% of GOOGL's revenues from continuing operations in 2013. In December 2012, GOOGL announced the pending sale of the Motorola Home settop-box business to Arris Group, in a transaction valued at $2.4 billion in cash and stock. The transaction closed in April 2013. GOOGL announced the pending sale of Motorola to Lenovo in a deal valued at $2.9 billion in January 2014. The transaction was consummated in October 2014. Earlier that month, GOOGL announced the planned purchase of Nest Labs, a privately held provider of smart thermostats and smoke alarms, for $3.2 billion.

CORPORATE STRATEGY. The word "Google" has become synonymous with the Internet search category. We think this reflects GOOGL's historically strong focus on the search segment, and the company's related market share leadership in many countries around the world, including the U.S. GOOGL has been expanding its efforts beyond the traditional online search category. We think these initiatives have been intended to broaden GOOGL's reach, and to increasingly attract users and spur activity and engagement. The company has been discontinuing investment in and operations of offerings that have not gained sufficient traction.

COMPETITIVE LANDSCAPE. GOOGL's leading competitors in the search segment include Baidu, Microsoft, Verzion (after the mid-2017 acquisition of Yahoo), and Yandex (Russia). In October 2015, IAC/InterActiveCorp announced it had renewed its partnership with GOOGL until March 2020.

FINANCIAL TRENDS. GOOGL has a somewhat limited operating history, particularly as a publicly traded company (its IPO was completed in August 2004). In our view, GOOGL's historical annual pro forma operating margins (of between 35% and 45%) and net margins (between 25% and 35%) were quite robust. However, these margins could be adversely affected as GOOGL invests to bolster its Internet search offerings and endeavors to diversify into new businesses (including M&A activity). We also expect greater competition to negatively affect the company's pricing. Moreover, we project that Motorola Mobility will continue to impair GOOGL's operating margins. Our EPS estimates include notable expenses related to stock-based compensation.

Capital expenditures increased from $37 million in 2002 to $838 million in 2005, and more than doubled in 2006, reflecting notable plans for expansion (hiring people, securing facilities) and investment (technology infrastructure, including hardware and telecommunications capacity). They fell 1% in 2008 and plummeted 66% in 2009, but surged nearly five-fold in 2010 (reflecting the purchase of a building in Manhattan). Capex fell 14% in 2011 and 5% in 2012, but rose 125% in 2013 and nearly 50% in 2014. They fell 10% in 2015, rose only 3% in 2016, and increased 40% in 2017, and we see gains over the next few years, especially focused on the U.S. given the new tax law. Capex in 2018 reflects the purchase of the Chelsea Market building in New York for around $2.5 billion. We think Motorola contributed to higher capex.

In April 2012, GOOGL announced that for each existing Class A and Class B share, it would pay a stock dividend of a Class C share, which do not include voting rights. We think this was a way for GOOGL to implement a stock split desired by many shareholders, while consolidating power for its founders and chairman. A lawsuit delayed implementation, and the company completed the split in April 2014.

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J. L. Hennessy

Co-Founder, CEO & Director
L. E. Page

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S. Brin

Senior VP & CFO
R. M. Porat

Chief Accounting Officer & VP
A. T. O'Toole

Board Members

A. Mather
A. R. Mulally
D. B. Greene
E. E. Schmidt
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R. W. Ferguson
S. Brin
S. Pichai

Domicile
Delaware

Auditor
Ernst & Young LLP

Founded
1998

Employees
80,110

Alphabet Inc.

CFRA powered by data from S&P Global

Quantitative Evaluations

Fair Value Rank **3**

1	2	3	4	5
LOWEST				HIGHEST

Based on CFRA's proprietary quantitative model, stocks are ranked from most overvalued (1) to most undervalued (5).

Fair Value Calculation **$1038.67** Analysis of the stock's current worth, based on CFRA's proprietary quantitative model suggests that GOOGL is slightly overvalued by $144.91 or 12.2%.

Volatility LOW | AVERAGE | HIGH

Technical Evaluation **BULLISH** Since June, 2018, the technical indicators for GOOGL have been BULLISH.

Insider Activity UNFAVORABLE | NEUTRAL | FAVORABLE

Expanded Ratio Analysis

	2017	2016	2015	2014
Price/Sales	6.69	6.13	7.19	5.52
Price/EBITDA	20.71	18.57	22.11	16.98
Price/Pretax Income	27.26	22.93	27.43	21.13
P/E Ratio	58.53	28.43	32.98	26.77
Avg. Diluted Shares Outsg.(M)	704	699	693	687

Figures based on fiscal year-end price

Key Growth Rates and Averages

Past Growth Rate (%)	1 Year	3 Years	5 Years
Sales	22.80	18.87	19.21
Net Income	-34.99	-3.60	3.35

Ratio Analysis (Annual Avg.)			
Net Margin (%)	NM	NM	NM
% LT Debt to Capitalization	2.52	NA	NA
Return on Equity (%)	8.69	NA	NA

Company Financials Fiscal year ending Dec. 31

Per Share Data (U.S. $)	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Tangible Book Value	191.52	172.52	146.38	122.82	103.71	81.38	75.75	60.60	47.72	35.55
Free Cash Flow	34.50	37.55	24.28	17.77	16.98	20.39	17.24	11.08	13.45	8.75
Earnings	18.00	27.88	23.59	19.82	19.42	17.36	14.88	13.15	10.21	6.66
Earnings (Normalized)	26.76	21.85	18.03	15.69	14.56	13.16	12.11	10.26	8.10	6.75
Dividends	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Payout Ratio (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prices: High	1,086.49	839.00	798.69	1,228.88	1,121.00	774.38	646.76	630.85	625.99	697.37
Prices: Low	796.89	672.66	490.91	497.19	695.52	556.52	473.02	433.63	282.75	247.30
P/E Ratio: High	36.7	35.6	33.6	67.7	55.9	45.6	52.0	80.9	74.2	NM
P/E Ratio: Low	27.6	27.8	25.3	27.8	40.6	33.9	35.4	39.1	32.4	32.4

Income Statement Analysis (Million U.S. $)										
Revenue	110,855	90,272	74,989	66,001	55,519	46,039	37,905	29,321	23,651	21,796
Operating Income	28,882	23,716	19,360	16,874	15,403	13,834	12,242	10,381	8,312	6,632
Depreciation + Amortization	6,899	6,100	5,024	4,601	3,939	2,962	1,851	1,396	1,524	1,500
Interest Expense	109	124	104	101	81	85	58	5	NA	NA
Pretax Income	27,193	24,150	19,651	17,259	15,899	14,469	12,326	10,796	8,381	5,853
Effective Tax Rate	53.4	19.3	16.8	21.1	17.2	20.2	21.0	21.2	22.2	27.8
Net Income	12,662	19,478	16,348	14,136	12,733	10,737	9,737	8,505	6,520	4,227
Net Income (Normalized)	18,827	15,266	12,491	10,779	9,869	8,749	7,926	6,632	5,178	4,284

Balance Sheet and Other Financial Data (Million U.S. $)										
Cash	101,871	86,333	71,926	62,633	57,447	47,159	43,366	33,364	24,485	15,846
Current Assets	124,308	105,408	90,114	78,656	72,886	60,454	52,758	41,562	29,167	20,178
Total Assets	197,295	167,497	147,461	129,187	110,920	93,798	72,574	57,851	40,497	31,768
Current Liabilities	24,183	16,756	19,310	16,779	15,908	14,337	8,913	9,996	2,747	2,302
Long Term Debt	3,943	3,935	1,995	2,992	1,990	2,988	2,986	NA	NA	NA
Total Capital	156,471	142,971	127,979	111,875	93,928	78,925	64,356	52,067	36,004	28,239
Capital Expenditures	13,184	10,212	9,950	11,014	7,358	3,273	3,438	4,018	810	2,359
Cash from Operations	37,091	36,036	26,572	23,024	18,659	16,619	14,565	11,081	9,316	7,853
Current Ratio	5.14	6.29	4.67	4.69	4.58	4.22	5.92	4.16	10.62	8.77
% Long Term Debt of Capitalization	2.52	2.75	1.56	2.67	2.12	3.79	4.64	NA	NA	NA
% Net Income of Revenue	11.4	21.6	21.8	21.4	22.9	23.3	25.7	29.0	27.6	19.4
% Return on Assets	9.90	9.41	8.75	8.78	9.40	10.39	11.73	13.19	14.38	14.52
% Return on Equity	8.7	15.0	14.6	14.2	16.6	17.8	18.7	20.7	20.3	16.6

Source: S&P Global Market Intelligence. Data may be preliminary or restated; before results of discontinued operations/special items. Per share data adjusted for stock dividends; EPS diluted. E-Estimated. NA-Not Available. NM-Not Meaningful. NR-Not Ranked. UR-Under Review.

Alphabet Inc.

Sub-Industry Outlook

Our fundamental outlook for the Internet Software & Services sub-industry for the next 12 months is positive, reflecting an increasing percentage of related budgets committed to the Internet (versus so-called traditional media) and pricing for associated online offerings, which has shown signs of improvement, offset somewhat by what we view as European uncertainties related to the June 2016 Brexit leave vote. We also have questions about pricing for mobile advertising and see great potential for video.

U.S. online advertising revenues rose 17% in 2013, 16% in 2014, 20% in 2015, and 22% in 2016, according to the IAB Internet Revenue Report, and CFRA estimates increases of 23% for 2017 and 20% for 2018. Corporations are committing larger percentages of advertising budgets to digital formats as people spend more time online and on mobile devices, especially as compared with consumption of other media. Moreover, Internet and mobile marketing offers notable targeting and data-focused return-on-investment capabilities. Mobile has also been driving volumes, accounting for more than half of U.S. digital advertising sales in 2016.

We also think the advent and growing adoption of technologies, such as powerful Internet-enabled smartphones and tablets, is a positive for interactive advertising, notably driving traffic and usage, for example. However, we think mobile advertising is generally priced at lower rates than online advertising, but have noted improving trends. Video is an emerging opportunity, especially involving social media and mobile, and we note the success of offerings like Facebook Live.

U.S. online retail sales increased 13% in 2013, 14% in 2014, 15% in 2015, 15% in 2016, and 18% in 2017, according to the Department of Commerce. We see growth around the mid-teens level for 2018 and 2019. We think users are attracted to Internet retail offerings in large part due to factors that include a generally substantial selection of products, 24/7/365 store access and associated convenience of home delivery, as well as a compelling value proposition. According to Forrester Research, an independent technology and market research company, improving initiatives across multiple channels, including physical and online stores, better merchandising, more customized offerings, and increasingly sophisticated marketing efforts, have helped drive considerable segment growth.

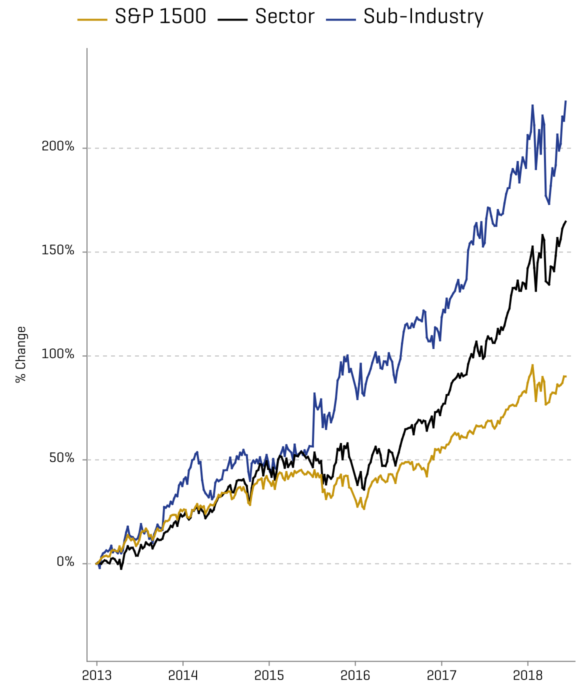
Year to date through March 31, 2018, the S&P 1500 Internet Software & Services index declined 3.9% versus a 1.2% decline in the S&P 1500. In 2017 and 2016, the index rose 40.0% and 5.2% compared with increases in the S&P 1500 of 18.8% and 10.6%.

/Scott Kessler

Industry Performance

GICS Sector: Information Technology
Sub-Industry: Internet Software & Services

Based on S&P 1500 Indexes
Five-Year market price performance through Jun 18, 2018



NOTE: All Sector & Sub-Industry information is based on the Global Industry Classification Standard (GICS).

Past performance is not an indication of future performance and should not be relied upon as such.
Source: S&P Global Market Intelligence

Sub-Industry: Internet Software & Services Peer Group*: Internet Software & Services

Peer Group	Stock Symbol	Exchange	Currency	Recent Stock Price ($)	Stk. Mkt. Cap. (M $)	30-Day Price Chg. (%)	1-Year Price Chg. (%)	P/E Ratio	Fair Value Calc. ($)	Yield (%)	Return on Equity (%)	LTD to Cap (%)
Alphabet Inc.	**GOOGL**	**NasdaqGS**	**USD**	**1,183.6**	**802,723**	**10.7**	**23.5**	**50**	**1,038.7**	**Nil**	**8.7**	**2.5**
Alibaba Group Holding Limited	BABA	NYSE	USD	208.57	534,451	7.0	54.6	56	196.12	Nil	16.2	21.3
Altaba Inc.	AABA	NasdaqGS	USD	81.61	65,209	7.5	55.2	3	NA	Nil	47.3	2.1
Baidu, Inc.	BIDU	NasdaqGS	USD	268.89	95,193	6.3	54.6	27	297.88	Nil	16.0	20.6
Facebook, Inc.	FB	NasdaqGS	USD	198.31	566,913	8.6	31.6	16	194.68	Nil	23.9	NA
NetEase, Inc.	NTES	NasdaqGS	USD	252.36	33,473	2.4	-15.0	29	275.60	0.9	25.4	NA
Spotify Technology S.A.	SPOT	NYSE	USD	174.35	31,180	15.6	NM	NM	NA	Nil	NM	79.8
Tencent Holdings Limited	TCEH.Y	OTCPK	USD	52.23	492,707	-0.2	49.5	41	NA	0.2	31.3	27.3
Twitter, Inc.	TWTR	NYSE	USD	46.00	34,346	41.0	175.9	NM	26.78	Nil	-2.2	23.8
Yahoo Japan Corporation	YAHO.Y	OTCPK	USD	6.753	19,629	-7.0	-20.0	16	NA	1.7	12.7	14.5
eBay Inc.	EBAY	NasdaqGS	USD	38.86	38,656	1.4	14.4	NM	NA	Nil	-10.9	51.1

*For Peer Groups with more than 10 companies or stocks, selection of issues is based on market capitalization.
NA-Not Available NM-Not Meaningful.
Note: Peers are selected based on Global Industry Classification Standards and market capitalization. The peer group list includes companies with similar characteristics, but may not include all the companies within the same industry and/or that engage in the same line of business.

Analyst Research Notes and other Company News

June 18, 2018
09:32 am ET... CFRA REITERATES STRONG BUY OPINION ON SHARES OF ALPHABET INC. (GOOGL 1159.27*****): GOOGL announces a new strategic partnership with JD.com, a leading e-commerce company in China. GOOGL would invest $550 million in JD for 27.1 million newly issued ADSs of JD at $40.58 each (they closed at $43.59 on Friday, June 15), amounting to a less than 1% ownership stake. We think GOOGL is looking to JD as a way to enhance its standing and market share in China and the greater Asia-Pacific region. Years ago, in 2010, GOOGL pulled back from mainland China in particular. We see GOOGL partnering with JD in areas such as search and cloud infrastructure, and maybe even around advertising solutions for platform merchants. JD would also join Google Shopping. We think this is a positive development for GOOGL. /Scott Kessler

May 21, 2018
10:16 am ET... CFRA REITERATES STRONG BUY OPINION ON SHARES OF ALPHABET INC. (GOOGL 1069.64*****): Yesterday, in the U.S., the respected TV program 60 Minutes broadcast a segment called "How Did Google Get So Big?" We watched and read the related article on the the 60 Minutes website. 60 Minutes seemed to suggest Google (GOOGL's primary operating unit) not only wields considerable global power and influence, but is also largely unchecked by regulators and has run afoul of antitrust laws. The piece began with the notion that the Federal Trade Commission was asked to investigate the data collected by Google via its Android operating system and we have noted more scrutiny related to GOOGL in light of the Cambridge Analytica situation. However, we do not think the segment revealed or made news, highlighting only Google critics, including three interviewees (of the four featured in the piece) who have been well-known and mostly long-time antagonists of the business. We acknowledge legal and regulatory risks, but see a compelling valuation, and think a federal U.S. inquiry is unlikely. /Scott Kessler

May 10, 2018
01:34 pm ET... CFRA RAISES THE S&P 500 INFO. TECHNOLOGY SECTOR TO OVERWEIGHT FROM MARKETWEIGHT (GOOGL 1088.95*****): CFRA is raising the S&P 500 Information Technology sector to overweight from marketweight as we think sector earnings growth expectations for 2018 and 2019 are significantly underestimating the potential of the sector. Tech sector companies have consistently beat expectations in each of past seven quarters. Despite this, consensus 2019 earnings growth was recently reduced to 9.0%, below the 10.0% growth expected for the S&P 500. At a P/E of 19.0x, the sector garners a premium to its historic average but is below the 20.0x reached earlier this year. /Lindsey Bell

April 24, 2018
09:10 am ET... CFRA REITERATES STRONG BUY OPINION ON SHARES OF ALPHABET INC. (GOOGL 1073.81*****): We trim our 12-month target price to $1,235 from $1,285. Global peers have a median forward P/E of 32.8X and a P/E-to-growth of 1.2. Applying these multiples and averaging the outputs results in our target. We adjust our EPS estimates for '18 to $42.58 from $42.34, '19 to $47.05 from $49.46, and '20 to $54.36 from $57.61. GOOGL posts normalized Q1 EPS of $9.50 (not including a $3.0 billion gain on equity securities due to an accounting change, reflecting the company's stake in Uber) vs. $10.01, above the S&P Capital IQ consensus of $9.29. Revenues rose 26%, higher than we projected. Traffic acquisition costs (TAC) rose 37%, accounting for 24% of revenue (up from 22%), on shifts to mobile and programmatic advertising. We think TAC growth will start decelerating in Q2. Operating margins narrowed (to 26.5% from 22.5%) and the tax rate was much lower (11% vs. 20%). However, we still see a compelling valuation and point to $103 billion in cash/securities and only $5.3 billion in debt. /Scott Kessler

February 08, 2018
02:45 pm ET... CFRA UPGRADES OPINION ON CLASS 'A' SHARES OF ALPHABET TO STRONG BUY FROM BUY (GOOGL 1055.41*****): GOOGL has fallen some 13% over the past week, after Q4 EPS that were below our estimate. However, we raised our target, reflecting higher peer valuations, and we see around 25% upside to our 12-month target price of $1,285. We acknowledge competitive pressures and regulatory concerns, but Q4 revenue growth rose 24%, and note multiple emerging growth opportunities, including autonomous driving technology leader Waymo. We also point to a new $8.6 billion stock buyback, $98 billion in net cash/short-term investments, and the potential to repatriate $63 billion in foreign profits. /Scott Kessler

February 02, 2018
10:50 am ET... CFRA UPGRADES OPINION ON CLASS A SHARES OF ALPHABET INC. TO BUY FROM HOLD (GOOGL 1181.59****): We raise our 12-month target by $185 to $1,285. Peers have a median forward P/E of 27.7X and P/E-to-growth of 1.4. Applying these multiples and averaging the outputs results in our target. We trim our EPS estimates for '18 by $0.37 to $42.34 and '19's by $0.19 to $49. 46, setting '20's at $57.61. GOOGL posts adjusted Q4 EPS of $9.70 vs. $9.36, $0.37 below the S&P Capital IQ consensus, and we note traffic acquisition costs as a percentage of revenues were higher than we expected. However, 24% revenue growth was also higher than we expected. We see GOOGL as attractively valued. /Scott Kessler

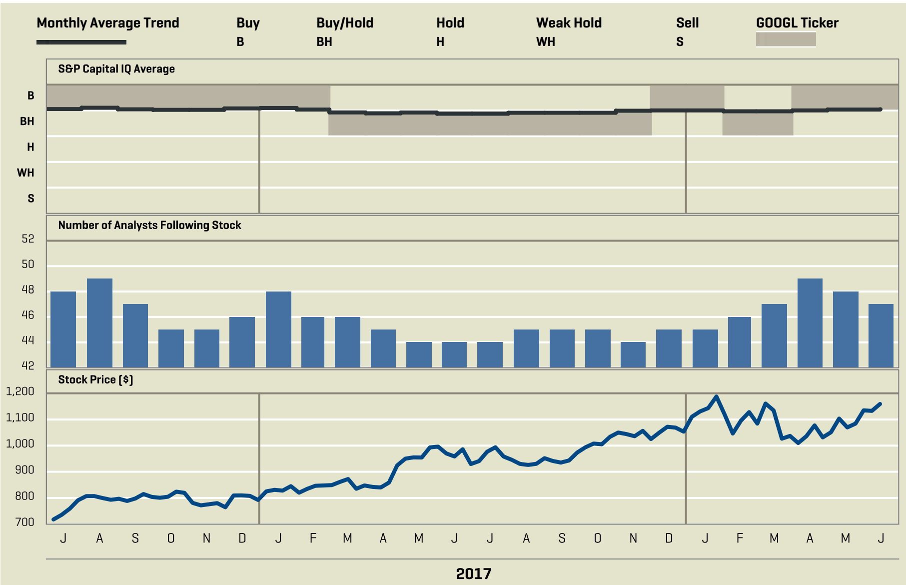
December 22, 2017
09:26 am ET... CFRA REITERATES HOLD OPINION ON CLASS A SHARES OF ALPHABET INC. (GOOGL 1070.85***): Alphabet announces long-time company leader Eric Schmidt will leave his Executive Chairman role next month, and become a technical advisor to the company. He will continue as a director. Schmidt joined Alphabet nearly 17 years ago, serving as Chairman and then also CEO of the company starting in 2001. He relinquished those roles in 2011, when he became Executive Chairman, concurrent with Larry Page re-assuming the CEO position. We think Schmidt's and GOOGL's influence in Washington, DC have declined with the transition to the Trump Administration from the Obama Administration. /Scott Kessler

October 27, 2017
10:33 am ET... CFRA DOWNGRADES OPINION ON SHARES OF ALPHABET INC. TO HOLD FROM BUY (GOOGL 1055.935***): We maintain our 12-month target of $1,100. Peers have an out-year P/E of 27.7X and a P/E-to-growth of 1.2. Applying these multiples and averaging the outputs results in our target. We raise our EPS estimates for '17 to $35.40 from $34.67 and '18's to $42.71 from $41.95, and set '19's at $49.65. GOOGL posts Q3 EPS of $9.57 vs. $7.25, above our estimate of $8.91 and S&P Capital IQ consensus of $8.40. Revenues rose 24%, driven by continuing progress with mobile search; we note search volume growth improved sequentially, while pricing also increased. We see GOOGL as fully valued. /Scott Kessler

Note: Research notes reflect CFRA's published opinions and analysis on the stock at the time the note was published. The note reflects the views of the equity analyst as of the date and time indicated in the note, and may not reflect CFRA's current view on the company.

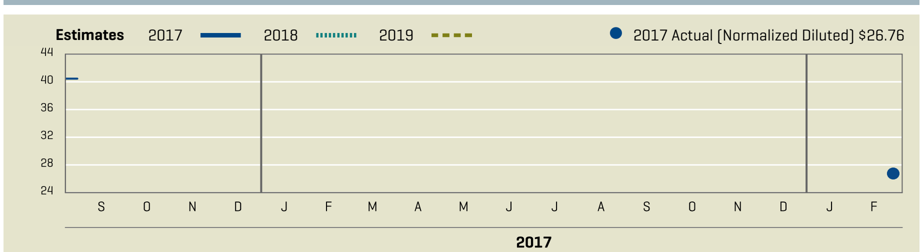
Alphabet Inc.

Analysts' Recommendations



	No. of Recommendations	% of Total	1 Mo.Prior	3 Mos.Prior
Buy	29	62	29	28
Buy/Hold	10	21	11	10
Hold	5	11	5	7
Weak Hold	0	0	0	0
Sell	0	0	0	0
No Opinion	3	6	3	2
Total	**47**	**100**	**48**	**47**

Wall Street Consensus Estimates



Fiscal Years	Avg Est.	High Est	Low Est.	# of Est.	Est. P/E
2019	47.97	57.76	42.96	20	24.7
2018	43.46	53.73	38.91	17	27.2
2019 vs. 2018	**▲10%**	**▲8%**	**▲10%**	**▲18%**	**▼-9%**
Q2'19	11.16	11.60	10.38	7	NM
Q2'18	9.72	11.62	9.05	17	NM
Q2'19 vs. Q2'18	**▲15%**	**▼-0%**	**▲15%**	**▼-59%**	**NA**

Forecasts are not reliable indicator of future performance.
Note: A company's earnings outlook plays a major part in any investment decision. S&P Global Market Intelligence organizes the earnings estimates of over 2,300 Wall Street analysts, and provides their consensus of earnings over the next two years, as well as how those earnings estimates have changed over time. Note that the information provided in relation to consensus estimates is not intended to predict actual results and should not be taken as a reliable indicator of future performance.

Note: For all tables, graphs and charts in this report that do not cite any reference or source, the source is S&P Global Market Intelligence.

Wall Street Consensus Opinion

BUY

Wall Street Consensus vs. Performance

For fiscal year 2018, analysts estimate that GOOGL will earn USD $43.46. For the 1st quarter of fiscal year 2018, GOOGL announced earnings per share of USD $13.33, representing 30.7% of the total revenue estimate. For fiscal year 2019, analysts estimate that GOOGL's earnings per share will grow by 10% to USD $47.97.

Glossary

STARS

Since January 1, 1987, CFRA Equity and Fund Research Services, and its predecessor S&P Capital IQ Equity Research has ranked a universe of U.S. common stocks, ADRs (American Depositary Receipts), and ADSs (American Depositary Shares) based on a given equity's potential for future performance. Similarly, we have ranked Asian and European equities since June 30, 2002. Under proprietary STARS (Stock Appreciation Ranking System), equity analysts rank equities according to their individual forecast of an equity's future total return potential versus the expected total return of a relevant benchmark (e.g., a regional index (S&P Asia 50 Index, S&P Europe 350® Index or S&P 500® Index)), based on a 12-month time horizon. STARS was designed to meet the needs of investors looking to put their investment decisions in perspective. Data used to assist in determining the STARS ranking may be the result of the analyst's own models as well as internal proprietary models resulting from dynamic data inputs.

S&P Global Market Intelligence's Quality Ranking

(also known as **S&P Capital IQ Earnings & Dividend Rankings**) - Growth and stability of earnings and dividends are deemed key elements in establishing S&P Global Market Intelligence's earnings and dividend rankings for common stocks, which are designed to capsulize the nature of this record in a single symbol. It should be noted, however, that the process also takes into consideration certain adjustments and modifications deemed desirable in establishing such rankings. The final score for each stock is measured against a scoring matrix determined by analysis of the scores of a large and representative sample of stocks. The range of scores in the array of this sample has been aligned with the following ladder of rankings:

A+	Highest	B	Below Average
A	High	B-	Lower
A-	Above Average	C	Lowest
B+	Average	D	In Reorganization
NR	Not Ranked		

EPS Estimates

CFRA's earnings per share (EPS) estimates reflect analyst projections of future EPS from continuing operations, and generally exclude various items that are viewed as special, non-recurring, or extraordinary. Also, EPS estimates reflect either forecasts of equity analysts; or, the consensus (average) EPS estimate, which are independently compiled by S&P Global Market Intelligence, a data provider to CFRA. Among the items typically excluded from EPS estimates are asset sale gains; impairment, restructuring or merger-related charges; legal and insurance settlements; in process research and development expenses; gains or losses on the extinguishment of debt; the cumulative effect of accounting changes; and earnings related to operations that have been classified by the company as discontinued. The inclusion of some items, such as stock option expense and recurring types of other charges, may vary, and depend on such factors as industry practice, analyst judgment, and the extent to which some types of data is disclosed by companies.

12-Month Target Price

The equity analyst's projection of the market price a given security will command 12 months hence, based on a combination of intrinsic, relative, and private market valuation metrics, including Fair Value.

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Abbreviations Used in Equity Research Reports

CAGR - Compound Annual Growth Rate
CAPEX - Capital Expenditures
CY - Calendar Year
DCF - Discounted Cash Flow
DDM - Dividend Discount Model
EBIT - Earnings Before Interest and Taxes
EBITDA - Earnings Before Interest, Taxes, Depreciation & Amortization
EPS - Earnings Per Share
EV - Enterprise Value
FCF - Free Cash Flow
FFO - Funds From Operations
FY - Fiscal Year
P/E - Price/Earnings
P/NAV - Price to Net Asset Value PEG Ratio - P/E-to-Growth Ratio PV - Present Value
R&D - Research & Development ROCE - Return on Capital Employed ROE - Return on Equity
ROI - Return on Investment
ROIC - Return on Invested Capital
ROA - Return on Assets
SG&A - Selling, General & Administrative Expenses
SOTP - Sum-of-The-Parts
WACC - Weighted Average Cost of Capital

Dividends on American Depository Receipts (ADRs) and American Depository Shares (ADSs) are net of taxes (paid in the country of origin).

Qualitative Risk Assessment

Reflects an equity analyst's view of a given company's operational risk, or the risk of a firm's ability to continue as an ongoing concern. The Qualitative Risk Assessment is a relative ranking to the U.S. STARS universe, and should be reflective of risk factors related to a company's operations, as opposed to risk and volatility measures associated with share prices. For an ETF this reflects on a capitalization-weighted basis, the average qualitative risk assessment assigned to holdings of the fund.

STARS Ranking system and definition:

★★★★★ **5-STARS (Strong Buy):**

Total return is expected to outperform the total return of a relevant benchmark, by a notable margin over the coming 12 months, with shares rising in price on an absolute basis.

★★★★☆ **4-STARS (Buy):**

Total return is expected to outperform the total return of a relevant benchmark over the coming 12 months, with shares rising in price on an absolute basis.

★★★☆☆ **3-STARS (Hold):**

Total return is expected to closely approximate the total return of a relevant benchmark over the coming 12 months, with shares generally rising in price on an absolute basis.

★★☆☆☆ **2-STARS (Sell):**

Total return is expected to underperform the total return of a relevant benchmark over the coming 12 months, and the share price is not anticipated to show a gain.

★☆☆☆☆ **1-STAR (Strong Sell):**

Total return is expected to underperform the total return of a relevant benchmark by a notable margin over the coming 12 months, with shares falling in price on an absolute basis.

Relevant benchmarks:

In North America, the relevant benchmark is the S&P 500 Index, in Europe and in Asia, the relevant benchmarks are the S&P Europe 350 Index and the S&P Asia 50 Index, respectively.

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Quantitative recommendations are determined by ranking a universe of common stocks based on 5 measures or model categories: Valuation, Quality, Growth, Street Sentiment, and Price Momentum. In the U.S., a sixth sub-category for Financial Health will also be displayed. Percentile scores are used to compare each company to all other companies in the same universe for each model category. The five (six) model category scores are then weighted and rolled up into a single percentile ranking for that company. For reports containing quantitative recommendations refer to the Glossary section of the report for detailed methodology and the definition of Quantitative rankings.

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STARS Stock Reports:

Global STARS Distribution as of March 31, 2018

Ranking	North America	Europe	Asia	Global
Buy	38.2%	31.0%	36.8%	36.9%
Hold	56.4%	55.2%	43.7%	54.8%
Sell	5.3%	13.7%	19.5%	8.4%
Total	100.0%	100.0%	100.0%	100.0%

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June 15, 2018

United States

The U.S. market is in a Confirmed Uptrend. The S&P 500 is hitting resistance just below 2800, while the Nasdaq continues to trade near all-time highs. Distribution remains elevated, however multiple days expire on both indices next week. Despite the lag in the S&P 500, leading ideas continue to show constructive action. Multiple names across several sectors and market caps are making higher highs after breaking out over the last month. Therefore, we continue to recommend buying ideas at risk optimal levels until we see more concerning technical action. We will remain positive on the general market until we see a further pick up in distribution that results in the major averages breaking below shorter-term moving average support.

Stocks on our U.S. Focus List: Current Sentiment

Our USFL of 72 ideas gained 1.6% on average this week, outperforming the S&P 500 (flat) and the Nasdaq (+1.3%).

Actionable Focus List ideas: Activision Blizzard (**ATVI**), Alibaba (**BABA**), Alphabet (**GOOGL**), At Home (**HOME**), Charles Schwab (**SCHW**), Fleetcor Technologies (**FLT**), Global Payments (**GPN**), Home Depot (**HD**), Nextera Energy (**NEP**), ON Semiconductor (**ON**), Paycom Software (**PAYC**), Paypal (**PYPL**), PRA Health Sciences (**PRAH**), PVH (**PVH**), SS&C Technologies (**SSNC**), Texas Capital Bancshares (**TCBI**), Unitedhealth (**UNH**), Western Alliance Bancorp (**WAL**), Worldpay (**WP**)

USFL ideas weekly earnings line-up:

Tuesday: Close: **FDX**

Thursday: Close: **RHT**

By Sector

Technology and Health Care ideas on the U.S. Focus List led this week. Despite choppy daily action, software ideas continue to trend higher. **PAYC** regained its 50-DMA and **ATVI** rallied all the way back to all-time highs where it is now hitting some resistance, while **VEEV**, **NOW**, **QTWO**, **RHT**, and **TYL** all made new highs. The majority of Health Care ideas on the USFL are now extended, including **ABMD**, **ALGN**, **EW**, **IDXX**, and **ILMN** which are all trading at all-time highs. **PRAH** and **UNH** remain actionable. Oil & Gas and Bank ideas on the USFL lagged again this week. **WRD** and **CLR** both broke their 50-DMA on Friday, while **FANG** continues to lag, trading around its 200-DMA. Among Banks, **ZION** traded back below its 50-DMA on Friday, while **TCBI** and **WAL** pulled back to that same level. **SIVB** remains the leader, still trading near all-time highs.

New Ideas or Deletions

No changes were made to the U.S. Focus List this week.

Developed Markets

Twenty-two developed markets gained 0.5% on average this week, extending last week's gains. Twenty-one markets are in a Confirmed Uptrend, including thirteen in an Uptrend Under Pressure. One market is in a Downtrend.

The iShares Developed Market Index (EFA) fell 0.6% this week. The index breached 200-DMA support on Friday, failing to hold the level after trading above it for two weeks. It is now 7% off highs and remains in a Rally Attempt.

Key Developed Markets

EMEA

This week, as of Thursday's close, the Stoxx 600 was up more than 2% on a weekly basis, aided by a 1.2% gain on Thursday following the ECB's monetary policy announcement. However, the index fell 2% on Friday on much higher than average volume. The index continues to have six distribution days, with one set to age out by the end of next week. It is nearing 50-DMA support ($38.50).

Sixteen European markets gained 0.9% on average. Most of the markets ended in the green, except Finland (-0.4%), Austria (-0.3%), and Portugal (-0.1%). The top gainers were Italy (+4.2%), Germany (+2.0%), and Switzerland (+1.5%).

- The ECB announced that it will reduce its asset purchase program to €15B per month after September, down from €30B per month. The program will come to an end in December. The ECB also stated that benchmark interest rates will be kept low at least through summer 2019. Markets were expecting a faster pace of rate increases. At the end of Thursday, the euro was down about 1.9% against the U.S. dollar.
- After reporting strong growth of 9.6% y/y in April, car sales in the EU lost momentum in May. According to the European Automobile Manufacturers' Association, new car registrations increased just 0.8% y/y to 1.4M units. Year-to-date, demand for new cars grew 2.4% y/y, driven by an 11.6% y/y increase in registrations in new member states.
- The Bank of France anticipates GDP growth of 1.8% for 2018, lower than its March forecast of 2.0%. It further expects growth to ease to 1.7% and 1.6% in 2019 and 2020, respectively.
- Inflation in Germany rose 2.2% y/y in May, accelerating from April's 1.6% yet remaining in line with consensus estimates. The rise was primarily due to higher energy prices. Inflation in France was 2.0% y/y in May, accelerating from 1.6% a month earlier and driven by higher energy prices.
- Retail sales volume in the U.K. grew 1.3% m/m in May, greater than expectations of 0.5%. Growth was aided by sales of food and household goods.

APAC

Five APAC markets declined 0.5% on average. Singapore (-2.3%) and Hong Kong (-2.1%) lagged, while Australia (+0.8%), Japan (+0.7%), and New Zealand (+0.4%) gained this week.

- Australia's unemployment rate declined to 5.4% in May from 5.6% in April, below consensus estimates of 5.5%.
- Japan's wholesale price inflation was 2.7% y/y in May.
- Singapore's unemployment rate declined to 2% in the March quarter and was in line with consensus estimates.
- Retail sales in Singapore in April inched up 0.4% y/y, primarily due to a steep fall in demand for computer and telecommunications equipment.
- Hong Kong's manufacturing production increased 1.1% y/y in Q1 2018.

Stocks on our Global Focus List for Developed Markets: Current Sentiment

For the trailing five-day period through Thursday (Asia's full week), the 76 ideas (one addition and two removals) on our GFL DM gained 1.2% on average, sharply outperforming the EFA benchmark.

Weekly outperformers included Germany – 5 stocks gained 4.5% on average, Japan – 13 stocks gained 3.1% on average; Switzerland – five stocks gained 3.1% on average; and Canada – five stocks gained 2.9% on average. Underperformers included Hong Kong - 19 stocks lost 2.2% on average.

Stock Leaders included:

- Canada Goose Holdings (GOOS.CA): 38% gain, all-time high weekly close
- Wirecard (WDIX.DE): 12.1% gain, trading near all-time highs
- Asahi Intecc (AS@H.JP): 9.9% gain, 4% from highs
- Costa Group Holdings (CGC.AU): 7.7% gain, all-time high weekly close
- Kering (KER.FR): 7.5% gain, extended further into all-time highs

Actionable Developed Market Focus List ideas: Asahi Intecc (AS@H.JP), Asml (ASML.NL), Benefit One (BONE.JP), China Mengniu Dairy (MNDA.HK), Cochlear (COH.AU), Ipsen (IPN.FR), Keywords Studios (KWS.GB), Kose (OSEC.JP), Li Ning (LNIN.HK), Premium Brands (PBH.CA), Sands China (SNDC.HK), Shanghai Fosun Pharm (SFPG.HK), Stabilus (STMX.DE), Straumann (STMN.CH), Sunny Optical (SOPT.HK), Teleperformance (ROFR.FR), Tosho (T@SH.JP), Trigano (TRI.FR)

Stock Laggards included:

- Wuxi Biologics Cayman (WXBO.HK): 8.2% loss, 11% off highs
- Xinyi Glass Holdings (XINY.HK): 7.3% loss, breached 40-WMA
- Nintendo (NNDO.JP): 6.7% loss, removed from list
- 3sbio (SBIL.HK): 5.5% loss, breached 10-WMA

By Sector

Our GFL DM versus the iShares Developed Market Index is:

- Overweight – Consumer Cyclical/Retail, Technology, Health Care and Utility;
- Underweight – Basic Material, Capital Equipment, Consumer Staple, Energy and Financial.

New Ideas or Deletions

This week we added Straumann Holding (STMN.CH) to the Focus List and removed Nintendo (NNDO.JP) and Tokyo Electron (RG@N.JP).

Emerging Markets

Twenty-four emerging markets fell 0.8% on average. Thirteen markets are in a Confirmed Uptrend, including eight in an Uptrend Under Pressure. Eight markets are in a Rally Attempt, while three markets are in a Down-trend. It's the 76th week with a majority of indices in an uptrend.

The iShares Emerging Market Index (EEM) declined 2.3% this week, reversing the marginal gain from the prior week. The index closed below its 50- and 200-DMA. In addition, the 50-DMA continues to remain below the 200-DMA, which reflects persistent technical weakness over the last few months. The index is at February/May support, with no clear support below that until the mid-$40s.

Key Emerging Markets

APAC

APAC markets reversed the positive trend from the earlier week and declined 1.2% on average. All the markets closed in the red, except India (+0.5%) and Indonesia, which remained flat. China (-3.4%), the Philippines (-2.7%), South Korea (-1.9%), and Thailand (-1%) dragged down the performance of the region.

- In May, China's extended CNY 1.15T in new loans, slightly lower than market expectations of CNY 1.2T. Outstanding yuan loans increased 12.6% y/y.
- China's industrial production increased 6.8% y/y in May, slightly below market consensus of 6.9%.
- Fixed asset investments in China increased 6.1% y/y to CNY 2.16T in the January–May period.
- India's CPI increased to 4.87% in May from 4.58% in April, slightly above market expectations of 4.83%.
- India's WPI rose 4.43% y/y in May, above market estimates of 3.76%.
- Malaysia's industrial production increased 4.6% y/y in April, beating consensus estimates of 3.7%.
- Malaysia's unemployment rate fell to 3.3% in April 2018, down 0.1% from the 3.4% in April 2017.
- South Korea's seasonally adjusted unemployment rate fell to 3.8% in April 2018, down 0.1% compared with 3.9% in April 2017.

EMEA

Markets in EMEA declined 0.7%, after displaying divergent trends the previous week. Egypt (+1.9%) and the Czech Republic (+0.1%) were the only gainers, while Hungary (-2%), Russia (-1.5%), Turkey (-1.4%), and Poland (-1.4%) offset the gains.

- Retail sales in South Africa rose 0.5% y/y in April, down from 4.6% in March and below market expectations of 4.1%.
- Egypt's consumer price inflation eased to 11.5% in May from 13.1% in April, making it the lowest inflation rate since April 2016. Core inflation cooled to 11.1% y/y from 11.62% the previous month.
- Turkey's economy expanded at an annualized pace of 7.4% in Q1, accelerating from the 7.3% the prior quarter. It also beat market expectations of 7.0% annual growth.

Americas

Emerging markets in the Americas continued their mixed performance this week. Mexico (+2.7%) and Colombia (+0.2%) were the outperformers, while Brazil (-2.8%), Peru (-0.8%) and Chile (-0.2%) provided the headwinds.

- Brazil's economic activity expanded slightly less than expected in April. The central bank's economic activity index increased 0.46% from March, compared with the median 0.50% forecast.
- Brazil's April retail sales rose more than expected for a second straight. Sales were up 1% from March, exceeding the median 0.6% forecast. The government noted that the reading points to growing momentum for Brazil's uneven recovery from its deepest recession in decades. Record-low interest rates and slow inflation have bolstered consumers' purchasing power, helping to drive a consumption-led economic rebound. Retail sales rose 0.60% from the year before, slightly better than the estimate of 0.55%.
- Brazil's central bank said it will continue to offer currency swaps and sees no restriction for the amount of those swaps. The bank expects to offer $10B in swaps next week, an amount that could go up or down depending on market conditions. The Brazilian real declined to its lowest level since May 2017 on May 14 after the ECB announced it will end its bond purchasing scheme by year-end, removing a key source of liquidity from global markets.
- Mexico's Economy Minister Ildefonso Guajardo stated that only way countries re-negotiating NAFTA will find a solution is through "sufficient flexibility" to reduce differences. Guajardo said negotiators will be "engaging strongly" in July to reach an agreement. He added that there was a "high chance" there will be an agreement on renegotiating NAFTA, but the timing depends on how flexible each country can be. White House economic advisor Larry Kudlow has said Trump will seek to replace NAFTA with bilateral deals with Canada and Mexico, something both countries say they oppose.
- Mexico's retailers' association announced that same-store sales increased 5.6% y/y in May.

Stocks on our Global Focus List for Emerging Markets: Current Sentiment

For the trailing five-day period through Thursday (Asia's full week), the 32 ideas (one addition) on our GFL EM gained 0.1% on average, comfortably outperforming the EEM benchmark index.

The weekly outperformer was Malaysia – two stocks gained 4.4% on average. The underperformer was Taiwan – two stocks lost 4.5% on average. Twenty-five total stocks in South Korea and India were up 0.1% on average.

Stock Leaders included:

- Page Industries (PI1.IN): 7.7% gain, all-time high weekly close
- QI Resources (QLRE.MY): 4.6% gain, all-time high weekly close
- Chroma Ate (CMA.TW): 4.4% gain, the stock regained support at its 10-WMA
- Top Glove (TOGL.MY): 4.1% gain, 6% off highs

Actionable Emerging Markets Focus List ideas: Airtac (AIG.TW), Angel Yeast (HAY.CN), Asian Paints (API.IN), Berger Paints (BPI.IN), Clicks (CLSJ.ZA), Edelweiss (EWC.IN), Gruh Finance (GRU.IN), Hdfc Bank (HFC.IN), Indusind Bank (IBK.IN), Jejuair (JJU.KR), Jsw Steel (JVS.IN), Kweichow Moutai (KCM.CN), Page Industries (PI1.IN), Reliance Industries (REL.IN), Samsung SDI (SCT.KR), Skc Kolon Pi (SKJ.KR), Sundram Fasteners (SMF.IN)

Stock Laggards included:

- Airtac International (AIG.TW): 13.3% loss, breached its 40-WMA
- Gruh Finance (GRU.IN): 11.1% loss, breached its 10-WMA
- Skc Kolon Pi (SKJ.KR): 3.8% loss, the stock is 8% off highs

By Sector

Our GFL EM versus the iShares Emerging Market Index is:

Overweight – Basic Materials, Retail/Consumer Cyclical, Transportation, Consumer Staple, Capital Equipment, Health Care and Utility;
Underweight – Energy, Financial, and Technology.

New Ideas or Deletions

This week we added Samsung SDI (SCT.KR) to the Focus List.

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EDITED TRANSCRIPT

GOOGL - Alphabet Inc Annual Shareholders Meeting

EVENT DATE/TIME: JUNE 06, 2018 / 4:00PM GMT

CORPORATE PARTICIPANTS

David C. Drummond *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

Eileen Naughton

John L. Hennessy *Alphabet Inc. - Chairman & Lead Director*

Kent Walker *Alphabet Inc. - Assistant Secretary*

Ruth Myrna Porat *Alphabet Inc. - Senior VP & CFO*

Sundar Pichai *Google LLC - CEO*

CONFERENCE CALL PARTICIPANTS

Jeffrey Buchanan

John Simpson

Abigail Shaw

Farnum Brown *Arjuna Capital, LLC - Managing Partner and Chief Strategist*

Irene Knapp

Justin Danhof

Lila Holzman

Rafael Jun Hyung Kim

Salvador Bustamante

PRESENTATION

Unidentified Company Representative

Ladies and gentlemen, please welcome the Chairman of the Board of Directors of Alphabet, John L. Hennessy.

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

Good morning. Good morning, everyone, and welcome to Alphabet's 2018 Annual Shareholder Meeting. I'm John Hennessy, Chairman of the Board of Directors of Alphabet, and I'll be presiding over this meeting.

Each of you should have registered as you arrived. If anyone is not registered for the meeting, please register before leaving today. Each of you also should have received an agenda. On the reverse side of the agenda is a list of the rules of procedures for the meeting, and we ask that you abide by those rules. At this time, I call the 2018 meeting of the shareholders to order.

I'd like to take this opportunity to introduce a few people. First of all, Eric Schmidt, sitting here in the front. I think as you all know, Eric served as our CEO for the first 10 years of our company, and then as Executive Chair for 6 years. And under his incredible leadership, Google and then Alphabet have really thrived. So thank you, Eric, for that incredible leadership and inspiration.

I'd also like to introduce Diane Greene, also a member of the Board of Directors, sitting up here in the front. And then some of our management team here today: Ruth Porat, our CFO; David Drummond, who'll be up shortly, our Senior Vice President of Business Development; and Eileen Naughton, where's Eileen? There you are, Vice President of People Operations.

Also with us today is Maura Stanley, a representative of Computershare, our transfer agent, who will act as the Inspector of Elections; and Andrew Cotton and Matthew Sapp, representatives of Ernst & Young, our independent accountants.

I'd now like to ask David Drummond, Alphabet's Senior Vice President, Corporate Development, Chief Legal Officer and Secretary, to come up. David will conduct the formal portion of the meeting. Following that, Sundar Pichai, our Chief Executive Officer of Google, and I will be back to talk about some -- give some comments on the company and have a question-and-answer period. David?

David C. Drummond - *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

Thanks, John, and welcome, everyone, to the 2018 Annual Meeting of Stockholders. A quick note before we begin the business about the logistics for today's meeting. We have some rules of procedure. And as stated in the rules, stockholders shouldn't address the meeting until you're recognized. We'll provide a 20-minute Q&A session, as John mentioned, following the business of the meeting, and you'll have an opportunity to ask questions then. Now if you want to ask a question during that period, please move to the microphone stands, which we'll have in the aisles, and then introduce yourself as a stockholder. And after being recognized, you can go ahead and ask your question. So thanks in advance for cooperating with the rules, and we'll hopefully not have to intervene to remove anyone, et cetera, if you're violating the rules.

So I received the affidavits of mailing from Computershare and from Broadridge, which state that the notice of the meeting was duly given. All stockholders of Class A and/or Class B common stock as of the close of business on April 18, 2018, are entitled to vote at today's meeting.

In addition, I've been advised by the Inspector of Election that the holders of our outstanding Class A and Class B stock, representing at least a majority of the voting power of the outstanding Class A and Class B stock entitled to vote, are represented in person or by proxy at today's meeting. So therefore, a quorum is present. The meeting is duly constituted, and the business of the meeting may proceed.

The first item of business is the election of directors. We have 11 directors to be elected at today's meeting. And those directors that are elected today will hold office until the 2019 Annual Meeting of Stockholders. The Board of Directors has nominated the following individuals: Larry Page, Sergey Brin, Eric Schmidt, John Doerr, Roger Ferguson, Diane Greene, John Hennessy, Ann Mather, Alan Mulally, Sundar Pichai and Ram Shriram. Now our bylaws require that stockholders provide advance notice of their intent to nominate persons as directors. We haven't received any such notice, so accordingly, I declare the nominations for directors closed.

Now the next matter being submitted to our stockholders is the ratification of the appointment of Ernst & Young as our independent registered public accounting firm for the 2018 fiscal year. Our Board of Directors has recommended that our stockholders ratify the appointment of Ernst & Young as our independent registered public accounting firm for 2018.

The next matter being submitted to our stockholders is the approval of amendments to Alphabet's 2012 Stock Plan to increase the share reserve under the plan by 11,500,000 shares of Class C capital stock and to prohibit the repricing of stock options granted under the 2012 stockholder plan without shareholder approval. Now our Board of Directors has recommended that our stockholders approve these amendments to the 2012 Stock Plan, and that's described in detail in our proxy statement.

Now the next 7 items being submitted are stockholder proposals. Our Board of Directors has unanimously recommended that our stockholders vote against all 7 stockholder proposals that will be presented.

Now the first stockholder proposal is brought by James McRitchie, Myra K. Young and The NorthStar Asset Management Funded Pension Plan as the co-lead filers. I believe Abigail Shaw is here, and she'll be presenting the proposal. You have a total of 3 minutes to make a statement, and I'll advise you when your time is about to expire. Please proceed.

Abigail Shaw

Good morning. My name is Abigail Shaw from NorthStar Asset Management in Boston, the beneficial owner of 6,559 shares of Class A stock at Alphabet. Fellow shareholders, I am here to represent Resolution #4, a good governance proposal about equal voting rights. When shareholders of common stock do not have an equal right to weigh in on significant governance matters, we subject ourselves to greater financial risk. When Alphabet went public, shareholders already lacked the opportunity to give substantive input into matters of policy. Alphabet's voting structure is heavily weighed to favor insiders, given that Class B shares are granted 10x the voting rights of Class A shares. Matters were made worse when Class B insiders voted in a brand-new class of stock with 0 voting rights.

The fact that this was approved is particularly remarkable, because our calculations show that only 15% of Class A outside shares that voted approved of establishing Class C capital stock. How is this possible? Well, this measure passed because Mr. Brin and Mr. Page, who currently own 12% of the outstanding shares of the company, together have 56% of the voting power. While we can ignore this reality when profits are up, this voting structure constitutes a considerable risk to governance and shareholder value.

All we need to do is look north about 7 miles to Facebook headquarters to see what may happen when shareholders are unable to provide meaningful feedback. Facebook's recent data scandals should be a warning to all Alphabet shareholders as well. In late March, CNNMoney reported that Facebook has lost $80 billion in market value since its data scandal. Worse, Facebook shareholders are in a position where a board member is directly connected to the private company at the heart of the scandal, yet they cannot vote out that board member.

Alphabet shareholders need to heed the warning that poor governance can and likely will result in an eventual downturn in shareholder value. We are very concerned about the governance risk that comes from relying upon merely 2 or 3 people's visions and their ability to reduce threats to the company long term without broad input.

The founders brought this company to fruition and led it into profitability, but the company's decision to offer common shares of the company on public exchanges, making Alphabet a public company, brings with it a responsibility to shareholders to practice good governance. Shareholders, we urge you to vote for Proxy Item #4.

David C. Drummond - *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

Thank you, Ms. Shaw. Appreciate it.

The second stockholder proposal is being brought by Walden Asset Management as the lead filer, joined by the Benedictine Sisters of Monasterio Pan De Vida; the Benedictine Sisters of Cullman, Alabama; The Benedictine Sisters of Baltimore Mercy Investment Services; The Oblate International Pastoral Investment Trust and a number of other individuals and organizations as co-filers. Lila Holzman, I believe, is here, and she'll be presenting this proposal. Ms. Holzman, you have 3 minutes.

Lila Holzman

Mr. Chairman and fellow shareholders, my name is Lila Holzman, and I am presenting on behalf of Walden Asset Management, the primary sponsor of this proposal, whose company owns approximately 257,000 shares of Alphabet. I work as the Energy Program Manager at As You Sow, a shareholder engagement nonprofit in Oakland. On behalf of Walden and approximately 15 co-filers, I am pleased to move this resolution, which has been voted on by Alphabet's stockholders for several years and seeks information on how Alphabet directly and indirectly works to affect legislation and public policy.

On behalf of Walden, let me start by thanking Alphabet for your leadership on climate change, both by reducing your greenhouse gas emissions and by speaking out to support the Paris accord. This public voicing of our views sends a clear message to legislators on where we stand. Thank you.

We also commend management for its fruitful dialogue with investors regarding political candidate contributions. The company agreed to expand its disclosures on political spending, and the resolution was withdrawn. Walden and the cosponsors are more than willing to have a constructive dialogue that could lead to the withdrawal of this resolution as well and will reach out after this AGM.

Lobbying is big business and controversial for Alphabet. In the last 3 years, Alphabet spent over $50 million in federal lobbying. As one of the top-5 lobbying companies, our lobbying has been profiled in 60 Minutes as part of a critical exposé on Google.

While Alphabet discloses a summary of its direct federal lobbying online with links to quarterly reports provided to the Senate, these are very difficult to navigate. It would be so easy for Alphabet to summarize the dollars spent and the major issues we lobbied on accompanying the Senate report links.

Importantly, Alphabet does not disclose meaningful details on dues and grants provided to the many advocacy and trade groups it's a part of, or how it evaluates whether the lobbying of these organizations is consistent with Alphabet's priorities, values and position of do no evil. Additional disclosure is needed here.

We congratulate Alphabet for publicly withdrawing from ALEC, a group that combats clean energy. In doing so, Alphabet acted on its stated values, a step we commend. However, Alphabet remains a member of other trade associations, whose actions conflict with its values, like the U.S. Chamber of Commerce, which has spent over 1.3 billion on lobbying since 1998 and aggressively opposes climate change solutions. This is in clear conflict with our stated position on the need to limit the effects of climate change. Apple responded to the Chamber's practices by withdrawing. We urge Alphabet to express its stated policies by speaking out, challenging the Chamber's actions and lobbying with other companies inside the chamber to change its counterproductive climate policies. While Alphabet is a leader in articulating and working to abide by positive social and environmental values, our company's vision and environmental ethics deserve to be reflected in how our lobbying dollars are spent. We look forward to future dialogue on this issue.

David C. Drummond - *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

Thank you very much, Ms. Holzman.

The third stockholder proposal is being brought by Arjuna Capital on behalf of its clients, Proxy Impact -- sorry, Proxy Impact on behalf of CB Wealth Generation, and Baldwin Brothers on behalf of Dylan Sage as co-filers. I believe we have Farnum Brown here, who's here to present. Hi, Mr. Brown. You have 3 minutes. Please proceed.

Farnum Brown - *Arjuna Capital, LLC - Managing Partner and Chief Strategist*

My name is Farnum Brown, and I move proposal #6 on behalf of Arjuna Capital and co-filers Proxy Impact and Baldwin Brothers Inc. asking for a report on gender pay equity. This is the third year this proposal has gone to a vote, and we acknowledge incremental progress, yet critical concerns remain unaddressed.

The median income for women working full time in the United States is 80% of that earned by men, a gap that is not expected to close for 40 years. Of note, the gap for African-American and Latina women is wider at 60% and 55%, respectively. Gender and intersecting racial pay inequity represent a structural barrier to diverse leadership, posing a risk to company performance and investor returns.

Of particular note, the United Kingdom now mandates disclosure of median gender pay gaps. In the U.S., investor engagement has thus far led to disclosures not on median pay, but on statistically adjusted equal pay for equal work numbers, assessing the pay of men and women performing similar jobs. Google says the company pays women fairly on this basis, although the company excludes from its analysis the compensation of highly paid positions of Vice President and above.

More importantly, the equal pay for equal work number considered alone fails to address how discrimination affects differences in opportunity. That is, it does not reflect the structural bias that affects the jobs women hold. The median pay gap does reflect this structural bias in cases where men hold the majority of higher-paying jobs. Google reports the median pay gap for its United Kingdom operations is near 11%, but has not published information on its global operations.

Top proxy adviser, Institutional Shareholders Services, ISS, recommends support for this proposal, noting "the equal pay for equal work statistic does not address the reported systemic bias and segregation into lower-paying jobs. That systemic bias could make it harder for Google to recruit and retain women in its workforce and could increase its exposure to regulatory risk as more jurisdictions seek to pass laws and regulations to close the gender pay gap. Disclosing more information about the risk that it faces in different jurisdictions related to a gender pay gap would provide shareholders with useful information about how effectively management is assessing and mitigating that risk. Therefore, support for this resolution is warranted."

David C. Drummond - *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

Thanks very much, Mr. Brown.

The next proposal, which is proposal #7 in the proxy, is being brought by John Chevedden. I believe Ms. Holzman, you are presenting again on this proposal? Excellent. So you have 3 minutes.

Lila Holzman

On behalf of John Chevedden of Redondo Beach, California, I'm presenting proposal 7 regarding a simple majority vote. Shareholders request that the board take the steps necessary so that each voting requirement in the charter and bylaws that calls for a greater than simple majority vote be eliminated and replaced by a requirement for a majority of the votes cast for and against applicable proposals, or a simple majority in compliance with state law. The full text of the proposal is in the annual meeting proxy booklet.

David C. Drummond - *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

Thanks very much. So let's move on to the next proposal, which is proposal #8 in the proxy statement. And that's being brought by Zevin Asset Management as the lead filer on behalf of Carol A. Reisen, along with a number of other co-filers. And Irene Knapp, a fellow character Googler, I believe, will be presenting the proposal. So you have 3 minutes.

Irene Knapp

My name is Irene Knapp, and I'm an engineer at Google. On behalf of Zevin Asset Management and concerned employees of Alphabet and its subsidiaries, I hereby move proposal #8.

Integrating executive performance measures with diversity and inclusion metrics will further our company's values, address long-term human capital risks, and make it clear that diversity and inclusion are a business priority throughout the organization. Diversity and inclusion are key components of business sustainability and success. McKinsey & Company research shows that companies in the top quartiles for gender and racial and ethnic diversity were more likely to have above-average financial returns.

Yet at Alphabet, diversity and inclusion activities by individual contributors and managers alike, including mentorship, outreach and community building, have been met with a disorganized array of responses, including formal reprimand. The lack of clear communicated policies and actions to advance diversity and inclusion, with concrete accountability and leadership from senior executives, has left many of us feeling unsafe and unable to do our work. The chilling effect of harassment and doxxing has impaired productivity and company culture. Responses from HR have been inadequate, leaving minority communities unprotected. Now we are forced to weigh the risks to ourselves before giving each other support. This backwards response is tied to immediate retention issues as entire support networks shut down in fear.

The proposed metrics will incentivize long-term progress on diversity and inclusion. However, Alphabet must also immediately address human capital risk by improving its code of conduct, by cracking down on malicious leaks that have intimidated individuals, by publishing to employees a manual formalizing procedures for HR investigations, and by finding a solution for bad-faith HR complaints. We are hopeful that executives are finding ways to implement these solutions as concerned employees requested 2 months ago. It is our belief as investors, as engineers and as technical professionals, that a lack of executive leadership around sustainability, diversity and inclusion fundamentally hurts the quality of products Alphabet can deliver to users. As a company that aims to focus on the next billion Internet users and bring the convenience and power of information access to them, Alphabet must credibly integrate diversity and inclusion into its strategy.

Today, it is clear that Alphabet shareholders are listening to employees' experience and standing with us as we all challenge our company to be better. Together, we are sending a strong message to Alphabet leadership that they must prioritize diversity and inclusion in the interest of all employees and of long-term investor value. We urge our fellow shareholders to support proposal #8.

David C. Drummond - *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

Thank you very much, Irene. Much appreciated.

The next stockholder proposal is being brought by the National Center for Public Policy Research. Justin Danhof, I believe, is here. Welcome back, Justin, and he'll be presenting. You have 3 minutes.

Justin Danhof

My name is Justin Danhof from the National Center for Public Policy Research, and I rise to move proposal 9, which seeks to increase ideological diversity on the company's board. In recent weeks, both Amazon and Facebook have agreed to terms with the SEIU to alter their respective board selection procedures. Rather than appointing the best person for the job, they have adopted an affirmative action plan, sometimes known as the Rooney Rule after the NFL. This is designed to increase female and minority board membership, but these policies are often demeaning to the selected candidates because they know that's the only reason they were selected, and they're racist and sexist to boot.

We propose something different. Rather than promoting racism and sexism, we urge Alphabet to consider viewpoint diversity when it makes its board selections. Silicon Valley elites often preen about their commitment to diversity and inclusion, but I don't think many of you know what that means. Diversity isn't what someone looks like. Let me say that again so people understand. Diversity is not what someone looks like. It's the sum of what they think, they feel and they believe. And at this company, it appears that thinking and believing in conservative policies is verboten.

At last year's shareholder meeting, I asked the company's executives if conservative and libertarian opinions were welcome at Alphabet, in light of the company's numerous public policy positions that all seem to be left of center. Mr. Schmidt essentially told me that the company would never reconsider any of its policy positions, because everyone in this company believes the same exact things. And frankly he said, in Silicon Valley, we have the same belief system. Obviously, that's not true. Many Google employees e-mailed me after the meeting, thanking me for saying publicly what they're petrified to say within the walls of this community.

Soon after the meeting, the company also very publicly ousted engineer, James Damore. He simply suggested concrete ways to increase Alphabet's gender diversity. Apparently, he was ousted because he referred to human biology. I thought Alphabet was committed to science. I guess not.

Even the far-left New York Times ran an article critical of the company's handling of the Damore situation. It noted, "Damore is describing a truth on one level. His critics are describing a different truth, one that exists on another level. He is championing scientific research. They are championing gender equality. It takes a little subtlety to harmonize these strands, but it's doable." The article then chastised Google CEO, Sundar Pichai, for lying

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about the memo and simply joining with the liberal mob in ousting Damore. That Pichai still has a job shows that the board's liberal groupthink problem is pervasive.

Recently, more than a dozen prominent conservative organizations have combined forces to try and combat Google's censorship of their work. Google's search results have also recently labeled conservative politicians as bigots and Nazis.

All of this points to the necessity of implementing our proposal. We believe that boards that incorporate diverse perspectives can think more critically and oversee corporate managers more effectively. Appointing a few conservatives may help the company avoid groupthink. That's a win for investors and a win for true diversity. Please vote yes on proposal 9.

David C. Drummond - *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

Thank you. So the final stockholder proposal, which is proposal #10 in the proxy statement, is being brought also by Arjuna Capital on behalf of its clients as lead filer, and The New York State Common Retirement Fund as well as Bruce Alexander Gaguine as co-filers. Farnum Brown will be presenting this proposal as well. Mr. Brown?

Farnum Brown - *Arjuna Capital, LLC - Managing Partner and Chief Strategist*

My name is Farnum Brown, and I'm here to move Proposal #10 on behalf of Arjuna Capital and co-filers, including The New York State Common Retirement Fund.

We are asking our company to publish a report on content governance. From political subterfuge, fake news, hate speech and sexual harassment, it is clear that content that violates Google's own terms of service poses a risk to the company's market value and brand. Last year, at this very meeting, we highlighted the risks posed by fake news propagated over the platform. And while our board opposed reporting, we learned 6 months later, and only through congressional testimony, that abuse of the YouTube platform was far greater than previously acknowledged, and that Russian agents uploaded more than 1,000 propaganda videos prior to the 2016 U.S. presidential election.

In December, YouTube's CEO, Susan Wojcicki, acknowledged that "some bad actors are exploiting YouTube's openness to mislead, manipulate, harass or even harm." She promised to "stay one step ahead of bad actors, making it harder for policy-violating content to surface or remain on YouTube."

It is clear however, that the company's response to mounting controversies and enforcement of its terms of service continues to be problematic. An April 2018 CNN investigation found that YouTube channels carried ads from over 300 companies and organizations promoting, among other things, white nationalists, Nazis, pedophilia and North Korean propaganda. And an April 2018 CBS poll found a majority of Americans say tougher government regulations are needed to rein in the power of Google and other social media companies. Fines and regulation by governments, lost advertising revenue and a soured brand pose a risk to investment returns. We believe Google's ability to proactively assess its content governance, reporting mechanisms and enforcement capabilities will inform how successfully the platform will navigate a complex landscape.

Leading proxy adviser, Institutional Shareholder Services, ISS, agrees, noting, "The company does seem to be responding to each content management-related controversy in a reactive way. Shareholders would benefit from additional disclosure reviewing and compiling in one report the efficacy of its enforcement of its terms of service related to content policies and assessing the risks posed by content management controversies with statistics on the percentage of content that is flagged as offensive and how that may change over time, how quickly content is removed if it is offensive, or other appropriate quantitative metrics. Therefore, this proposal merits shareholder support."

David C. Drummond - *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

Thanks very much, Mr. Brown. So because no further business is scheduled to come before the stockholders, the polls are now open. Now if you've already voted by proxy, you don't need to vote today, unless you'd like to change your vote. And I should also let you know that we've received sufficient proxies before the meeting to know that the proposals we discussed today will either pass or fail in accordance with the recommendations made by our board that are outlined in the proxy statement. However, we want to make sure that everybody gets a chance to vote. So if you want to vote, and you requested a ballot when you registered for the meeting, please complete it now. And we'll give you a few moments to do that. And I think we have some folks who would -- will collect some ballots, if you've got them.

(Voting)

David C. Drummond - *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

Okay. Looks like we've collected all the ballots in the room. So I hereby declare the polls for each matter voted upon at the meeting closed and direct the Inspector of Elections to collect the ballots. Well, I guess, we've collected them all.

And so we can move on to the next segment. So officially, I've been advised by the Inspector of Elections that the nominees for the election to the Board of Directors have been duly elected. I've also been advised by the Inspector of Elections that a majority of the shares of our Class A and B common stock entitled to vote and present at the meeting in person or by proxy voted in favor of proposals 2 and 3. So therefore, each of these proposals has been approved by our stockholders.

I've also been advised by the Inspector of Elections that the majority of our shares of our Class A and Class B common stock entitled to vote and present at the meeting in person or by proxy have voted against proposals 4 through 10. So therefore, each of these stockholder proposals have not been approved by our stockholders. So as soon as possible after the meeting, we'll complete the final vote tabulations, and we'll provide final vote results on our Investor Relations website and also in a filing with the SEC.

So that ends the official business of the meeting, and I declare the formal portion of the meeting adjourned. John and Sundar will now make some remarks. And after those remarks, we'll have a 20-minute question-and-answer session.

Since I'm a lawyer, I'm obliged to provide this final note that our statements, remarks, presentations, answers to your questions may contain forward-looking statements about our business look -- outlook and other matters. So actual results and outcomes for these matters may differ from any forward-looking statements we might make due to a number of risks and uncertainties. Those risks are described in detail in our public findings with the SEC.

So I'll now turn the meeting back to John.

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

Thank you, David. As David said, Sundar will be up in a few minutes to give you an update on Google. But I wanted to take this opportunity as the Chair of the Alphabet board to share a little about me and something about my perspective about the incredible journey that Google and Alphabet have been on.

I came to Stanford from the East Coast in 1977 with a newly minted PhD. This location where we're standing was then a family farm. Larry and Sergey were 4 years old, and the major nexus of the computing industry was somewhere between Boston and New York. Certainly, things have changed a lot in that time. I'm a computer scientist by background. And during the time I've been here, I cofounded 2 companies, MIPS Computer Systems and Atheros Communications, before returning to Stanford, serving as Chair of Computer Science, Dean, and then for 16 years as Stanford's 10th President.

I still remember the first meeting I had with Larry and Sergey in 1997 when I was Dean of Engineering. And they gave me a demo of what would become the Google search engine then running at Stanford. I was absolutely astonished. I knew when I saw it that they had redefined what search meant and accomplished something which many people probably thought was not possible, a dramatic improvement in the quality of search results.

I remember a few years later, I brought a freshman seminar down to visit then a small company called Google that had a few thousand employees at the time. And Larry and Sergey came to this group of freshmen and talked about their vision of organizing all the world's knowledge and making it useful, and I knew they had a very big picture of what Google could be as a company.

I joined the board in 2004 and have seen some incredible transitions and big milestones in Google's history. Of course, YouTube, Android and Chrome all growing to have billions of users. I've seen the opportunities in mobile explode and advertisers, publishers and partners take advantage of that change.

I was a big believer in the leadership's commitment early on to invest in machine learning and pivoting the company around AI. I still remember a debate we had early on whether AI would be bigger than the Internet or not, I think a debate which is still open, but certainly, given the dramatic improvements in machine learning, one that's very active and may someday come true.

Our board has a great collaborative atmosphere. It works well with the management team and has a diverse set of strengths and experiences. We appointed Alan Mulally, the former President and CEO of Ford Motor Company and the Executive Vice President at Boeing before that, to our board in July 2014. He's brought global business leadership as well as expertise in financial and management.

Roger Ferguson, President and the CEO of TIAA and former member of the Board of Governors of the U.S. Federal Reserve System, joined our board in June of 2016. He has a long record of distinguished service in both the public and private sectors.

Ann Mather joined our board in 2005 and has been chair of our Audit Committee since that time. She brought tremendous financial and accounting expertise to the board, leveraging her experience as CFO at Pixar.

We also this -- in this past year lost 2 board members: Shirley Tilghman on her retirement from the board, and Paul Otellini due to his early tragic death. So we are actively looking for additional independent board members, who can complement the existing expertise and help take Alphabet to that next level.

In searching for new board members, we take the issue of diversity seriously. A diversity of perspectives, ideas and cultures, both within Alphabet and in the tech industry more broadly, leads to the creation of better products and services. And that's reflected in the makeup of our board. Over the last 4 -- few years for open positions on the Alphabet Board of Directors, we have consistently interviewed a diverse set of qualified candidates and found many outstanding new board members that way. We are committed to continuing that. And I can confirm that for every new Alphabet board opening, we will consider a set of candidates that includes both underrepresented people of color and different genders.

As the company enters its 20th year, there's never been a more exciting time for Google and Alphabet. It's also a time when the company must be deeply thoughtful about its role in society and its impact on our users. Within Google, we now have 7 products that have 1 billion monthly active users: Search, Maps, Chrome, Play, YouTube, Android and Gmail. The core ads business continues to show strong growth, and newer businesses like Cloud, hardware and Play show great promise. We also have great confidence in Sundar's leadership and where he's taking the company.

In our Other Bets, we believe we've developed a strategy and organization that will allow us to innovate in different sectors, and we see tremendous potential in the work happening across Alphabet. As an example, Waymo recently launched a self-driving program for early adopters in Phoenix. This milestone puts us on track to have a commercial ridesharing service with self-driving cars in the next year. But the Waymo team has over 6 million test miles driving in real-world situations across 25 cities and 7 states. In addition, there are billions of miles of simulation and robust testing at our private facility. Our commitment to safety in self-driving vehicles is absolutely paramount.

In May, Verily announced that it is joining a groundbreaking initiative sponsored by the Michael J. Fox Foundation for Parkinson's research, providing the Verily Study Watch to help capture better biosensor data.

I'm incredibly excited by what's ahead for this company and honored to continue working with Larry, Sergey, Sundar and the rest of the board for many years to come.

Now let me ask Sundar to come up and share some of what's happening inside Google. Sundar?

Sundar Pichai - *Google LLC - CEO*

Good morning, everyone. I appreciate having all of you here. It's great to be here. It's my pleasure.

I also want to thank John. It turns out, one of our criteria for being an Executive Chairman is being an eminent computer scientist. Eric had obviously done pioneering work, and I'm glad to have John at the helm of our board. John recently won the prestigious Turing award. It is the highest award you can get in computer science. If you're looking for a summer beach read, I would recommend Computer Architecture: A Quantitative Approach. I remember struggling through it in college. And we're very, very lucky to have you here, John.

I've always felt we are fortunate as a company to have a timeless mission that feels as relevant today as when Google started when Larry and Sergey started the company and wrote this mission statement. And if anything, it is something we feel we can do better today, thanks to the progress we are seeing with machine learning and AI, and that's what the company is focused on and we've been hard at work.

Let me give you a couple of examples.

Google Assistant is one of the best ways by which we're using machine learning to make progress against our core mission. We want Google to be there when users need it. We want it to be naturally conversational. We want you to be able to ask questions to Google. Hey, Google, and ask Google to help you with something. And we want to make it very, very easy for you to do so. Google Assistant has made a lot of progress. It's currently available in 10 languages. And by the end of this year, it's going to be available in over 30 languages, serving over 95% of where Android phones are used today. We have enabled it to work with over 5,000 devices, and it supports 1 million actions. So if you want it to remember -- remind you to buy milk when you reach the grocery store or call a Lyft or Uber, we can make those things happen seamlessly.

Another area which is really important to us as a company is Google News. News is foundational to how democracies work, and we want to make sure we really support high-quality journalism. It's more important than ever before. So we recently launched a brand-new Google News product, which uses AI to really personalize and bring the best of what high-quality journalism has to offer. It's really intuitive to use, and we've used machine learning to really offer deep perspective on news and personalize it to users everywhere.

Another area, which is making tremendous progress, which is very, very popular with our users is YouTube. YouTube is now used by over 1.8 billion users. We are really expanding the experience that YouTube offers, and it's become a great product for content creators to build communities, earn a living and reach users everywhere. Recently, we made big strides with the product. We launched YouTube Live. And today, we are really investing in new experiences that bring live content to our users. Coachella was a big example. Beyoncé wowed Coachella and used YouTube to reach over 41 million users through the live stream product.

Just this month, we launched YouTube Music. It not just offers you official versions of songs, like you find everywhere else, but it offers YouTube's unique catalog of remixes, covers, live versions and music videos. And more importantly, it uses machine learning again to deliver the right music for the right moment in a very personalized manner.

One of the things I'm really proud about YouTube is that every single day, we get over 1 billion views of educational content on YouTube. Recently, there was a #YouTubeTaughtMe, which appeared organically by our users, and there were inspiring examples of how YouTube helped someone launch their music career, learned cooking, learned calculus and the examples are endless.

Another area where we are investing as a company is in our hardware products. We are using AI in combination with software and hardware to deliver unique experiences for our users. The best example of it last year was a very popular product, Google Home and Google Home Mini. And towards the end of last year, we sold greater than 1 Google Home every second, and our Net Promoter Scores for these products are best of class in the industry.

We also welcomed Nest to our portfolio of products at Google to supercharge our efforts here. And so far, we have sold more than 11 million Nest products. And in 2017, we sold more Nest products than the previous 2 years combined. So we're really excited on the progress we are making across the suite of our hardware products, and we plan to invest more here.

An area which we are seeing tremendous momentum is Google Cloud. This is the collection of our offerings for our enterprise customers. Towards the end of last year, last quarter of 2017, we passed $1 billion per quarter in revenue, and we are expanding Google Cloud in many, many regions around the world. We recently announced regions in Japan, Finland, Hong Kong and Latin America. We are also signing significantly larger, more strategic deals with Google Cloud. Recently signed deals include Airbus, StubHub, Shopify, Verizon, Kohl's, Kroger and PayPal. This reflects that we are working with customers to solve their deep business problems and help them achieve their strategic goals. Our security capabilities, easy-to-use advanced data analytics and machine learning solutions and the secure and leading collaboration platform, G Suite, are winning customers over.

Talking about G Suite, G Suite has reached an inflection point and is serving both enterprise and consumers well at scale. We recently launched an entirely redesigned version of Gmail. Hopefully, you're all using it. It's gotten great reception.

And as part of that, I want to highlight a simple example where we use machine learning to make a day-to-day user experience much, much better. It's called Smart Compose. So as you start typing an email, we automatically, understanding the context, offer suggestions and make it much easier for you to complete your actions.

As part of us approaching all our products, we take our responsibility very, very seriously. Technology can be a tremendously positive force, but it also raises important questions about how we should apply it in the world. We are asking ourselves all those questions, listening to our users and thinking deeply about how to get this right. We take this responsibility very seriously.

As an example, I spoke about Google Cloud and our data centers. Google is deeply committed to sustainability and ensuring we have a positive impact on the environment. In 2010, we began buying renewable energy at scale. Today, we are the largest corporate renewable energy purchaser in the world. Google purchased 100% renewable energy in 2017 to match consumption for global operations, including both our data centers and offices. To date, Google's renewable energy projects have led to over $2 billion in new capital investment in the U.S. and over $3 billion globally.

We are also committed to helping create economic opportunities for everyone. Our commitment is rooted in our belief that technology can play a significant role in improving lives and closing gaps. So I'm really proud of 3 big announcements we made recently. We announced Grow With Google, a new initiative to help people get the skills they need to get a job or grow their business. We announced over $1 billion in google.org grants and programs over 5 years to nonprofits around the world. And we committed 1 million employee hours that Googlers can volunteer to nonprofits over the next 5 years.

Last week, we also released our economic impact report that shows in the U.S., our search and advertising tools generated over $283 billion in economic activity, and that more than 1.5 million businesses, website publishers and nonprofits nationwide benefited from using Google search and advertising tools. Behind these reports are millions of individual stories about how people are using Google to grow their business and transform their communities.

Before I hand it back to John, I want to end by sharing one of the stories that really touched me. I met Scott Baker last fall in Pittsburgh, and I've remembered his story since. Let's take a look.

(presentation)

QUESTIONS AND ANSWERS

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

I'd now like to ask several of our management team to come up: Ruth Porat, our CFO; David Drummond, Senior Vice President; Kent Walker, Chief Counsel; Sundar, of course; and Eileen Naughton, our SVP of People Operations. And we'll now open the floor for questions. We have about 20 minutes. We have microphones there. Could I please ask everybody one question, so we can get through as many people who have questions. And let's try to focus on questions rather than speeches. Shall we start on the left?

Unidentified Shareholder

My name is [Eric Sprague]. I'm a stockholder from the Sacramento area. And Sundar, you showed the Smart Compose in Gmail from machine learning. But I was wondering in search, I think it's fair to say that since machine learning keeps spam out of Gmail, you use it in search to keep spam out. But how do you use it to separate the good results from the great results?

Sundar Pichai - *Google LLC - CEO*

One of the areas where we use machine learning the most is actually search. The way we rank our search results, it's like finding a needle in a haystack. Every single day, over 15% of our queries is something we have never seen before. So to try and find the right web results for that, obviously, we put a lot of work into it. And over the past few years, we've added something called RankBrain, which is based on machine learning, and we actually use it as part of our approach to find the best web results. So it's deeply ingrained in how search works now, and it's a big reason why our search quality remains ahead of everyone else.

Unidentified Shareholder

So that's more for new search phrases, but how about for existing search phrases?

Sundar Pichai - *Google LLC - CEO*

No. It works across the board, particularly I used the fact that we get so many new queries. It's a fact that we can't rely on the work we have done before. And every single day, we have to make sure we get our results right, and that's why machine learning really plays a part.

John Simpson

Good morning, Mr. Chairman, fellow shareholders. I'm John Simpson. I am an Alphabet shareholder and now after the recent split have 4 shares. And I appreciate the growth in my investment. I'm also Consumer Watchdog's Technology and Privacy Project Director. And my question is about Google's largest unit -- Alphabet's largest unit, Google, and the California Privacy Act, which are going to be on a ballot in November. They would establish the right to know what information is being gathered about you by various businesses, gives you the ability to tell companies to stop selling your personal information data and empowers you to hold companies accountable for data breaches and breaking the law. Google was one of 5 companies to contribute $200,000 to oppose the measure even before the ballot initiative has formally qualified. Two companies, Facebook and Verizon, have dropped their opposition. Now since Google says it does not even sell data about you, why is the company opposing this privacy protecting ballot initiative? Would you consider dropping your opposition?

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

Kent, would you like to respond?

Kent Walker - *Alphabet Inc. - Assistant Secretary*

Sure. Thank you, John. Good to see you again. As you know, we have long been one of the leading companies when it comes to privacy and security of user data. We've just gone through a very extensive 2-year long effort with regard to compliance with the General Data Protection Regulation in Europe, and we're bringing many of those protections to users worldwide. As you say, we don't sell user data, and we are in great pains to make sure that people have great control and notice over their data. We're not opposed to regulation. We are in favor of smart regulation. We have noticed there are a number of companies in California, not just in the Internet sector but across the board, have raised concerns that this particular ballot measure may be unwieldy and counterproductive in trying to protect the interest of consumers. So we have raised some concerns, but we do continue to engage with regulators, legislators in not just California, but across the country and around the world on these issues.

John Simpson

I believe that this could perhaps be addressed legislatively before it goes on the initiative. Would you be willing to meet with the sponsors of the initiative and perhaps come up with acceptable language?

Kent Walker - *Alphabet Inc. - Assistant Secretary*

Of course, I don't want to go into private conversations, but we're always happy to talk to people both on the legislative side and the regulatory side of all these issues.

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

Thank you.

Unidentified Participant

I was here many years ago. And the surprising benefit to me was having the employees demonstrate products and be able to ask them questions and give feedback. So I'm really disappointed that, that's not here anymore. And I was going to ask you, I'm a frequent user of your products every day. I, unfortunately, find errors and things that could be improved frequently. So I can search for an email somewhere, send it in, maybe I'll get a response, maybe they'll fix something. But there's really something about actually face to face with another human being or even a telephone, which you don't offer. And for example, how about having a half a day, once a year in Mountain View and having these product demos, having talks about how to use the products, getting feedback from users as a group, for example, and having other methods besides just email, which is very impersonal many times and very faceless and lacking, in my opinion.

Sundar Pichai - *Google LLC - CEO*

Well, thank you for the suggestion. I mean, when we build consumer products, nothing matters more to us than getting feedback from our consumers. So today, we actually have -- every year, through the course of the year in all our locations around the world, we invite consumers in to do product testing and feedback sessions. And so it's a standard part of the process we do today. And hopefully, you can participate in one of those sessions. And so -- but we do it consistently. Any time we build a product, we do focus groups, we test the product, we observe how users are using it and then ask them to rate and give feedback. And it's a standard part of how we build up our products. But I appreciate your suggestion, and we'll look to address it here, too.

Unidentified Participant

So there's no plans, let's say, to have phone support or a feedback solicitation, for example?

Sundar Pichai - *Google LLC - CEO*

We do surveys as part of building our products, and we definitely do offer phone support for many of our products. So for example, if you're a customer of G Suite, for sure, we offer you phone support. Or if you buy a Google Pixel phone, you can call Google. And so we do support. Our advertising products have the same features as well. So we do it for a number of our products today.

Unidentified Shareholder

Good morning. My name is [Tobias] and I'm actually here representing one of your German shareholders today, the Long-Term Investment Corporation, or (inaudible). Thanks for taking my question. My question is about -- also about machine learning and AI. We've heard a lot about that today. The company's talked about this for a long time, and Sergey has also written about its importance in the shareholder letter. And I also have seen some of the very interesting demos you did, Sundar, at the recent I/O conference. And so it's clear to me that the company is a leader in this field. And I just wonder what the source of this leadership is, how we got here. Sundar, do you think you have a -- there's a structural advantage that Alphabet has maybe because of its Search business? Or did you just see the opportunity sooner and started earlier than other companies? Or do you just put more resources onto this project? Maybe you can elaborate a little bit about that.

Sundar Pichai - *Google LLC - CEO*

Look, I mean, it goes back to the foundation of how the company started. And John covered it a bit. And Larry and Sergey always took the view that if you apply deep computer science to solve user problems, you can do it really well. And if you take a long-term view and you approach moon shots, you can make significant progress. And till today, we make sure as a company whenever we look at a problem to solve, we look for the technical insight behind solving the problem and how we can apply computer science. So that culture over time has meant that we've been able to attract the best computer scientists from around the world. And as that field has progressed because of the people we have, we had early insights into the power and potential of machine learning. And we realized it is going to be a point of inflection, and it's something we have -- make sure we are going to invest significantly for the long term but apply it thoughtfully towards solving problems for users. And so I think that foundation is what helps us do these things, but we have to earn it every year and we'll continue doing so.

Salvador Bustamante

Good morning. My name is Salvador Bustamante. I'm here on behalf of the Southwestern Carpenters, but I'm also a member of Latinos United for a New America in San Jose. And as we heard during the proposal presentation, Google has struggled to address the issue of diversity. Today, only 4% of its highly paid technical workers of the company are Latino or black. By contrast, large number of its food service workers, janitors, shuttle drivers and security officers are people of color facing wages so low that they struggle to live in Silicon Valley. As Google plans to build a 20,000 workers campus in San Jose, many fear this project will exacerbate the city's housing crisis, pushing out working-class people of color and women-headed households into the Central Valley to live in RVs or in their cars or the streets. Today, San Jose is one of the most diverse cities in the nation, but that diversity is threatened by extreme rent increases and displacement likely to follow Google expansion. My question is as Google works to increase diversity in its workforce, will the company also make a commitment to ensure its plans for a Google campus do not damage the diversity of San Jose by displacing people of color and women-headed households through working with Silicon Valley Rising on a community benefits agreement?

Eileen Naughton

Do you want to take San Jose?

Kent Walker - *Alphabet Inc. - Assistant Secretary*

Why don't you talk about diversity?

Eileen Naughton

Yes. I can talk about our efforts around diversity. We have a stated objective in the company to have representation of blacks and Hispanics in the U.S., and an improvement in representation of women reach market supply by 2020. And Sundar has put that objective out to the entire company, and we are working hard against both hiring, but also progression and development of talent and retention of talent. So that is a firm leadership commitment inside. As far as San Jose, I think -- Kent?

Kent Walker - *Alphabet Inc. - Assistant Secretary*

Sure. Yes. We're committed to make this a great thing not just for Google, but for San Jose and all its citizens. So we're working very closely with the city government there. The location is at the Diridon transit hub to make it easy for workers to come in from all parts of the Bay Area, not just San Jose. But we're also exploring possibilities of working on housing initiatives and other kinds of things that could address various impacts. Again, we want this to be a strong positive for everybody involved.

Salvador Bustamante

Do we hear a commitment from you guys to enter into community benefits agreement to make sure that people do not get displaced?

Kent Walker - *Alphabet Inc. - Assistant Secretary*

There are a lot of components to that. So I don't want to enter into a commitment sitting here today without sitting around the table with the right people, from the San Jose city government and from the various constituent groups that are there, but we're already pretty actively involved in a number of different conversations here. So I think you will see us doing a lot. I just can't today sit down and give you an itemized list of what that would be.

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

Thank you.

Unidentified Participant

Good morning. Could you give us an update on Google Pay? Has the -- have the adoption rates since the beginning of the year met your expectations? In what countries are you seeing the highest adoption rate? And anything you can tell us about the opportunities you see for Google in the future? Thank you.

Sundar Pichai - *Google LLC - CEO*

Payments are -- as part of helping our users, we want them to help get things done, and a lot of getting things done involves making payments, right, and both online and in the real world. And that's where Google Pay comes in. We are partnering with many banks, many financial institutions to provide a seamless payment option for our users around the world. We're making great progress. And one particular thing I would call out, the Google Pay team particularly launched a product in India called Google Tez, which really helps you just to use your phone. And even if you can -- have the phone nearby, can make payment to anyone easily.

Unidentified Participant

Google Tez, is that what you said?

Sundar Pichai - *Google LLC - CEO*

That's right. And it's off to a great start. So globally, we are seeing a lot of progress with our payment products. But our goal here again is to enable users to make seamless payments, and that's what we are focused on. And happy to share offline more details on the progress we are making.

Jeffrey Buchanan

Good afternoon. Thank you, Mr. Chair, members of the board, members of the executive team. My name is Jeffrey Buchanan. I'm here representing Silicon Valley Rising, a community labor coalition in the city of San Jose. Across the Bay Area, as Google and tech giants have grown, we've seen an influx of high wage jobs leading to skyrocketing rents and home prices. As the housing crisis continues, the public is beginning to blame companies like Google for their role in gentrification and displacement. It seems that inaction by the company could create new risks for Google's brand, for its efforts to recruit and sustain its workforce by being identified with the Bay Area's biggest sustainability problem instead of the necessary solutions. I think that it's such a visible problem. We, as shareholders, as we drove to the meeting today were greeted by an RV sitting parked out right in front of the parking lot we were directed to go to. If you look across Mountain View, certainly, there continues to be this very visible sign of the increase in homelessness and the number of RVs that crowd the streets. In San Jose, as mentioned earlier, Google is planning a 20,000 worker campus. And we hope that there's a chance to do things differently for Google as a company here with this. Certainly, Facebook and its expansion in Menlo Park was able to enter into a community benefits agreement, working with community stakeholders, working with communities of color and also avoiding unnecessary legal confrontations with that group as that development proceeded. Do you believe that displacement in the housing crisis presents a brand risk for the company moving forward? And if so, would you be willing to engage with community leaders to find solutions and to reach a community benefits agreement as your colleagues at Google (sic) [Facebook] were able to do at Menlo Park.

Kent Walker - *Alphabet Inc. - Assistant Secretary*

We appreciate the spirit of this question, and it's very similar to the prior question. Honestly, we don't think of it so much as a brand risk because we're making sure we're doing the right thing on this. And we are, as I said, actively engaged with a lot of different groups and with the city government to make sure we get to a good outcome. A lot of the work we're already doing with regard to our buses and shuttle services are designed to reduce congestion for workers getting to campuses. We want it to be a collaborative process, and we very much don't want to be an adversarial structure. We're moving forward -- it's still early in the process, but I think we are making good progress on that.

Unidentified Participant

Good morning. I would like to say thank you. I came 2 years ago, I was upset. I thought that you're being criticized for not sticking to search. Now I see that you have built search, expanded search and are moving right along. And I'm so glad you didn't listen to critics who said stick to your [muttons]. No, that was good. Also, I said to Sergey, I think, I have essential familial tremor. And I use Lyft, which is your very interesting spoon and fork, but that compensates for shaking hands. I see you've now introduced a spork. I haven't bought that yet. I'm still waiting for a knife. I need something. I can't cut meat anymore. I'm reduced to hamburger or having friends cut my meat for me. This is something you need to address. Let's put all this AI aside or maybe you can...

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

Google hardware.

Unidentified Participant

Build me a robot to cut my meat. But honestly, you're doing a fabulous job. Thank you.

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

Thank you. Over here on the left, my left.

Rafael Jun Hyung Kim

Hello. My name is Rafael Jun Kim. I'm like investment and strategy manager at POSCO America. I want to actually ask about the vision and the progress of like Waymo. Tesla is targeting specifically for like a change of logistics in the future for the automated system. And Ford and like other car manufacturing companies are targeting for like car-sharing system, which is like the same like business with like a Waymo in the future. But you guys only just talked about like -- just a bit about Waymo, like a progress or like a vision in the future.

Ruth Myrna Porat - *Alphabet Inc. - Senior VP & CFO*

Certainly. We're very excited about the opportunity with Waymo. And as John said in his opening comments, it really starts with the efforts that we put in over many years to address safety, safety first, second, third. And that creates this extraordinary opportunity. There are over 1 million people who die on the road every year. And the opportunity to actually make a difference there and save lives is what motivates our engineers. In addition, we have the opportunity to transform cities. You don't have to put valuable resources into parking garages. It can go into education or playgrounds or other places. So we look at this and say it's an extraordinary place for us to put our attention. And very much to your question, the first place we're looking, as John said, is that ridesharing service. And we have our pilot in Phoenix. And we're very excited about how that's going and the next step of that. We do have people in Phoenix who are riding in our self-driving cars now, and then it goes to a commercial opportunity.

David C. Drummond - *Alphabet Inc. - Senior VP of Corporate Development, Chief Legal Officer & Secretary*

No one in the front.

Ruth Myrna Porat - *Alphabet Inc. - Senior VP & CFO*

With no one in the front seat, yes. And we've talked about a number of other opportunities, whether it's logistics or last mile, helping cities deal with what happens after people get off public transit. That last mile problem is a big one as well as licensing the technology. So in our view, when you have this gem at the core, namely a solution to safety, it opens up a host of different opportunities, and that's what we're looking to continue to develop. We are working with a number of partners. As you've seen in the press, our cars, we struck a deal with FCA to have an option to buy a whole number of cars as well as Jaguar, and we're continuing to work across the ecosystem.

Rafael Jun Hyung Kim

So compared to like other competitor, like safety is like a primary issue for the Alphabet right now?

Ruth Myrna Porat - *Alphabet Inc. - Senior VP & CFO*

Safety should be a primary issue for everyone. It's about keeping the roads safe and saving lives. And so we're really proud of what our team has done and have published quite a bit on that. You can see the safety reports that really distinguish how we've done relative to the opportunity out there.

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

And ma'am, you have the last question.

Unidentified Participant

Yes. I'm [Pat Lynn Manharriot] Hello, John.

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

Hi.

Unidentified Participant

I have a couple of thoughts. One is talking about can you partner with the Parkinson's Institute while you're at it in dealing with tremor? And the other thing is, if -- I noticed that the Salesforce tower, part of it has housing. Now this is kind of silly maybe, but I'm not sure, how about some housing above the buildings that you're going to build in San Jose, so that workers in those buildings have first choice to live where they work, thus decreasing the traffic on the roads and then again doing some more things about maybe paying people who are the janitors and the bus drivers and the other support staff, pay them at a higher wage so that they can live. You can be a good example in that, and I'm just asking you to consider doing those things.

John L. Hennessy - *Alphabet Inc. - Chairman & Lead Director*

Yes. Thank you. Well, I think those are all good suggestions. I think we all agree that if the Bay Area is going to continue to be the center of technical excellence and creativity, we're going to have to solve our problems of housing and transportation. And it's going to require governments working with institutions and companies to solve that. And that's the only way we'll solve it. But if we're not committed to it, somebody will eventually replace the Bay Area as the next major center of innovation, and it will be a shame on all of us.

Thank you, all, for joining us at the 2018 Annual Meeting of Shareholders. The meeting is now adjourned.

Morgan Stanley | RESEARCH

UPDATE

2018 年 6 月 6 日 08:21 AM GMT

Alphabet Inc.

Waymoの自動運転車がさらに増える

投資判断	業界投資判断	目標株価
Overweight	In-Line	$1,200.00

Waymoの自動運転車に6万2,000台のミニバンChrysler Pacificaが新たに加わる計画は本格展開に向けた大きな一歩となる。ニューヨーク市で営業免許を持つイエローキャブの約5倍の規模で、(Waymoと自動車メーカー間の)総投資額は150億ドル近くとなる。ソフトバンクもGM Cruiseへの投資を発表しており、自動運転車事業を巡る競争はヒートアップしている。

発表の内容：6月1日、WaymoとFiat Chrysler(弊社担当アナリストはAdam Jonas)は、Fiatのハイブリッド・ミニバンChrysler Pacifica6万2,000台をWaymoの自動運転車向けに新たに供給することで合意したと発表した(リンクはこちら)。Waymoは以前に同ミニバン「数千台」の購入を契約しており、今回さらに台数を増やす。Waymoは現在、Fiatのミニバン600台を運用しており、増加分の車両の納入は18年末から始まる見通し。さらに重要な点として、両社はWaymoの自動運転技術をFiatが個人向けに販売する車両にも使用すること(可能性としてはライセンス供与を通じて)を検討中しているという。弊社の見解を以下5項目にまとめた。

1. **規模拡大に向けて前進：**今回の発表はWaymoが如何にして自動運転車を増やせるかを具体的に示している。現在、同社は自動運転車による配車サービス(現在アリゾナ州フェニックスで試験中)を今年中に開始するための準備として、全米25都市でFiatのミニバンを試験走行している。また、最近、Jaguarの電動SUV「I-Pace」2万台を購入する契約も締結している(車両の納入は19年に開始予定)。弊社はWaymoの価値を約750億ドルとしており(WaymoがEVを700億ドル押し上げる？ (2017年 5月 24日)参照)、同社の自動運転車が30年までに世界の総走行距離の約1%を占めるまでに成長し(約300万台がそれぞれ年間約6万5,000キロ走行すると想定)、Waymoの走行距離1マイル当たりの売上高が平均約1.25ドルになると想定している。

2. **そしてマネタイズ(配車サービス、個人の自家用車、物流、公共交通)：**Waymoが収益化するまでの道程は投資家に共通の関心事だが、弊社はライセンス収入は収益源を多様化するチャンスと考えている。同社は配車サービスと自動車メーカーに対する自動運転技術のライセンス供与以外にも、ホンダとの配送・物流用自動運転車の共同開発、Alphabetのデータセンターに荷物を届ける自動運転トラック、公共交通での都市との協力に関心を示し、あるいはすでに試験を行っている。配車サービスに関しては、Uberが最近Waymoの自動運転車をサービス網に加えることを検討中だとしたことに弊社は注目している。長期的にWaymoとラ

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Alphabet Inc. (GOOGL.O, GOOGL US)

Internet / United States of America

投資判断	**Overweight**
業界投資判断	**In-Line**
目標株価	**$1,200.00**
直近終値 (2018年 5月 31日)	$1,100.00
時価総額 (百万)	$794,402
52週　高-安	$1,198.00-915.31

本レポートは、6月1日発行の"Alphabet Inc.: Way Mo(re) Cars On The Way"の翻訳版(抄訳)です。日本語文への翻訳に際してはその解釈や表現に細心の注意を払っておりますが、万一、英文と日本語文との間に解釈や表現の違いが生じた場合は英文が優先します。

イドシェアリングの統合が進む可能性があるためだ。

3. **リスク軽減と責任の切り離し：**Waymoが自動運転車を普及させるにあたっては、大きな規制リスクだけでなく、おそらく法的リスクにも直面する。親会社のAlphabetは必ずしもこのリスクを直接は負いたくないだろう。法的リスクを別にしても、Alphabetが情報開示を改善し透明性を高めるためには、Waymoの情報開示が次の重要なカギとなると弊社は考える。そして、これがきっかけとなり、投資家はAlphabetをSOTPに基づき評価するようになる可能性がある(時価総額1兆ドル達成に向けてAlphabetが情報開示を改善すべき数多の理由 (2018年 2月 6日)参照)。

4. **投資が奏功し始める：**弊社自動車チームの推定では、レベル4の自動運転ミニバンPacificaの製造コストは約25万ドル、運用コスト(維持管理、データ、人間のオペレーターの費用)は年間最低10万ドルとみられる。車両の納入段階やWaymoと自動車メーカーの共同投資については不明だが、向こう2-3年で約6万台の車両を購入するとなれば、投資額は150億ドル程度になるだろう。なお、過去12ヵ月の投資額は18年1Q時点でAlphabetが約180億ドル、Fiatが約80億ドルとなってい。

5. **6万台を超える自動運転車は大きな存在：**自動運転車はまだ初期の段階で、状況はきわめて流動的だが、弊社の予想では、米国で運用されるレベル4と5の自動運転車は、すべてのメーカーを合わせて20年までに5万台程度、21年までに9万台程度になると見られる。

バリュエーション手法及びリスク

GOOGL.O
目標株価は1,200ドル。DCF法に基づく。19年調整後弊社EBITDA予想約600億ドルベースで13倍。ここから「Other Bets(その他)」部門の損失を現在価値に割戻して差引き、目標株価を1,200ドルとした。DCF分析ではWACCを約7%、永久成長率を2%(他の成長志向型インターネット企業と同水準)と想定した。

目標株価に達しないリスク

- 検索はAlphabetの広告事業の重要な要素である。検索事業は世界の広告予算のシェアを獲得し続け、Googleはシェアにおける優位を維持すると考えるが、米国および英国市場における成長は鈍化している。
- Google Inc.をはじめAlphabetのその他の部門に関する情報開示を改善しても、検索事業への全般的な投資が減少しない可能性。
- 売上高の大部分を広告から得ている中での広告市場の悪化。
- EUによる独占禁止法違反調査のネガティブな結果。

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特に明記しない限り、本レポートの表紙に記載されている個人はリサーチアナリストです。

グローバル・リサーチ・コンフリクト・マネジメント・ポリシー

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当該企業に関する米国規制上の重要な開示事項

Morgan Stanleyは、2018年4月30日時点で、Morgan Stanley Researchで言及されている会社のうち、次の会社の発行済普通株式の1%以上を実質的に保有していました：Amazon.com Inc、Blue Apron Holdings Inc、Activision Blizzard Inc、Booking Holdings Inc、Criteo SA、Etsy Inc、Facebook Inc、**Alphabet Inc.**、Groupon, Inc.、GrubHub Inc.、Snap Inc.、TRIVAGO NV、Take-Two Interactive Software、Twitter Inc、Yelp Inc、Zillow Group Inc。
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上記の開示情報の中には米国以外の規制をも遵守するためのものが含まれています。

投資判断

Morgan Stanleyでは、Overweight、Equal-weight、Not-RatedまたはUnderweightといった用語を用い、相対評価の投資判断システムを採用しています(下記の定義を参照)。Morgan Stanleyは弊社の調査対象銘柄にBuy、Hold、Sellといった投資判断を付していません。Overweight、Equal-weight、Not-Rated およびUnderweightは買い、保持、売りと同等ではありません。投資家各位には、Morgan Stanley Researchで使用されているすべての投資判断の定義を慎重にご検討いただく必要があります。また、Morgan Stanley Researchにはアナリストの見解に関するより完全な情報が含まれているため、投資家各位は調査レポート全体を熟読すべきであり、投資判断の記載のみからレポートの内容を推測すべきではありません。いかなる場合も、投資判断(もしくは調査)を投資アドバイスとして利用したり、これらに依拠したりすべきではありません。株式の購入や売却は、投資家の個々の事情 (既存の保有高など)およびその他の状況を考慮に入れて決定される必要があります。

投資判断のグローバル分布状況

（2018年5月31日現在）

以下に記述されている投資判断はMorgan Stanleyのファンダメンタル株式調査を対象としており、当ファームが作成している負債調査には該当しません。(NASDとNYSEの規則に基づく)情報開示目的から、当社ではBuy、HoldおよびSellの分類見出しを当社の投資判断であるOverweight、Equal-weight、Not-RatedおよびUnderweightに併記しています。モルガン・スタンレーは当社の調査対象銘柄にBuy、HoldまたはSellという投資判断を付していません。Overweight、Equal-weight、Not-RatedおよびUnderweightはそれぞれBuy、HoldおよびSellと同等ではなく、相対的な推奨ウエートを表します (下記の定義を参照)。上記規則の要件を満たす意味では、当社の最も積極的な投資判断であるOverweightは買い推奨に相当し、Equal-weightおよびNot-Ratedは保持、Underweightは売り推奨に相当するといえます。

	全調査対象銘柄		投資銀行部門顧客(IBC)			その他の重要な投資サービス顧客（MISC)	
投資判断	数	合計比	数	IBC合計比	投資判断別IBC比率	数	MISC合計比率
Overweight/Buy	**1172**	**38%**	**289**	**40%**	**25%**	**551**	**39%**
Equal-weight/Hold	**1338**	**43%**	**354**	**49%**	**26%**	**639**	**46%**
Not-Rated/Hold	**53**	**2%**	**5**	**1%**	**9%**	**7**	**0%**
Underweight/Sell	**533**	**17%**	**77**	**11%**	**14%**	**207**	**15%**
合計	**3,096**		**725**			**1404**	

上表中の数字には、現在、投資判断が付されている普通株式とADRが含まれます。投資銀行部門顧客とは、モルガン・スタンレーが過去12ヵ月間に、投資銀行業務に対する報酬を受け取った会社を表します。小数点以下は切り捨てているため、"%"の欄に表示された数字を合計しても100とならない場合があります。

個別銘柄に対するアナリストの投資判断

Overweight (O)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率を上回る総投資収益率が期待される銘柄。

Equal-weight (E)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率と同程度の総投資収益率が期待される銘柄。

Not-Rated (NR)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率に対する総投資利益率について当該アナリストが十分な判断を下せない銘柄。

Underweight (U)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率を下回る総投資収益率が予想される銘柄。

Morgan Stanley Researchに目標株価が記載されている場合、特に断りがない限り、その達成の予想期間は今後12～18ヵ月です。

業界に対するアナリストの投資判断

Attractive (A)：今後12～18ヵ月間について、市場全体のベンチマークである下記の株価指数との比較で、当該業界(アナリストのカバレッジユニバース)のパフォーマンスが魅力的であるとアナリストが期待している場合。

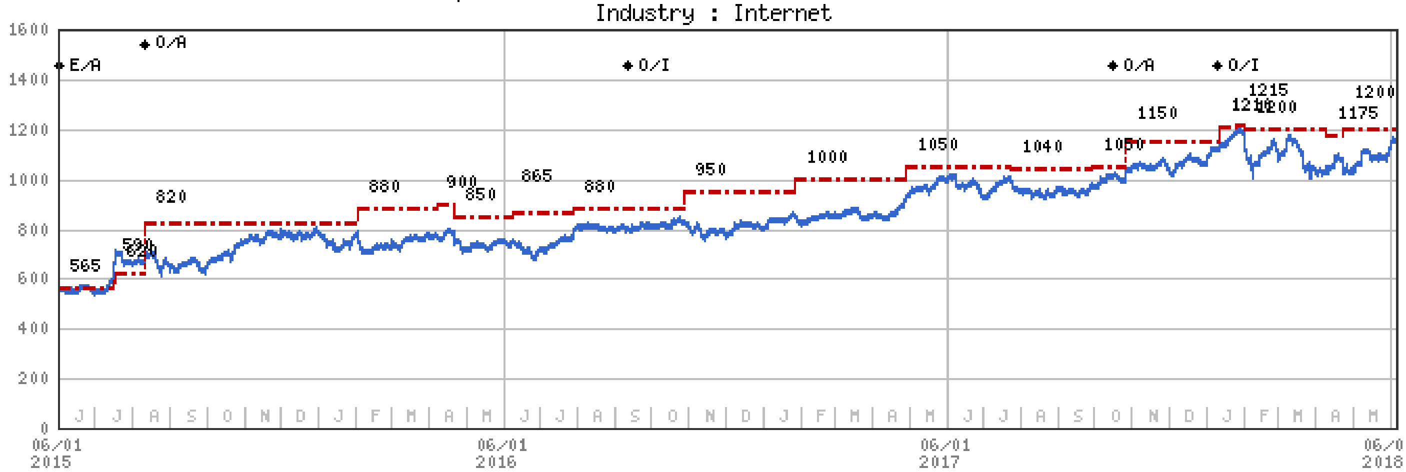
In-Line (I)：今後12～18ヵ月間について、当該業界(アナリストのカバレッジユニバース)のパフォーマンスが、市場全体のベンチマークである下記の株価指数と同程度になるとアナリストが期待している場合。

Cautious (C)：今後12～18ヵ月間について、市場全体のベンチマークである下記の株価指数との比較で、当該業界(アナリストのカバレッジユニバース)のパフォーマンスをアナリストが慎重にみている場合。

各地域のベンチマーク指数：北米はS&P500、ラテンアメリカは当該MSCI国別指数またはMSCIラテンアメリカ指数、ヨーロッパはMSCIヨーロッパ、日本はTOPIX、アジアは当該MSCI国別指数、当該MSCI地域別指数、またはMSCIアジア太平洋株価指数（日本除く）。

株価、目標株価、投資判断の推移 (投資判断の定義を参照)

Alphabet Inc. (GOOGL.O) - As of 6/5/18 in USD
Industry : Internet



Stock Rating History: 6/1/15 : E/A; 8/11/15 : O/A; 9/12/16 : O/I; 10/16/17 : O/A; 1/10/18 : O/I

Price Target History: 4/24/15 : 565; 7/15/15 : 590; 7/17/15 : 620; 8/11/15 : 820; 2/2/16 : 880; 4/7/16 : 900; 4/22/16 : 850; 6/8/16 : 865; 7/29/16 : 880; 10/28/16 : 950; 1/27/17 : 1000; 4/28/17 : 1050; 7/24/17 : 1040; 9/29/17 : 1050; 10/27/17 : 1150; 1/12/18 : 1210; 1/25/18 : 1215; 2/2/18 : 1200; 4/10/18 : 1175; 4/24/18 : 1200

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

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調査対象銘柄の一覧表： Internet

会社（コード）	投資判断(更新日)	株価* (2018/06/05)
Brian Nowak, CFA		
Activision Blizzard Inc (ATVI.O)	O (2016/09/23)	$72.77
Alphabet Inc. (GOOGL.O)	O (2015/08/11)	$1,151.02
Amazon.com Inc (AMZN.O)	O (2015/04/24)	$1,696.35
Blue Apron Holdings Inc (APRN.N)	E (2017/07/24)	$3.38
Booking Holdings Inc (BKNG.O)	O (2016/06/30)	$2,140.99
Criteo SA (CRTO.O)	E (2016/01/26)	$25.95
Despegar.com Corp (DESP.N)	E (2017/10/16)	$22.97
eBay Inc (EBAY.O)	O (2018/04/18)	$40.04
Electronic Arts Inc (EA.O)	E (2018/01/12)	$136.96
Etsy Inc (ETSY.O)	U (2018/01/12)	$32.92
Expedia Inc. (EXPE.O)	O (2018/01/10)	$120.18
Facebook Inc (FB.O)	O (2016/04/27)	$192.94
GrubHub Inc. (GRUB.N)	E (2018/04/18)	$109.48
Snap Inc. (SNAP.N)	U (2017/11/09)	$12.93
Take-Two Interactive Software (TTWO.O)	O (2018/02/01)	$113.26
TRIVAGO NV (TRVG.O)	E (2017/09/28)	$5.31
Twitter Inc (TWTR.N)	E (2018/04/17)	$39.80
Yelp Inc (YELP.N)	E (2015/07/29)	$44.11
Zynga Inc (ZNGA.O)	O (2017/06/08)	$4.43
Jonathan Lanterman, CFA		
Groupon, Inc. (GRPN.O)	E (2018/03/05)	$4.66
TrueCar Inc (TRUE.O)	E (2018/01/12)	$9.69
Zillow Group Inc (Z.O)	E (2018/04/18)	$60.83

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*株価は株式分割調整前。

Alphabet Inc GOOGL (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Google's dominance in the digital ad market should remain intact.

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Research as of 04 Jun 2018
Estimates as of 23 Apr 2018
Pricing data through 01 Jun 2018 00:00
Rating updated as of 01 Jun 2018 00:00

Currency amounts expressed with "$" are in U.S. dollars (USD) unless otherwise denoted.

Contents

Investment Thesis	
Morningstar Analysis	
Analyst Note	-
Valuation, Growth and Profitability	2
Scenario Analysis	2
Economic Moat	3
Moat Trend	6
Bulls Say/Bears Say	8
Financial Health	9
Enterprise Risk	9
Management & Ownership	11
Analyst Note Archive	13
Additional Information	-
Morningstar Analyst Forecasts	16
Comparable Company Analysis	20
Methodology for Valuing Companies	22

Investment Thesis 02 Feb 2018

Alphabet dominates the online search market with Google's global share above 80%, via which it generates strong revenue growth and cash flow. We expect continuing growth in the firm's cash flow, as we remain confident that Google will maintain its leadership in the search market. We foresee YouTube gradually contributing more to the firm's top and bottom lines, and we view investments of some of that cash in moonshots as attractive. Whether they will generate positive returns remains to be seen, but they do present significant upside.

Google's ecosystem strengthens as its products are adopted by more users, making its online advertising services more attractive to advertisers and publishers and resulting in increased online ad revenue. The firm utilizes technological innovation to improve the user experience in nearly all its Google offerings, while making the sale and purchase of ads efficient for publishers and advertisers. Adoption of mobile devices has been increasing, as has usage time on these devices. The online advertising market has taken notice and is following its target audience onto the mobile platform. We have seen Google partake in this on the back of its Android mobile operating system's growing market share, helping it drive revenue growth and maintain its leadership in the space.

Among the firm's investment areas, we particularly applaud the efforts to gain a stronger foothold in the public cloud market, which is expected to grow more than 25% annually through 2021. Google has quickly leveraged the technological expertise it applied to creating and maintaining its private cloud platform to increase its market share in this space, driving additional revenue growth, creating more operating leverage, and expanding its operating margin, which we expect will continue. Regarding Alphabet's more futuristic projects, although most are not yet generating revenue, the upside is attractive if they succeed, as the firm is targeting newer markets. Alphabet's autonomous car technology business, Waymo, is a good example: Based on various studies, it may tap into a market valued in the tens of billions of dollars within the next 10-15 years.

Vital Statistics

Market Cap (USD Mil)	782,904
52-Week High (USD)	1,198.00
52-Week Low (USD)	915.31
52-Week Total Return %	14.8
YTD Total Return %	7.8
Last Fiscal Year End	31 Dec 2017
5-Yr Forward Revenue CAGR %	16.3
5-Yr Forward EPS CAGR %	34.4
Price/Fair Value	0.95

Valuation Summary and Forecasts

Fiscal Year:	2016	2017	*2018(E)*	*2019(E)*
Price/Earnings	28.5	58.7	*27.0*	*24.1*
EV/EBITDA	12.6	14.6	*14.5*	*12.1*
EV/EBIT	19.4	21.9	*23.2*	*18.7*
Free Cash Flow Yield %	4.8	3.3	*4.4*	*4.4*
Dividend Yield %	—	—	—	—

Financial Summary and Forecasts (USD Mil)

Fiscal Year:	2016	2017	*2018(E)*	*2019(E)*
Revenue	90,272	110,855	*134,827*	*158,314*
Revenue YoY %	20.4	22.8	*21.6*	*17.4*
EBIT	23,716	28,882	*29,510*	*36,577*
EBIT YoY %	22.5	21.8	*2.2*	*24.0*
Net Income, Adjusted	19,478	12,662	*29,538*	*33,007*
Net Income YoY %	23.1	-35.0	*133.3*	*11.7*
Diluted EPS	27.85	17.96	*41.96*	*47.02*
Diluted EPS YoY %	21.9	-35.5	*133.6*	*12.1*
Free Cash Flow	15,432	15,759	*19,896*	*21,805*
Free Cash Flow YoY %	97.6	2.1	*26.3*	*9.6*

Historical/forecast data sources are Morningstar Estimates and may reflect adjustments.

Profile

Alphabet is a holding company, with Google, the Internet media giant, as a wholly owned subsidiary. Google generates 99% of Alphabet revenue, of which more than 85% is from online ads. Google's other revenue is from sales of apps and content on Google Play and YouTube, as well as cloud service fees and other licensing revenue. Sales of hardware such as Chromebooks, the Pixel smartphone, and smart homes products, which include Nest and Google Home, also contribute to other revenue. Alphabet's moonshot investments are in its other bets segment, where it bets on technology to enhance health (Verily), faster Internet access to homes (Google Fiber), self-driving cars (Waymo), and more. Alphabet's operating margin has been 25%-30%, with Google at 30% and other bets operating at a loss.

Alphabet Inc GOOGL (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Morningstar Analysis

Valuation, Growth and Profitability 23 Apr 2018

Our fair value estimate is $1,200 per share, equivalent to a 2018 enterprise value/EBITDA ratio of 16. We expect continuing double-digit-revenue growth through 2022, helped by greater revenue contribution from YouTube. While there will be some pressure on gross margin, we look for slight operating leverage improvement beginning in 2019 mainly from revenue growth and deceleration in the growth of other operating expenses. Our model represents a five-year compound annual growth rate of 16% for total revenue and a five-year average operating margin of nearly 24%.

We expect advertising revenue to consistently represent around 80% of Alphabet's total revenue, driven by continuing growth in overall digital ad spending, more specifically in search, video, and mobile. We model 20% and 16% year-over-year Google ad revenue growth for 2018 and 2019, representing $114 billion and $132 billion, respectively. We think YouTube will contribute about $16 billion and $18 billion to Google advertising revenue in 2018 and 2019, respectively. We believe Google will continue to gain traction in the cloud market, and when combined with Google Play and sales of Google's hardware products (including Nest), we see Google's other revenue growing 41% to nearly $20 billion in 2018. For 2019, we expect 25% growth in other revenue.

Although Alphabet does not break out revenue for its other bets segment, we are assuming that most of this revenue is generated through Access/Google Fiber subscribers and Verily. Our total other bets revenue estimates for 2018 and 2019 are $618 million and $813 million, representing 30% and 31% annual growth rates.

We model nearly 55% gross margin for 2018 and 2019, compared with 59% in 2016. While Google's ad revenue has continued to grow at double-digit rates, transition to the mobile platform has resulted in higher traffic acquisition costs, hurting gross margin. Higher cost of content on YouTube TV is also likely to affect gross margin. Based on our projections, we expect the average gross margin through 2022 to be more than 350 basis points lower than 2017.

Combined with strong revenue growth, we expect slight deceleration of growth in other operating expenses to create operating leverage for Alphabet starting in 2019, partially offsetting decline in gross margin.

Scenario Analysis

In a bull-case scenario, we estimate Alphabet would have a fair value of $1,560 per share. Such a scenario could take place if growth in online ad spending, more specifically programmatic and video on mobile devices, accelerates more than we have assumed. Top-line growth could improve further if the allocation of digital ad spending tilts less toward social networks than expected, and if YouTube's other offerings (YouTube Red and YouTube TV) attract much higher number of subscribers. On the bottom line, normalization in TACs would help expand Alphabet's operating margin further. In addition, assuming stable pricing, faster-than-expected adoption of Nest and other in-home products would drive revenue growth further, expanding margin and bolstering cash flow. Our bull-case scenario also assumes some success in the more futuristic projects within other bets, such as some revenue generated from Waymo, the autonomous vehicle technology business, by late 2020.

We assign Alphabet a fair value estimate of $740 per share in a bear-case scenario. In such a scenario, growth in online search advertising could decelerate significantly, mainly due to much-higher-than-expected allocations of online ad budgets to social networks, only partially offset by slow growth in YouTube's video ad revenue. We also assume unfavorable rulings in the three antitrust cases that the European Commission has brought against the firm. Those rulings could further affect Alphabet's ad revenue growth

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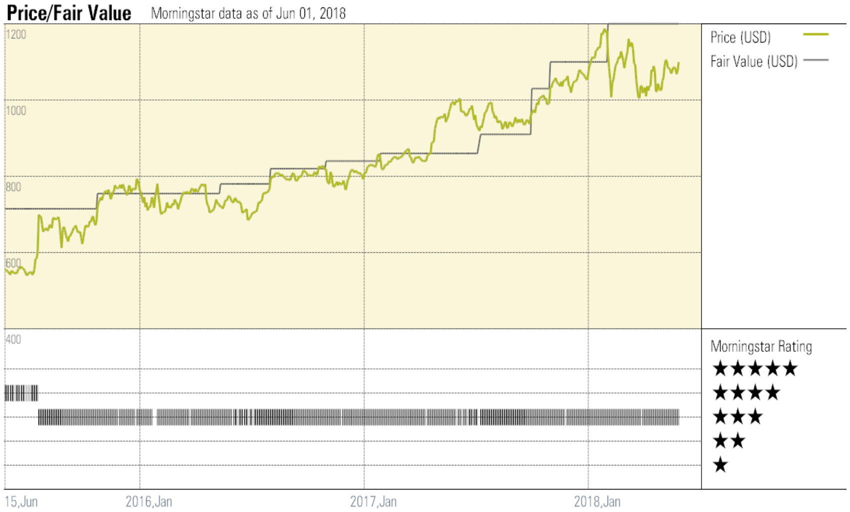
Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Price/Fair Value Morningstar data as of Jun 01, 2018



negatively. Lower top-line growth could also push TACs higher as a percentage of revenue. In this scenario, we have assumed accelerating cash burn in other bets. Lack of any success in other bets would probably drive management to increase research and development spending and capital expenditure more than expected, further eating into Alphabet's cash flow.

Economic Moat

We assign Alphabet a wide moat rating, thanks to sustainable competitive advantages derived from the company's intangible assets, as well as the network effect.

We believe Alphabet holds significant intangible assets related to overall technological expertise in search algorithms and machine learning, as well as access to and accumulation of data that is deemed valuable to advertisers. We also believe that Google's brand is a significant asset, as "Google it" has become eponymous with searching, and regardless of actual technological competency, the firm's search engine is perceived as being the most advanced in the industry.

In our opinion, Alphabet's network effects are derived mainly through its Google products such as search, Android, Maps, Gmail, YouTube, and more. Ultimately, we view Google's network as heterogeneous. On the one side, all the aforementioned products have provided Google with a massive consumer base that allows the company to collect data. On the other side, via its rich collection of data and large user base, Google can offer the best return on investment for advertisers and build a growing network of advertising customers. The addition of each new ad and advertiser improves the efficiency of Google's programmatic advertising offerings, allowing the firm to better monetize the network.

In search, Google has successfully and consistently has monetized many of its technology-based intangible assets, from the original algorithms behind search to the current machine-learning ones, which are also being applied to nearly every product. The company was recognized first for its "extremely relevant results" by PC Magazine in December 1998. From that point, it grew into the world's most popular online search engine and has maintained its leadership. Google processes more than 3 times and 4 times as many search requests as Bing (Microsoft) and Yahoo, respectively. Google Search's success stems from the relevance of its results to its users and the likelihood that this relevance will improve as more data is gathered and analyzed, assumptions are generated, and predictions are created. Google has used machine-learning technology to improve the user experience.

The company has applied machine learning to its Google App (speech recognition), Gmail (Smart Reply), Google Photos, Maps, and many other products, including its cloud offerings. As technological advancements improve the user experience for each product, the likelihood of further usage increases. With more usage, more data about users' behavioral interests is gathered, analyzed, and applied to rank ads more accurately based on their relevance and click-through-rate probability. The monetization of, and higher ROI on, machine learning stems from the fact that the technology increases the volume and click-through rates of ads, resulting in more ad revenue. Google's continuing investment in machine learning should help increase the effectiveness of ad rankings and placements, resulting in higher ROI for advertisers and increased revenue for Google.

We believe Google's investment in machine-learning technology will also enhance the efficiency of its DoubleClick programmatic advertising offerings, which consist of not only real-time bidding that the technology adjusts in real time based on the various search trends it recognizes, but also programmatic direct, where ad impressions (or inventory) can be purchased in advance. Programmatic advertising, and more specifically programmatic video ad spending, is expected to grow at a healthy rate.

Based initially on its technology, Google has successfully increased its users' dependence on its products to keep transforming the usage of those products into something habitual. We have seen that with online search, as most people around the world continue to "Google it." It has strengthened its brand, which we think has longevity. We view the Google brand as a significant driver of user growth for YouTube, Maps, Gmail, and Chrome. Again, an expanding user base helps the company collect more data, which is monetized when applied to online ads.

Google has the world's most widely used search engine, and such a large and growing user base has created a network difficult to replicate, in our view. We believe that an additional search on Google's search engine creates value for other users, as well as for advertisers and businesses. With Google's machine-learning technology, more requests made by current and/or new users improve relevancy of search results, creating value for users. More relevant results also decrease the likelihood of users jumping to another search engine, creating somewhat of a barrier to exit.

For advertisers, value is created mainly through growth of the large user base to target and from behavioral data compiled and analyzed. As users and search requests grow and more data is gathered, advertisers' demands for ads increase, helping Google to further monetize the network.

As with Google search, we see network effects from large and growing user bases of other products, such as Maps, Gmail, and Chrome, all of which create value for users and advertisers. As more consumers use Maps, more data regarding traffic, commuting tendencies, and so forth is gathered, helping Google generate more accurate results (in terms of locations, travel times, and route suggestions). Google also utilizes such data to provide faster routes (via Maps and the Waze app). All of this creates more value for users. As in search, increasing users and data create value for advertisers, which Google monetizes effectively. Businesses and advertisers pay Google to place their search ads, targeted based on users' locations and previous searches, within Maps' search results list and directly on the map.

Although an additional Gmail user does not necessarily create more value for other Gmail users, the growing network does become more valuable for advertisers, creating additional opportunities to place target ads, resulting in more revenue generated from the network.

Usage of Google's Chrome browser is also continuing to grow. According to Net Applications, Chrome browser usage on mobile devices nearly doubled year over year in 2015. It trailed only Apple's Safari, which declined in 2015. On desktops, Chrome usage was also ranked second in 2015, trailing Microsoft's Internet Explorer. However, Chrome was the only browser with higher year-over-year usage share. In

Alphabet Inc GOOGL (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Morningstar Analysis

our opinion, growth in Chrome browser usage helps increase the network effect for Google; again, the network is monetized via sales of various online ads. With more users, more data is gathered and analyzed, helping advertisers target the large user base more effectively with online ads.

By launching Android in 2007, Google positioned itself well in the faster-growing mobile ad market, maintaining its online search dominance and strengthening its network effect. With Google's Chrome browser on Android phones, more mobile searches are conducted using Google. In addition, more Google apps such as Maps, Gmail, and Google Play are used by consumers on Android-powered devices, further driving ad and other revenue growth. According to data from Gartner, the Android OS powers 75%-plus of smartphones around the world, compared with Apple iOS' 15%. We think it is likely that the two smartphone operating systems will power nearly every smartphone around the world in the long run, with Google's apps not only on Android devices, but also among the top apps used by iOS customers.

In the expanding mobile market, we believe Google will not only maintain but expand its user base, positively affecting the network effect as it becomes more valuable to advertisers, resulting in more digital mobile ad revenue growth. Similarly, Android's network effect also creates more value for users. As the number of Android-powered smartphones increases, more developers will create more apps to be made available on Google Play and run on those smartphones, creating additional value for Android smartphone users.

We think YouTube is also valuable, as it benefits from a network effect that creates value for users, content creators, and advertisers. With more viewers on the site today, more content creators will look to YouTube for content distribution. Continuing growth of YouTube's content library drives further viewer growth. YouTube's video platform has more viewers than other online video properties, making it attractive for advertisers. We believe growth in content library and in viewers on YouTube will drive growth in Google online video ad revenue, a market that is expected to grow at a strong double-digit compound annual growth rate. While Google has also begun to monetize YouTube via the subscription model (YouTube Red and YouTube TV), we expect the majority of YouTube revenue to remain generated through online ads on desktops and mobile devices.

We also expect Google to gain a foothold in the growing enterprise cloud market, but we do not think its cloud offerings create a network effect. Although Amazon is clearly the leader in this space, we expect Google to gain some traction and trail only Amazon's AWS and Microsoft's Azure in market share. Ultimately, we believe Google can leverage the technological expertise it applied to creating and maintaining its private cloud platform to build and maintain public cloud platforms for many businesses.

Regarding other potential sources of moat, we do not believe Alphabet has a sustainable cost advantage when compared with its peers. Alphabet's size allows the firm to invest heavily in Maps and YouTube, and perhaps in more capital-intensive businesses like enterprise cloud or Google Fiber. However, we don't see an inherent cost advantage in Alphabet that other tech titans like Apple and Amazon can't replicate, especially since cloud hardware is becoming increasingly commodified.

We also believe that customer switching costs provide Alphabet with only a negligible competitive advantage. Alphabet's Google offerings, such as search, YouTube, Android, Maps, and Gmail, have some switching costs associated with time and effort needed to learn a new user interface, move content to another platform (YouTube) and notify contacts of an email change (Gmail), but such costs

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Morningstar Analysis

are not so prohibitive that these customers are locked in forever.

Our narrow-moat thesis for Apple is based on modest, but not insurmountable, switching costs around the iOS ecosystem. Android may also benefit from switching costs, as apps purchased on Google Play would have to be replicated on iOS, but we also do not see such costs as overwhelming.

Finally, while Alphabet generates economic profit through Google, which we think will continue, this profit would be higher were it not for Alphabet's strategy of remaining a step ahead in terms of innovation. In its other bets segment, Alphabet is betting on (or investing in) smart homes (Nest), using technology to enhance health (Verily), providing significantly faster Internet access to homes (Google Fiber), self-driving cars (Waymo), and much more.

Some of these wagers may not bring in any winnings, and we believe it is too early to consider these businesses as contributors to Alphabet's economic moat, either in terms of intangible assets or network effects. However, the assets and continuing investments may give Alphabet an early edge as a first mover, although the sustainability of that competitive advantage will be determined over time. In our opinion, these bets demonstrate the company's objective of remaining a leader and one of the main players in the Internet technology space. A hit with any of these bets could put Alphabet further ahead of the technology pack.

Moat Trend

Given Alphabet's dominant position in online search, its continuing penetration of mobile device and fast-growing mobile ad markets with Android, and the lack of long-term threats to its main sources of economic moat--intangible assets and network effect--we view the company's moat trend as stable.

In our view, Alphabet's well-proven technological expertise and continuing investment in the company, where we expect R&D to grow 9%-13% year over year, keep the technology-based intangible assets stable. In addition, the growing user base, stemming from both Google's search facilities and from its other products on desktop and mobile platforms, and from the accessible data, keeps us confident about the longevity of the Google brand. We believe a stable user base is also indicative of the stability of the network effects of Google's offerings.

Since the second half of 2014, a few questions may have created doubts about the stability of the moat trend and whether Google can maintain its dominant position in online search.

In November 2014, Mozilla replaced Google with Yahoo as the default search engine on its Firefox browser. The impact of this decision on Google search has been minimal. While Google's U.S. search share by Firefox users declined two months after the deal, the Firefox browser's market share on desktops is less than half of Chrome's. Google's overall U.S. search share (on all browsers) dipped only 250 basis points, while Yahoo's inched up 230 basis points. Such momentum did not last long for Yahoo: According to StatCounter, approximately one year after the announcement of the deal, Yahoo's U.S. search share declined to below where it was before the agreement. In addition, the Firefox browser's presence in the growing mobile market is below 1%, compared with Chrome's 33%. These figures alone clarify a couple of things. First, Google's efforts to expose users to its products and expand its user base are yielding results. Second, with such presence in the mobile market, it will be difficult to replace Google as the leading search engine provider.

Google faces the risk of being replaced as the default text

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Morningstar Analysis

search engine on Apple's Safari. However, this risk has been minimized, in our opinion. With the release of iOS 11, Apple not only kept Google as the default search engine for its iPhone Safari browser, but it also made Google the default search engine behind its personal assistant, Siri, replacing Microsoft's Bing. Google's YouTube also remains the default video search engine for iPhones and Mac.

While Google's market share in online search may fluctuate by a couple of percentage points at times, in our view, the company will remain the unquestionable leader for years to come.

One of the larger risks that we see facing Alphabet's Google is what appears to be more focus on social network online advertising, which benefits mainly Facebook. Google's inability to collect data on news feeds within Facebook could reduce the relevance of some search results, and in turn reduce ad dollars flowing to the firm. However, in our opinion, the shift of ad dollars to online remains a strong net positive for Google, even if the firm were to miss out on an even bigger piece of the ad-dollar pie that may go to Facebook. Google also faces the risk of Amazon gaining more share in specific product searches. As consumers continue to increase and at times automate their purchases on the Amazon platform, Amazon may become their default search engine for products. We think these dynamics bear watching.

Alphabet Inc GOOGL (NAS) | ★★★

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Bulls Say/Bears Say

Bulls Say

- As the number of online users and usage increases, so will digital ad spending, of which Google will remain one of the main beneficiaries.
- Android's dominant global market share of smartphones leaves Alphabet's Google well positioned to continue generating top-line growth as search traffic shifts from desktop to mobile.
- The significant cash generated from the Google search business allows Alphabet to remain focused on innovation and the long-term growth opportunities that new areas present.

Bears Say

- There is little revenue diversification within Alphabet, as it remains heavily dependent on Google and the state of the search ad space.
- Alphabet is allocating too much capital toward high-risk bets, which face a very low probability of generating returns.
- Google's dominant position in online search is not sustainable, as more companies and regulatory agencies are contesting the methods through which the company has been extending its leadership.

Alphabet Inc GOOGL (NAS) | ★★★

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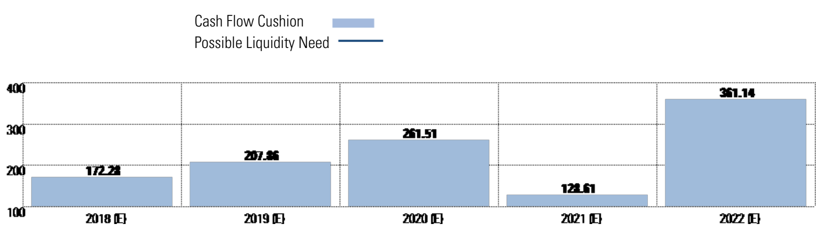
Five Year Adjusted Cash Flow Forecast (USD Mil)

	2018(E)	2019(E)	2020(E)	2021(E)	2022(E)
Cash and Equivalents (beginning of period)	101,871	124,603	145,640	172,719	203,853
Adjusted Available Cash Flow	34,576	34,617	41,603	47,975	54,724
Total Cash Available before Debt Service	136,447	159,219	187,243	220,695	258,577
Principal Payments	—	—	—	-1,000	—
Interest Payments	—	—	—	—	—
Other Cash Obligations and Commitments	-792	-766	-716	-716	-716
Total Cash Obligations and Commitments	-792	-766	-716	-1,716	-716

Cumulative Annual Cash Flow Cushion



Adjusted Cash Flow Summary

	USD Millions	% of Commitments
Beginning Cash Balance	101,871	2,164.7
Sum of 5-Year Adjusted Free Cash Flow	213,495	4,536.7
Sum of Cash and 5-Year Cash Generation	315,366	6,701.4
Revolver Availability	—	—
Asset Adjusted Borrowings (Repayment)	—	—
Sum of Cash, 5-Year Cash Generation, Revolver and Adjustments	315,366	6,701.4
Sum of 5-Year Cash Commitments	-4,706	—

Financial Health

Alphabet has a very strong balance sheet with cash and cash equivalents of $86 billion and total debt of $4 billion as the end of 2016. The company also has a $4 billion revolver with no outstanding balance. Over 60% of the company's cash and cash equivalents is held outside of the U.S. If Alphabet were to use that cash and cash equivalents for operations in the U.S., it would have to pay U.S. taxes to repatriate the funds.The company generated $36 billion cash from operations in 2016, up nearly 40% from 2015. We expect cash from operations to grow more than 13% annually through 2021. While we see continuing strong top-line growth, the slightly lower growth in cash from operations is due to the company's continuing investments in innovation. Alphabet's free cash flow to equity/gross revenue ratio averaged 23% over the past five years, which indicates strong operational and financial health. We model a five-year average FCFE/sales ratio of 23% through 2021.

Enterprise Risk

Our uncertainty rating for Alphabet is high, the result of high dependency on continuing growth in the online advertising space, along with questions as to whether the company's moonshot investments will bear fruit. While we remain confident that Google will maintain its dominant position in the search market, a big downturn in online ad spending could have a negative impact on Alphabet's revenue and cash flow, resulting in a significantly lower fair value estimate. On the other hand, positive returns on Alphabet's investments in moonshots could increase the company's fair value estimate considerably. These two factors support our high uncertainty rating.Alphabet's investments in moonshots have yet to generate positive returns. Given the lack of any sustainable competitive advantages in those businesses, continuing investments in them could affect the company's overall return on invested capital adversely.Although the moat sources of intangible assets and network effect will help Alphabet's Google retain its competitive advantages, minimal switching cost to utilize a rival search engine remains a risk for the company. A large transfer of users and/or usage to competitors would hurt Alphabet's revenue and cash flow, significantly reducing ROIC and our fair value estimate for the company. This risk is discounted as Microsoft's Bing, the nearest competitor to Google's search engine, currently does not have significant presence in the mobile market, which is one of the main growth drivers of the search ad market. The rapid adoption rate of additional online ad platforms, such as Facebook's social network, could lower Alphabet's revenue growth, eliminating operating leverage and creating pressure on operating margin.In addition, Alphabet's Google faces various claims and investigations brought on by different companies and regulatory agencies regarding search bias.

Alphabet Inc GOOGL (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
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Management & Ownership

Management Activity

Name	Position	Shares Held	Report Date*	InsiderActivity
LARRY PAGE	Director	20,013,614	31 Dec 2017	—
SERGEY BRIN	Director	19,332,035	25 May 2018	—
MR. SUNDAR PICHAI	Director	119,581	25 May 2018	24000
K. RAM SHRIRAM	Director	64,112	31 Dec 2017	—
MS. DIANE B. GREENE	Director	39,382	25 May 2018	—
DAVID C. DRUMMOND		39,382	14 May 2018	17070
MS. RUTH M. PORAT		39,382	26 Mar 2018	—
DR. ERIC E. SCHMIDT,PHD	Director	16,475	25 May 2018	—
DR. ERIC E. SCHMIDT,PHD	Director	16,475	25 May 2018	—
MR. SUNDAR PICHAI	Director	13,897	25 May 2018	24000

*Represents the date on which the owner's name, position, and common shares held were reported by the holder or issuer.

Fund Ownership

Top Owners	% of Shares Held	% of Fund Assets	Change (k)	Portfolio Date
Vanguard Total Stock Mkt Idx	2.13	2.21	7,488	30 Apr 2018
Vanguard 500 Index Fund	0.77	1.34	27	30 Apr 2018
Vanguard Growth Index Fund	0.60	5.54	2,072	30 Apr 2018
SPDR® S&P 500 ETF	0.50	1.45	-8	01 Jun 2018
Fidelity® Contrafund® Fund	0.52	2.99	-172	30 Apr 2018
Concentrated Holders				
Federated Absolute Return Fund	—	29.12	—	31 Mar 2018
Midas Magic	—	11.44	—	30 Apr 2018
United E-Commerce	—	10.90	0	31 Dec 2017
Inverfinit De Valores SICAV	—	10.52	0	31 Dec 2017
Federated Prudent Bear Fd	—	10.12	1	31 Mar 2018

Institutional Transactions

Top 5 Buyers	% of Shares Held	% of Fund Assets	Shares Bought/ Sold (k)	Portfolio Date
Magellan Asset Management Limited	0.30	7.39	1,861	31 Dec 2017
Capital Research Global Investors	0.73	1.49	779	31 Mar 2018
California Public Employees Retrmnt Sys	0.18	1.88	590	31 Mar 2018
OppenheimerFunds Inc	0.19	1.70	576	31 Mar 2018
Susquehanna Financial Group, LLLP	0.14	0.37	566	31 Mar 2018
Top 5 Sellers				
Fidelity Management and Research Company	2.17	2.00	-1,069	31 Mar 2018
State Street Corp	1.59	0.97	-569	31 Mar 2018
BNY Mellon Wealth Management	—	0.19	-501	31 Mar 2018
Citadel Advisors Llc	—	—	-181	31 Mar 2018
BNP Paribas Arbitrage, SA	0.02	0.25	-166	31 Mar 2018

Management 27 Sep 2017

We assign a Standard stewardship rating to Alphabet's management. It appears that management aims to remain ahead of the pack by acquiring valuable assets to utilize and build upon, as it did with Android, YouTube, DoubleClick, and Motorola Mobility. In addition, Alphabet continues to invest in research and development and various high-risk and high-reward projects, which if successful could generate significant returns for the company. Given the large amount of cash and cash equivalents and low debt on Alphabet's balance sheet, it appears that management continues to make the right decisions regarding capital allocation, as it is more likely to continue making acquisitions and investments in futuristic projects.

In late 2015, Alphabet became a holding company, with Google one of its wholly owned subsidiaries. Alphabet is also the parent company of other businesses, mostly moonshots, which are grouped into the other bets segment that includes Waymo, the firm's autonomous car technology provider. This structure provides more transparency to shareholders, as the company's mature cash-generating business, Google, will be managed separately. In our opinion, this move also could indicate that management is considering some form of redistribution of cash generated by Google to shareholders a few years down the road.

Under this structure, Larry Page, who cofounded Google, is a director and the CEO of parent company Alphabet. Sergey Brin, the other cofounder of Google, is also a director of Alphabet. Sundar Pichai is the CEO of Google. Pichai joined Google in 2004 and was its product chief before becoming CEO in 2015. Susan Wojcicki, who has been with Google since 1999 and convinced Google to acquire YouTube, became CEO of YouTube in 2014. Ruth Porat is CFO of Alphabet and Google. She was CFO at Morgan Stanley before coming to Alphabet in 2015.

Although management's decisions have generated

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Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

exceptional returns for shareholders in the past, and are likely to continue doing so, we remain watchful regarding the high concentration of voting power. Cofounders Page and Brin and former CEO and current executive chairman Eric E. Schmidt have nearly 60% voting power. In addition, given Alphabet's multiclass share structure, it appears that this high concentration of power will remain intact in the long run, which could result in significant conflict of interest if the cofounders and Schmidt make too many high-risk wagers on futuristic projects. However, we have not seen any indications of this.

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Analyst Notes

Strong Growth in Google's Advertising and Cloud, but Margin Pressure Persists; Shares Fairly Valued 23 Apr 2018

Alphabet beat expectations on the top and bottom line. Strength in Google's advertising, cloud, and hardware offerings helped accelerate overall revenue growth from a year ago. In our view, Alphabet's network effect and data economic moat sources continue to drive growth in the size and overall usage of Google's ecosystem which help the firm remain the behemoth in online advertising and gain further traction in enterprise cloud. While the better-than-expected first-quarter revenue helped beat expectations on the bottom line, we note that the growing traffic acquisition costs plus further investments in data centers and content acquisitions, continue to push gross margin lower, as we expected. Our fair value estimate of $1,200 is intact as our higher revenue forecast was offset by a slightly lower margin assumption for 2018 and beyond. While Alphabet shares are trading in 3-star territory, we recommend investing in this wide-moat and high uncertainty rated name on any pullback.

Alphabet reported total first-quarter revenue of $31.1 billion, up 26% year over year, on the back of a 24% growth in Google advertising revenue, or $26.6 billion. Such growth was driven not only by continuing increase in video content and more mobile search, but also surprisingly by strength in desktop search. Google's first-quarter ad volume grew 55% over last year, while ad prices, or cost per click, declined 18%. We expect Google's overall ad prices to stabilize a bit as more higher-priced video ads are sold. In addition, we were pleased to hear that the firm is taking steps to help small- and medium-size businesses create and purchase more video ads. The company's YouTube Director offering provides smaller businesses the necessary resources to create professional video ads. According to management, such a service is now available in 170 cities in the U.S. With more advertising from small businesses on YouTube, we expect Google's dependence on search ads to lessen a bit.

Regarding Europe's General Data Protection Regulation, or GDPR, management indicated that such a measure which may limit Google's (and its peers') access to user data likely will not hinder Google's ad revenue growth as the firm is ready to comply. Plus, Google is less dependent on detailed user data as most of its advertising revenue comes from search and not from target advertising.

Google's other segment posted a 41% year-over-year revenue growth to $4.4 billion, driven by strength in cloud, hardware, and Google Play. In addition, revenue from Nest products is now included in Google's other revenue. We estimate the firm generated approximately $200 million from its Nest offerings during the quarter. We expect Alphabet's other revenue to grow at a 26% five-year CAGR, mainly due to Google gaining more traction in the cloud market as it further monetizes its technological expertise in machine learning, for which demand is increasing rapidly.

Alphabet's Other Bets generated $150 million in revenue (excluding Nest), up 14% year over year. Similar to prior quarters, such growth was mainly due to contributions from Fiber and Verily. On the Waymo front, the firm continues to make progress as its self-driving vehicles have now been driven and tested for over 5 million miles, up from 4 million in the fourth-quarter 2017. Plus, Waymo's ride hailing services provided by its self-driving cars in Phoenix are progressing well, according to management. In addition, Waymo continues to work with different car makers as it is now partnering with Jaguar to design and manufacture self-driving electric cars. According to Alphabet, production of those vehicles will begin in 2020.

First-quarter operating margin declined 406 basis points year over year to 22.5% driven mainly by lower gross margin due to higher traffic acquisition costs, content acquisition

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Analyst Notes

costs, and costs associated with the firm's growing number of data centers. We do not foresee improvement in gross margin or operating margin in 2018 or 2019 as Alphabet continues to make investments in YouTube and cloud. We have modeled average annual gross and operating margins of 55% and 24% through 2020, down from the 59% and 26% the firm posted in 2017.

Alphabet's Google Gaining Traction in the Cloud Space; Raising FVE to $1200; Shares Fairly Valued 02 Feb 2018
Alphabet reported better-than-expected fourth-quarter revenue and appears to be kicking off 2018 on a bright note, as the firm indicated that its cloud business is generating nearly $1 billion in revenue per quarter. At this rate, the potential $4 billion in Google cloud revenue in 2018 would exceed our expectation. Growth in search and YouTube helped Google's advertising business following another strong quarter. The network effect and data (intangible asset) economic moat sources continue to drive growth in the size and overall usage of Google's ecosystem. The firm did miss our expectations and consensus on the bottom line, as traffic acquisition costs continued to grow. Management expects such costs to stabilize a bit this year. We increased our revenue growth projections for Alphabet, as we see continuing growth in its digital ad business and increased contribution from the Google Cloud Platform. All of this is partially offset by our lower operating margin assumption going forward. After assuming a slightly lower effective tax rate and rolling our model forward, we now value Alphabet at $1200 per share, up from $1100. While Alphabet's mixed fourth-quarter results have pushed the shares down a bit in afterhours trading, we believe the stock remains fairly valued. Based on our valuation, a more attractive entry point for this name would likely be within the $950-$1,000 range.

Alphabet's fourth-quarter revenue grew 24% over the prior year to over $32 billion. Mobile search and YouTube were the main drivers behind its $27 billion ad revenue, up 22% year over year. While the firm's ad revenue exceeded expectations, this was mainly due to higher ad volume, as paid clicks grew 43% over the prior year. Unfortunately, we continue to see decline in cost per click (or ad prices), which came in 14% lower than the prior year. We expect this to continue, given Google's wider range of ad offerings, as some, such as search and display, offset the higher-priced video ads.

Google's fourth-quarter other revenue grew 38% sequentially over the prior year, benefiting from increasing consumer hardware sales during the holiday season. The firm's Google Cloud Platform also contributed to this growth. Management said that the GCP, along with the GSuite offering, is generating around $1 billion in sales per quarter, which we think represents higher potential annual revenue than we had originally forecast in our technology Observer titled "Castles in the Sky: Identifying Moats, Winners, and Losers in the Burgeoning Public Cloud Market." We now estimate GCP can generate revenue over $15 billion by 2022. Other Bets revenue grew 56% year over year during the quarter to $409 million, again benefiting from further growth in sales of Nest products and revenue from Google Fiber and Verily. While Waymo is yet to contribute to Other Bets, it is making headway on various fronts. Waymo's self-driving vehicles have now been driven on public roads for more than 4 million miles, according to the company. In addition, the firm will begin offering driverless ride-sharing in Phoenix likely later this year.

Alphabet's fourth-quarter operating margin of 23.7% came in below expectations and was around 170 basis points lower than the previous year. It appears that Google's traffic-acquisition-cost, or TAC, continues to grow, as it was equivalent to 24% of ad revenue in the quarter, compared with 22% in the prior quarter and 22% in 2016. In fact, after total TAC declined as a percentage of ad revenue in 2013-16, it has been increasing consistently since the third quarter

Analyst Notes

of 2016. In 2017, total TAC represented 23% of ad revenue up from 21% in 2016 and 2015. We think that part of the increase last year may have been due to a renewed agreement with Apple, which keeps Google as the default search engine on Apple's Safari. Assuming no additional large contracts similar to the one with Apple, we could see some stabilization in TAC, which management also appears to be anticipating. Higher TAC drove overall gross margin down about 300 basis points over the prior year to 56%. We expect a further decline in gross margin in 2018, given Google's additional hardware products, higher traffic acquisition costs, and further investments in content for YouTube Red and YouTube TV.

On the marketing front, it appears that an increase in the number of consumer hardware products (such as Google Home, Pixel, Chromebook, and Nest) is also further driving marketing expenses higher, as the firm must continue competing with the likes of Amazon and Apple. Alphabet's lower general and administrative expenses during the quarter were more than offset by lower gross margin and higher sales and marketing expenses, leading to the decline in operating margin.

Overall, it appears that Alphabet continues to dominate the online search market, which drives the consistent double-digit revenue growth that we have seen so far. We are aware that Google could face further competition from companies such as Amazon in search as more and more product searches are conducted on Amazon. In addition, Amazon is planning to sell more ad inventory to product brands and retailers. With that said, we remain confident that Google can maintain its dominant position in online search as it continues to utilize its consistently improving machine learning technology to provide more accurate and timely responses and recommendations. In our view, the firm is applying the same technology to enhance its YouTube content and ad inventory offerings. As we have seen during the past few quarters, and as we mentioned in our ad hoc report "Fine-Tuning the Picture of Google's YouTube," we expect revenue from YouTube (advertising and subscription revenue) to drive further growth in Google's top line. In our view, Google's focus on consumer hardware is also paying off, as it helps the firm retain most of its users within the entire Google ecosystem for longer. Lastly, we remain confident that Google will continue to make progress toward solidifying its position as the world's third-largest cloud provider as it continues to invest heavily to expand GCP's functions and capabilities to compete with Amazon's AWS and Microsoft's Azure for enterprise IT clients.

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1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Morningstar Analyst Forecasts

Financial Summary and Forecasts

Fiscal Year Ends in December

Growth (% YoY)	3-Year Hist. CAGR	2015	2016	2017	Forecast 2018	Forecast 2019	5-Year Proj. CAGR
Revenue	*18.9*	13.6	20.4	22.8	*21.6*	*17.4*	*16.3*
EBIT	*20.5*	17.4	22.5	21.8	*2.2*	*24.0*	*16.1*
EBITDA	*19.1*	15.0	23.4	18.9	*8.8*	*19.5*	*15.3*
Net Income	*-2.4*	16.2	23.1	-35.0	*133.3*	*11.7*	*34.1*
Diluted EPS	*-3.2*	15.2	21.9	-35.5	*133.6*	*12.1*	*34.4*
Earnings Before Interest, after Tax	*2.0*	27.8	25.0	-33.5	*84.3*	*25.4*	*30.9*
Free Cash Flow	*157.9*	749.8	97.6	2.1	*26.3*	*9.6*	*18.9*

Profitability	3-Year Hist. Avg	2015	2016	2017	2018	2019	5-Year Proj. Avg
Operating Margin %	*26.1*	25.8	26.3	26.1	*21.9*	*23.1*	*24.1*
EBITDA Margin %	*39.7*	39.5	40.5	39.2	*35.1*	*35.7*	*36.4*
Net Margin %	*18.0*	21.1	21.6	11.4	*21.9*	*20.9*	*22.1*
Free Cash Flow Margin %	*13.9*	10.4	17.1	14.2	*14.8*	*13.8*	*15.0*
ROIC %	*32.5*	31.8	32.4	33.3	*29.8*	*30.3*	*30.5*
Adjusted ROIC %	*27.9*	26.8	27.9	29.0	*26.6*	*27.4*	*27.9*
Return on Assets %	*10.3*	11.4	12.4	6.9	*13.7*	*13.1*	*13.8*
Return on Equity %	*12.6*	14.1	15.0	8.7	*17.8*	*16.9*	*17.4*

Leverage	3-Year Hist. Avg	2015	2016	2017	2018	2019	5-Year Proj. Avg
Debt/Capital	*0.03*	0.04	0.03	0.03	*0.02*	*0.02*	*0.01*
Total Debt/EBITDA	*0.13*	0.18	0.11	0.09	*0.08*	*0.07*	*0.06*
EBITDA/Interest Expense	—	41.84	46.52	—	—	—	—

Valuation Summary and Forecasts

	2016	2017	*2018(E)*	*2019(E)*
Price/Fair Value	0.94	0.96	—	—
Price/Earnings	28.5	58.7	*27.0*	*24.1*
EV/EBITDA	12.6	14.6	*14.5*	*12.1*
EV/EBIT	19.4	21.9	*23.2*	*18.7*
Free Cash Flow Yield %	4.8	3.3	*4.4*	*4.4*
Dividend Yield %	—	—	—	—

Key Valuation Drivers

Cost of Equity %	9.0
Pre-Tax Cost of Debt %	5.5
Weighted Average Cost of Capital %	9.0
Long-Run Tax Rate %	15.0
Stage II EBI Growth Rate %	7.8
Stage II Investment Rate %	40.4
Perpetuity Year	20

Additional estimates and scenarios available for download at http://select.morningstar.com.

Discounted Cash Flow Valuation

	USD Mil	Firm Value (%)	Per Share Value
Present Value Stage I	105,080	14.5	149.48
Present Value Stage II	277,243	38.2	394.38
Present Value Stage III	343,011	47.3	487.94
Total Firm Value	**725,334**	**100.0**	**1,031.80**
Cash and Equivalents	101,871	—	144.91
Debt	-3,969	—	-5.65
Preferred Stock	—	—	—
Other Adjustments	-2,500	—	-3.56
Equity Value	**820,736**	**—**	**1,167.51**
Projected Diluted Shares	703		
Fair Value per Share (USD)	**1,200.00**		

The data in the table above represent base-case forecasts in the company's reporting currency as of the beginning of the current year. Our fair value estimate may differ from the equity value per share shown above due to our time value of money adjustment and in cases where probability-weighted scenario analysis is performed.

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Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Morningstar Analyst Forecasts

Income Statement (USD Mil)
Fiscal Year Ends in December

	2015	2016	2017	*Forecast 2018*	*Forecast 2019*
Revenue	**74,989**	**90,272**	**110,855**	***134,827***	***158,314***
Cost of Goods Sold	28,164	35,138	45,583	*60,472*	*71,608*
Gross Profit	**46,825**	**55,134**	**65,272**	***74,356***	***86,706***
Selling, General & Administrative Expenses	15,183	17,470	19,765	*24,587*	*26,832*
Research & Development	12,282	13,948	16,625	*20,259*	*23,297*
Other Operating Expense (Income)	—	—	—	—	—
Depreciation & Amortization (if reported separately)	—	—	—	—	—
Operating Income (ex charges)	**19,360**	**23,716**	**28,882**	***29,510***	***36,577***
Restructuring & Other Cash Charges	—	—	—	—	—
Impairment Charges (if reported separately)	—	—	—	—	—
Other Non-Cash (Income)/Charges	—	—	2,736	—	—
Operating Income (incl charges)	**19,360**	**23,716**	**26,146**	***29,510***	***36,577***
Interest Expense	708	786	—	—	—
Interest Income	999	1,220	1,047	*5,241*	*2,027*
Pre-Tax Income	**19,651**	**24,150**	**27,193**	***34,750***	***38,604***
Income Tax Expense	3,303	4,672	14,531	*5,213*	*5,598*
Other After-Tax Cash Gains (Losses)	—	—	—	—	—
Other After-Tax Non-Cash Gains (Losses)	—	—	—	—	—
(Minority Interest)	-522	—	—	—	—
(Preferred Dividends)	—	—	—	—	—
Net Income	**15,826**	**19,478**	**12,662**	***29,538***	***33,007***
Weighted Average Diluted Shares Outstanding	693	699	705	*704*	*702*
Diluted Earnings Per Share	**22.84**	**27.85**	**17.96**	***41.96***	***47.02***
Adjusted Net Income	15,826	19,478	12,662	*29,538*	*33,007*
Diluted Earnings Per Share (Adjusted)	**22.84**	**27.85**	**17.96**	***41.96***	***47.02***
Dividends Per Common Share	—	—	—	—	—
EBITDA	**24,423**	**29,860**	**33,061**	***37,749***	***46,113***
Adjusted EBITDA	**29,626**	**36,563**	**43,476**	***47,301***	***56,538***

Alphabet Inc GOOGL (NAS) | ★★★

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1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Morningstar Analyst Forecasts

Balance Sheet (USD Mil)

Fiscal Year Ends in December	2015	2016	2017	Forecast 2018	Forecast 2019
Cash and Equivalents	73,066	86,333	101,871	*124,603*	*145,640*
Investments	—	—	—	—	—
Accounts Receivable	11,556	14,137	18,336	*21,708*	*25,838*
Inventory	—	268	749	*994*	*1,177*
Deferred Tax Assets (Current)	251	—	—	—	—
Other Short Term Assets	5,492	4,670	3,352	*4,077*	*4,787*
Current Assets	**90,365**	**105,408**	**124,308**	***151,381***	***177,441***
Net Property Plant, and Equipment	29,016	34,234	42,383	*50,875*	*60,846*
Goodwill	15,869	16,468	16,747	*16,787*	*16,827*
Other Intangibles	3,847	3,307	2,692	*2,236*	*1,776*
Deferred Tax Assets (Long-Term)	—	383	680	*680*	*680*
Other Long-Term Operating Assets	3,181	1,819	2,672	*3,250*	*3,816*
Long-Term Non-Operating Assets	5,183	5,878	7,813	*7,813*	*7,813*
Total Assets	**147,461**	**167,497**	**197,295**	***233,021***	***269,199***
Accounts Payable	1,931	2,041	3,137	*4,162*	*4,928*
Short-Term Debt	3,225	—	—	—	—
Deferred Tax Liabilities (Current)	—	—	881	*730*	*730*
Other Short-Term Liabilities	14,154	14,715	21,046	*27,920*	*33,062*
Current Liabilities	**19,310**	**16,756**	**25,064**	***32,812***	***38,720***
Long-Term Debt	1,995	3,935	3,969	*3,969*	*3,969*
Deferred Tax Liabilities (Long-Term)	189	226	13,242	*12,512*	*11,781*
Other Long-Term Operating Liabilities	5,636	7,544	3,399	*4,189*	*4,682*
Long-Term Non-Operating Liabilities	—	—	—	—	—
Total Liabilities	**27,130**	**28,461**	**45,674**	***53,482***	***59,153***
Preferred Stock	—	—	—	—	—
Common Stock	32,982	36,307	40,247	*40,247*	*40,247*
Additional Paid-in Capital	—	—	—	—	—
Retained Earnings (Deficit)	89,223	105,131	113,247	*142,785*	*175,791*
(Treasury Stock)	—	—	—	*-2,500*	*-5,000*
Other Equity	-1,874	-2,402	-992	*-992*	*-992*
Shareholder's Equity	**120,331**	**139,036**	**152,502**	***179,540***	***210,046***
Minority Interest	—	—	—	—	—
Total Equity	**120,331**	**139,036**	**152,502**	***179,540***	***210,046***

Alphabet Inc GOOGL (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
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Morningstar Analyst Forecasts

Cash Flow (USD Mil)

Fiscal Year Ends in December	2015	2016	2017	*Forecast* *2018*	*2019*
Net Income	16,348	19,478	12,662	*29,538*	*33,007*
Depreciation	4,132	5,267	6,103	*7,423*	*8,716*
Amortization	931	877	812	*816*	*820*
Stock-Based Compensation	5,203	6,703	7,679	*9,553*	*10,425*
Impairment of Goodwill	—	—	—	—	—
Impairment of Other Intangibles	—	—	—	—	—
Deferred Taxes	-179	-38	258	*-881*	*-730*
Other Non-Cash Adjustments	-2	449	331	—	—
(Increase) Decrease in Accounts Receivable	-2,094	-2,578	-3,768	*-3,372*	*-4,130*
(Increase) Decrease in Inventory	—	—	—	*-245*	*-183*
Change in Other Short-Term Assets	-497	3,437	6,047	*-725*	*-710*
Increase (Decrease) in Accounts Payable	203	110	731	*1,025*	*766*
Change in Other Short-Term Liabilities	1,979	2,331	6,236	*6,874*	*5,142*
Cash From Operations	**26,024**	**36,036**	**37,091**	***50,006***	***53,122***
(Capital Expenditures)	-9,915	-9,972	-13,085	*-15,915*	*-18,687*
Net (Acquisitions), Asset Sales, and Disposals	-236	-986	-287	*-400*	*-400*
Net Sales (Purchases) of Investments	-11,463	-17,614	-18,236	—	—
Other Investing Cash Flows	-2,097	-2,593	207	*212*	*-73*
Cash From Investing	**-23,711**	**-31,165**	**-31,401**	***-16,103***	***-19,160***
Common Stock Issuance (or Repurchase)	-1,780	-3,693	-4,846	*-2,500*	*-2,500*
Common Stock (Dividends)	—	—	—	—	—
Short-Term Debt Issuance (or Retirement)	-23	-1,335	-86	—	—
Long-Term Debt Issuance (or Retirement)	—	—	—	—	—
Other Financing Cash Flows	-1,874	-3,304	-3,366	*-9,553*	*-10,425*
Cash From Financing	**-3,677**	**-8,332**	**-8,298**	***-12,053***	***-12,925***
Exchange Rates, Discontinued Ops, etc. (net)	-434	-170	405	—	—
Net Change in Cash	**-1,798**	**-3,631**	**-2,203**	***21,851***	***21,038***

Alphabet Inc GOOGL (NAS) | ★★★

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Comparable Company Analysis

These companies are chosen by the analyst and the data are shown by nearest calendar year in descending market capitalization order.

Valuation Analysis

		Price/Earnings			EV/EBITDA			Price/Free Cash Flow			Price/Book			Price/Sales		
Company/Ticker	Price/Fair Value	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	1.09	16.7	16.0	14.1	11.6	11.8	11.2	15.6	13.7	14.8	—	—	—	3.5	3.6	3.5
Amazon.com Inc AMZN USA	0.86	190.2	149.8	90.6	36.2	35.3	27.4	67.3	38.0	33.4	—	—	—	3.2	3.3	2.6
Microsoft Corp MSFT USA	0.83	21.2	26.2	24.3	12.9	16.0	14.4	16.9	15.0	23.0	—	—	—	5.5	7.0	6.4
Facebook Inc FB USA	0.98	32.7	27.2	22.3	17.6	15.8	13.3	29.3	39.2	23.3	—	—	—	12.6	10.3	8.4
Verizon Communications Inc VZ USA	0.92	7.2	11.4	10.7	7.4	6.9	6.7	26.8	12.0	10.4	—	—	—	1.7	1.5	1.5
Average		53.6	46.1	32.4	17.1	17.2	14.6	31.2	23.6	21.0	—	—	—	5.3	5.1	4.5
Alphabet Inc GOOGL US	**0.95**	**58.7**	**27.0**	**24.1**	**14.6**	**14.5**	**12.1**	**30.4**	**23.0**	**22.7**	**—**	**—**	**—**	**6.6**	**5.8**	**4.9**

Returns Analysis

		ROIC %			Adjusted ROIC %			Return on Equity %			Return on Assets %			Dividend Yield %		
Company/Ticker	Last Historical Year Total Assets (Mil)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	375,319 USD	90.3	87.7	58.7	98.1	94.0	62.7	36.9	46.7	62.4	13.9	15.3	16.9	1.6	1.4	1.7
Amazon.com Inc AMZN USA	131,310 USD	15.0	20.7	45.8	23.8	36.9	115.4	12.9	18.0	24.0	2.8	3.5	4.6	—	—	—
Microsoft Corp MSFT USA	— USD	24.4	57.4	29.8	16.7	37.6	19.8	29.9	18.6	39.9	11.3	6.1	12.2	2.3	1.7	1.8
Facebook Inc FB USA	84,524 USD	50.1	44.2	38.8	35.0	33.8	31.6	23.9	25.0	24.0	21.3	22.1	21.5	—	—	—
Verizon Communications Inc VZ USA	257,143 USD	4.1	11.5	11.4	3.6	10.1	10.0	91.7	36.6	33.6	12.0	6.6	7.0	4.4	5.0	5.1
Average		36.8	44.3	36.9	35.4	42.5	47.9	39.1	29.0	36.8	12.3	10.7	12.4	2.8	2.7	2.9
Alphabet Inc GOOGL US	**197,295** USD	**33.3**	**29.8**	**30.3**	**29.0**	**26.6**	**27.4**	**8.7**	**17.8**	**16.9**	**6.9**	**13.7**	**13.1**	**—**	**—**	**—**

Growth Analysis

		Revenue Growth %			EBIT Growth %			EPS Growth %			Free Cash Flow Growth %			Dividend/Share Growth %		
Company/Ticker	Last Historical Year Revenue (Mil)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	229,234 USD	6.3	13.3	2.2	2.2	12.1	2.3	10.8	28.8	14.1	-7.7	35.8	-8.9	10.1	13.3	15.4
Amazon.com Inc AMZN USA	177,866 USD	30.8	34.9	25.4	-1.9	84.2	65.5	25.5	78.0	65.4	-240.7	-307.1	7.9	—	—	—
Microsoft Corp MSFT USA	96,571 USD	5.9	14.0	10.2	7.9	17.5	12.4	27.0	18.2	7.8	-78.2	566.6	-17.7	8.3	7.7	7.0
Facebook Inc FB USA	40,653 USD	47.1	34.7	21.8	62.6	20.6	21.8	54.3	32.3	22.1	62.2	-24.1	96.1	—	—	—
Verizon Communications Inc VZ USA	126,034 USD	0.0	1.9	1.5	1.3	2.5	1.2	129.1	-43.2	7.2	-14.4	39.1	13.4	2.2	2.1	2.1
Average		18.0	19.8	12.2	14.4	27.4	20.6	49.3	22.8	23.3	-55.8	62.1	18.2	6.9	7.7	8.2
Alphabet Inc GOOGL US	**110,855** USD	**22.8**	**21.6**	**17.4**	**21.8**	**2.2**	**24.0**	**-35.5**	**133.6**	**12.1**	**2.1**	**26.3**	**9.6**	**—**	**—**	**—**

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Alphabet Inc GOOGL (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Comparable Company Analysis

These companies are chosen by the analyst and the data are shown by nearest calendar year in descending market capitalization order.

Profitability Analysis

		Gross Margin %			EBITDA Margin %			Operating Margin %			Net Margin %			Free Cash Flow Margin %		
Company/Ticker	Last Historical Year Net Income (Mil)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	48,351 USD	38.5	*38.3*	*39.0*	31.2	*31.6*	*32.7*	26.8	*26.5*	*26.5*	21.1	*22.1*	*22.6*	22.3	*26.3*	*23.8*
Amazon.com Inc AMZN USA	3,033 USD	37.1	*38.9*	*39.7*	8.8	*9.4*	*9.7*	2.3	*3.2*	*4.2*	1.7	*2.3*	*3.0*	4.7	*8.7*	*7.9*
Microsoft Corp MSFT USA	25,489 USD	64.5	*64.6*	*65.0*	39.2	*40.8*	*41.2*	30.4	*31.3*	*31.9*	26.4	*27.0*	*26.0*	32.5	*46.8*	*27.8*
Facebook Inc FB USA	15,934 USD	86.6	*85.0*	*85.0*	66.3	*59.7*	*58.4*	49.7	*44.5*	*44.5*	39.2	*38.5*	*38.5*	43.0	*26.2*	*36.1*
Verizon Communications Inc VZ USA	30,101 USD	59.1	*61.3*	*61.3*	35.2	*35.8*	*35.9*	21.8	*21.9*	*21.8*	23.9	*13.3*	*14.1*	6.4	*12.8*	*14.6*
Average		57.2	*57.6*	*58.0*	36.1	*35.5*	*35.6*	26.2	*25.5*	*25.8*	22.5	*20.6*	*20.8*	21.8	*24.2*	*22.0*
Alphabet Inc GOOGL US	**12,662** USD	**58.9**	***55.2***	***54.8***	**39.2**	***35.1***	***35.7***	**26.1**	***21.9***	***23.1***	**11.4**	***21.9***	***20.9***	**21.7**	***25.3***	***21.8***

Leverage Analysis

		Debt/Equity %			Debt/Total Cap %			EBITDA/Interest Exp.			Total Debt/EBITDA			Assets/Equity		
Company/Ticker	Last Historical Year Total Debt (Mil)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	115,680 USD	86.3	*111.7*	*144.9*	46.3	*52.8*	*59.2*	30.8	*26.4*	*29.1*	1.6	*1.5*	*1.3*	2.8	*3.4*	*4.1*
Amazon.com Inc AMZN USA	24,743 USD	89.3	*125.6*	*98.7*	47.2	*55.7*	*49.7*	18.4	*22.1*	*25.9*	1.6	*1.8*	*1.4*	4.7	*5.4*	*5.1*
Microsoft Corp MSFT USA	86,194 USD	98.3	*99.2*	*92.4*	49.6	*49.8*	*48.0*	-43.2	*-32.9*	*-100.0*	2.3	*1.7*	*1.5*	2.9	*3.3*	*3.2*
Facebook Inc FB USA	— USD	—	—	—	—	—	—	—	—	—	—	—	—	1.1	*1.1*	*1.1*
Verizon Communications Inc VZ USA	117,095 USD	271.7	*225.3*	*187.6*	73.1	*69.3*	*65.2*	9.4	*9.5*	*10.0*	2.6	*2.5*	*2.4*	6.0	*5.2*	*4.5*
Average		136.4	*140.5*	*130.9*	54.1	*56.9*	*55.5*	3.8	*6.3*	*-8.8*	2.0	*1.9*	*1.7*	3.5	*3.7*	*3.6*
Alphabet Inc GOOGL US	**3,969** USD	**2.6**	***2.2***	***1.9***	**2.5**	***2.2***	***1.9***	—	—	—	**0.1**	***0.1***	***0.1***	**1.3**	***1.3***	***1.3***

Liquidity Analysis

		Cash per Share			Current Ratio			Quick Ratio			Cash/Short-Term Debt			Payout Ratio %		
Company/Ticker	Market Cap (Mil)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	935,056 USD	51.20	*53.69*	*48.98*	3.21	*3.17*	*2.70*	3.16	*3.12*	*2.65*	14.56	*12.45*	*9.92*	26.1	*22.9*	*23.2*
Amazon.com Inc AMZN USA	796,519 USD	41.64	*106.60*	*141.14*	1.04	*1.39*	*1.43*	0.76	*1.11*	*1.16*	—	—	—	—	—	—
Microsoft Corp MSFT USA	774,390 USD	16.98	*17.31*	*17.94*	2.92	*2.95*	*2.73*	2.88	*2.91*	*2.70*	13.14	*127.47*	*34.10*	47.9	*84.7*	*43.4*
Facebook Inc FB USA	561,529 USD	14.11	*17.26*	*23.77*	12.92	*10.76*	*11.93*	12.92	*10.76*	*11.93*	—	—	—	—	—	—
Verizon Communications Inc VZ USA	197,546 USD	0.51	*1.19*	*2.49*	0.91	*1.03*	*1.09*	0.87	*1.00*	*1.07*	0.60	*1.47*	*1.62*	31.7	*57.0*	*54.3*
Average		24.89	*39.21*	*46.86*	4.20	*3.86*	*3.98*	4.12	*3.78*	*3.90*	9.43	*47.13*	*15.21*	35.2	*54.9*	*40.3*
Alphabet Inc GOOGL US	**782,904** USD	**144.48**	***176.99***	***207.47***	**4.96**	***4.61***	***4.58***	**4.93**	***4.58***	***4.55***	—	—	—	—	—	—

Research Methodology for Valuing Companies

Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, in-depth competitive advantage analysis, and a variety of other analytical tools to augment this process. Moreover, we think analyzing valuation through discounted cash flows presents a better lens for viewing cyclical companies, high-growth firms, businesses with finite lives (e.g., mines), or companies expected to generate negative earnings over the next few years. That said, we don't dismiss multiples altogether but rather use them as supporting cross-checks for our DCF-based fair value estimates. We also acknowledge that DCF models offer their own challenges (including a potential proliferation of estimated inputs and the possibility that the method may miss short-term market-price movements), but we believe these negatives are mitigated by deep analysis and our long-term approach.

Morningstar's equity research group ("we", "our") believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stocks identifies stocks trading at a discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk-adjusted discount to their fair values, whereas 1-star stocks trade at premiums to their intrinsic worth.

Four key components drive the Morningstar rating: (1) our assessment of the firm's economic moat, (2) our estimate of the stock's fair value, (3) our uncertainty around that fair value estimate and (4) the current market price. This process ultimately culminates in our single-point star rating.

1. Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define economic profits as returns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to remain for at least 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe low-quality, no-moat companies will see their normalized returns gravitate toward the firm's cost of capital more quickly than companies with moats.

To assess the sustainability of excess profits, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger; stable where we don't anticipate changes to competitive advantages over the next several years; or negative when we see signs of deterioration.

2. Estimated Fair Value

Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than the returns of narrow-moat firms, and both will fade slower than no-moat firms, increasing our estimate of their intrinsic value.

Our model is divided into three distinct stages:

Stage I: Explicit Forecast

In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in working-capital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes (EBI) and the net new investment (NNI) to derive our annual free cash flow forecast.

Stage II: Fade

The second stage of our model is the period it will take the company's return on new invested capital—the return on capital of the next dollar invested ("RONIC")—to decline (or rise) to its cost of capital. During the Stage II period, we use a formula to approximate cash flows in lieu of explicitly modeling the income statement, balance sheet, and cash flow statement as we do in Stage I. The length of the second stage depends on the strength of the company's economic moat. We forecast this period to last anywhere from one year (for companies with no economic moat) to 10–15 years or more (for wide-moat companies). During this period, cash flows are forecast using four assumptions: an average growth rate for EBI over the period, a normalized investment rate, average return on new invested capital (RONIC), and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until a perpetuity value is calculated. In the case of firms that do not earn their cost of capital, we assume marginal ROICs rise to the firm's cost of capital (usually attributable to less reinvestment), and we may truncate the second stage.

Stage III: Perpetuity

Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with estimated WACC.

Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total pres-

Morningstar Research Methodology for Valuing Companies

Economic Moat
Financial Health
Stewardship
Uncertainty
Moat Trend

Morningstar Fair Value

Margin of Safety
Market Pricing

Morningstar Rating™ For Stocks
★★★★★

ent value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return to all capital providers—we discount future cash flows using the WACC, which is a weighted average of the costs of equity, debt, and preferred stock (and any other funding sources), using expected future proportionate long-term, market-value weights.

3. Uncertainty around that fair value estimate

Morningstar's Uncertainty Rating captures a range of likely potential intrinsic values for a company and uses it to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating represents the analysts' ability to bound the estimated value of the shares in a company around the Fair Value Estimate, based on the characteristics of the business underlying the stock, including operating and financial leverage, sales sensitivity to the overall economy, product concentration, pricing power, and other company-specific factors.

Analysts consider at least two scenarios in addition to their base case: a bull case and a bear case. Assumptions are chosen such that the analyst believes there is a 25% probability that the company will perform better than the bull case, and a 25% probability that the company will perform worse than the bear case. The distance between the bull and bear cases is an important indicator of the uncertainty underlying the fair value estimate.

Our recommended margin of safety widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the estimated value of the equity, the greater the discount we require relative to our estimate of the value of the firm before we would recommend the purchase of the shares. In addition, the uncertainty rating provides guidance in portfolio construction based on risk tolerance.

Our uncertainty ratings for our qualitative analysis are low, medium, high, very high, and extreme.

- ►**Low:** margin of safety for 5-star rating is a 20% discount and for 1-star rating is 25% premium.
- ►**Medium:** margin of safety for 5-star rating is a 30% discount and for 1-star rating is 35% premium.
- ►**High:** margin of safety for 5-star rating is a 40% discount and for 1-star rating is 55% premium.
- ►**Very High:** margin of safety for 5-star rating is a 50% discount and for 1-star rating is 75% premium.
- ►**Extreme:** Stock's uncertainty exceeds the parameters we have set for assigning the appropriate margin of safety.

4. Market Price

The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

For more detail information about our methodology, please go to http://global.morningstar.com/equitydisclosures

Morningstar Star Rating for Stocks

Once we determine the fair value estimate of a stock, we compare it with the stock's current market price on a daily basis, and the star rating is automatically re-calculated at the market close on every day the market on which the stock is listed is open. Our analysts keep close tabs on the companies they follow, and, based on thorough and ongoing analysis, raise or lower their fair value estimates as warranted.

Please note, there is no predefined distribution of stars. That is, the percentage of stocks that earn 5 stars can fluctuate daily, so the star ratings, in the aggregate, can serve as a gauge of the broader market's valuation. When there are many 5-star stocks, the stock market as a whole is more undervalued, in our opinion, than when very few companies garner our highest rating.

We expect that if our base-case assumptions are true the market price will converge on our fair value estimate over time, generally within three years (although it is impossible to predict the exact time frame in which market prices may adjust).

Our star ratings are guideposts to a broad audience and individuals must consider their own specific investment goals, risk tolerance, tax situation, time horizon, income needs, and complete investment portfolio, among other factors.

The Morningstar Star Ratings for stocks are defined below:

Five Stars ★★★★★

We believe appreciation beyond a fair risk-adjusted return is highly likely over a multiyear time frame. Scenario analysis developed by our analysts indicates that the current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

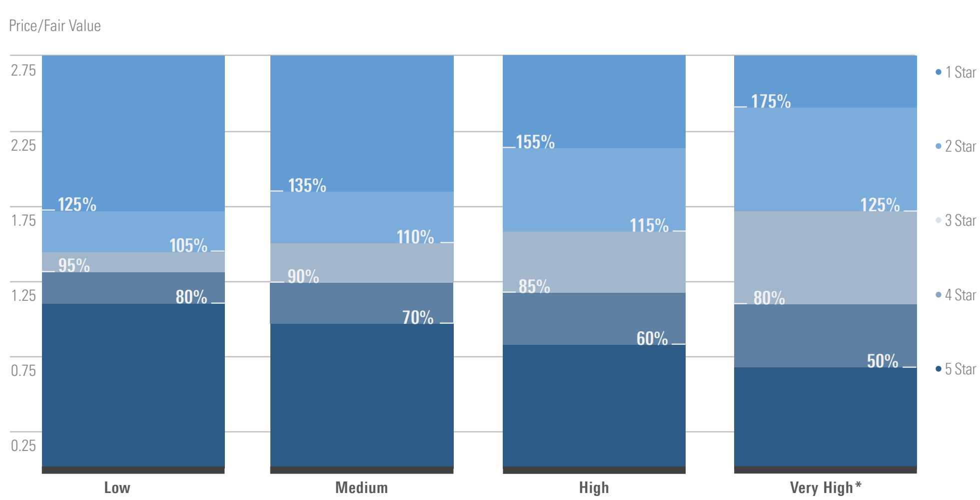
Four Stars ★★★★

We believe appreciation beyond a fair risk-adjusted return is likely.

Three Stars ★★★

Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

Morningstar Research Methodology for Valuing Companies



* Occasionally a stock's uncertainty will be too high for us to estimate, in which case we label it Extreme.

Research Methodology for Valuing Companies

Two Stars ★★
We believe investors are likely to receive a less than fair risk-adjusted return.

One Star ★
Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multiyear time frame, based on our analysis. Scenario analysis by our analysts indicates that the market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

Other Definitions:

Last Price: Price of the stock as of the close of the market of the last trading day before date of the report.

Stewardship Rating: Represents our assessment of management's stewardship of shareholder capital, with particular emphasis on capital allocation decisions. Analysts consider companies' investment strategy and valuation, financial leverage, dividend and share buyback policies, execution, compensation, related party transactions, and accounting practices. Corporate governance practices are only considered if they've had a demonstrated impact on shareholder value. Analysts assign one of three ratings: "Exemplary," "Standard," and "Poor." Analysts judge stewardship from an equity holder's perspective. Ratings are determined on an absolute basis. Most companies will receive a Standard rating, and this is the default rating in the absence of evidence that managers have made exceptionally strong or poor capital allocation decisions.

Quantitative Valuation: Using the below terms, intended to denote the relationship between the security's Last Price and Morningstar's quantitative fair value estimate for that security.

- ►**Undervalued:** Last Price is below Morningstar's quantitative fair value estimate.
- ►**Farily Valued:** Last Price is in line with Morningstar's quantitative fair value estimate.
- ►**Overvalued:** Last Price is above Morningstar's quantitative fair value estimate.

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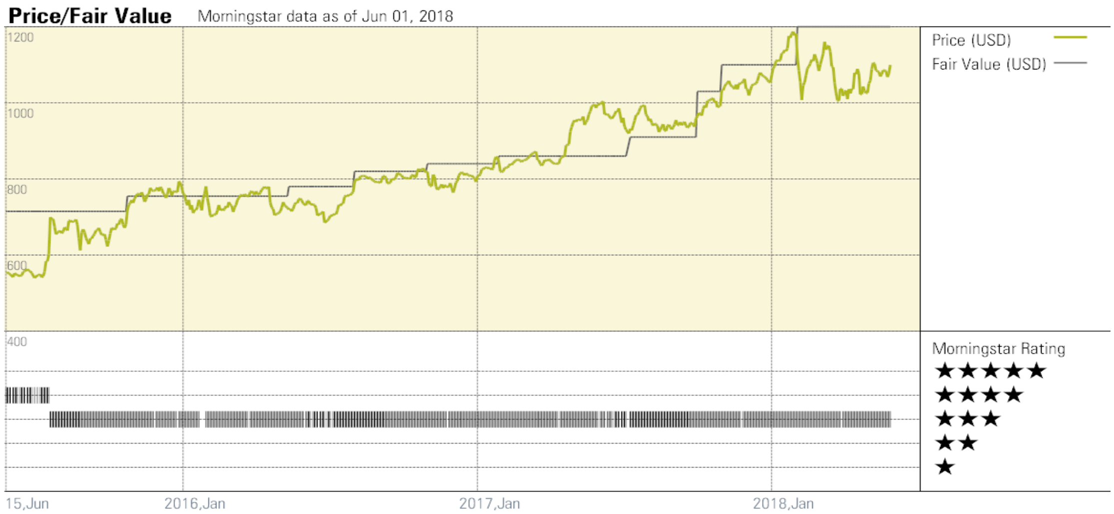
Alphabet Inc GOOGL (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media



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Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,135.00 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

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Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Google's dominance in the digital ad market should remain intact.

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Research as of 04 Jun 2018
Estimates as of 23 Apr 2018
Pricing data through 01 Jun 2018 00:00
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Currency amounts expressed with "$" are in U.S. dollars (USD) unless otherwise denoted.

Contents

Investment Thesis
Morningstar Analysis
Analyst Note -
Valuation, Growth and Profitability 2
Scenario Analysis 2
Economic Moat 3
Moat Trend 6
Bulls Say/Bears Say 8
Financial Health 9
Enterprise Risk 9
Management & Ownership 11
Analyst Note Archive 13
Additional Information -
Morningstar Analyst Forecasts 16
Comparable Company Analysis 20
Methodology for Valuing Companies 22

Investment Thesis 02 Feb 2018

Alphabet dominates the online search market with Google's global share above 80%, via which it generates strong revenue growth and cash flow. We expect continuing growth in the firm's cash flow, as we remain confident that Google will maintain its leadership in the search market. We foresee YouTube gradually contributing more to the firm's top and bottom lines, and we view investments of some of that cash in moonshots as attractive. Whether they will generate positive returns remains to be seen, but they do present significant upside.

Google's ecosystem strengthens as its products are adopted by more users, making its online advertising services more attractive to advertisers and publishers and resulting in increased online ad revenue. The firm utilizes technological innovation to improve the user experience in nearly all its Google offerings, while making the sale and purchase of ads efficient for publishers and advertisers. Adoption of mobile devices has been increasing, as has usage time on these devices. The online advertising market has taken notice and is following its target audience onto the mobile platform. We have seen Google partake in this on the back of its Android mobile operating system's growing market share, helping it drive revenue growth and maintain its leadership in the space.

Among the firm's investment areas, we particularly applaud the efforts to gain a stronger foothold in the public cloud market, which is expected to grow more than 25% annually through 2021. Google has quickly leveraged the technological expertise it applied to creating and maintaining its private cloud platform to increase its market share in this space, driving additional revenue growth, creating more operating leverage, and expanding its operating margin, which we expect will continue. Regarding Alphabet's more futuristic projects, although most are not yet generating revenue, the upside is attractive if they succeed, as the firm is targeting newer markets. Alphabet's autonomous car technology business, Waymo, is a good example: Based on various studies, it may tap into a market valued in the tens of billions of dollars within the next 10-15 years.

Vital Statistics

Market Cap (USD Mil)	782,904
52-Week High (USD)	1,186.89
52-Week Low (USD)	894.79
52-Week Total Return %	15.8
YTD Total Return %	7.0
Last Fiscal Year End	31 Dec 2017
5-Yr Forward Revenue CAGR %	16.3
5-Yr Forward EPS CAGR %	34.4
Price/Fair Value	0.93

Valuation Summary and Forecasts

Fiscal Year:	2016	2017	*2018(E)*	*2019(E)*
Price/Earnings	27.7	58.3	*26.7*	*23.8*
EV/EBITDA	12.6	14.6	*14.5*	*12.1*
EV/EBIT	19.4	21.9	*23.2*	*18.7*
Free Cash Flow Yield %	4.8	3.3	*4.4*	*4.4*
Dividend Yield %	—	—	—	—

Financial Summary and Forecasts (USD Mil)

Fiscal Year:	2016	2017	*2018(E)*	*2019(E)*
Revenue	90,272	110,855	*134,827*	*158,314*
Revenue YoY %	20.4	22.8	*21.6*	*17.4*
EBIT	23,716	28,882	*29,510*	*36,577*
EBIT YoY %	22.5	21.8	*2.2*	*24.0*
Net Income, Adjusted	19,478	12,662	*29,538*	*33,007*
Net Income YoY %	23.1	-35.0	*133.3*	*11.7*
Diluted EPS	27.85	17.96	*41.96*	*47.02*
Diluted EPS YoY %	21.9	-35.5	*133.6*	*12.1*
Free Cash Flow	15,432	15,759	*19,896*	*21,805*
Free Cash Flow YoY %	97.6	2.1	*26.3*	*9.6*

Historical/forecast data sources are Morningstar Estimates and may reflect adjustments.

Profile

Alphabet is a holding company, with Google, the Internet media giant, as a wholly owned subsidiary. Google generates 99% of Alphabet revenue, of which more than 85% is from online ads. Google's other revenue is from sales of apps and content on Google Play and YouTube, as well as cloud service fees and other licensing revenue. Sales of hardware such as Chromebooks, the Pixel smartphone, and smart homes products, which include Nest and Google Home, also contribute to other revenue. Alphabet's moonshot investments are in its other bets segment, where it bets on technology to enhance health (Verily), faster Internet access to homes (Google Fiber), self-driving cars (Waymo), and more. Alphabet's operating margin has been 25%-30%, with Google at 30% and other bets operating at a loss.

Alphabet Inc GOOG (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Morningstar Analysis

Valuation, Growth and Profitability 23 Apr 2018

Our fair value estimate is $1,200 per share, equivalent to a 2018 enterprise value/EBITDA ratio of 16. We expect continuing double-digit-revenue growth through 2022, helped by greater revenue contribution from YouTube. While there will be some pressure on gross margin, we look for slight operating leverage improvement beginning in 2019 mainly from revenue growth and deceleration in the growth of other operating expenses. Our model represents a five-year compound annual growth rate of 16% for total revenue and a five-year average operating margin of nearly 24%.

We expect advertising revenue to consistently represent around 80% of Alphabet's total revenue, driven by continuing growth in overall digital ad spending, more specifically in search, video, and mobile. We model 20% and 16% year-over-year Google ad revenue growth for 2018 and 2019, representing $114 billion and $132 billion, respectively. We think YouTube will contribute about $16 billion and $18 billion to Google advertising revenue in 2018 and 2019, respectively. We believe Google will continue to gain traction in the cloud market, and when combined with Google Play and sales of Google's hardware products (including Nest), we see Google's other revenue growing 41% to nearly $20 billion in 2018. For 2019, we expect 25% growth in other revenue.

Although Alphabet does not break out revenue for its other bets segment, we are assuming that most of this revenue is generated through Access/Google Fiber subscribers and Verily. Our total other bets revenue estimates for 2018 and 2019 are $618 million and $813 million, representing 30% and 31% annual growth rates.

We model nearly 55% gross margin for 2018 and 2019, compared with 59% in 2016. While Google's ad revenue has continued to grow at double-digit rates, transition to the mobile platform has resulted in higher traffic acquisition costs, hurting gross margin. Higher cost of content on YouTube TV is also likely to affect gross margin. Based on our projections, we expect the average gross margin through 2022 to be more than 350 basis points lower than 2017.

Combined with strong revenue growth, we expect slight deceleration of growth in other operating expenses to create operating leverage for Alphabet starting in 2019, partially offsetting decline in gross margin.

Scenario Analysis

In a bull-case scenario, we estimate Alphabet would have a fair value of $1,560 per share. Such a scenario could take place if growth in online ad spending, more specifically programmatic and video on mobile devices, accelerates more than we have assumed. Top-line growth could improve further if the allocation of digital ad spending tilts less toward social networks than expected, and if YouTube's other offerings (YouTube Red and YouTube TV) attract much higher number of subscribers. On the bottom line, normalization in TACs would help expand Alphabet's operating margin further. In addition, assuming stable pricing, faster-than-expected adoption of Nest and other in-home products would drive revenue growth further, expanding margin and bolstering cash flow. Our bull-case scenario also assumes some success in the more futuristic projects within other bets, such as some revenue generated from Waymo, the autonomous vehicle technology business, by late 2020.

We assign Alphabet a fair value estimate of $740 per share in a bear-case scenario. In such a scenario, growth in online search advertising could decelerate significantly, mainly due to much-higher-than-expected allocations of online ad budgets to social networks, only partially offset by slow growth in YouTube's video ad revenue. We also assume unfavorable rulings in the three antitrust cases that the European Commission has brought against the firm. Those rulings could further affect Alphabet's ad revenue growth

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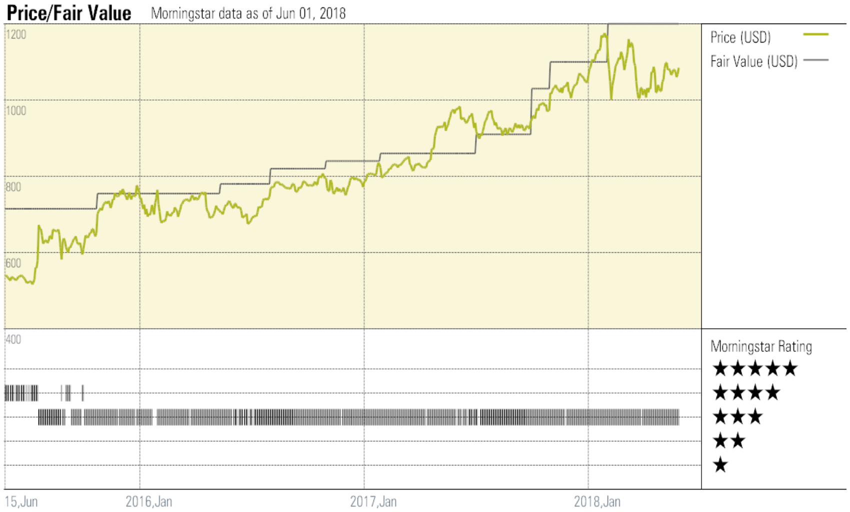
Price/Fair Value Morningstar data as of Jun 01, 2018



negatively. Lower top-line growth could also push TACs higher as a percentage of revenue. In this scenario, we have assumed accelerating cash burn in other bets. Lack of any success in other bets would probably drive management to increase research and development spending and capital expenditure more than expected, further eating into Alphabet's cash flow.

Economic Moat

We assign Alphabet a wide moat rating, thanks to sustainable competitive advantages derived from the company's intangible assets, as well as the network effect.

We believe Alphabet holds significant intangible assets related to overall technological expertise in search algorithms and machine learning, as well as access to and accumulation of data that is deemed valuable to advertisers. We also believe that Google's brand is a significant asset, as "Google it" has become eponymous with searching, and regardless of actual technological competency, the firm's search engine is perceived as being the most advanced in the industry.

In our opinion, Alphabet's network effects are derived mainly through its Google products such as search, Android, Maps, Gmail, YouTube, and more. Ultimately, we view Google's network as heterogeneous. On the one side, all the aforementioned products have provided Google with a massive consumer base that allows the company to collect data. On the other side, via its rich collection of data and large user base, Google can offer the best return on investment for advertisers and build a growing network of advertising customers. The addition of each new ad and advertiser improves the efficiency of Google's programmatic advertising offerings, allowing the firm to better monetize the network.

In search, Google has successfully and consistently has monetized many of its technology-based intangible assets, from the original algorithms behind search to the current machine-learning ones, which are also being applied to nearly every product. The company was recognized first for its "extremely relevant results" by PC Magazine in December 1998. From that point, it grew into the world's most popular online search engine and has maintained its leadership. Google processes more than 3 times and 4 times as many search requests as Bing (Microsoft) and Yahoo, respectively. Google Search's success stems from the relevance of its results to its users and the likelihood that this relevance will improve as more data is gathered and analyzed, assumptions are generated, and predictions are created. Google has used machine-learning technology to improve the user experience.

The company has applied machine learning to its Google App (speech recognition), Gmail (Smart Reply), Google Photos, Maps, and many other products, including its cloud offerings. As technological advancements improve the user experience for each product, the likelihood of further usage increases. With more usage, more data about users' behavioral interests is gathered, analyzed, and applied to rank ads more accurately based on their relevance and

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click-through-rate probability. The monetization of, and higher ROI on, machine learning stems from the fact that the technology increases the volume and click-through rates of ads, resulting in more ad revenue. Google's continuing investment in machine learning should help increase the effectiveness of ad rankings and placements, resulting in higher ROI for advertisers and increased revenue for Google.

We believe Google's investment in machine-learning technology will also enhance the efficiency of its DoubleClick programmatic advertising offerings, which consist of not only real-time bidding that the technology adjusts in real time based on the various search trends it recognizes, but also programmatic direct, where ad impressions (or inventory) can be purchased in advance. Programmatic advertising, and more specifically programmatic video ad spending, is expected to grow at a healthy rate.

Based initially on its technology, Google has successfully increased its users' dependence on its products to keep transforming the usage of those products into something habitual. We have seen that with online search, as most people around the world continue to "Google it." It has strengthened its brand, which we think has longevity. We view the Google brand as a significant driver of user growth for YouTube, Maps, Gmail, and Chrome. Again, an expanding user base helps the company collect more data, which is monetized when applied to online ads.

Google has the world's most widely used search engine, and such a large and growing user base has created a network difficult to replicate, in our view. We believe that an additional search on Google's search engine creates value for other users, as well as for advertisers and businesses. With Google's machine-learning technology, more requests made by current and/or new users improve relevancy of search results, creating value for users. More relevant results also decrease the likelihood of users jumping to another search engine, creating somewhat of a barrier to exit.

For advertisers, value is created mainly through growth of the large user base to target and from behavioral data compiled and analyzed. As users and search requests grow and more data is gathered, advertisers' demands for ads increase, helping Google to further monetize the network.

As with Google search, we see network effects from large and growing user bases of other products, such as Maps, Gmail, and Chrome, all of which create value for users and advertisers. As more consumers use Maps, more data regarding traffic, commuting tendencies, and so forth is gathered, helping Google generate more accurate results (in terms of locations, travel times, and route suggestions). Google also utilizes such data to provide faster routes (via Maps and the Waze app). All of this creates more value for users. As in search, increasing users and data create value for advertisers, which Google monetizes effectively. Businesses and advertisers pay Google to place their search ads, targeted based on users' locations and previous searches, within Maps' search results list and directly on the map.

Although an additional Gmail user does not necessarily create more value for other Gmail users, the growing network does become more valuable for advertisers, creating additional opportunities to place target ads, resulting in more revenue generated from the network.

Usage of Google's Chrome browser is also continuing to grow. According to Net Applications, Chrome browser usage on mobile devices nearly doubled year over year in 2015. It trailed only Apple's Safari, which declined in 2015. On desktops, Chrome usage was also ranked second in 2015, trailing Microsoft's Internet Explorer. However, Chrome was the only browser with higher year-over-year usage share. In

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Morningstar Analysis

our opinion, growth in Chrome browser usage helps increase the network effect for Google; again, the network is monetized via sales of various online ads. With more users, more data is gathered and analyzed, helping advertisers target the large user base more effectively with online ads.

By launching Android in 2007, Google positioned itself well in the faster-growing mobile ad market, maintaining its online search dominance and strengthening its network effect. With Google's Chrome browser on Android phones, more mobile searches are conducted using Google. In addition, more Google apps such as Maps, Gmail, and Google Play are used by consumers on Android-powered devices, further driving ad and other revenue growth. According to data from Gartner, the Android OS powers 75%-plus of smartphones around the world, compared with Apple iOS' 15%. We think it is likely that the two smartphone operating systems will power nearly every smartphone around the world in the long run, with Google's apps not only on Android devices, but also among the top apps used by iOS customers.

In the expanding mobile market, we believe Google will not only maintain but expand its user base, positively affecting the network effect as it becomes more valuable to advertisers, resulting in more digital mobile ad revenue growth. Similarly, Android's network effect also creates more value for users. As the number of Android-powered smartphones increases, more developers will create more apps to be made available on Google Play and run on those smartphones, creating additional value for Android smartphone users.

We think YouTube is also valuable, as it benefits from a network effect that creates value for users, content creators, and advertisers. With more viewers on the site today, more content creators will look to YouTube for content distribution. Continuing growth of YouTube's content library drives further viewer growth. YouTube's video platform has more viewers than other online video properties, making it attractive for advertisers. We believe growth in content library and in viewers on YouTube will drive growth in Google online video ad revenue, a market that is expected to grow at a strong double-digit compound annual growth rate. While Google has also begun to monetize YouTube via the subscription model (YouTube Red and YouTube TV), we expect the majority of YouTube revenue to remain generated through online ads on desktops and mobile devices.

We also expect Google to gain a foothold in the growing enterprise cloud market, but we do not think its cloud offerings create a network effect. Although Amazon is clearly the leader in this space, we expect Google to gain some traction and trail only Amazon's AWS and Microsoft's Azure in market share. Ultimately, we believe Google can leverage the technological expertise it applied to creating and maintaining its private cloud platform to build and maintain public cloud platforms for many businesses.

Regarding other potential sources of moat, we do not believe Alphabet has a sustainable cost advantage when compared with its peers. Alphabet's size allows the firm to invest heavily in Maps and YouTube, and perhaps in more capital-intensive businesses like enterprise cloud or Google Fiber. However, we don't see an inherent cost advantage in Alphabet that other tech titans like Apple and Amazon can't replicate, especially since cloud hardware is becoming increasingly commodified.

We also believe that customer switching costs provide Alphabet with only a negligible competitive advantage. Alphabet's Google offerings, such as search, YouTube, Android, Maps, and Gmail, have some switching costs associated with time and effort needed to learn a new user interface, move content to another platform (YouTube) and notify contacts of an email change (Gmail), but such costs

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Morningstar Analysis

are not so prohibitive that these customers are locked in forever.

Our narrow-moat thesis for Apple is based on modest, but not insurmountable, switching costs around the iOS ecosystem. Android may also benefit from switching costs, as apps purchased on Google Play would have to be replicated on iOS, but we also do not see such costs as overwhelming.

Finally, while Alphabet generates economic profit through Google, which we think will continue, this profit would be higher were it not for Alphabet's strategy of remaining a step ahead in terms of innovation. In its other bets segment, Alphabet is betting on (or investing in) smart homes (Nest), using technology to enhance health (Verily), providing significantly faster Internet access to homes (Google Fiber), self-driving cars (Waymo), and much more.

Some of these wagers may not bring in any winnings, and we believe it is too early to consider these businesses as contributors to Alphabet's economic moat, either in terms of intangible assets or network effects. However, the assets and continuing investments may give Alphabet an early edge as a first mover, although the sustainability of that competitive advantage will be determined over time. In our opinion, these bets demonstrate the company's objective of remaining a leader and one of the main players in the Internet technology space. A hit with any of these bets could put Alphabet further ahead of the technology pack.

Moat Trend

Given Alphabet's dominant position in online search, its continuing penetration of mobile device and fast-growing mobile ad markets with Android, and the lack of long-term threats to its main sources of economic moat--intangible assets and network effect--we view the company's moat trend as stable.

In our view, Alphabet's well-proven technological expertise and continuing investment in the company, where we expect R&D to grow 9%-13% year over year, keep the technology-based intangible assets stable. In addition, the growing user base, stemming from both Google's search facilities and from its other products on desktop and mobile platforms, and from the accessible data, keeps us confident about the longevity of the Google brand. We believe a stable user base is also indicative of the stability of the network effects of Google's offerings.

Since the second half of 2014, a few questions may have created doubts about the stability of the moat trend and whether Google can maintain its dominant position in online search.

In November 2014, Mozilla replaced Google with Yahoo as the default search engine on its Firefox browser. The impact of this decision on Google search has been minimal. While Google's U.S. search share by Firefox users declined two months after the deal, the Firefox browser's market share on desktops is less than half of Chrome's. Google's overall U.S. search share (on all browsers) dipped only 250 basis points, while Yahoo's inched up 230 basis points. Such momentum did not last long for Yahoo: According to StatCounter, approximately one year after the announcement of the deal, Yahoo's U.S. search share declined to below where it was before the agreement. In addition, the Firefox browser's presence in the growing mobile market is below 1%, compared with Chrome's 33%. These figures alone clarify a couple of things. First, Google's efforts to expose users to its products and expand its user base are yielding results. Second, with such presence in the mobile market, it will be difficult to replace Google as the leading search engine provider.

Google faces the risk of being replaced as the default text search engine on Apple's Safari. However, this risk has been minimized, in our opinion. With the release of iOS 11, Apple not only kept Google as the default search engine for its iPhone Safari browser, but it also made Google the default search engine behind its personal assistant, Siri, replacing Microsoft's Bing. Google's YouTube also remains the default video search engine for iPhones and Mac.

While Google's market share in online search may fluctuate by a couple of percentage points at times, in our view, the company will remain the unquestionable leader for years to come.

One of the larger risks that we see facing Alphabet's Google is what appears to be more focus on social network online advertising, which benefits mainly Facebook. Google's inability to collect data on news feeds within Facebook could reduce the relevance of some search results, and in turn reduce ad dollars flowing to the firm. However, in our opinion, the shift of ad dollars to online remains a strong net positive for Google, even if the firm were to miss out on an even bigger piece of the ad-dollar pie that may go to Facebook. Google also faces the risk of Amazon gaining more share in specific product searches. As consumers continue to increase and at times automate their purchases on the Amazon platform, Amazon may become their default search engine for products. We think these dynamics bear watching.

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Bulls Say/Bears Say

Bulls Say

- As the number of online users and usage increases, so will digital ad spending, of which Google will remain one of the main beneficiaries.
- Android's dominant global market share of smartphones leaves Alphabet's Google well positioned to continue generating top-line growth as search traffic shifts from desktop to mobile.
- The significant cash generated from the Google search business allows Alphabet to remain focused on innovation and the long-term growth opportunities that new areas present.

Bears Say

- There is little revenue diversification within Alphabet, as it remains heavily dependent on Google and the state of the search ad space.
- Alphabet is allocating too much capital toward high-risk bets, which face a very low probability of generating returns.
- Google's dominant position in online search is not sustainable, as more companies and regulatory agencies are contesting the methods through which the company has been extending its leadership.

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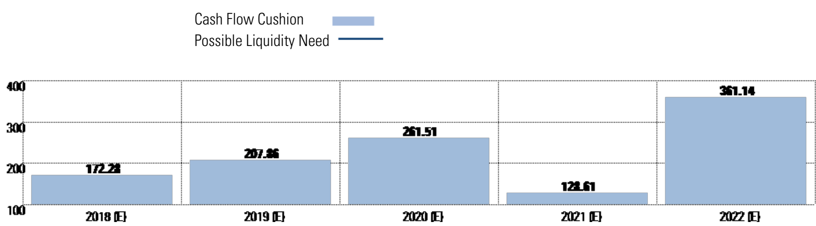
Five Year Adjusted Cash Flow Forecast (USD Mil)

	2018(E)	2019(E)	2020(E)	2021(E)	2022(E)
Cash and Equivalents (beginning of period)	101,871	124,603	145,640	172,719	203,853
Adjusted Available Cash Flow	34,576	34,617	41,603	47,975	54,724
Total Cash Available before Debt Service	136,447	159,219	187,243	220,695	258,577
Principal Payments	—	—	—	-1,000	—
Interest Payments	—	—	—	—	—
Other Cash Obligations and Commitments	-792	-766	-716	-716	-716
Total Cash Obligations and Commitments	-792	-766	-716	-1,716	-716

Cumulative Annual Cash Flow Cushion



Adjusted Cash Flow Summary

	USD Millions	% of Commitments
Beginning Cash Balance	101,871	2,164.7
Sum of 5-Year Adjusted Free Cash Flow	213,495	4,536.7
Sum of Cash and 5-Year Cash Generation	315,366	6,701.4
Revolver Availability	—	—
Asset Adjusted Borrowings (Repayment)	—	—
Sum of Cash, 5-Year Cash Generation, Revolver and Adjustments	315,366	6,701.4
Sum of 5-Year Cash Commitments	-4,706	—

Financial Health

Alphabet has a very strong balance sheet with cash and cash equivalents of $86 billion and total debt of $4 billion as the end of 2016. The company also has a $4 billion revolver with no outstanding balance. Over 60% of the company's cash and cash equivalents is held outside of the U.S. If Alphabet were to use that cash and cash equivalents for operations in the U.S., it would have to pay U.S. taxes to repatriate the funds.The company generated $36 billion cash from operations in 2016, up nearly 40% from 2015. We expect cash from operations to grow more than 13% annually through 2021. While we see continuing strong top-line growth, the slightly lower growth in cash from operations is due to the company's continuing investments in innovation. Alphabet's free cash flow to equity/gross revenue ratio averaged 23% over the past five years, which indicates strong operational and financial health. We model a five-year average FCFE/sales ratio of 23% through 2021.

Enterprise Risk

Our uncertainty rating for Alphabet is high, the result of high dependency on continuing growth in the online advertising space, along with questions as to whether the company's moonshot investments will bear fruit. While we remain confident that Google will maintain its dominant position in the search market, a big downturn in online ad spending could have a negative impact on Alphabet's revenue and cash flow, resulting in a significantly lower fair value estimate. On the other hand, positive returns on Alphabet's investments in moonshots could increase the company's fair value estimate considerably. These two factors support our high uncertainty rating.Alphabet's investments in moonshots have yet to generate positive returns. Given the lack of any sustainable competitive advantages in those businesses, continuing investments in them could affect the company's overall return on invested capital adversely.Although the moat sources of intangible assets and network effect will help Alphabet's Google retain its competitive advantages, minimal switching cost to utilize a rival search engine remains a risk for the company. A large transfer of users and/or usage to competitors would hurt Alphabet's revenue and cash flow, significantly reducing ROIC and our fair value estimate for the company. This risk is discounted as Microsoft's Bing, the nearest competitor to Google's search engine, currently does not have significant presence in the mobile market, which is one of the main growth drivers of the search ad market. The rapid adoption rate of additional online ad platforms, such as Facebook's social network, could lower Alphabet's revenue growth, eliminating operating leverage and creating pressure on operating margin.In addition, Alphabet's Google faces various claims and investigations brought on by different companies and regulatory agencies regarding search bias.

Alphabet Inc GOOG (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Management & Ownership

Management Activity

Name	Position	Shares Held	Report Date*	InsiderActivity
LARRY PAGE	Director	20,013,614	31 Dec 2017	—
SERGEY BRIN	Director	19,332,035	25 May 2018	—
MR. SUNDAR PICHAI	Director	119,581	25 May 2018	24000
K. RAM SHRIRAM	Director	64,112	31 Dec 2017	—
MS. DIANE B. GREENE	Director	39,382	25 May 2018	—
DAVID C. DRUMMOND		39,382	14 May 2018	17070
MS. RUTH M. PORAT		39,382	26 Mar 2018	—
DR. ERIC E. SCHMIDT,PHD	Director	16,475	25 May 2018	—
DR. ERIC E. SCHMIDT,PHD	Director	16,475	25 May 2018	—
MR. SUNDAR PICHAI	Director	13,897	25 May 2018	24000

*Represents the date on which the owner's name, position, and common shares held were reported by the holder or issuer.

Fund Ownership

Top Owners	% of Shares Held	% of Fund Assets	Change (k)	Portfolio Date
Vanguard 500 Index Fund	0.78	1.37	29	30 Apr 2018
VA CollegeAmerica Growth Fund of America	0.76	3.10	1,133	31 Mar 2018
SPDR® S&P 500 ETF	0.51	1.46	-8	01 Jun 2018
SPDR® S&P 500® ETF Trust	0.49	1.37	-82	30 Apr 2018
Fidelity® Contrafund® Fund	0.48	2.72	-158	30 Apr 2018
Concentrated Holders				
Federated Absolute Return Fund	—	28.97	—	31 Mar 2018
STGAR-4	—	11.91	—	28 Feb 2018
STGAR-3	—	10.54	—	28 Feb 2018
Putnam Global Technology Fund	—	10.40	7	31 Mar 2018
Federated Prudent Bear Fd	—	9.91	1	31 Mar 2018

Institutional Transactions

Top 5 Buyers	% of Shares Held	% of Fund Assets	Shares Bought/ Sold (k)	Portfolio Date
Capital Research Global Investors	0.88	1.80	1,107	31 Mar 2018
Lone Pine Capital LLC	0.09	3.26	598	31 Dec 2017
Investment Solutions UTs Ltd	—	0.12	568	31 Mar 2018
Vanguard Group Inc	3.15	0.99	505	31 Mar 2018
TCI Fund Management Limited	0.34	13.54	441	31 Mar 2018
Top 5 Sellers				
Magellan Asset Management Limited	0.04	0.94	-1,748	31 Dec 2017
Fidelity Management and Research Company	1.60	1.46	-1,203	31 Mar 2018
OppenheimerFunds Inc	0.13	1.17	-865	31 Mar 2018
California Public Employees Retrmnt Sys	0.01	0.11	-645	31 Mar 2018
T. Rowe Price Associates, Inc.	1.33	1.52	-620	31 Mar 2018

Management 27 Sep 2017

We assign a Standard stewardship rating to Alphabet's management. It appears that management aims to remain ahead of the pack by acquiring valuable assets to utilize and build upon, as it did with Android, YouTube, DoubleClick, and Motorola Mobility. In addition, Alphabet continues to invest in research and development and various high-risk and high-reward projects, which if successful could generate significant returns for the company. Given the large amount of cash and cash equivalents and low debt on Alphabet's balance sheet, it appears that management continues to make the right decisions regarding capital allocation, as it is more likely to continue making acquisitions and investments in futuristic projects.

In late 2015, Alphabet became a holding company, with Google one of its wholly owned subsidiaries. Alphabet is also the parent company of other businesses, mostly moonshots, which are grouped into the other bets segment that includes Waymo, the firm's autonomous car technology provider. This structure provides more transparency to shareholders, as the company's mature cash-generating business, Google, will be managed separately. In our opinion, this move also could indicate that management is considering some form of redistribution of cash generated by Google to shareholders a few years down the road.

Under this structure, Larry Page, who cofounded Google, is a director and the CEO of parent company Alphabet. Sergey Brin, the other cofounder of Google, is also a director of Alphabet. Sundar Pichai is the CEO of Google. Pichai joined Google in 2004 and was its product chief before becoming CEO in 2015. Susan Wojcicki, who has been with Google since 1999 and convinced Google to acquire YouTube, became CEO of YouTube in 2014. Ruth Porat is CFO of Alphabet and Google. She was CFO at Morgan Stanley before coming to Alphabet in 2015.

Although management's decisions have generated exceptional returns for shareholders in the past, and are likely to continue doing so, we remain watchful regarding the high concentration of voting power. Cofounders Page and Brin and former CEO and current executive chairman Eric E. Schmidt have nearly 60% voting power. In addition, given Alphabet's multiclass share structure, it appears that this high concentration of power will remain intact in the long run, which could result in significant conflict of interest if the cofounders and Schmidt make too many high-risk wagers on futuristic projects. However, we have not seen any indications of this.

Alphabet Inc GOOG (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Analyst Notes

Strong Growth in Google's Advertising and Cloud, but Margin Pressure Persists; Shares Fairly Valued 23 Apr 2018

Alphabet beat expectations on the top and bottom line. Strength in Google's advertising, cloud, and hardware offerings helped accelerate overall revenue growth from a year ago. In our view, Alphabet's network effect and data economic moat sources continue to drive growth in the size and overall usage of Google's ecosystem which help the firm remain the behemoth in online advertising and gain further traction in enterprise cloud. While the better-than-expected first-quarter revenue helped beat expectations on the bottom line, we note that the growing traffic acquisition costs plus further investments in data centers and content acquisitions, continue to push gross margin lower, as we expected. Our fair value estimate of $1,200 is intact as our higher revenue forecast was offset by a slightly lower margin assumption for 2018 and beyond. While Alphabet shares are trading in 3-star territory, we recommend investing in this wide-moat and high uncertainty rated name on any pullback.

Alphabet reported total first-quarter revenue of $31.1 billion, up 26% year over year, on the back of a 24% growth in Google advertising revenue, or $26.6 billion. Such growth was driven not only by continuing increase in video content and more mobile search, but also surprisingly by strength in desktop search. Google's first-quarter ad volume grew 55% over last year, while ad prices, or cost per click, declined 18%. We expect Google's overall ad prices to stabilize a bit as more higher-priced video ads are sold. In addition, we were pleased to hear that the firm is taking steps to help small- and medium-size businesses create and purchase more video ads. The company's YouTube Director offering provides smaller businesses the necessary resources to create professional video ads. According to management, such a service is now available in 170 cities in the U.S. With more advertising from small businesses on YouTube, we expect Google's dependence on search ads to lessen a bit.

Regarding Europe's General Data Protection Regulation, or GDPR, management indicated that such a measure which may limit Google's (and its peers') access to user data likely will not hinder Google's ad revenue growth as the firm is ready to comply. Plus, Google is less dependent on detailed user data as most of its advertising revenue comes from search and not from target advertising.

Google's other segment posted a 41% year-over-year revenue growth to $4.4 billion, driven by strength in cloud, hardware, and Google Play. In addition, revenue from Nest products is now included in Google's other revenue. We estimate the firm generated approximately $200 million from its Nest offerings during the quarter. We expect Alphabet's other revenue to grow at a 26% five-year CAGR, mainly due to Google gaining more traction in the cloud market as it further monetizes its technological expertise in machine learning, for which demand is increasing rapidly.

Alphabet's Other Bets generated $150 million in revenue (excluding Nest), up 14% year over year. Similar to prior quarters, such growth was mainly due to contributions from Fiber and Verily. On the Waymo front, the firm continues to make progress as its self-driving vehicles have now been driven and tested for over 5 million miles, up from 4 million in the fourth-quarter 2017. Plus, Waymo's ride hailing services provided by its self-driving cars in Phoenix are progressing well, according to management. In addition, Waymo continues to work with different car makers as it is now partnering with Jaguar to design and manufacture self-driving electric cars. According to Alphabet, production of those vehicles will begin in 2020.

First-quarter operating margin declined 406 basis points year over year to 22.5% driven mainly by lower gross margin due to higher traffic acquisition costs, content acquisition

Analyst Notes

costs, and costs associated with the firm's growing number of data centers. We do not foresee improvement in gross margin or operating margin in 2018 or 2019 as Alphabet continues to make investments in YouTube and cloud. We have modeled average annual gross and operating margins of 55% and 24% through 2020, down from the 59% and 26% the firm posted in 2017.

Alphabet's Google Gaining Traction in the Cloud Space; Raising FVE to $1200; Shares Fairly Valued 02 Feb 2018
Alphabet reported better-than-expected fourth-quarter revenue and appears to be kicking off 2018 on a bright note, as the firm indicated that its cloud business is generating nearly $1 billion in revenue per quarter. At this rate, the potential $4 billion in Google cloud revenue in 2018 would exceed our expectation. Growth in search and YouTube helped Google's advertising business following another strong quarter. The network effect and data (intangible asset) economic moat sources continue to drive growth in the size and overall usage of Google's ecosystem. The firm did miss our expectations and consensus on the bottom line, as traffic acquisition costs continued to grow. Management expects such costs to stabilize a bit this year. We increased our revenue growth projections for Alphabet, as we see continuing growth in its digital ad business and increased contribution from the Google Cloud Platform. All of this is partially offset by our lower operating margin assumption going forward. After assuming a slightly lower effective tax rate and rolling our model forward, we now value Alphabet at $1200 per share, up from $1100. While Alphabet's mixed fourth-quarter results have pushed the shares down a bit in afterhours trading, we believe the stock remains fairly valued. Based on our valuation, a more attractive entry point for this name would likely be within the $950-$1,000 range.

Alphabet's fourth-quarter revenue grew 24% over the prior year to over $32 billion. Mobile search and YouTube were the main drivers behind its $27 billion ad revenue, up 22% year over year. While the firm's ad revenue exceeded expectations, this was mainly due to higher ad volume, as paid clicks grew 43% over the prior year. Unfortunately, we continue to see decline in cost per click (or ad prices), which came in 14% lower than the prior year. We expect this to continue, given Google's wider range of ad offerings, as some, such as search and display, offset the higher-priced video ads.

Google's fourth-quarter other revenue grew 38% sequentially over the prior year, benefiting from increasing consumer hardware sales during the holiday season. The firm's Google Cloud Platform also contributed to this growth. Management said that the GCP, along with the GSuite offering, is generating around $1 billion in sales per quarter, which we think represents higher potential annual revenue than we had originally forecast in our technology Observer titled "Castles in the Sky: Identifying Moats, Winners, and Losers in the Burgeoning Public Cloud Market." We now estimate GCP can generate revenue over $15 billion by 2022. Other Bets revenue grew 56% year over year during the quarter to $409 million, again benefiting from further growth in sales of Nest products and revenue from Google Fiber and Verily. While Waymo is yet to contribute to Other Bets, it is making headway on various fronts. Waymo's self-driving vehicles have now been driven on public roads for more than 4 million miles, according to the company. In addition, the firm will begin offering driverless ride-sharing in Phoenix likely later this year.

Alphabet's fourth-quarter operating margin of 23.7% came in below expectations and was around 170 basis points lower than the previous year. It appears that Google's traffic-acquisition-cost, or TAC, continues to grow, as it was equivalent to 24% of ad revenue in the quarter, compared with 22% in the prior quarter and 22% in 2016. In fact, after total TAC declined as a percentage of ad revenue in 2013-16, it has been increasing consistently since the third quarter

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Analyst Notes

of 2016. In 2017, total TAC represented 23% of ad revenue up from 21% in 2016 and 2015. We think that part of the increase last year may have been due to a renewed agreement with Apple, which keeps Google as the default search engine on Apple's Safari. Assuming no additional large contracts similar to the one with Apple, we could see some stabilization in TAC, which management also appears to be anticipating. Higher TAC drove overall gross margin down about 300 basis points over the prior year to 56%. We expect a further decline in gross margin in 2018, given Google's additional hardware products, higher traffic acquisition costs, and further investments in content for YouTube Red and YouTube TV.

On the marketing front, it appears that an increase in the number of consumer hardware products (such as Google Home, Pixel, Chromebook, and Nest) is also further driving marketing expenses higher, as the firm must continue competing with the likes of Amazon and Apple. Alphabet's lower general and administrative expenses during the quarter were more than offset by lower gross margin and higher sales and marketing expenses, leading to the decline in operating margin.

Overall, it appears that Alphabet continues to dominate the online search market, which drives the consistent double-digit revenue growth that we have seen so far. We are aware that Google could face further competition from companies such as Amazon in search as more and more product searches are conducted on Amazon. In addition, Amazon is planning to sell more ad inventory to product brands and retailers. With that said, we remain confident that Google can maintain its dominant position in online search as it continues to utilize its consistently improving machine learning technology to provide more accurate and timely responses and recommendations. In our view, the firm is applying the same technology to enhance its YouTube content and ad inventory offerings. As we have seen during the past few quarters, and as we mentioned in our ad hoc report "Fine-Tuning the Picture of Google's YouTube," we expect revenue from YouTube (advertising and subscription revenue) to drive further growth in Google's top line. In our view, Google's focus on consumer hardware is also paying off, as it helps the firm retain most of its users within the entire Google ecosystem for longer. Lastly, we remain confident that Google will continue to make progress toward solidifying its position as the world's third-largest cloud provider as it continues to invest heavily to expand GCP's functions and capabilities to compete with Amazon's AWS and Microsoft's Azure for enterprise IT clients.

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Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Morningstar Analyst Forecasts

Financial Summary and Forecasts

Fiscal Year Ends in December

Growth (% YoY)	3-Year Hist. CAGR	2015	2016	2017	*2018* (Forecast)	*2019* (Forecast)	*5-Year Proj. CAGR*
Revenue	*18.9*	13.6	20.4	22.8	*21.6*	*17.4*	*16.3*
EBIT	*20.5*	17.4	22.5	21.8	*2.2*	*24.0*	*16.1*
EBITDA	*19.1*	15.0	23.4	18.9	*8.8*	*19.5*	*15.3*
Net Income	*-2.4*	16.2	23.1	-35.0	*133.3*	*11.7*	*34.1*
Diluted EPS	*-3.2*	15.2	21.9	-35.5	*133.6*	*12.1*	*34.4*
Earnings Before Interest, after Tax	*2.0*	27.8	25.0	-33.5	*84.3*	*25.4*	*30.9*
Free Cash Flow	*157.9*	749.8	97.6	2.1	*26.3*	*9.6*	*18.9*

Profitability	3-Year Hist. Avg	2015	2016	2017	*2018*	*2019*	*5-Year Proj. Avg*
Operating Margin %	*26.1*	25.8	26.3	26.1	*21.9*	*23.1*	*24.1*
EBITDA Margin %	*39.7*	39.5	40.5	39.2	*35.1*	*35.7*	*36.4*
Net Margin %	*18.0*	21.1	21.6	11.4	*21.9*	*20.9*	*22.1*
Free Cash Flow Margin %	*13.9*	10.4	17.1	14.2	*14.8*	*13.8*	*15.0*
ROIC %	*32.5*	31.8	32.4	33.3	*29.8*	*30.3*	*30.5*
Adjusted ROIC %	*27.9*	26.8	27.9	29.0	*26.6*	*27.4*	*27.9*
Return on Assets %	*10.3*	11.4	12.4	6.9	*13.7*	*13.1*	*13.8*
Return on Equity %	*12.6*	14.1	15.0	8.7	*17.8*	*16.9*	*17.4*

Leverage	3-Year Hist. Avg	2015	2016	2017	*2018*	*2019*	*5-Year Proj. Avg*
Debt/Capital	*0.03*	0.04	0.03	0.03	*0.02*	*0.02*	*0.01*
Total Debt/EBITDA	*0.13*	0.18	0.11	0.09	*0.08*	*0.07*	*0.06*
EBITDA/Interest Expense	—	41.84	46.52	—	—	—	—

Valuation Summary and Forecasts

	2016	2017	*2018(E)*	*2019(E)*
Price/Fair Value	0.92	0.95	—	—
Price/Earnings	27.7	58.3	*26.7*	*23.8*
EV/EBITDA	12.6	14.6	*14.5*	*12.1*
EV/EBIT	19.4	21.9	*23.2*	*18.7*
Free Cash Flow Yield %	4.8	3.3	*4.4*	*4.4*
Dividend Yield %	—	—	—	—

Key Valuation Drivers

Cost of Equity %	9.0
Pre-Tax Cost of Debt %	5.5
Weighted Average Cost of Capital %	9.0
Long-Run Tax Rate %	15.0
Stage II EBI Growth Rate %	7.8
Stage II Investment Rate %	40.4
Perpetuity Year	20

Additional estimates and scenarios available for download at http://select.morningstar.com.

Discounted Cash Flow Valuation

	USD Mil	Firm Value (%)	Per Share Value
Present Value Stage I	105,080	14.5	149.48
Present Value Stage II	277,243	38.2	394.38
Present Value Stage III	343,011	47.3	487.94
Total Firm Value	**725,334**	**100.0**	**1,031.80**
Cash and Equivalents	101,871	—	144.91
Debt	-3,969	—	-5.65
Preferred Stock	—	—	—
Other Adjustments	-2,500	—	-3.56
Equity Value	**820,736**	**—**	**1,167.51**
Projected Diluted Shares	703		
Fair Value per Share (USD)	**1,200.00**		

The data in the table above represent base-case forecasts in the company's reporting currency as of the beginning of the current year. Our fair value estimate may differ from the equity value per share shown above due to our time value of money adjustment and in cases where probability-weighted scenario analysis is performed.

Alphabet Inc GOOG (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Morningstar Analyst Forecasts

Income Statement (USD Mil)
Fiscal Year Ends in December

				Forecast	
	2015	2016	2017	*2018*	*2019*
Revenue	**74,989**	**90,272**	**110,855**	***134,827***	***158,314***
Cost of Goods Sold	28,164	35,138	45,583	*60,472*	*71,608*
Gross Profit	**46,825**	**55,134**	**65,272**	***74,356***	***86,706***
Selling, General & Administrative Expenses	15,183	17,470	19,765	*24,587*	*26,832*
Research & Development	12,282	13,948	16,625	*20,259*	*23,297*
Other Operating Expense (Income)	—	—	—	—	—
Depreciation & Amortization (if reported separately)	—	—	—	—	—
Operating Income (ex charges)	**19,360**	**23,716**	**28,882**	***29,510***	***36,577***
Restructuring & Other Cash Charges	—	—	—	—	—
Impairment Charges (if reported separately)	—	—	—	—	—
Other Non-Cash (Income)/Charges	—	—	2,736	—	—
Operating Income (incl charges)	**19,360**	**23,716**	**26,146**	***29,510***	***36,577***
Interest Expense	708	786	—	—	—
Interest Income	999	1,220	1,047	*5,241*	*2,027*
Pre-Tax Income	**19,651**	**24,150**	**27,193**	***34,750***	***38,604***
Income Tax Expense	3,303	4,672	14,531	*5,213*	*5,598*
Other After-Tax Cash Gains (Losses)	—	—	—	—	—
Other After-Tax Non-Cash Gains (Losses)	—	—	—	—	—
(Minority Interest)	-522	—	—	—	—
(Preferred Dividends)	—	—	—	—	—
Net Income	**15,826**	**19,478**	**12,662**	***29,538***	***33,007***
Weighted Average Diluted Shares Outstanding	693	699	705	*704*	*702*
Diluted Earnings Per Share	**22.84**	**27.85**	**17.96**	***41.96***	***47.02***
Adjusted Net Income	15,826	19,478	12,662	*29,538*	*33,007*
Diluted Earnings Per Share (Adjusted)	**22.84**	**27.85**	**17.96**	***41.96***	***47.02***
Dividends Per Common Share	—	—	—	—	—
EBITDA	**24,423**	**29,860**	**33,061**	***37,749***	***46,113***
Adjusted EBITDA	**29,626**	**36,563**	**43,476**	***47,301***	***56,538***

Alphabet Inc GOOG (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Morningstar Analyst Forecasts

Balance Sheet (USD Mil)

Fiscal Year Ends in December	2015	2016	2017	Forecast 2018	Forecast 2019
Cash and Equivalents	73,066	86,333	101,871	*124,603*	*145,640*
Investments	—	—	—	—	—
Accounts Receivable	11,556	14,137	18,336	*21,708*	*25,838*
Inventory	—	268	749	*994*	*1,177*
Deferred Tax Assets (Current)	251	—	—	—	—
Other Short Term Assets	5,492	4,670	3,352	*4,077*	*4,787*
Current Assets	**90,365**	**105,408**	**124,308**	***151,381***	***177,441***
Net Property Plant, and Equipment	29,016	34,234	42,383	*50,875*	*60,846*
Goodwill	15,869	16,468	16,747	*16,787*	*16,827*
Other Intangibles	3,847	3,307	2,692	*2,236*	*1,776*
Deferred Tax Assets (Long-Term)	—	383	680	*680*	*680*
Other Long-Term Operating Assets	3,181	1,819	2,672	*3,250*	*3,816*
Long-Term Non-Operating Assets	5,183	5,878	7,813	*7,813*	*7,813*
Total Assets	**147,461**	**167,497**	**197,295**	***233,021***	***269,199***
Accounts Payable	1,931	2,041	3,137	*4,162*	*4,928*
Short-Term Debt	3,225	—	—	—	—
Deferred Tax Liabilities (Current)	—	—	881	*730*	*730*
Other Short-Term Liabilities	14,154	14,715	21,046	*27,920*	*33,062*
Current Liabilities	**19,310**	**16,756**	**25,064**	***32,812***	***38,720***
Long-Term Debt	1,995	3,935	3,969	*3,969*	*3,969*
Deferred Tax Liabilities (Long-Term)	189	226	13,242	*12,512*	*11,781*
Other Long-Term Operating Liabilities	5,636	7,544	3,399	*4,189*	*4,682*
Long-Term Non-Operating Liabilities	—	—	—	—	—
Total Liabilities	**27,130**	**28,461**	**45,674**	***53,482***	***59,153***
Preferred Stock	—	—	—	—	—
Common Stock	32,982	36,307	40,247	*40,247*	*40,247*
Additional Paid-in Capital	—	—	—	—	—
Retained Earnings (Deficit)	89,223	105,131	113,247	*142,785*	*175,791*
(Treasury Stock)	—	—	—	*-2,500*	*-5,000*
Other Equity	-1,874	-2,402	-992	*-992*	*-992*
Shareholder's Equity	**120,331**	**139,036**	**152,502**	***179,540***	***210,046***
Minority Interest	—	—	—	—	—
Total Equity	**120,331**	**139,036**	**152,502**	***179,540***	***210,046***

Alphabet Inc GOOG (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Morningstar Analyst Forecasts

Cash Flow (USD Mil)

Fiscal Year Ends in December

				Forecast	
	2015	2016	2017	*2018*	*2019*
Net Income	16,348	19,478	12,662	*29,538*	*33,007*
Depreciation	4,132	5,267	6,103	*7,423*	*8,716*
Amortization	931	877	812	*816*	*820*
Stock-Based Compensation	5,203	6,703	7,679	*9,553*	*10,425*
Impairment of Goodwill	—	—	—	—	—
Impairment of Other Intangibles	—	—	—	—	—
Deferred Taxes	-179	-38	258	*-881*	*-730*
Other Non-Cash Adjustments	-2	449	331	—	—
(Increase) Decrease in Accounts Receivable	-2,094	-2,578	-3,768	*-3,372*	*-4,130*
(Increase) Decrease in Inventory	—	—	—	*-245*	*-183*
Change in Other Short-Term Assets	-497	3,437	6,047	*-725*	*-710*
Increase (Decrease) in Accounts Payable	203	110	731	*1,025*	*766*
Change in Other Short-Term Liabilities	1,979	2,331	6,236	*6,874*	*5,142*
Cash From Operations	**26,024**	**36,036**	**37,091**	***50,006***	***53,122***
(Capital Expenditures)	-9,915	-9,972	-13,085	*-15,915*	*-18,687*
Net (Acquisitions), Asset Sales, and Disposals	-236	-986	-287	*-400*	*-400*
Net Sales (Purchases) of Investments	-11,463	-17,614	-18,236	—	—
Other Investing Cash Flows	-2,097	-2,593	207	*212*	*-73*
Cash From Investing	**-23,711**	**-31,165**	**-31,401**	***-16,103***	***-19,160***
Common Stock Issuance (or Repurchase)	-1,780	-3,693	-4,846	*-2,500*	*-2,500*
Common Stock (Dividends)	—	—	—	—	—
Short-Term Debt Issuance (or Retirement)	-23	-1,335	-86	—	—
Long-Term Debt Issuance (or Retirement)	—	—	—	—	—
Other Financing Cash Flows	-1,874	-3,304	-3,366	*-9,553*	*-10,425*
Cash From Financing	**-3,677**	**-8,332**	**-8,298**	***-12,053***	***-12,925***
Exchange Rates, Discontinued Ops, etc. (net)	-434	-170	405	—	—
Net Change in Cash	**-1,798**	**-3,631**	**-2,203**	***21,851***	***21,038***

Alphabet Inc GOOG (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Comparable Company Analysis

These companies are chosen by the analyst and the data are shown by nearest calendar year in descending market capitalization order.

Valuation Analysis

		Price/Earnings			EV/EBITDA			Price/Free Cash Flow			Price/Book			Price/Sales		
Company/Ticker	Price/Fair Value	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	1.09	16.7	*16.0*	*14.1*	11.6	*11.8*	*11.2*	15.6	*13.7*	*14.8*	—	—	—	3.5	*3.6*	*3.5*
Amazon.com Inc AMZN USA	0.86	190.2	*149.8*	*90.6*	36.2	*35.3*	*27.4*	67.3	*38.0*	*33.4*	—	—	—	3.2	*3.3*	*2.6*
Microsoft Corp MSFT USA	0.83	21.2	*26.2*	*24.3*	12.9	*16.0*	*14.4*	16.9	*15.0*	*23.0*	—	—	—	5.5	*7.0*	*6.4*
Facebook Inc FB USA	0.98	32.7	*27.2*	*22.3*	17.6	*15.8*	*13.3*	29.3	*39.2*	*23.3*	—	—	—	12.6	*10.3*	*8.4*
Verizon Communications Inc VZ USA	0.92	7.2	*11.4*	*10.7*	7.4	*6.9*	*6.7*	26.8	*12.0*	*10.4*	—	—	—	1.7	*1.5*	*1.5*
Average		53.6	*46.1*	*32.4*	17.1	*17.2*	*14.6*	31.2	*23.6*	*21.0*	—	—	—	5.3	*5.1*	*4.5*
Alphabet Inc GOOG US	**0.93**	**58.3**	***26.7***	***23.8***	**14.6**	***14.5***	***12.1***	**30.4**	***23.0***	***22.7***	**—**	**—**	**—**	**6.6**	***5.8***	***4.9***

Returns Analysis

		ROIC %			Adjusted ROIC %			Return on Equity %			Return on Assets %			Dividend Yield %		
Company/Ticker	Last Historical Year Total Assets (Mil)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	375,319 USD	90.3	*87.7*	*58.7*	98.1	*94.0*	*62.7*	36.9	*46.7*	*62.4*	13.9	*15.3*	*16.9*	1.6	*1.4*	*1.7*
Amazon.com Inc AMZN USA	131,310 USD	15.0	*20.7*	*45.8*	23.8	*36.9*	*115.4*	12.9	*18.0*	*24.0*	2.8	*3.5*	*4.6*	—	—	—
Microsoft Corp MSFT USA	— USD	24.4	*57.4*	*29.8*	16.7	*37.6*	*19.8*	29.9	*18.6*	*39.9*	11.3	*6.1*	*12.2*	2.3	*1.7*	*1.8*
Facebook Inc FB USA	84,524 USD	50.1	*44.2*	*38.8*	35.0	*33.8*	*31.6*	23.9	*25.0*	*24.0*	21.3	*22.1*	*21.5*	—	—	—
Verizon Communications Inc VZ USA	257,143 USD	4.1	*11.5*	*11.4*	3.6	*10.1*	*10.0*	91.7	*36.6*	*33.6*	12.0	*6.6*	*7.0*	4.4	*5.0*	*5.1*
Average		36.8	*44.3*	*36.9*	35.4	*42.5*	*47.9*	39.1	*29.0*	*36.8*	12.3	*10.7*	*12.4*	2.8	*2.7*	*2.9*
Alphabet Inc GOOG US	**197,295** USD	**33.3**	***29.8***	***30.3***	**29.0**	***26.6***	***27.4***	**8.7**	***17.8***	***16.9***	**6.9**	***13.7***	***13.1***	**—**	**—**	**—**

Growth Analysis

		Revenue Growth %			EBIT Growth %			EPS Growth %			Free Cash Flow Growth %			Dividend/Share Growth %		
Company/Ticker	Last Historical Year Revenue (Mil)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	229,234 USD	6.3	*13.3*	*2.2*	2.2	*12.1*	*2.3*	10.8	*28.8*	*14.1*	-7.7	*35.8*	*-8.9*	10.1	*13.3*	*15.4*
Amazon.com Inc AMZN USA	177,866 USD	30.8	*34.9*	*25.4*	-1.9	*84.2*	*65.5*	25.5	*78.0*	*65.4*	-240.7	*-307.1*	*7.9*	—	—	—
Microsoft Corp MSFT USA	96,571 USD	5.9	*14.0*	*10.2*	7.9	*17.5*	*12.4*	27.0	*18.2*	*7.8*	-78.2	*566.6*	*-17.7*	8.3	*7.7*	*7.0*
Facebook Inc FB USA	40,653 USD	47.1	*34.7*	*21.8*	62.6	*20.6*	*21.8*	54.3	*32.3*	*22.1*	62.2	*-24.1*	*96.1*	—	—	—
Verizon Communications Inc VZ USA	126,034 USD	0.0	*1.9*	*1.5*	1.3	*2.5*	*1.2*	129.1	*-43.2*	*7.2*	-14.4	*39.1*	*13.4*	2.2	*2.1*	*2.1*
Average		18.0	*19.8*	*12.2*	14.4	*27.4*	*20.6*	49.3	*22.8*	*23.3*	-55.8	*62.1*	*18.2*	6.9	*7.7*	*8.2*
Alphabet Inc GOOG US	**110,855** USD	**22.8**	***21.6***	***17.4***	**21.8**	***2.2***	***24.0***	**-35.5**	***133.6***	***12.1***	**2.1**	***26.3***	***9.6***	**—**	**—**	**—**

Alphabet Inc GOOG (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media

Comparable Company Analysis

These companies are chosen by the analyst and the data are shown by nearest calendar year in descending market capitalization order.

Profitability Analysis

Company/Ticker	Last Historical Year Net Income (Mil)	Gross Margin %			EBITDA Margin %			Operating Margin %			Net Margin %			Free Cash Flow Margin %		
		2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	48,351 USD	38.5	38.3	39.0	31.2	31.6	32.7	26.8	26.5	26.5	21.1	22.1	22.6	22.3	26.3	23.8
Amazon.com Inc AMZN USA	3,033 USD	37.1	38.9	39.7	8.8	9.4	9.7	2.3	3.2	4.2	1.7	2.3	3.0	4.7	8.7	7.9
Microsoft Corp MSFT USA	25,489 USD	64.5	64.6	65.0	39.2	40.8	41.2	30.4	31.3	31.9	26.4	27.0	26.0	32.5	46.8	27.8
Facebook Inc FB USA	15,934 USD	86.6	85.0	85.0	66.3	59.7	58.4	49.7	44.5	44.5	39.2	38.5	38.5	43.0	26.2	36.1
Verizon Communications Inc VZ USA	30,101 USD	59.1	61.3	61.3	35.2	35.8	35.9	21.8	21.9	21.8	23.9	13.3	14.1	6.4	12.8	14.6
Average		57.2	57.6	58.0	36.1	35.5	35.6	26.2	25.5	25.8	22.5	20.6	20.8	21.8	24.2	22.0
Alphabet Inc GOOG US	**12,662** USD	**58.9**	**55.2**	**54.8**	**39.2**	**35.1**	**35.7**	**26.1**	**21.9**	**23.1**	**11.4**	**21.9**	**20.9**	**21.7**	**25.3**	**21.8**

Leverage Analysis

Company/Ticker	Last Historical Year Total Debt (Mil)	Debt/Equity %			Debt/Total Cap %			EBITDA/Interest Exp.			Total Debt/EBITDA			Assets/Equity		
		2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	115,680 USD	86.3	111.7	144.9	46.3	52.8	59.2	30.8	26.4	29.1	1.6	1.5	1.3	2.8	3.4	4.1
Amazon.com Inc AMZN USA	24,743 USD	89.3	125.6	98.7	47.2	55.7	49.7	18.4	22.1	25.9	1.6	1.8	1.4	4.7	5.4	5.1
Microsoft Corp MSFT USA	86,194 USD	98.3	99.2	92.4	49.6	49.8	48.0	-43.2	-32.9	-100.0	2.3	1.7	1.5	2.9	3.3	3.2
Facebook Inc FB USA	— USD	—	—	—	—	—	—	—	—	—	—	—	—	1.1	1.1	1.1
Verizon Communications Inc VZ USA	117,095 USD	271.7	225.3	187.6	73.1	69.3	65.2	9.4	9.5	10.0	2.6	2.5	2.4	6.0	5.2	4.5
Average		136.4	140.5	130.9	54.1	56.9	55.5	3.8	6.3	-8.8	2.0	1.9	1.7	3.5	3.7	3.6
Alphabet Inc GOOG US	**3,969** USD	**2.6**	**2.2**	**1.9**	**2.5**	**2.2**	**1.9**	**—**	**—**	**—**	**0.1**	**0.1**	**0.1**	**1.3**	**1.3**	**1.3**

Liquidity Analysis

Company/Ticker	Market Cap (Mil)	Cash per Share			Current Ratio			Quick Ratio			Cash/Short-Term Debt			Payout Ratio %		
		2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)	2017	2018(E)	2019(E)
Apple Inc AAPL USA	935,056 USD	51.20	53.69	48.98	3.21	3.17	2.70	3.16	3.12	2.65	14.56	12.45	9.92	26.1	22.9	23.2
Amazon.com Inc AMZN USA	796,519 USD	41.64	106.60	141.14	1.04	1.39	1.43	0.76	1.11	1.16	—	—	—	—	—	—
Microsoft Corp MSFT USA	774,390 USD	16.98	17.31	17.94	2.92	2.95	2.73	2.88	2.91	2.70	13.14	127.47	34.10	47.9	84.7	43.4
Facebook Inc FB USA	561,529 USD	14.11	17.26	23.77	12.92	10.76	11.93	12.92	10.76	11.93	—	—	—	—	—	—
Verizon Communications Inc VZ USA	197,546 USD	0.51	1.19	2.49	0.91	1.03	1.09	0.87	1.00	1.07	0.60	1.47	1.62	31.7	57.0	54.3
Average		24.89	39.21	46.86	4.20	3.86	3.98	4.12	3.78	3.90	9.43	47.13	15.21	35.2	54.9	40.3
Alphabet Inc GOOG US	**782,904** USD	**144.48**	**176.99**	**207.47**	**4.96**	**4.61**	**4.58**	**4.93**	**4.58**	**4.55**	**—**	**—**	**—**	**—**	**—**	**—**

Research Methodology for Valuing Companies

Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, in-depth competitive advantage analysis, and a variety of other analytical tools to augment this process. Moreover, we think analyzing valuation through discounted cash flows presents a better lens for viewing cyclical companies, high-growth firms, businesses with finite lives (e.g., mines), or companies expected to generate negative earnings over the next few years. That said, we don't dismiss multiples altogether but rather use them as supporting cross-checks for our DCF-based fair value estimates. We also acknowledge that DCF models offer their own challenges (including a potential proliferation of estimated inputs and the possibility that the method may miss short-term market-price movements), but we believe these negatives are mitigated by deep analysis and our long-term approach.

Morningstar's equity research group ("we", "our") believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stocks identifies stocks trading at a discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk-adjusted discount to their fair values, whereas 1-star stocks trade at premiums to their intrinsic worth.

Four key components drive the Morningstar rating: (1) our assessment of the firm's economic moat, (2) our estimate of the stock's fair value, (3) our uncertainty around that fair value estimate and (4) the current market price. This process ultimately culminates in our single-point star rating.

1. Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define economic profits as returns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to remain for at least 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe low-quality, no-moat companies will see their normalized returns gravitate toward the firm's cost of capital more quickly than companies with moats.

To assess the sustainability of excess profits, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger; stable where we don't anticipate changes to competitive advantages over the next several years; or negative when we see signs of deterioration.

2. Estimated Fair Value

Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than the returns of narrow-moat firms, and both will fade slower than no-moat firms, increasing our estimate of their intrinsic value.

Morningstar Research Methodology for Valuing Companies

Economic Moat
Financial Health
Stewardship
Uncertainty
Moat Trend

Morningstar Fair Value

Margin of Safety
Market Pricing

Morningstar Rating™ For Stocks
★★★★★

Our model is divided into three distinct stages:

Stage I: Explicit Forecast

In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in working-capital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes (EBI) and the net new investment (NNI) to derive our annual free cash flow forecast.

Stage II: Fade

The second stage of our model is the period it will take the company's return on new invested capital—the return on capital of the next dollar invested ("RONIC")—to decline (or rise) to its cost of capital. During the Stage II period, we use a formula to approximate cash flows in lieu of explicitly modeling the income statement, balance sheet, and cash flow statement as we do in Stage I. The length of the second stage depends on the strength of the company's economic moat. We forecast this period to last anywhere from one year (for companies with no economic moat) to 10–15 years or more (for wide-moat companies). During this period, cash flows are forecast using four assumptions: an average growth rate for EBI over the period, a normalized investment rate, average return on new invested capital (RONIC), and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until a perpetuity value is calculated. In the case of firms that do not earn their cost of capital, we assume marginal ROICs rise to the firm's cost of capital (usually attributable to less reinvestment), and we may truncate the second stage.

Stage III: Perpetuity

Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with estimated WACC.

Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total pres-

Research Methodology for Valuing Companies

ent value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return to all capital providers—we discount future cash flows using the WACC, which is a weighted average of the costs of equity, debt, and preferred stock (and any other funding sources), using expected future proportionate long-term, market-value weights.

3. Uncertainty around that fair value estimate

Morningstar's Uncertainty Rating captures a range of likely potential intrinsic values for a company and uses it to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating represents the analysts' ability to bound the estimated value of the shares in a company around the Fair Value Estimate, based on the characteristics of the business underlying the stock, including operating and financial leverage, sales sensitivity to the overall economy, product concentration, pricing power, and other company-specific factors.

Analysts consider at least two scenarios in addition to their base case: a bull case and a bear case. Assumptions are chosen such that the analyst believes there is a 25% probability that the company will perform better than the bull case, and a 25% probability that the company will perform worse than the bear case. The distance between the bull and bear cases is an important indicator of the uncertainty underlying the fair value estimate.

Our recommended margin of safety widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the estimated value of the equity, the greater the discount we require relative to our estimate of the value of the firm before we would recommend the purchase of the shares. In addition, the uncertainty rating provides guidance in portfolio construction based on risk tolerance.

Our uncertainty ratings for our qualitative analysis are low, medium, high, very high, and extreme.

- ►**Low:** margin of safety for 5-star rating is a 20% discount and for 1-star rating is 25% premium.
- ►**Medium:** margin of safety for 5-star rating is a 30% discount and for 1-star rating is 35% premium.
- ►**High:** margin of safety for 5-star rating is a 40% discount and for 1-star rating is 55% premium.
- ►**Very High:** margin of safety for 5-star rating is a 50% discount and for 1-star rating is 75% premium.
- ►**Extreme:** Stock's uncertainty exceeds the parameters we have set for assigning the appropriate margin of safety.

4. Market Price

The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

For more detail information about our methodology, please go to http://global.morningstar.com/equitydisclosures

Morningstar Star Rating for Stocks

Once we determine the fair value estimate of a stock, we compare it with the stock's current market price on a daily basis, and the star rating is automatically re-calculated at the market close on every day the market on which the stock is listed is open. Our analysts keep close tabs on the companies they follow, and, based on thorough and ongoing analysis, raise or lower their fair value estimates as warranted.

Please note, there is no predefined distribution of stars. That is, the percentage of stocks that earn 5 stars can fluctuate daily, so the star ratings, in the aggregate, can serve as a gauge of the broader market's valuation. When there are many 5-star stocks, the stock market as a whole is more undervalued, in our opinion, than when very few companies garner our highest rating.

We expect that if our base-case assumptions are true the market price will converge on our fair value estimate over time, generally within three years (although it is impossible to predict the exact time frame in which market prices may adjust).

Our star ratings are guideposts to a broad audience and individuals must consider their own specific investment goals, risk tolerance, tax situation, time horizon, income needs, and complete investment portfolio, among other factors.

The Morningstar Star Ratings for stocks are defined below:

Five Stars ★★★★★

We believe appreciation beyond a fair risk-adjusted return is highly likely over a multiyear time frame. Scenario analysis developed by our analysts indicates that the current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

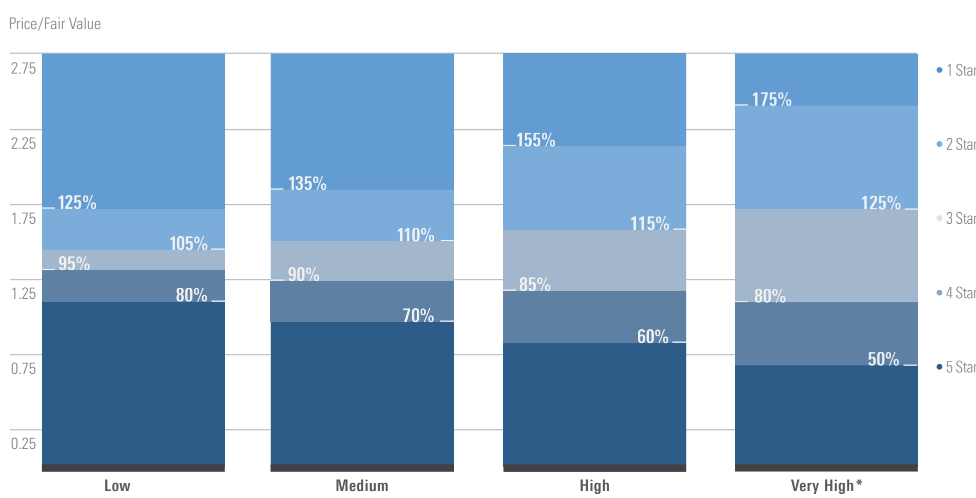
Four Stars ★★★★

We believe appreciation beyond a fair risk-adjusted return is likely.

Three Stars ★★★

Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

Morningstar Research Methodology for Valuing Companies



* Occasionally a stock's uncertainty will be too high for us to estimate, in which case we label it Extreme.

Two Stars ★★
We believe investors are likely to receive a less than fair risk-adjusted return.

One Star ★
Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multiyear time frame, based on our analysis. Scenario analysis by our analysts indicates that the market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

Other Definitions:

Last Price: Price of the stock as of the close of the market of the last trading day before date of the report.

Stewardship Rating: Represents our assessment of management's stewardship of shareholder capital, with particular emphasis on capital allocation decisions. Analysts consider companies' investment strategy and valuation, financial leverage, dividend and share buyback policies, execution, compensation, related party transactions, and accounting practices. Corporate governance practices are only considered if they've had a demonstrated impact on shareholder value. Analysts assign one of three ratings: "Exemplary," "Standard," and "Poor." Analysts judge stewardship from an equity holder's perspective. Ratings are determined on an absolute basis. Most companies will receive a Standard rating, and this is the default rating in the absence of evidence that managers have made exceptionally strong or poor capital allocation decisions.

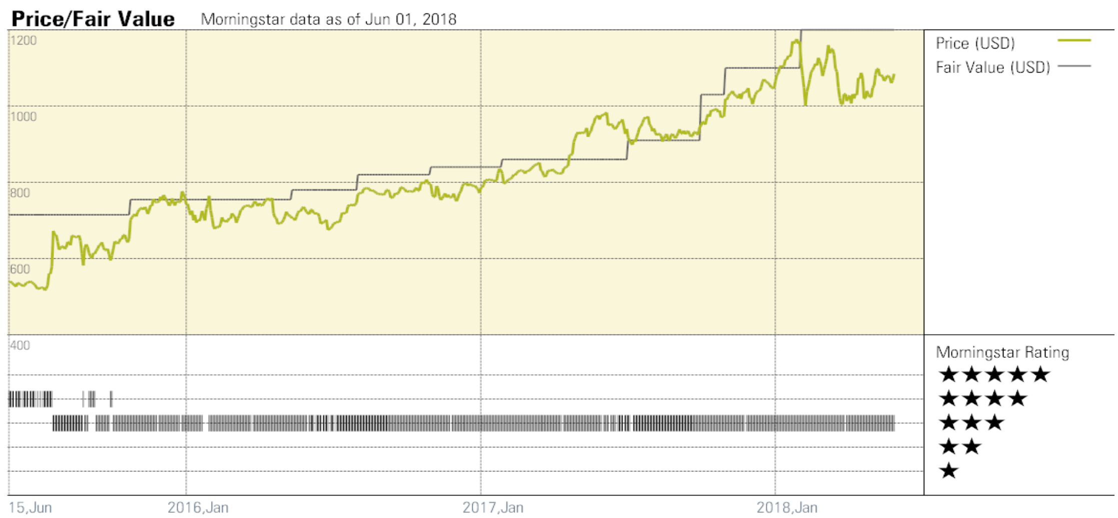
Quantitative Valuation: Using the below terms, intended to denote the relationship between the security's Last Price and Morningstar's quantitative fair value estimate for that security.

- ►**Undervalued:** Last Price is below Morningstar's quantitative fair value estimate.
- ►**Farily Valued:** Last Price is in line with Morningstar's quantitative fair value estimate.
- ►**Overvalued:** Last Price is above Morningstar's quantitative fair value estimate.

Risk Warning
Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report. Morningstar's Uncertainty Rating serves as a useful data point with respect to sensitivity analysis of the assumptions used in our determining a fair value price.

Alphabet Inc GOOG (NAS) | ★★★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
1,119.50 USD	1,200.00 USD	High	Wide	Stable	Standard	Online Media



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UPDATE

June 1, 2018 04:01 AM GMT

Alphabet Inc.

Way Mo(re) Cars On The Way

Stock Rating	Industry View	Price Target
Overweight	In-Line	$1,200.00

Waymo's plans to add 62K autonomous Chrysler Pacifica minivans is a major step in mass deployment...a fleet size ~5X larger than NYC yellow taxi medallions and a ~$15bn total capital commitment (between Waymo/automakers). Following Softbank's investment in GM Cruise, the AV arms race is heating up.

What Happened: Waymo and FCA (covered by Adam Jonas) today announced an agreement to add up to 62,000 Chrysler Pacifica Hybrid minivans to Waymo's self-driving fleet. The announcement builds upon Waymo's previous commitment to add "thousands" of additional Chrysler Pacifica minivans. We note that Waymo currently has 600 of FCA's minivans and vehicle delivery of the expanded fleet is expected to begin in late 2018. More important, the companies are in discussions about the use of Waymo self-driving technology (potentially through licensing) in a FCA-manufactured vehicle available to retail customers. We offer 5 key thoughts below:

1. Taking Steps to Scale... We view the announcement as another example of Waymo taking steps for how it could scale its self-driving fleet. Waymo is currently testing the Chrysler Pacifica minivans in 25 US cities as it prepares to launch its autonomous ride-hailing service (currently being tested in Phoenix, AZ) later this year. Waymo also recently struck a deal to add 20,000 all-electric Jaguar I-Pace SUVs (vehicle delivery expected to begin in 2019). For perspective, our ~$75bn Waymo valuation (see our May 23, 2017 report A $70bn Waymo?) assumes it can grow to ~1% of global miles driven by 2030 (based on a fleet of ~3mn cars each driving ~65k miles/year) and that Waymo can generate an average of ~$1.25 in revenue per mile driven (see Exhibit 1).

2. ...and Monetize (Ride-Hailing, Personal Use, Logistics, Public Transportation): Monetization paths for Waymo has been a common question among investors and we think the potential of licensing revenue speaks to the opportunity for multiple revenue streams. In addition to the ride-hailing service and licensing Waymo's technology to automakers, Waymo has also expressed interest in/currently testing: co-creating an autonomous self-delivery vehicle with Honda, self-driving trucks delivering freight for GOOGL's data centers, and working with cities to address public transportion. On ride-hailing, we note that Uber recently indicated it is in discussions to have Waymo self-driving cards added to its networks, which can further long-term integration of Waymo into ride-sharing.

3. Risk Mitigation and Liability Containment: We see Waymo facing material regulatory and likely legal risk as it continues to drive the autonomous vehicle

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Alphabet Inc. (GOOGL.O, GOOGL US)

Internet / United States of America

Stock Rating	**Overweight**
Industry View	**In-Line**
Price target	**$1,200.00**
Shr price, close (May 31, 2018)	$1,100.00
Mkt cap, curr (mm)	$794,402
52-Week Range	$1,198.00-915.31

transition. This is risk that parent company Alphabet may not necessarily wish to be directly exposed to. Aside from legal risks, we also believe that a potential Waymo spin could be a key next step in GOOGL's potential to improve disclosure and transparency… and that it could act as a catalyst for investors to shift towards a sum-of-the-parts valuation for Alphabet (see 1 Trillion Reasons for GOOGL to Improve Disclosure).

4. Capital Commitment May Start to Register: Our Autos team estimates a L4 Pacifica minivan costs around $250K to manufacture and could cost at least $100K per year to operate (maintenance, data and human operator time). While unclear what the phasing of vehicle delivery and shared investment between Waymo and the automakers, a fleet of ~60K cars over the next few years would amount to as much as ~$15bn in capital commitment. For perspective, GOOGL/FCA capex on a 1Q:18 LTM basis was ~$18bn/~EUR 8bn.

5. 60,000+ Vehicles is Significant in AV Land: While these are early days and the landscape is very fluid, we expect the entire market (all players) for L4 + L5 vehicles to be ~50K units in operation in the US by 2020 and ~90K units by 2021 (see Exhibit 6).

Analysis

Exhibit 1: Our ~$75bn Waymo valuation assumes it can grow to ~1% of global miles driven by 2030 (based on a fleet of ~3mn cars each driving ~65k miles/year) and that it can generate an average of ~$1.25 in revenue per mile driven

Waymo DCF Analysis

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Car Fleet	1,000	4,000	12,000	33,600	84,000	193,200	386,400	734,160	1,321,488	1,850,083	2,405,108	2,838,028	3,121,830
% growth		300%	200%	180%	150%	130%	100%	90%	80%	40%	30%	18%	10%
Miles/Car	40,000	41,600	43,264	44,995	46,794	48,666	50,613	52,637	54,743	56,932	59,210	61,578	64,041
% growth		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Total Miles (bn)	0.0	0.2	0.5	1.5	3.9	9.4	19.6	38.6	72.3	105.3	142.4	174.8	199.9
% growth		316%	212%	191%	160%	139%	108%	98%	87%	46%	35%	23%	14%
Global Miles Traveled (bn)	11,493	12,005	12,526	13,043	13,584	14,224	14,878	15,551	16,259	17,058	17,919	18,796	19,674
Waymo Mobility Share %	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.1%*	*0.2%*	*0.4%*	*0.6%*	*0.8%*	*0.9%*	*1.0%*
Revenue Drivers													
Rev/Mile ($)	1.50	1.46	1.41	1.37	1.33	1.29	1.25	1.21	1.18	1.14	1.11	1.07	1.04
% growth		(3%)	(3%)	(3%)	(3%)	(3%)	(3%)	(3%)	(3%)	(3%)	(3%)	(3%)	(3%)
Total Revenue ($mm)	**60**	**242**	**733**	**2,070**	**5,220**	**12,111**	**24,435**	**46,836**	**85,046**	**120,112**	**157,520**	**187,510**	**208,076**
% growth		304%	203%	182%	152%	132%	102%	92%	82%	41%	31%	19%	11%
Operating Profit ($mm)	**(9)**	**(24)**	**(37)**	**0**	**104**	**484**	**1,222**	**2,810**	**5,953**	**9,609**	**12,602**	**15,001**	**16,646**
Margin (%)	(15%)	(10%)	(5%)	0%	2%	4%	5%	6%	7%	8%	8%	8%	8%
Tax Rate (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
NOPAT ($mm)	**(7)**	**(18)**	**(27)**	**0**	**78**	**363**	**916**	**2,108**	**4,465**	**7,207**	**9,451**	**11,251**	**12,485**

Fair value 12 months FV	
PV of FCF ($mm)	18,543
NPV of terminal Value ($mm)	56,828
Enterprise Value	**75,371**

DCF Valuation Assumptions	
WACC	**10.0%**
Perpetual Growth Rate	3.0%

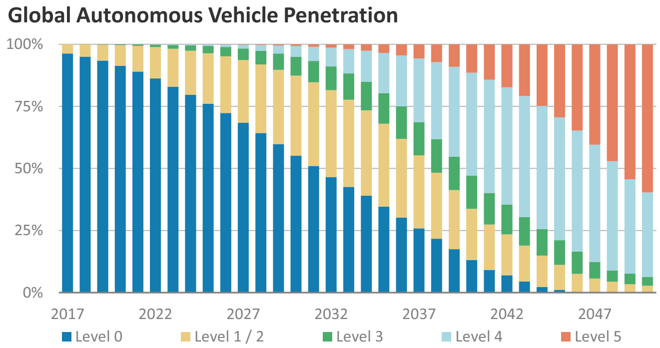
Source: Company data, Morgan Stanley Research

Exhibit 2: Waymo continues to build and expand partnerships with key players such as automakers

Waymo Partner	Date Announced	Nature of Partnership
Chrysler	05/03/16	Building Pacifica autonomous vehicles
Lyft	05/14/17	Ride-hailing product development
Avis	06/26/17	Servicing and housing self-driving fleet
Intel	09/18/17	Producing self-driving sensors and hardware
Autonation	11/02/17	Servicing self-driving fleet
Trov	12/19/17	Insuring autonomous vehicles
Jaguar Land Rover	03/27/18	Building I-PACE autonomous vehicles
Honda	04/02/18	Building cars/transport vehicles
Chrysler	05/31/18	Building AVs both for Waymo and retail buyers

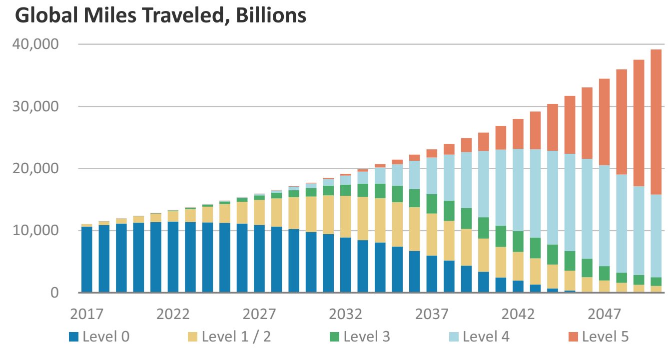
Source: Company data, Morgan Stanley Research

Exhibit 3: Global AV Miles Penetration



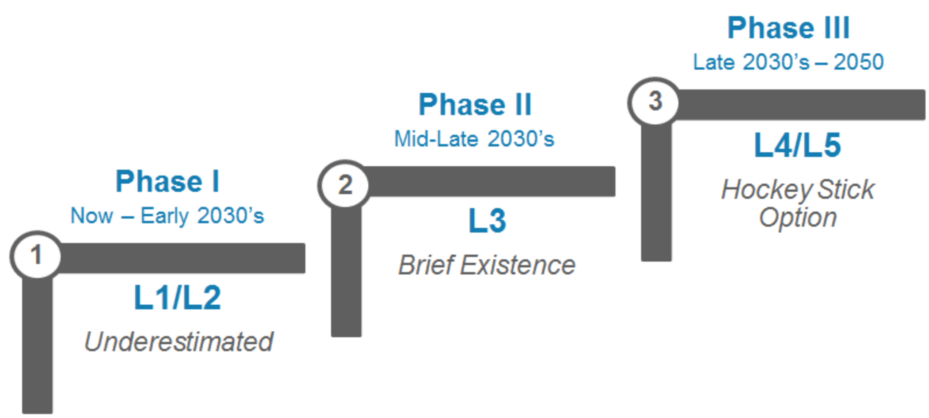
Source: Morgan Stanley Research estimates

Exhibit 4: Global Miles Traveled



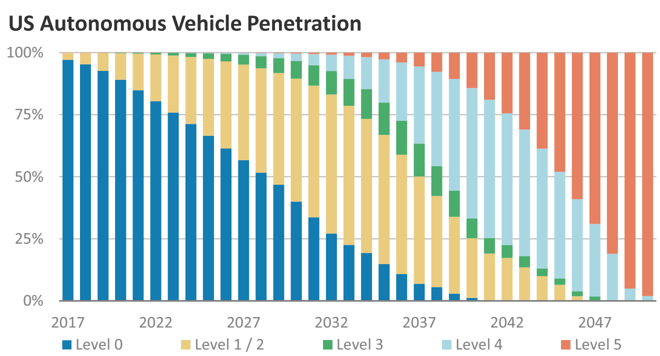
Source: Morgan Stanley Research estimates

Exhibit 5: Autonomy Level Phases



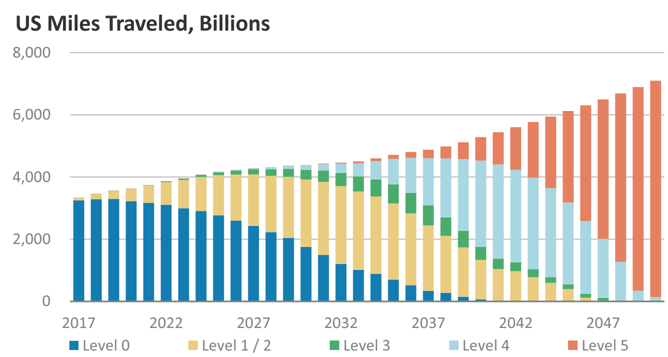
Source: Morgan Stanley Research

Exhibit 6: US AV Miles Penetration



Source: Morgan Stanley Research estimates

Exhibit 7: US Miles Traveled



Source: Morgan Stanley Research estimates

Valuation Methodology & Risks

Alphabet (GOOGL)

Our $1,200 price target is based on our discounted cash flow valuation and implies ~13X 2019e adjusted EBITDA of ~$60bn. We deduct the present value of the "Other Bets" losses to arrive at our price target of $1,200. We use a ~7% WACC and a ~2% terminal growth rate (in line with other growth-oriented internet companies).

Risks to Achieving Price Target:

•Search is a key component of GOOGL's advertising business. While we believe Search will continue to take share of global ad budgets and Google will retain its dominant share, growth in US and UK markets has slowed.

•Improved disclosure around the Google Inc. and Other Alphabet segments may not decrease the overall investment activity of the business.

•Deterioration in the advertising market, particularly as vast majority of revenue is driven by advertising.

•Negative resolution of EU antitrust probe.

Fiat Chrysler Automobiles NV (FCA)

Price target of $28 (€23 for FCHA.MI) is based on a Sum-of-the-Parts (SOTP) analysis that is comprised mainly of our valuation for the Jeep business (~€20.0/share at 4.0x EBITDA) and the Ram franchise (~€8/share at 4.5x EBITDA). Our SOTP model includes a valuation for Alfa Romeo at -€2bn, Dodge at -€1bn, Chrysler at -€1.5bn, Fiat at €0, Fiat Professional at €2.9bn, Maserati at €6.9bn and Components at €5.7bn. After adjusting for ~€2.4bn in net industrial debt, €5.3bn in legacy liabilities (after-tax) and €2bn in intercompany eliminations, we apply a ~20% discount to our SotP for a PT of €23. EUR/USD of 1.20 for US-listed FCAU.N shares.

Risks to Achieving Price Target

•US cycle 'value of SAAR' is peaking, deflation reigns. FCA gets 60%+ of global profit from N. America.

•Limited content opportunity in world of shared, autonomous electric vehicles. New entrants (TSLA, AAPL, GOOG) compete for precious human resources especially in tech and software development.

•European business still structurally challenged. Even with major cost improvements, we estimate FCA makes little more than a 0% margin in EU long term.

•Key man risk. Execution of turnaround strategy highly dependent on CEO Sergio Marchionne.

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Global Stock Ratings Distribution

(as of May 31, 2018)

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	COVERAGE UNIVERSE		INVESTMENT BANKING CLIENTS (IBC)			OTHER MATERIAL INVESTMENT SERVICES CLIENTS (MISC)	
STOCK RATING CATEGORY	COUNT	% OF TOTAL	COUNT	% OF TOTAL IBC	% OF RATING CATEGORY	COUNT	% OF TOTAL OTHER MISC
Overweight/Buy	**1172**	**38%**	**289**	**40%**	**25%**	**551**	**39%**
Equal-weight/Hold	**1338**	**43%**	**354**	**49%**	**26%**	**639**	**46%**
Not-Rated/Hold	**53**	**2%**	**5**	**1%**	**9%**	**7**	**0%**
Underweight/Sell	**533**	**17%**	**77**	**11%**	**14%**	**207**	**15%**
TOTAL	**3,096**		**725**			**1404**	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

Analyst Stock Ratings

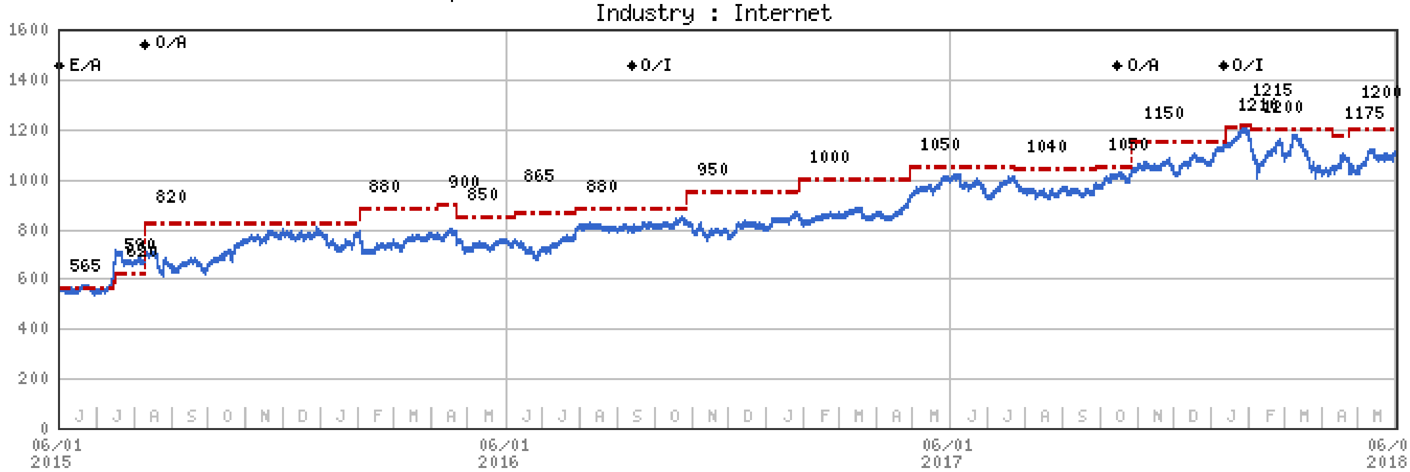
Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.
Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.
Not-Rated (NR). Currently the analyst does not have adequate conviction about the stock's total return relative to the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.
Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.
Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

Analyst Industry Views

Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.
In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.
Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.
Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Stock Price, Price Target and Rating History (See Rating Definitions)

Alphabet Inc. (GOOGL.O) - As of 5/31/18 in USD
Industry : Internet



Stock Rating History: 6/1/15 : E/A; 8/11/15 : O/A; 9/12/16 : O/I; 10/16/17 : O/A; 1/10/18 : O/I

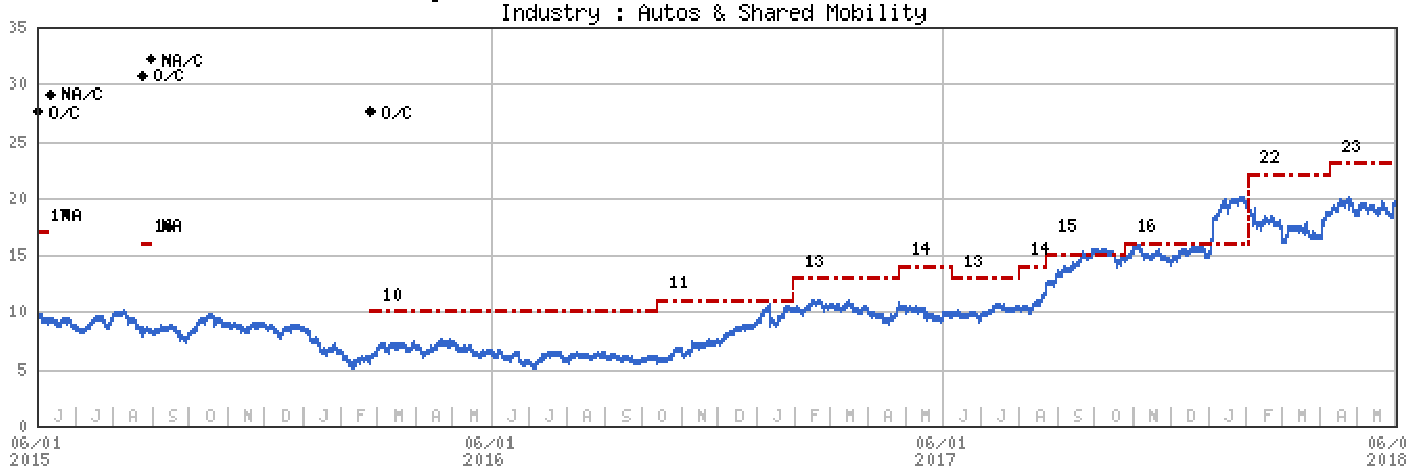
Price Target History: 4/24/15 : 565; 7/15/15 : 590; 7/17/15 : 620; 8/11/15 : 820; 2/2/16 : 880; 4/7/16 : 900; 4/22/16 : 850; 6/8/16 : 865; 7/29/16 : 880; 10/28/16 : 950; 1/27/17 : 1000; 4/28/17 : 1050; 7/24/17 : 1040; 9/29/17 : 1050; 10/27/17 : 1150; 1/12/18 : 1210; 1/25/18 : 1215; 2/2/18 : 1200; 4/10/18 : 1175; 4/24/18 : 1200

Source: Morgan Stanley Research   Date Format : MM/DD/YY   Price Target --   No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) —   Stock Price (Covered by Current Analyst) ▬
Stock and Industry Ratings (abbreviations below) appear as ♦ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Fiat Chrysler Automobiles NV (FCHA.MI) - As of 5/31/18 in EUR
Industry : Autos & Shared Mobility



Stock Rating History: 6/1/15 : O/C; 6/11/15 : NA/C; 8/24/15 : O/C; 8/31/15 : NA/C; 2/24/16 : O/C

Price Target History: 1/27/15 : 17; 6/11/15 : NA; 8/24/15 : 16; 8/31/15 : NA; 2/24/16 : 10; 10/13/16 : 11;
1/31/17 : 13; 4/27/17 : 14; 6/8/17 : 13; 7/31/17 : 14; 8/23/17 : 15; 10/26/17 : 16; 2/2/18 : 22; 4/9/18 : 23

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) -- Stock Price (Covered by Current Analyst) --
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

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INDUSTRY COVERAGE: Internet

COMPANY (TICKER)	RATING (AS OF)	PRICE* (05/31/2018)
Brian Nowak, CFA		
Activision Blizzard Inc (ATVI.O)	O (09/23/2016)	$70.91
Alphabet Inc. (GOOGL.O)	O (08/11/2015)	$1,100.00
Amazon.com Inc (AMZN.O)	O (04/24/2015)	$1,629.62
Blue Apron Holdings Inc (APRN.N)	E (07/24/2017)	$3.07
Booking Holdings Inc (BKNG.O)	O (06/30/2016)	$2,108.92
Criteo SA (CRTO.O)	E (01/26/2016)	$24.15
Despegar.com Corp (DESP.N)	E (10/16/2017)	$23.29
eBay Inc (EBAY.O)	O (04/18/2018)	$37.72
Electronic Arts Inc (EA.O)	E (01/12/2018)	$130.91
Etsy Inc (ETSY.O)	U (01/12/2018)	$32.34
Expedia Inc. (EXPE.O)	O (01/10/2018)	$121.03
Facebook Inc (FB.O)	O (04/27/2016)	$191.78
GrubHub Inc. (GRUB.N)	E (04/18/2018)	$107.21
Snap Inc. (SNAP.N)	U (11/09/2017)	$11.39
Take-Two Interactive Software (TTWO.O)	O (02/01/2018)	$112.08
TRIVAGO NV (TRVG.O)	E (09/28/2017)	$4.64
Twitter Inc (TWTR.N)	E (04/17/2018)	$34.70
Yelp Inc (YELP.N)	E (07/29/2015)	$42.85
Zynga Inc (ZNGA.O)	O (06/08/2017)	$4.40
Jonathan Lanterman, CFA		
Groupon, Inc. (GRPN.O)	E (03/05/2018)	$4.81
TrueCar Inc (TRUE.O)	E (01/12/2018)	$9.81
Zillow Group Inc (Z.O)	E (04/18/2018)	$58.33

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* Historical prices are not split adjusted.

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Internet: Applications and Media

Alphabet Inc. (GOOGL, Buy, $1,355.00)

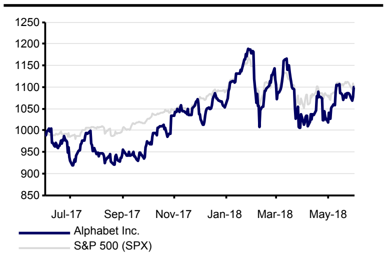
Still Attractive vs. Market Multiple and Relative Growth; Maintaining $1,355 PT

June 1, 2018

Key Data

Rating	Buy
12-Mo Price Target	$1,355.00
Current Price	$1,100.00
52-Wk Range	$1,198.00 - $915.31
Avg. Vol. (3m)	1,851
Dividend	0.00
Shares Out Company	694.5
Market Cap (RS)	$763,950.0
Enterprise Value (mn)	$662,177.7
Fiscal Year End	Dec.

Price Performance



Source: Factset

We are making minor revisions to our GOOGL forecast, establishing 2020 estimates and maintaining our $1,355 PT. See summary of revisions on page 2.

Minor model revisions. PT remains unchanged at $1,355

- Our forward estimates are unchanged with GAAP EPS of $48.50 per share for 2019. We are establishing a 2020 estimate of $57.50.
- We continue to value GOOGL at 21x EPS for the core and 4x sales for Other Bets. We see potential for meaningfully higher upside in a sum-of-the-parts. However, we see low probability that management will increase reporting transparency and think the Street is unlikely to rethink its valuation construct without segment disclosures (i.e. YouTube and Cloud).
- The same valuation methodology on our 2020 estimates would add about $200 to our current target, though we think the earnings multiple would likely move lower along with a lower revenue growth outlook.

We think GDPR is more likely to help GOOGL than hurt

- We think that both Facebook (FB, Buy, $255 PT) and GOOGL are more insulated than smaller competitors to the recently implemented privacy rules in Europe. In our view, the companies are better positioned to comply with standards and have less dependence on third party data.
- While combined share is very high (reportedly 70% to 85%, depending on region), we think this could enhance the two platforms' relative position and further consolidate ad dollar share. Early anecdotes and commentary from agencies and channel participants seem to support this view.
- This would essentially be a back-fire on EU regulators who would very much like to see the GOOGL/ FB "duopoly" see decreasing influence on ad markets in Europe.

We continue to find valuation attractive

- GOOGL's P/E ratio on 12-month forward earnings (less cash) is at the midpoint of its five year average while its growth rate is meaningfully higher.
- The market multiple (S&P 500) has moderated since its January peak, but is still 30% above the beginning of 2013. We consider GOOGL's relative valuation highly attractive considering its growth rate and sustainability of position.

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See pages 11-13 for analyst certification and important disclosures.

GOOGL: Summary of Estimate Revisions

	2018 E		2019 E		2020 E	
	Current	Previous	Current	Previous	Current	Previous
Google Web Sites	95.8	93.4	114.0	109.2	132.9	*na*
Google Network	19.8	19.4	21.6	20.9	23.2	-
Other Google	19.8	19.9	25.8	26.4	32.7	-
Other Bets	0.7	1.7	1.0	2.2	1.3	-
Total revenue	**$ 136.1 Bn**	**$ 134.3 Bn**	**$ 162.4 Bn**	**$ 158.6 Bn**	**$ 190.1 Bn**	-
Website TAC	(13.0)	(12.3)	(16.2)	(15.4)	(19.3)	-
Network TAC	(14.5)	(14.2)	(15.9)	(15.3)	(17.0)	-
revenue ex-TAC	$ 108.5 Bn	$ 107.8 Bn	$ 130.3 Bn	$ 127.9 Bn	$ 153.7 Bn	-
Year/ year growth						
Google Web Sites	23.1%	20.0%	19.0%	16.9%	16.6%	*na*
Google Network	12.6%	10.3%	9.0%	7.5%	7.5%	-
Other Revenue	38.5%	39.5%	30.4%	32.6%	26.7%	-
Other Bets	-38.1%	39.3%	37.2%	32.0%	30.0%	-
Web Sites TAC rate	*13.6%*	*13.2%*	*14.2%*	*14.1%*	*14.5%*	*na*
yr/yr trend	*+198 bps*	*+161 bps*	*+67 bps*	*+90 bps*	*+30 bps*	-
Network TAC rate	*73.5%*	*73.4%*	*73.5%*	*73.5%*	*73.5%*	-
Operating income, GAAP						
Google Inc.	36.5	39.5	44.1	46.8	53.1	*na*
Other Bets	(2.6)	(4.6)	(3.3)	(5.8)	(4.0)	-
Total op. income, GAAP	$ 32.6 Bn	$ 34.2 Bn	$ 40.1 Bn	$ 40.4 Bn	$ 48.4 Bn	-
Op. margin (gross revenue)	*24.0%*	*25.5%*	*24.7%*	*25.4%*	*25.4%*	-
yr/yr trend	*-(210)bps*	*-(58)bps*	*+72 bps*	*-(2)bps*	*+77 bps*	-
GAAP EPS	**$44.17**	**$40.70**	**$48.50**	**$48.50**	**$57.50**	*na*

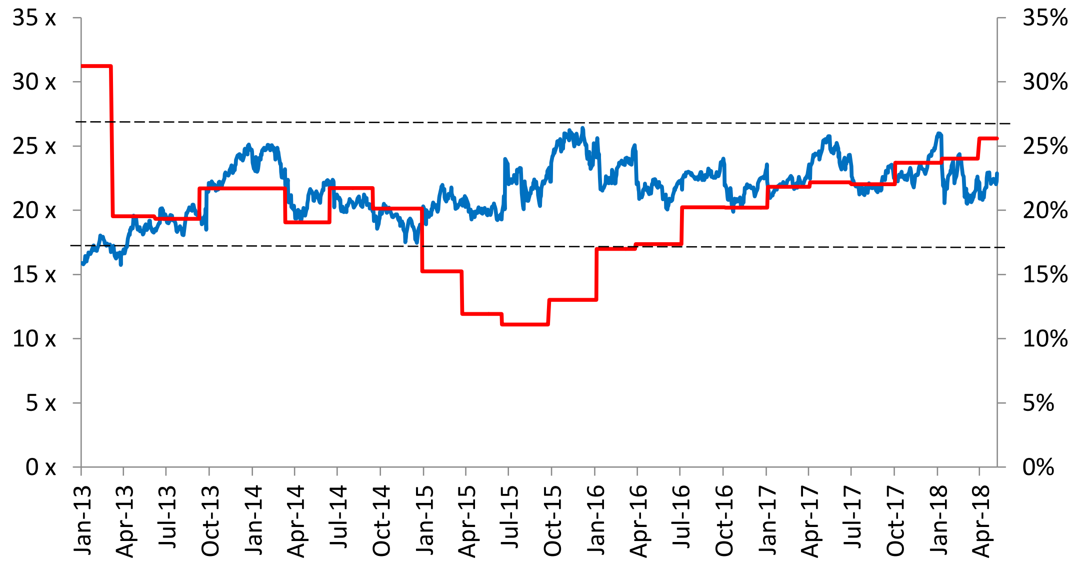
Source: MKM estimates

We continue to find valuation attractive

GOOGL's P/E ratio on 12-month forward earnings (less cash) is at the midpoint of its five year average while its growth rate is meaningfully higher (26% vs. 20% average).

We think there is potential for considerable upside if investors were able to value GOOGL on a sum-of-the-parts basis (ascribing value to YouTube, Google Cloud, Waymo separate from the core advertising business). We do not however think management is likely to provide adequate disclosure.

GOOGL: P/E vs. Revenue Growth



	P/E		Growth	
range	16 x	26 x	11%	31%
average	22 x		20%	
current	23 x		26%	

Source: Factset, company reports

The market multiple (S&P 500) is about 13% off its January peak at about 16x forward 12-month earnings. While the S&P multiple has increased by 30% from the beginning of 2013, it is currently about 2% above its five-year average.

GOOGL's forward P/E is similar, about 1-point above its five year average though the company's recent growth is 30% above its five year average. While the market multiple has come back somewhat and GOOGL's multiple has been somewhat more resilient, we still think relative valuation is attractive.

S&P 500: Forward P/E *(rolling 12-months)*

Source: Factset

We continue to think that GDPR will actually help Google

Since implementation of Europe's new privacy standards one week ago, reports have been surfacing that smaller companies are struggling to meet compliance and more ad dollars are moving into Google. Depending on the county, GOOGL and FB combined are reported to be 70% to 85% of all online advertising revenues in each region. While already dominant, this could go higher.

It could be that an unintended consequence that privacy regulation squeezes marginal players and drives even more share consolidation into the duopoly. This would be a major back-fire on EU regulators who are trying desperately to minimize the influence of Google and Facebook in the region.

This would be consistent with our views, and recent concerns recently voiced by EU justice commissioner (here) that the "the money, an army of lawyers, an army of technicians" of Google and Facebook would set a compliance standard hard for smaller firms to meet.

Further, while Facebook certainly does implement third party data for better ad targeting (we think more so at Doubleclick than Google sites) and this may be harder to come by under GDPR, we think other advertisers and ad networks depend much more heavily on this data than does GOOGL.

GOOGL: Price Target Methodology

	2018E	2019E	2020E
P/E multiple for Core	**22 x**	**21 x**	**20 x**
core valuation per share	$1,051	$1,117	$1,262
Cash and investments	$152	$152	$154
Sales multiple for Other Bets	**4 x**	**4 x**	**4 x**
Other bets revenue	$745	$1,022	$1,329
Other bets value	$3.0 Bn	$4.2 Bn	$5.3 Bn
Other Bets value per share	**$4**	**$6**	**$8**
SoTP	**$1,205**	**$1,275**	**$1,425**
upside potential	11%	17%	31%

Source: MKM estimates

Our post-call thoughts, distributed 04/23

GOOGL reported very strong revenue growth of 26%, driven again by strength in mobile search. Growth was assisted by favorable currency, contributing about 300bps.

The quarter was particularly messy from an accounting and segment reporting perspective. Irregularities include: (i) accounting for equity security investments, (ii) performance fees related to such gains, (iii) step-ups in both employee and management equity grants, (iv) a reclassification of Nest to Google, (v) a shift of certain costs from G&A into cost of revenue, (vi) the acqui-hire of 2k employees from HTC and (vii) a contra-expense item from a legal settlement with Uber.

A message from the Chief Accountant on accounting disclosure was posted here.

SBC expense was higher than forecast, cap-ex was particularly heavy and Websites TAC was about 20bps higher than consensus (management reiterated that further increases should moderate beginning this quarter).

The stock was volatile in after-hours, initially up 4% on the revenue upside and about flat by the end of the conference call.

GOOGL: Results vs. Expectations

	Mar-18A			Jun-18E	
	Actual	Consensus	MKM	Consensus	MKM
Google Web Sites	22.0	21.2	21.1	22.5	22.3
Google Network	4.6	4.5	4.5	4.7	4.7
Other Google	4.7	4.2	4.1	4.3	4.0
Other Bets	0.2	0.4	0.4	0.4	0.4
Total revenue	**$ 31.1 Bn**	**$ 30.3 Bn**	**$ 30.4 Bn**	**$ 31.8 Bn**	**$ 31.8 Bn**
Website TAC	(2.9)	(2.8)	(2.7)	(3.0)	(2.9)
Network TAC	(3.4)	(3.3)	(3.3)	(3.4)	(3.5)
revenue ex-TAC	$ 24.9 Bn	$ 24.2 Bn	$ 24.4 Bn	$ 25.3 Bn	$ 25.4 Bn
y/y growth	***25.8%***	***22.6%***	***22.9%***	***22.3%***	***22.2%***
Google Web Sites	*26.4%*	*22.0%*	*21.5%*	*22.1%*	*21.0%*
Google Network	*15.9%*	*12.2%*	*12.0%*	*10.4%*	*11.5%*
Other Revenue	*50.4%*	*37.3%*	*32.0%*	*38.1%*	*30.7%*
Other Bets	*-38.5%*	*45.6%*	*45.0%*	*44.7%*	*45.0%*
Web Sites TAC rate	*13.2%*	*13.0%*	*13.0%*	*13.1%*	*13.2%*
yr/yr trend	*+282 bps*	*+258 bps*	*+260 bps*	*+203 bps*	*+210 bps*
Network TAC rate	*72.9%*	*72.7%*	*72.5%*	*73.4%*	*73.5%*
Operating income, GAAP					
Google Inc.	8.4	8.9	9.2	9.5	9.2
Other Bets	(0.6)	(0.9)	(1.2)	(0.8)	(1.1)
Total op. income, GAAP	**$ 7.0 Bn**	**$ 7.7 Bn**	**$ 7.8 Bn**	**$ 8.2 Bn**	**$ 7.9 Bn**
Op. margin (gross revenue)	*22.5%*	*25.4%*	*25.5%*	*25.7%*	*24.8%*
yr/yr trend	*(406bps)*	*(111bps)*	*(102bps)*	*+976 bps*	*+889 bps*
GAAP EPS	**$13.33**	**$9.29**	**$9.28**	**$9.91**	**$9.39**

Source: company reports, Factset, MKM estimates

Did we see what we expected?

Yes: We previewed a strong quarter for Websites revenue growth and the likelihood of softer margins. Growth was a bit better than we expected and spending was a bit higher, but the net result was pretty much in line with our expectation.

Will this result change investor opinion?

No: We think most investors view GOOGL as a secular long and a core holding for growth funds. We think some investors will be relieved by strong topline results (especially as some third parties and agencies were suggesting a more significant deceleration from Q4 momentum) and that some investors will be disappointed by the greater margin drag, but we do not anticipate a change in fundamental views.

Bulls will likely point to:

- Websites growth: Google properties revenue growth of 26.4% at an $88bn revenue run-rate is nothing less than impressive in our view. We think this will be the primary focus of Bulls.

- Mobile search: Mgmt continues to call out mobile search as the primary driver of Websites revenue growth. Bulls will likely suggest that despite its massive scale, mobile search is still in the earlier stages as an advertising medium and that the business can become significantly larger in the years ahead.

- Desktop search: Mgmt also pointed to growth in desktop search as a driver this quarter. Bulls will likely highlight growth in GOOGL's most mature business as a positive.

- TAC normalization beginning next Q: Revenue share to distribution partners (Websites TAC) was up by 282bps y/y and has increased by 550bps over Q1'15. Bulls will suggest that despite this rather large drag, operating margin performance has been resilient and to mgmt's comments that TAC escalation is expected to normalize beginning this quarter.

- Nest reclassification overstates Google margin drag: The Nest business was moved from Other Bets into core Google and the company reclassified historic revenue and operating income. This business had negative operating income of about $150mn per quarter last year. Bulls will likely suggest the reclassification likely contributed 50 to 60bps of the op. margin drag at core Google this quarter.

- Other unusual factors on margins: Bulls will likely point to the compounding of employee equity grants and the biannual exec/ SVP refresh this quarter. Stock-based compensation increased by 22% this qtr. (about $200mn above our forecast, a 60bps margin drag), which is cyclical based on timing of grant refreshes. Bulls may also point to the aqui-hire of 2k employees from HTC in late Jan. (a move to strengthen the hardware business) as a contributor to R&D de-leverage.

- Waymo: Bulls might reiterate enthusiasm for the Waymo opportunity with now 5mn city miles driven (1mn in the last 3-months) and the upcoming launch of a self-driving taxi service in Phoenix. Mgmt. sees multiple potential uses and opportunities for this technology, pointing to logistics and deliveries, public transportation for cities and personal use vehicles.

- Cloud: Mgmt. did not provide an update on Google Cloud revenue (passing $1bn of revenue per quarter in Q4), but did say that G Suite revenue growth accelerated quarter-to-quarter. Bulls may point to the large opportunity in the cloud market, the company's inherent competencies (especially in infrastructure, search and AI) and that Cloud continues to be the largest source of engineering hires across the company.

Bears will likely point to:

- Margins: Operating income for core Google was about $566mn light of consensus despite a $1.3bn revenue beat, more than a 300bps miss on core operating margin vs. consensus. Bears may say that lower losses from Other Bets as an offset some of the drag from core Google is not a positive trend (though we think around 50 to 60bs was reclassification of losses of Nest into core Google).

- Quality of EPS: There were a lot of puts and takes on expenses and accounting this quarter. Bears may suggest that on top of the $3.40 positive EPS impact disclosed in the press release (suggesting a $0.60 EPS beat vs. consensus), there was also a 500bps favorable tax rate. If taxes were at the assumed 16% rate, then EPS would have been $0.75 per share lower and a miss.

- Cap-ex: Bears will likely point to $7.3bn in cap-ex during the quarter, a major jump from $2.5bn a year ago. Excluding the $2.4bn one-time purchase of property in NYC, cap-ex still nearly doubled y/y.

- Expenses more 2H weighted: Mgmt suggested that expenses would be more 2H-weighted this year to support growing hardware business. Bears might suggest this means greater margin headwind than last year in which Q4 was somewhat disappointing vs. initial expectations.

- Implied deceleration in Other Revenue: Netting out the reclassification of Nest revenue, and assuming a 20% growth rate, this implies that Google Other revenue growth decelerated very significantly (around 1,300bps) from y/y growth in Q4. Bears may point out that mgmt continues to highlight non-ad areas (Cloud, hardware, Play) as the second wave of growth for Google and a major investment area and express concern with sharp growth deceleration.

- Risks Regarding Data Misuse: Bears may point to controversy over Facebook's use of personal data and suggest that GOOGL has at least as much risk. Perhaps even more risk as it gathers user data across a wider collection of properties. While FB has dropped its opposition to proposed privacy legislation in California, GOOGL has not. Bears may argue that changes to the way GOOGL is allowed to utilize user data could significantly alter the earnings power and valuation of the business.

- European Commission: Bears may highlight the EC's ongoing focus on GOOGL as a predatory competitor point to risk of additional fines and/ or restrictions on the company's European business, about 30% of total revenue. Many observers have been expecting follow-on actions from the EC, likely focused on Android. Bears might highlight this as a risk that many investors have grown complacent toward.

Alphabet Inc. Income Statement

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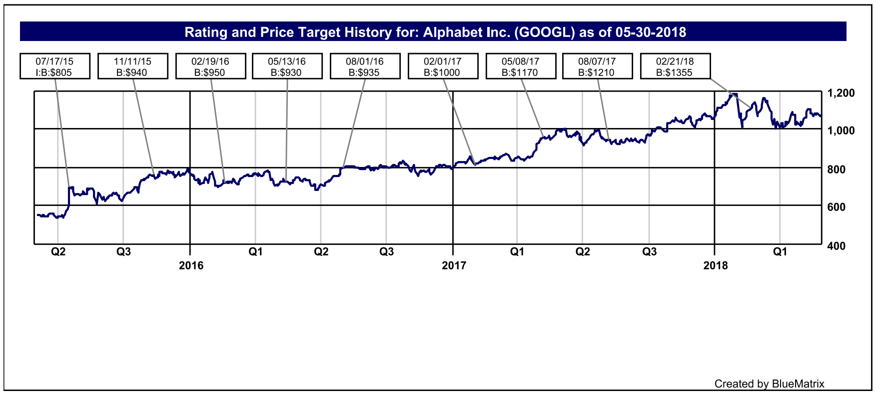
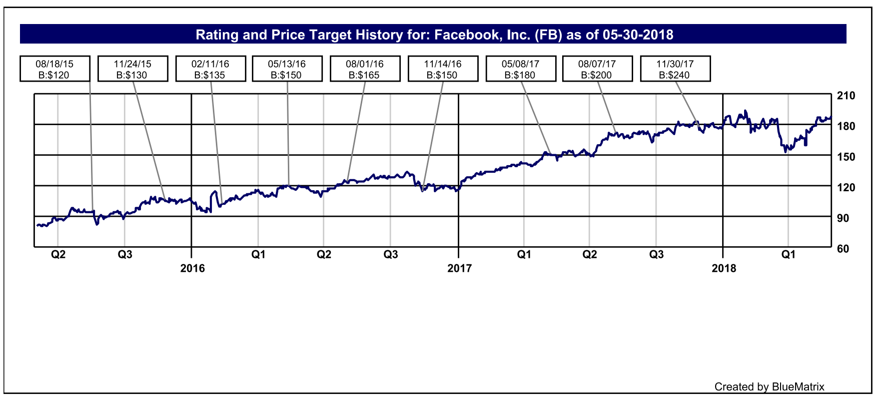
					Mar-18	Jun-18	Sep-18	Dec-18		Mar-19	Jun-19	Sep-19	Dec-19		
(millions, except per share data)	2014A	2015A	2016A	2017A	Q1'18A	Q2'18E	Q3'18E	Q4'18E	2018E	Q1'19E	Q2'19E	Q3'19E	Q4'19E	2019E	2020E
Total revenue	**$66,001**	**$74,989**	**$90,272**	**$110,855**	**$31,146**	**$32,360**	**$33,802**	**$38,787**	**$136,094**	**$37,120**	**$38,575**	**$40,322**	**$46,346**	**$162,362**	**$190,088**
Revenue ex-TAC	$52,506	$60,864	$73,479	$89,183	$24,858	$25,719	$26,937	$31,020	$108,534	$29,710	$30,833	$32,339	$37,381	$130,262	$153,705
Cost of revenues	25,691	28,164	35,138	45,583	13,467	13,760	14,496	17,119	58,842	15,879	16,369	16,931	19,809	68,987	80,001
Research and development	9,832	12,282	13,948	16,625	5,039	5,091	4,903	5,363	20,396	5,588	5,773	5,770	6,498	23,629	27,171
Sales and marketing	8,131	9,047	10,485	12,893	3,604	3,617	3,836	4,986	16,042	4,577	4,587	4,718	6,332	20,214	23,615
General and administrative	5,851	6,136	6,985	6,872	2,035	2,105	1,922	2,157	8,219	2,232	2,307	2,320	2,621	9,480	10,937
Total costs and expenses	49,505	55,629	66,556	81,973	24,145	24,573	25,156	29,625	103,499	28,276	29,036	29,739	35,260	122,311	141,724
Income from operations	$16,496	$19,360	$23,716	$28,882	$7,001	$7,787	$8,646	$9,161	$32,596	$8,844	$9,539	$10,582	$11,086	$40,051	$48,363
Interest and other income, net	763	291	434	1,047	3,542	200	200	200	4,142	250	250	250	250	1,000	1,000
Pretax income from operations	$17,259	$19,651	$24,150	$29,929	$10,543	$7,987	$8,846	$9,361	$36,738	$9,094	$9,789	$10,832	$11,336	$41,051	$49,363
Provision for income taxes	3,331	3,232	4,672	14,531	1,142	1,198	1,504	1,685	5,529	1,546	1,566	1,733	1,814	6,659	8,447
Net income from continuing operations	$13,928	$16,419	$19,478	$15,398	$9,401	$6,789	$7,342	$7,676	$31,209	$7,548	$8,223	$9,099	$9,522	$34,392	$40,916
Charge for European Commission fine				($2,736)					$0					$0	$0
Loss from disc/ non-Alphabet dilution	516	0	(36)	0	0	0	0	0	0	0	0	0	0	0	0
Net income	$14,444	$16,419	$19,442	$12,662	$9,401	$6,789	$7,342	$7,676	$31,209	$7,548	$8,223	$9,099	$9,522	$34,392	$40,916
Fully diluted shares	687,070	692,960	698,705	700,965	705,134	706,134	707,134	708,134	706,634	707,634	708,634	709,634	710,634	709,134	711,634
GAAP EPS from continuing operations	$21.02	$23.69	$27.83	$18.06	$13.33	$9.61	$10.38	$10.84	$44.17	$10.67	$11.60	$12.82	$13.40	$48.50	$57.50
Stock-based compensation:	**$4,279**	**$5,203**	**$6,703**	**$7,679**	**$2,457**	**2,500**	**2,075**	**2,068**	**$9,100**	**2,595**	**2,640**	**2,191**	**2,184**	**$9,610**	**$9,900**
Operating income less SBC	$20,775	$24,563	$30,419	$36,561	$9,458	$10,287	$10,721	$11,229	$41,696	$11,438	$12,179	$12,774	$13,270	$49,661	$58,263
Operating margin (on net revenue)	39.6%	40.4%	41.4%	41.0%	38.0%	40.0%	39.8%	36.2%	38.4%	38.5%	39.5%	39.5%	35.5%	38.1%	37.9%
y/y margin trend	*(376)bps*	*79 bps*	*104 bps*	*(40)bps*	*(458)bps*	*(241)bps*	*(332)bps*	*(56)bps*	*(258)bps*	*45 bps*	*(50)bps*	*(30)bps*	*(70)bps*	*(29)bps*	*(22)bps*
Segment revenue contribution															
Google websites	$45,085	$52,357	$63,785	$77,788	21,998	23,031	24,062	26,684	$95,776	26,178	27,407	28,634	31,754	$113,973	$132,888
Google Network Members' websites	13,971	$15,033	$15,598	$17,587	4,644	4,799	4,863	5,489	$19,795	5,062	5,231	5,301	5,983	$21,577	$23,195
Total advertising revenue	**$59,056**	**$67,390**	**$79,383**	**$95,375**	$26,642	$27,830	$28,925	$32,173	**$115,571**	$31,240	$32,638	$33,935	$37,737	**$135,550**	**$156,083**
Other Google revenue	$6,618	$7,000	$9,632	$14,277	4,354	4,350	4,682	6,393	$19,778	5,670	5,685	6,124	8,311	$25,790	$32,676
Other Bets revenue	327	$448	$810	$1,203	150	180	195	220	$745	210	252	263	297	$1,022	$1,329
Total revenues	**$66,001**	**$74,838**	**$89,825**	**$110,855**	**$31,146**	**$32,360**	**$33,802**	**$38,787**	**$136,094**	**$37,120**	**$38,575**	**$40,322**	**$46,346**	**$162,362**	**$190,088**

Source: MKM estimates

Other Public Companies Mentioned:

Company Name	Ticker	Price	Rating	PT/FV
Facebook, Inc.	FB	$191.78	Buy	255.00





Valuation Methodology:

GOOGL: For core Google, we apply a 21x multiple of 2019 GAAP earnings, plus cash and 4x revenue for Other Bets.

FB: Our 12-month price target of $240 is 25x our 2019 GAAP estimate plus cash.

Risks:

GOOGL: There are always risks that the target price for any security will not be realized. In addition to general market and macroeconomic risk, for GOOGL, these risks include, among other things: (1) Changing consumer behavior away from web search to mobile app usage is a potential disintermediating factor and affords search advertisers in large verticals (i.e. retail, travel) and competitors a direct connection to consumers that was not available in the desktop environment, (2) the European Commission antitrust investigation could result in fines and/ or restrictions that limit GOOGL's opportunities in a top-2 region, (3) several large companies with significant resources and competencies (i.e., Apple, Amazon, Microsoft) are all positioning to gain share of value in the Internet ecosystem, (4) management has voting control and could make unilateral decisions that are not in shareholder interest.

FB: There are always risks that the target price for any security will not be realized. In addition to general market and macroeconomic risks, for FB, these risks include, among other things: (1) the potential for disintermediation; however, with the acquisition of Instagram, we feel this risk has pushed out for a least a few years, (2) the potential for a stall in the monetization ramp, 3) international markets do not develop as expected, (4) cost escalation and (5) execution risk on relatively expensive and unproven acquisitions.

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"Buy" Security is expected to appreciate 15% or more on an absolute basis in the next 12 months.

"Neutral" Security is not expected to significantly appreciate or depreciate in value in the next 12 months.

"Sell" Security is expected to depreciate 15% or more on an absolute basis in the next 12 months.

Distribution of Ratings
MKM Partners, Equity Research

Rating	Count	Percent	Investment Banking Serv./Past 12 Mos. Count	Investment Banking Serv./Past 12 Mos. Percent
BUY [BUY]	71	57.26	0	0
HOLD [NEUTRAL]	52	41.94	0	0
SELL [SELL]	1	0.81	0	0

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2018 年 6 月 1 日 02:28 AM GMT

Alphabet Inc.

GDPRがAlphabetの広告事業を後押し？

投資判断	業界投資判断	目標株価
Overweight	In-Line	$1,200.00

Alphabetは「プラットフォーム運営会社もしくはマーケティング会社が、第三者のトラッキング・システム/IDシステムを利用する場合、弊社(Alphabet)の広告技術スタックを利用することに関し、すべてのユーザーから完全なる同意を得ていることを確認する必要がある」としている。これは、欧州GDPR(一般データ保護規則)への準拠を有利に利用しようとするもので、ユーザーの同意を得た自社ツールの普及を促し、他社ツール利用のハードルをさらに高くすることを狙っていると考えられる。1Q決算説明会で、Criteoがこうした動きを最も懸念していたことが思い出される(同社はカンファレンスコールで、GDPRを理由に基準を引き上げる会社=Alphabetがあると言及していた)。GDPRはAlphabetにとって戦術的な強気材料であり、規制対策を自社に有利な形で利用する同社の姿勢の現れと考える(GDPRは大手に有利と考える弊社見解と一致)。

GDPR=General Data Protection Regulation(一般データ保護規則)

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Alphabet Inc. (GOOGL.O, GOOGL US)

Internet / United States of America

投資判断	**Overweight**
業界投資判断	**In-Line**
目標株価	**$1,200.00**
直近終値 (2018年 5月 29日)	$1,068.07
時価総額 (百万)	$771,343
52週　高-安	$1,198.00-915.31

本レポートは、5月30日発行の"Alphabet Inc.: GDPR Pushing More Ad Dollars to GOOGL?"の翻訳版(全訳)です。日本語文への翻訳に際してはその解釈や表現に細心の注意を払っておりますが、万一、英文と日本語文との間に解釈や表現の違いが生じた場合は英文が優先します。

バリュエーション手法及びリスク

GOOGL.O
目標株価は1,200ドル。DCF法に基づく。19年調整後弊社EBITDA予想約600億ドルベースで13倍。ここから「Other Bets(その他)」部門の損失を現在価値に割戻して差引き、目標株価を1,200ドルとした。DCF分析ではWACCを約7%、永久成長率を2%(他の成長志向型インターネット企業と同水準)と想定した。

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- 検索はAlphabetの広告事業の重要な要素である。検索事業は世界の広告予算のシェアを獲得し続け、Googleはシェアにおける優位を維持すると考えるが、米国および英国市場における成長は鈍化している。
- Google Inc.をはじめAlphabetのその他の部門に関する情報開示を改善しても、検索事業への全般的な投資が減少しない可能性。
- 売上高の大部分を広告から得ている中での広告市場の悪化。
- EUによる独占禁止法違反調査のネガティブな結果。

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投資判断のグローバル分布状況

（2018年5月31日現在）

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	全調査対象銘柄		投資銀行部門顧客(IBC)			その他の重要な投資サービス顧客（MISC）	
投資判断	数	合計比	数	IBC合計比	投資判断別IBC比率	数	MISC合計比率
Overweight/Buy	**1172**	**38%**	**289**	**40%**	**25%**	**551**	**39%**
Equal-weight/Hold	**1338**	**43%**	**354**	**49%**	**26%**	**639**	**46%**
Not-Rated/Hold	**53**	**2%**	**5**	**1%**	**9%**	**7**	**0%**
Underweight/Sell	**533**	**17%**	**77**	**11%**	**14%**	**207**	**15%**
合計	**3,096**		**725**			**1404**	

上表中の数字には、現在、投資判断が付されている普通株式とADRが含まれます。投資銀行部門顧客とは、モルガン・スタンレーが過去12ヵ月間に、投資銀行業務に対する報酬を受け取った会社を表します。小数点以下は切り捨てているため、"%"の欄に表示された数字を合計しても100とならない場合があります。

個別銘柄に対するアナリストの投資判断

Overweight (O)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率を上回る総投資収益率が期待される銘柄。

Equal-weight (E)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率と同程度の総投資収益率が期待される銘柄。

Not-Rated (NR)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率に対する総投資利益率について当該アナリストが十分な判断を下せない銘柄。

Underweight (U)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率を下回る総投資収益率が予想される銘柄。

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業界に対するアナリストの投資判断

Attractive (A)：今後12～18ヵ月間について、市場全体のベンチマークである下記の株価指数との比較で、当該業界(アナリストのカバレッジユニバース)のパフォーマンスが魅力的であるとアナリストが期待している場合。

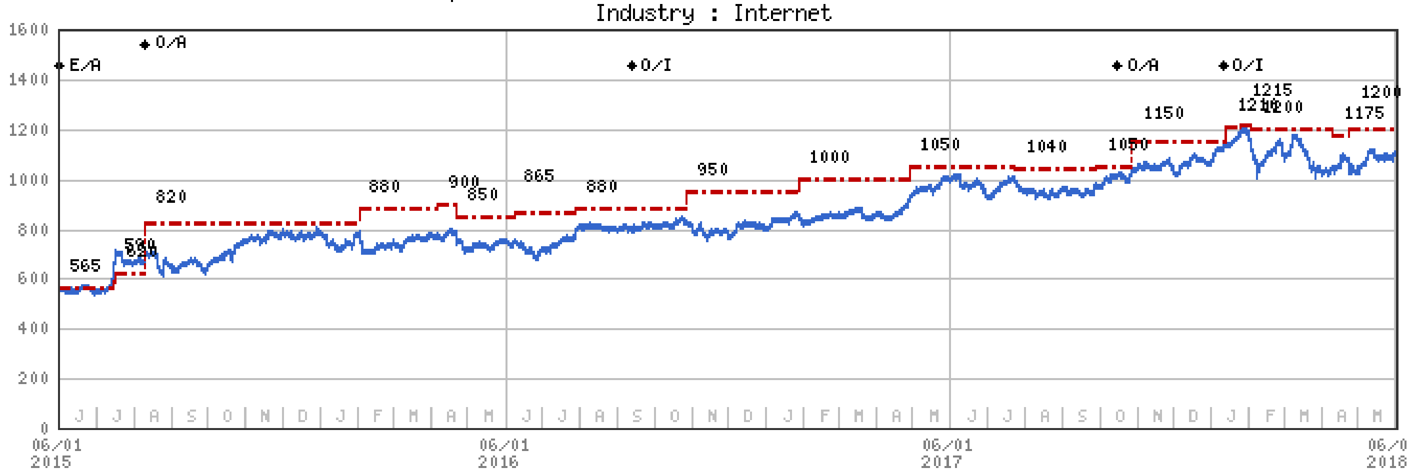
In-Line (I)：今後12～18ヵ月間について、当該業界(アナリストのカバレッジユニバース)のパフォーマンスが、市場全体のベンチマークである下記の株価指数と同程度になるとアナリストが期待している場合。

Cautious (C)：今後12～18ヵ月間について、市場全体のベンチマークである下記の株価指数との比較で、当該業界(アナリストのカバレッジユニバース)のパフォーマンスをアナリストが慎重にみている場合。

各地域のベンチマーク指数：北米はS&P500、ラテンアメリカは当該MSCI国別指数またはMSCIラテンアメリカ指数、ヨーロッパはMSCIヨーロッパ、日本はTOPIX、アジアは当該MSCI国別指数、当該MSCI地域別指数、またはMSCIアジア太平洋株価指数（日本除く）。

株価、目標株価、投資判断の推移 (投資判断の定義を参照)

Alphabet Inc. (GOOGL.O) - As of 5/31/18 in USD
Industry : Internet



Stock Rating History: 6/1/15 : E/A; 8/11/15 : O/A; 9/12/16 : O/I; 10/16/17 : O/A; 1/10/18 : O/I

Price Target History: 4/24/15 : 565; 7/15/15 : 590; 7/17/15 : 620; 8/11/15 : 820; 2/2/16 : 880; 4/7/16 : 900; 4/22/16 : 850; 6/8/16 : 865; 7/29/16 : 880; 10/28/16 : 950; 1/27/17 : 1000; 4/28/17 : 1050; 7/24/17 : 1040; 9/29/17 : 1050; 10/27/17 : 1150; 1/12/18 : 1210; 1/25/18 : 1215; 2/2/18 : 1200; 4/10/18 : 1175; 4/24/18 : 1200

Source: Morgan Stanley Research   Date Format : MM/DD/YY   Price Target   No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst)   Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

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調査対象銘柄の一覧表： Internet

会社（コード）	投資判断(更新日)	株価* (2018/05/31)
Brian Nowak, CFA		
Activision Blizzard Inc (ATVI.O)	O (2016/09/23)	$70.91
Alphabet Inc. (GOOGL.O)	O (2015/08/11)	$1,100.00
Amazon.com Inc (AMZN.O)	O (2015/04/24)	$1,629.62
Blue Apron Holdings Inc (APRN.N)	E (2017/07/24)	$3.07
Booking Holdings Inc (BKNG.O)	O (2016/06/30)	$2,108.92
Criteo SA (CRTO.O)	E (2016/01/26)	$24.15
Despegar.com Corp (DESP.N)	E (2017/10/16)	$23.29
eBay Inc (EBAY.O)	O (2018/04/18)	$37.72
Electronic Arts Inc (EA.O)	E (2018/01/12)	$130.91
Etsy Inc (ETSY.O)	U (2018/01/12)	$32.34
Expedia Inc. (EXPE.O)	O (2018/01/10)	$121.03
Facebook Inc (FB.O)	O (2016/04/27)	$191.78
GrubHub Inc. (GRUB.N)	E (2018/04/18)	$107.21
Snap Inc. (SNAP.N)	U (2017/11/09)	$11.39
Take-Two Interactive Software (TTWO.O)	O (2018/02/01)	$112.08
TRIVAGO NV (TRVG.O)	E (2017/09/28)	$4.64
Twitter Inc (TWTR.N)	E (2018/04/17)	$34.70
Yelp Inc (YELP.N)	E (2015/07/29)	$42.85
Zynga Inc (ZNGA.O)	O (2017/06/08)	$4.40
Jonathan Lanterman, CFA		
Groupon, Inc. (GRPN.O)	E (2018/03/05)	$4.81
TrueCar Inc (TRUE.O)	E (2018/01/12)	$9.81
Zillow Group Inc (Z.O)	E (2018/04/18)	$58.33

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*株価は株式分割調整前。

Alphabet Class A (GOOGL)

Alphabet Class A advances 152% in 5 years

Alphabet Inc, the NASDAQ's 2nd largest Internet company by market cap, has advanced $US664.31 (or 152.5%) in the past five years to close at $US1,100.0. Compared with the NASDAQ-100 Index which has risen 131.3% over the same period, this is a relative price increase of 21.1%. Average daily volume of 2.4 million shares in the past year was 1.5 times average daily volume in the previous year.

Company Overview

Figure 1: Activities

Alphabet Inc maintains an index of Websites and other online content, and makes this information freely available through its search engine to anyone with an Internet connection. The Company's automated search technology helps people obtain nearly instant access to relevant information from its online index. The Company generates revenue primarily by delivering online advertising. Businesses use its AdWords program to promote their products and services with targeted advertising.

Further details can be found at
www.abc.xyz

Economic Sector	Technology
Business Sector	Software & IT Services
Industry Group	Software & IT Services
Industry	Internet Services

Fig 2: Stock Identifiers

ISIN	US02079K3059
PermID	4295899948
Central Index Key (CIK)	1652044
CUSIP	02079K305

Fig 3: Stock Summary

Shares Outstanding	298,493,000
Sector	Internet
Market Cap	$US328.3 billion
TSR (10 yrs)	14.2%
52-Week Range	$US915.31-$US1,198.0
Relative Strength (3 mo)	44
EPS Growth % (y.o.y)	72.4

Fig 4: Financials Summary

Year ended	Dec 2017	Dec 2016	Dec 2015
Sales (USD B)	110.9	90.3	75.3
Pretax (USD B)	27.2	24.1	19.7
Net (USD B)	12.7	19.5	15.8
EPS (USD)	18	27.85	22.8392

Net profit was down 35% from US$19.5 billion in 2016 to US$12.7 billion in 2017. Earnings Per Share (EPS) was down 35.4% from $US27.85 to $US18.0.

In this Report:

Highlights:	Page
Summary	1
Analysis	2
Period-based Shareholder Returns	5
Price Volume Dynamics	8
Institutional Activity	12
News	22
Financials	23
Corporate Bonds	33
Peer Group Analysis	34
Patents	38
Board and Management	48
Index and Glossary	51

Note also:

Section Headers and Figures are mapped as Bookmarks in the PDF menu (left, top)

Analysis

Introduction with Trends

We are currently bullish on this stock in the long-term based on fundamental metrics, but are neutral in the short-term based on technical indicators

What makes us bullish on the stock is the following:

- The Price to Book of 2.5 lower than average of 2.9 for the Internet sector. We estimate the shares are trading at a current year Price to Book of 2.1 and a forward year Price to Book of 1.9.
- Return on Equity of 8.3% versus sector average of 6.1% and market average of 11.1%.
- Return on Assets of 6.4% versus sector average of 5.6% and market average of 3.5%.

However, there are some reasons why we remain neutral on the stock for the short-term:

- In the last three months the number of rises outnumbered falls 33:31 or 1.1:1.
- Its Moving Average Convergence Divergence indicators are rising, with its 12-day EMA higher than its 26-day EMA.

Bullish Signals

- Rises to Falls: In the last three months the number of rises outnumbered falls 33:31 or 1.1:1.
- In the NASDAQ market of 2,292 stocks and 4 units traded today, the stock has a 6-month relative strength of 58 which means it has outperformed 58% of the market.
- The Moving Average Convergence Divergence (MACD) indicator of 12-day Exponential Moving Average (EMA) of 1,084.35 minus the 26-day EMA of 1,068.31 is positive suggesting a bullish signal. The 12-day EMA is rising and 26-Day EMA is decreasing, is a bullish signal.
- The price to 200-day MAP ratio is 1.05, a bullish indicator. In the past 200 days this ratio has exceeded 1.05, 141 times suggesting further upside. The stock is trading above both its MAPs and the 50-day MAP of $US1,055.26 is higher than the 200-day MAP of $US1,046.29, a bullish indicator. The 200-day MAP has increased to $US1,046.29. An increase is another bullish indicator.

Undervaluation:

- Price/Sales of 2.91 versus sector average of 3.4 and market average of 3.1. We estimate the shares are trading at a current year Price/Sales of 2.4 and a forward year Price/Sales of 2.
- The Price to Book of 2.5 lower than average of 2.9 for the Internet sector. We estimate the shares are trading at a current year Price to Book of 2.1 and a forward year Price to Book of 1.9.
- The company is cash rich with Cash to Market Capitalisation at 31.0%.
- The Q Ratio, defined by James Tobin as MCap divided by Total Assets, is 1.7. Compared with the rest of the market the stock is undervalued.
- The average annual compound return on the share price in the last 5 years was 20.4%, exceeding the average annual compound return on the NASDAQ-100 Index of 18.5%.

Other Bullish Signals:

- Return on Equity of 8.3% versus sector average of 6.1% and market average of 11.1%.
- Total Liabilities/EBITDA of 1.6 is less than 5, this compares favourably with the Joseph Piotroski benchmark of 5.
- Return on Assets of 6.4% versus sector average of 5.6% and market average of 3.5%.
- Return on Capital Employed of 15.7% versus sector average of 13.3% and market average of 9.0%.
- Net profit margin has averaged 18.3% in the last 3 years. This is considered superior and suggests a high margin of safety.
- Brandirectory have estimated Alphabet Class A brand value at $US52.1 billion. The Brand Value represents an impressive 22.6% of the estimated Enterprise Value of $US230.4 billion.
- As per the Du Pont analysis, Return on Equity of 8.3% is better than sector average of 6.1%. This is computed as net profit margin of 11.4% times asset turnover [sales/assets] of 0.56 times leverage factor [total assets/shareholders' equity] of 1.3.

Also, the following criteria set by Benjamin Graham:

- "Total debt less than tangible book value"; total debt of USD4 Billion is less than tangible book value of USD133.1 Billion.
- "Current ratio of two or more"; current assets are 5.1 times current liabilities.
- "Stability of growth in earnings over the last 5 years, defined as no more than two declines of 5% or greater in year-end earnings"; there have been 2 declines in earnings in the last 5 years.

Analysis (continued)

Fig 5: Bullish Indicators

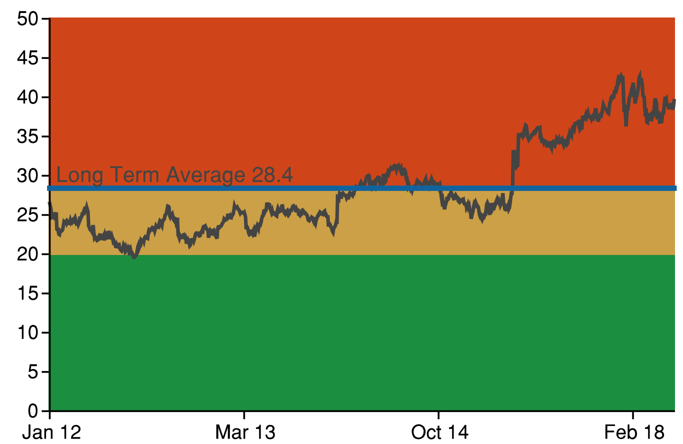
Description	Value	Rank In Nasdaq
MCap	$US328.3 billion	In Top 1%
Turnover in Quarter	$US146.2 billion	In Top 1%
Tr 12 months Revenue	$US112.7 billion	In Top 1%
Total Debt to Equity	0.03	In Top 10%
Cash to MCap %	31.0	In Top Quartile
Price Change % (3 mo)	2.1	In Top Quartile

Bearish Signals

Overvaluation:

- Price/Earnings of 43 versus sector average of 32.4 and market average of 36.9. We estimate the shares are trading at a current year P/E of 26.7 and a forward year P/E of 27.5.
- The earnings yield of 2.3% below 10-year bond yield of 2.85%.
- The trailing twelve months P/E of 43 is above its Cyclically Adjusted Price Earnings (CAPE) of 39.6. Further, the CAPE is above the mid-range of 18 to 28 for most stocks historically. As well, the CAPE is above its historical average of 28.4 over the last 6 years. CAPE was developed by economist Robert Shiller based on methodology from Benjamin Graham and David Dodd to smooth earnings across a 10-year period based on moving averages over quarters.

Fig 6: Shiller PE (CAPE Ratio)



Other Bearish Signals:

The stock has a score of merely 3 out of 9 set by Joseph Piotroski [pass mark >=5]:

Positive net income; positive operating cashflow; good quality of earnings [operating cashflow exceeds net income].

Fig 7: Bearish Indicators

Description	Value	Rank In Nasdaq
Price Earnings	43	In Bottom Quartile

Note

- It is at a discount of 8.2% to the 12-month high of $US1,198.0 on 29 Jan, 2018. It is also at a premium of 20.2% to the 12-month low of $US915.31 on 03 Jul, 2017.

Beta & Standard Deviation (SD)

The Beta of this stock is 1.3. A Beta greater than 1 suggests this is a higher risk, higher return stock with volatility greater than that of the market.
SD is a statistical measure of deviation from the mean. The SD of 1.4% gives it a percentile rank of 12 meaning that 12% of stocks in the NASDAQ market are less volatile than this stock.

Fig 8: Rank in the NASDAQ-100 Index

Description	Value	Rank
MCap (US$ B)	328.3	6
Total Assets (US$ B)	197.3	3
Revenue (US$ B)	112.7	6
Net Profit (US$ B)	12.7	4
Return on Equity %	8.3	76
Net Profit Margin %	11.4	55
Price to Book	2.5	3
Price Earnings	43.0	56
PV$1000 (1Year) US$	1,114	59
% Change YTD	4.4	48

Analysis (continued)

Fig 9: Analyst Recommendations

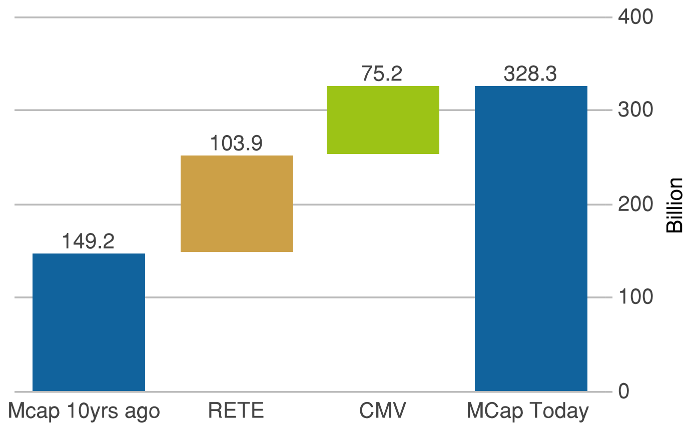
Date	Brokerage	Action	Rating
17-May	Aegis	Raises Target	Buy
24-Apr	KeyCorp	Reiterates	Overweight
24-Apr	Barclays	Lowers Target	Overweight
24-Apr	Canaccord Genuity	Reiterates	Hold
24-Apr	Monness Crespi & Hardt	Reiterates	Buy
24-Apr	Morgan Stanley	Reiterates	Overweight

Fig 10: MCap - Historical Perspective

In the past 5 years Market Capitalization has increased by $US210.3 billion from $US118.1 billion to $US328.3 billion. Based on a dynamic start date of 5 years ago, there has been only 1 decline in MCap over the last 5 years.

	Price	MCap (US$ B)
Last	$US1,100.0	328.3
1 Year ago	$US988.29	292.3
2 Years ago	$US748.85	217.1
3 Years ago	$US545.32	157.2
4 Years ago	$US571.65	161
5 Years ago	$US435.52	118.1

Fig 11: Created Market Value [CMV: 10 yrs] ($US B)



Market Capitalization has increased by $US179.1 billion from $US149.2 billion to $US328.3 billion in the last 10 years. This increase comprises cumulative retained earnings (RETE) of $US103.9 billion and Created Market Value of $US75.2 billion. The Created Market Value multiple, defined by the change in MCap for every $US1 of retained earnings is $US1.72.

Period-based Shareholder Returns

PAST QUARTER

Alphabet Class A strengthens 3% in past quarter
Alphabet Inc (NASDAQ:GOOGL), has strengthened $US28.59 (or 2.7%) in the past quarter to close at $US1,100.0. Compared with the NASDAQ-100 Index which rose 113.3 points (or 1.6%) in the past quarter, this represented a relative price increase of 1.0%.

The stock rose 33 times (51.6% of the time) and fell 31 times (48.4% of the time). The aggregate volume was 0.9 times average trading of 2.4 million shares. The value of $US1,000 invested 3 months ago is $US1,027 [vs $US1,019 for the NASDAQ-100 Index] for a capital gain of $US27.

YEAR-TO-DATE

Alphabet Class A strengthens 4% in 2018
Alphabet Inc (NASDAQ:GOOGL), strengthened $US45.92 (or 4.4%) year-to-date (YTD) in 2018 to close at $US1,100.0. Compared with the NASDAQ-100 Index which has risen 8.9% YTD, this is a relative price change of -4.6%.

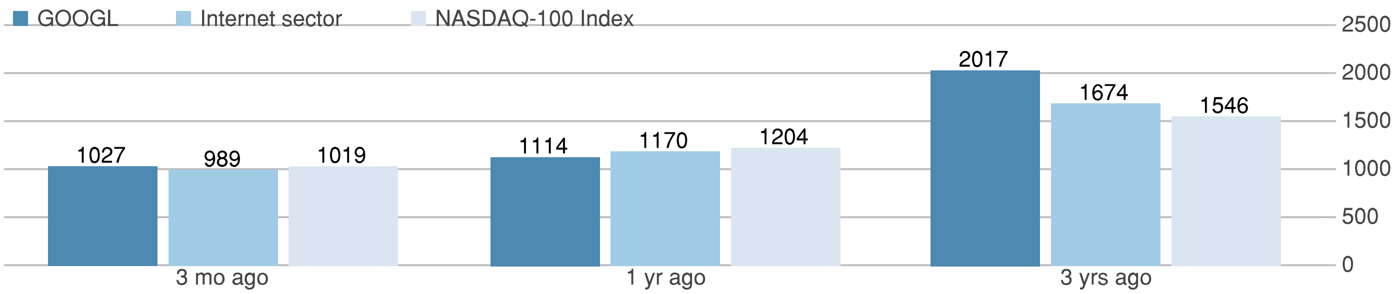
PAST YEAR

Alphabet Class A adds 11% in past year
Alphabet Inc (NASDAQ:GOOGL), added $US112.91 (or 11.4%) in the past year to close at $US1,100.0. Compared with the NASDAQ-100 Index which has risen 20.2% over the same period, this is a relative price change of -8.8%.

The stock rose 135 times (53.6% of the time), fell 116 times (46% of the time) and was unchanged 1 time (0.4% of the time). The value of $US1,000 invested a year ago is $US1,114 [vs $US1,204 for the NASDAQ-100 Index] for a capital gain of $US114.

Fig 13: PRESENT VALUE OF $US1000 INVESTED IN THE PAST [3 Mo, 1 Yr, 3 Yrs]

PV$US1,000	3 mo ago	1 yr ago	3 yrs ago
GOOGL	$US1,027	$US1,114	$US2,017
Internet sector	$US989	$US1,170	$US1,674
NASDAQ-100 Index	$US1,019	$US1,204	$US1,546



Period-based Shareholder Returns (continued)

Fig 14: Moving Annual Return

Based on a dynamic start date of 5 years ago, the Moving Annual Return has been positive in 4 of the last 5 years. An investment a year ago in GOOGL would have produced a return of 11.4%.

GOOGL	Close (USD)	Annual Return %
May 31	1,100	11.4
1 Yr ago	987.09	32.0
2 Yrs ago	747.6	37.1
3 Yrs ago	545.32	(4.6)
4 Yrs ago	571.65	31.2

Close 5 years ago $US435.69

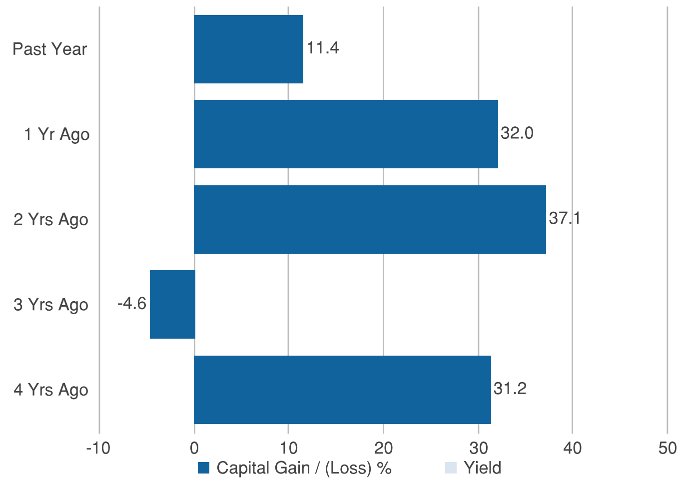
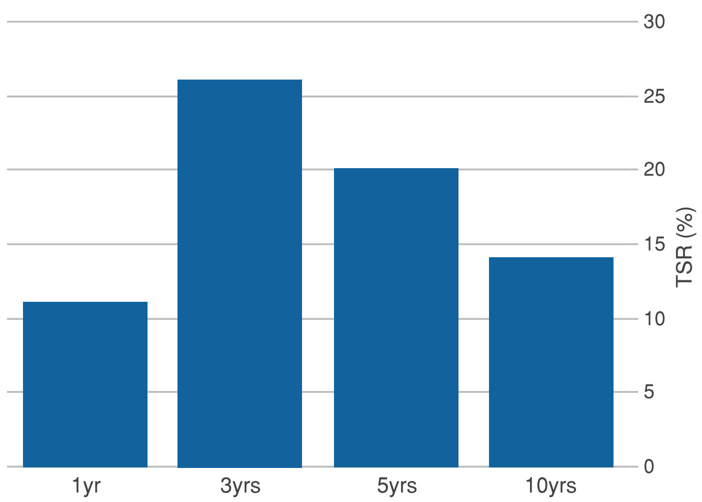


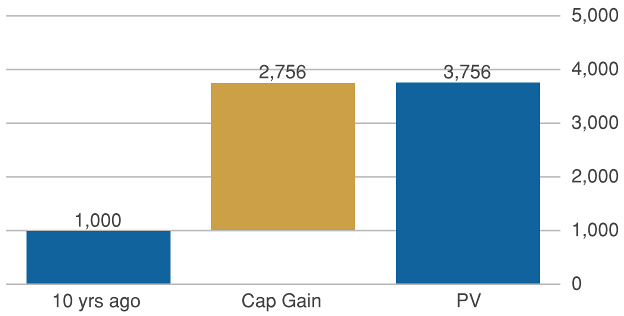
Fig 15: Total Shareholder Returns, Annualised [TSR %]

TSR %	1 yr	3 yrs	5 yrs	10 yrs
GOOGL	11.4	26.1	20.4	14.2



Period-based Shareholder Returns

Fig 16: PRESENT VALUE OF USD1000 INVESTED 10 YEARS AGO



Present Value (PV) of $US1000 invested 10 years ago = $US3,756
Comprising Capital gain of $US2,756

- The present value of USD1,000 (PV1000) invested ten years ago in Alphabet Class A is $US3,756, for a capital gain of $US2,756.
- 10 years Multiplier in USD = 3.756x
- Compound Annual Growth Rate (CAGR) in USD = 14.2%

Price Volume Dynamics (Past quarter)

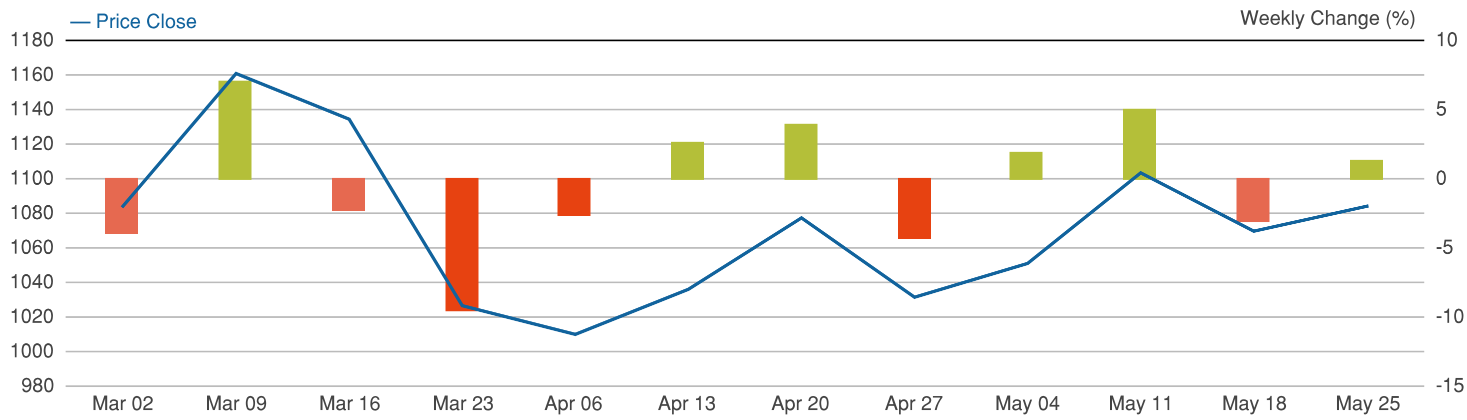
Fig 17: The Best 3 weeks

Mon-Fri	Change %	NASDAQ-100 index Change %	RPC %	Vol Ind [1 is avg]
Mar 05-09	7.1	4.3	2.8	0.7
May 07-11	5	2.7	2.3	0.7
Apr 16-20	4	0.6	3.4	0.8

Fig 18: The Worst 3 weeks

Mon-Fri	Change %	NASDAQ-100 index Change %	RPC %	Vol Ind [1 is avg]
Mar 19-23	-9.5	-7.3	-2.2	1.2
Apr 23-27	-4.3	-0.2	-4.1	1.4
Feb 26-Mar 02	-3.9	-1.2	-2.7	0.9

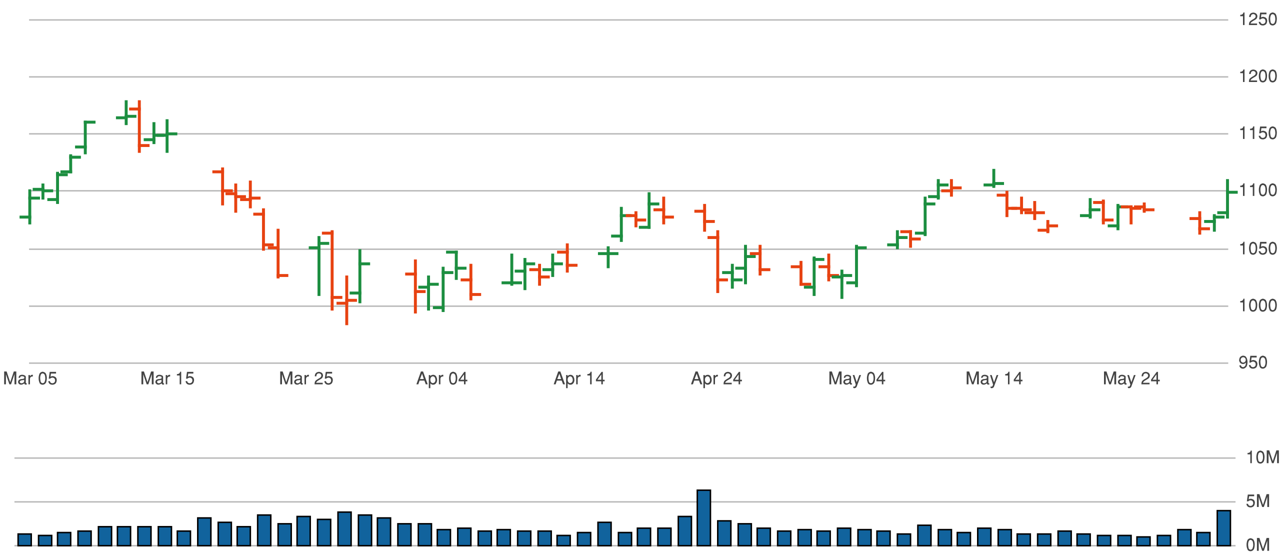
Fig 19: Weekly Price Change (%) and Volume Index (Last 3 months)



In the last 13 weeks the share price was up 2.7%. It rose in 6/13 weeks.

Price Volume Dynamics (continued)

Fig 20: Price Volume Trend: Trailing Quarter



Alphabet Class A hit a 3-month high of $US1,178.16 on Mar 12 and a 3-month low of $US984.0 on Mar 28.

Fig 21: Fibonacci Retracement

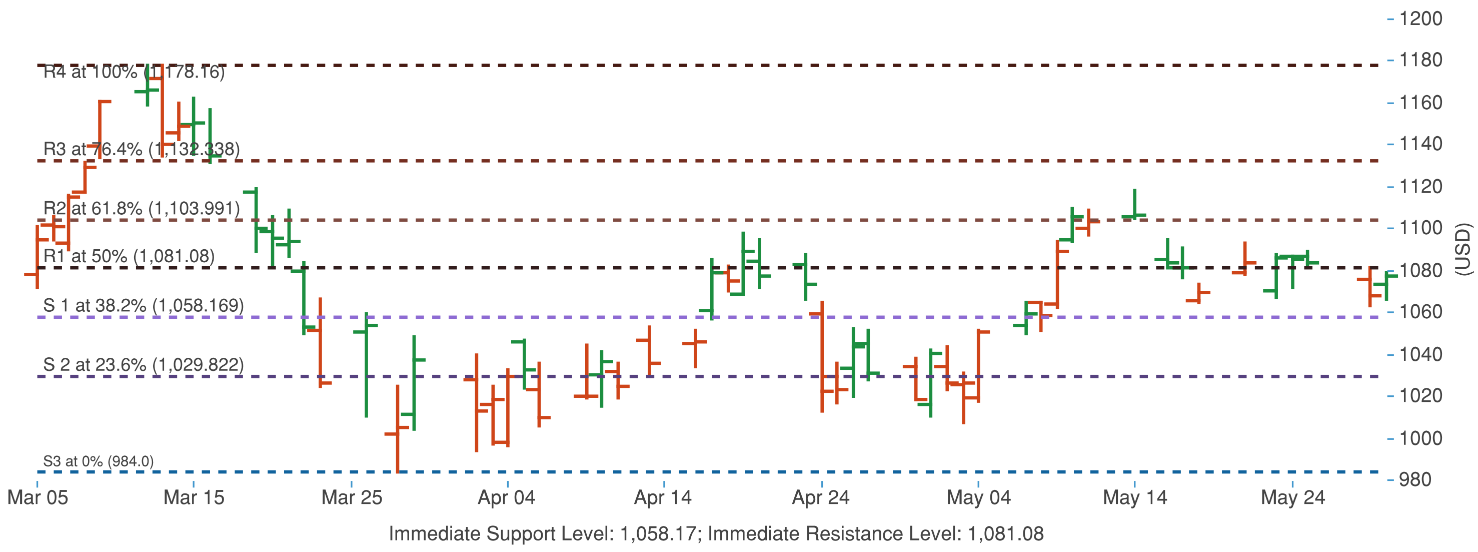


Fig 22: Trailing 3 months

Turnover	US$146.2 billion
Volume	137,100,031
Volume Index (1 is avg)	0.9

Fig 23: Trailing Price Change %

3-Year price change of 101.7% for GOOGL outperformed the change of 54.6% in the NASDAQ-100 index for a relative price change of 47.2%.

Price Change %	Quarter	Year	3 Years
GOOGL	2.7	11.4	101.7
Internet	-1.1	15.8	67.4
NASDAQ-100 index	1.6	20.2	54.6

Price Volume Dynamics (continued)

Volatility

The stock traded between a 52-week low of $US915.31 and a high of $US1,198.0. The average daily volatility of 1.7% places the stock in the 4th quartile in the market meaning it is least volatile.

Fig 24: Price High Low Close

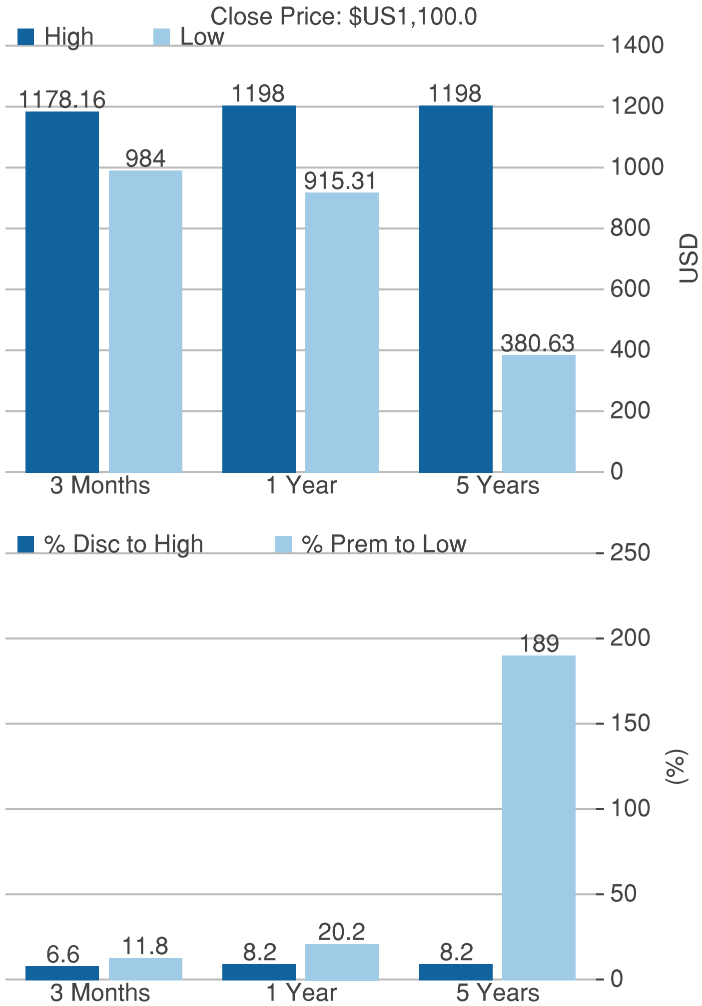


Fig 25: YTD Comparison Stock Sector Index (%)

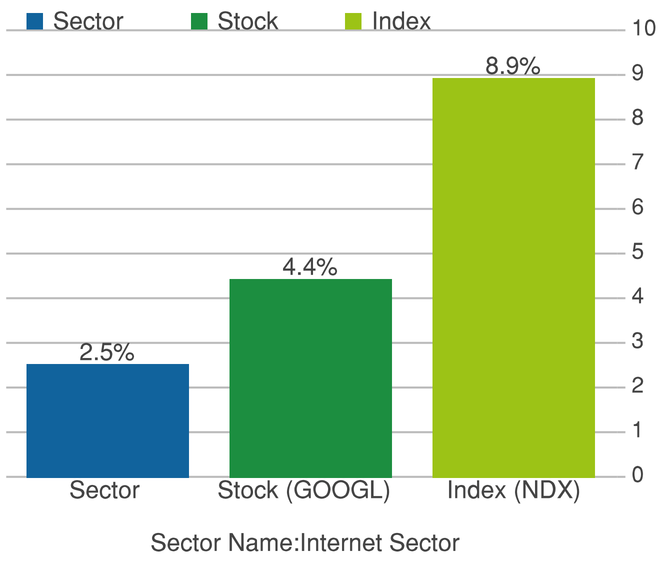
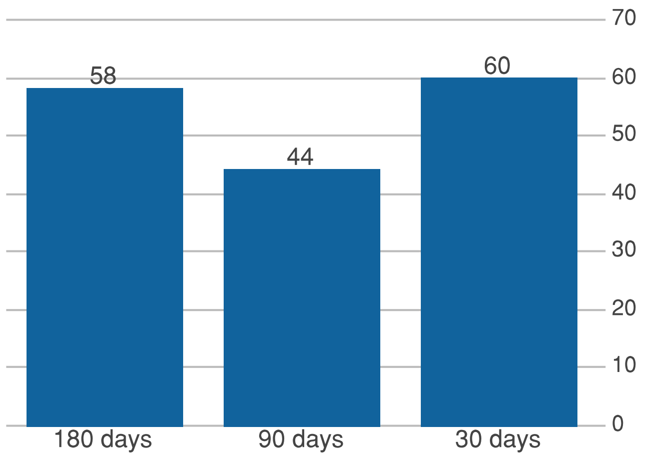
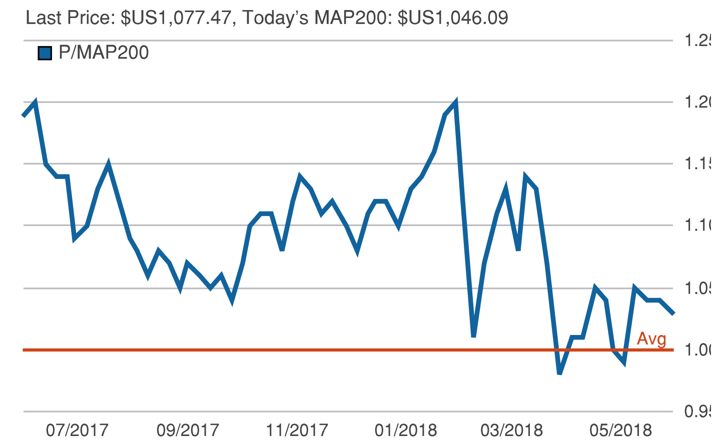


Fig 26: Relative Strength



Price Volume Dynamics (continued)

Fig 27: Price/Moving Avg Price [P/MAP200]



In the last 3 months the share price has exceeded Moving Avg Price on 53/63 days; a bullish signal.

Fig 28: Turnover Rate & Period

1. Annual Turnover $US472 billion
2. MCap $US328 billion
3. Turnover Rate (1/2) =143.9%
4. Turnover Period (1/3) =8 months

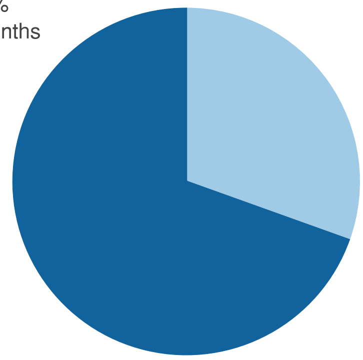
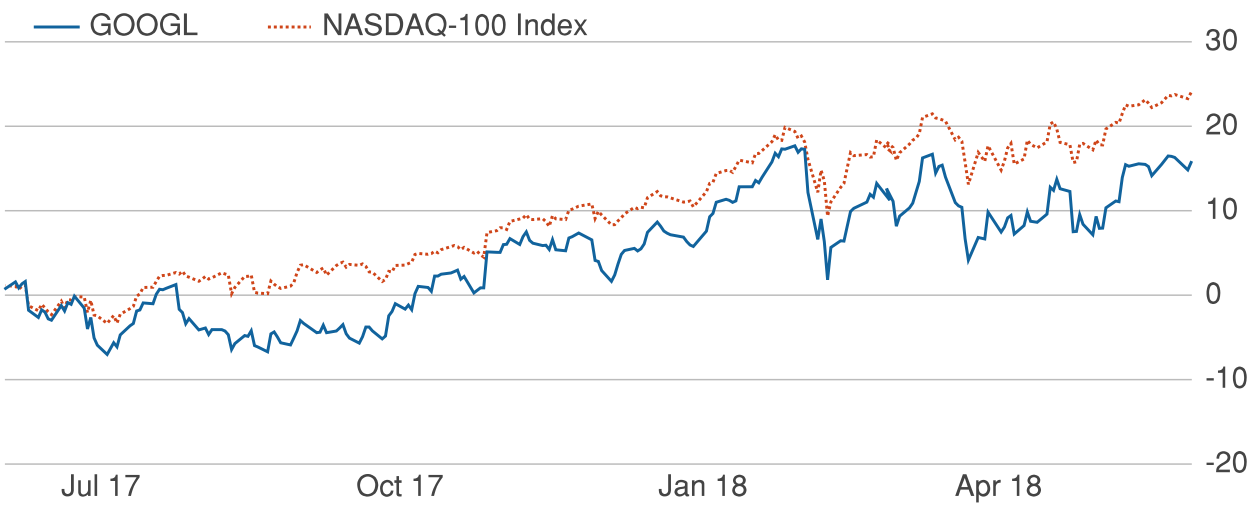


Fig 29: % Change (Tr. 12 Mo): Stock (11.4%) v Index (20.2%)



In the trailing 12 months Alphabet Class A has underperformed the NASDAQ-100 index by 8.8%.

Fig 30: Year-on-Year Comparison (Trailing year - ended 31 May)

	2018	2017	2016	2015	2014	2013
Price 31 May (USD)	1,100	987.09	748.85	545.32	571.65	435.52
% Price Change	11.4	31.8	37.3	-4.6	31.3	
Avg Daily Volume	1,811,191	1,579,405	2,302,094	1,694,897	1,876,074	2,229,986
VWAP (USD)	1,031.05	816.1	700.53	554.39	511.39	439.73
Turnover Period	8 mo	10 mo	6 mo	7 mo	4 mo	2 yrs 8 mo
Price Range (USD)	915.31 - 1,198	672.66 - 999.6	538.85 - 810.35	490.91 - 608.91	421.49 - 614.44	408.18 - 460.3
Index Change %	20.4	28	0.3	20.6	25.3	
Relative Price Change %	-8.9	3.9	37	-25.2	5.9	

Institutional Shareholder Activity

Fig 31: Institutional Shareholder Activity - Major Increases in Top 40 institutional shareholders [Quarter ended March 31, 2018]

Capital Research Global Investors increased their shareholding in Alphabet Class A by 779,091 shares worth USD 856.6 million. Bank of Montreal, CAN increased their shareholding by 419,180 shares worth USD 460.9 million.

Institution (CIK)	Increase in Shares	Change, $USD
Capital Research Global Investors (0001422848)	779,091	856.6 M
Bank of Montreal, CAN (0000927971)	419,180	460.9 M
Vanguard Group Inc. (0000102909)	377,947	415.6 M
Blackrock Inc. (0001364742)	269,848	296.7 M
Geode Capital Management, LLC (0001214717)	166,177	182.7 M
Ameriprise Financial Inc. (0000820027)	166,016	182.5 M
Capital World Investors (0001422849)	158,475	174.2 M
UBS Global Asset Management Americas Inc. (0000861177)	88,899	97.7 M
JP Morgan Chase & Co (0000019617)	86,817	95.5 M
Deutsche Bank AG (0000948046)	75,744	83.3 M
Fisher Asset Management, LLC (0000850529)	67,782	74.5 M
UBS Group AG (0001610520)	47,752	52.5 M
Edgewood Management LLC (0000860561)	43,561	47.9 M
Schwab Charles Investment Management Inc. (0000884546)	31,587	34.7 M
American Century Companies Inc. (0000748054)	23,524	25.9 M
Royal Bank Of Canada (0001000275)	20,398	22.4 M
Invesco Ltd. (0000914208)	8,206	9 M
Canada Pension Plan Investment Board (0001283718)	2,684	3 M
Total	**2,833,688**	**-**

Institutional Shareholder Activity (continued)

Fig 32: Institutional Shareholder Activity - Major Decreases in Top 40 institutional shareholders [Quarter ended March 31, 2018]

FMR LLC reduced their shareholding in Alphabet Class A by 1.1 million shares worth USD 1.2 billion. State Street Corporation reduced their shareholding by 568,520 shares worth USD 625.1 million.

Institution (CIK)	Decrease in Shares	Change, $USD
FMR LLC (0000315066)	1,117,982	(1.2 B)
State Street Corporation (0000093751)	568,520	(625.1 M)
Bank of New York Mellon Corp (0001390777)	233,186	(256.4 M)
Jennison Associates LLC (0000053417)	139,740	(153.6 M)
Lazard Asset Management LLC (0001207017)	134,411	(147.8 M)
Franklin Resources Inc. (0000038777)	130,171	(143.1 M)
Goldman Sachs Group Inc. (0000886982)	109,667	(120.6 M)
Northern Trust Corp (0000073124)	107,030	(117.7 M)
Alecta Pensionsforsakring, Omsesidigt (0001484429)	87,000	(95.7 M)
Legal & General Group PLC (0000764068)	85,804	(94.3 M)
Price T Rowe Associates Inc.,MD (0000080255)	82,807	(91 M)
Sands Capital Management, LLC (0001020066)	82,000	(90.2 M)
Wells Fargo & Company (0000072971)	66,885	(73.5 M)
TIAA CREF Investment Management LLC (0000887793)	62,180	(68.4 M)
Manufacturers Life Insurance Company (0000928047)	56,227	(61.8 M)
Morgan Stanley (0000895421)	25,677	(28.2 M)
Bank of America Corp, DE (0000070858)	13,136	(14.4 M)
Massachusetts Financial Services Co,MA (0000912938)	2,616	(2.9 M)
Wellington Management Group LLP (0000902219)	1,093	(1.2 M)
Total	**3,106,132**	**-**

Fig 33: Institutional Shareholder Activity - New Entrants in Top 40 institutional shareholders

Institution (CIK)	Shares	Value, $USD
Oppenheimer Funds Inc. (0000728889)	1,313,669	1.4 B
California Public Employees Retirement System (0000919079)	1,271,699	1.3 B
Loomis Sayles & Co LP (0000312348)	1,039,584	1.1 B
Total	**3,624,952**	**-**

Institutional Shareholder Activity (continued)

Fig 34: Institutional Shareholder Activity - Drop Outs from Top 40 institutional shareholders

Institution (CIK)	Shares	Value, $USD
Swiss National Bank (0001582202)	977,989	1 B
Magellan Asset Management Ltd (0001536105)	268,551	278.5 M
Total	**1,246,540**	**-**

Institutional Shareholder Activity (continued)

Fig 35: Institutional Shareholder Activity - Top 40 Institutional Shareholders of Alphabet Class A as at March 31, 2018

The top 40 institutional shareholders held 48.8% shares of Alphabet Class A. The largest shareholder was Vanguard Group Inc. with 7.24% of Alphabet Class A. The second largest shareholder was Blackrock Inc. with 6.28%.

Institution (CIK)	Shares	Holding %	Value $USD
Vanguard Group Inc. (0000102909)	21,608,472	7.24	22.4 B
Blackrock Inc. (0001364742)	18,733,196	6.28	19.4 B
FMR LLC (0000315066)	15,531,664	5.2	16.1 B
State Street Corporation (0000093751)	11,055,024	3.7	11.5 B
Price T Rowe Associates Inc.,MD (0000080255)	6,298,213	2.11	6.5 B
Capital Research Global Investors (0001422848)	5,060,436	1.7	5.2 B
Capital World Investors (0001422849)	4,018,348	1.35	4.2 B
Wellington Management Group LLP (0000902219)	3,670,331	1.23	3.8 B
Northern Trust Corp (0000073124)	3,649,150	1.22	3.8 B
Invesco Ltd. (0000914208)	3,537,832	1.19	3.7 B
Geode Capital Management, LLC (0001214717)	3,451,869	1.16	3.6 B
JP Morgan Chase & Co (0000019617)	3,275,299	1.1	3.4 B
Bank of New York Mellon Corp (0001390777)	3,225,646	1.08	3.3 B
Massachusetts Financial Services Co,MA (0000912938)	2,627,529	0.88	2.7 B
Morgan Stanley (0000895421)	2,574,747	0.86	2.7 B
Goldman Sachs Group Inc. (0000886982)	2,430,443	0.81	2.5 B
American Century Companies Inc. (0000748054)	2,266,027	0.76	2.4 B
Bank of America Corp, DE (0000070858)	2,209,784	0.74	2.3 B
Ameriprise Financial Inc. (0000820027)	2,168,310	0.73	2.2 B
Wells Fargo & Company (0000072971)	1,930,244	0.65	2 B
TIAA CREF Investment Management LLC (0000887793)	1,643,430	0.55	1.7 B
Bank of Montreal, CAN (0000927971)	1,607,558	0.54	1.7 B
UBS Group AG (0001610520)	1,594,929	0.53	1.7 B
Canada Pension Plan Investment Board (0001283718)	1,584,788	0.53	1.6 B
Jennison Associates LLC (0000053417)	1,580,970	0.53	1.6 B
Deutsche Bank AG (0000948046)	1,531,170	0.51	1.6 B
UBS Global Asset Management Americas Inc. (0000861177)	1,419,306	0.48	1.5 B
Alecta Pensionsforsakring, Omsesidigt (0001484429)	1,416,100	0.47	1.5 B
Legal & General Group PLC (0000764068)	1,339,436	0.45	1.4 B
Oppenheimer Funds Inc. (0000728889)	1,313,669	0.44	1.4 B
California Public Employees Retirement System (0000919079)	1,271,699	0.43	1.3 B
Sands Capital Management, LLC (0001020066)	1,255,101	0.42	1.3 B
Franklin Resources Inc. (0000038777)	1,180,261	0.4	1.2 B

Institutional Shareholder Activity (continued)

Edgewood Management LLC (0000860561)	1,180,219	0.4	1.2 B
Fisher Asset Management, LLC (0000850529)	1,173,658	0.39	1.2 B
Schwab Charles Investment Management Inc. (0000884546)	1,109,625	0.37	1.2 B
Lazard Asset Management LLC (0001207017)	1,085,408	0.36	1.1 B
Royal Bank Of Canada (0001000275)	1,081,071	0.36	1.1 B
Loomis Sayles & Co LP (0000312348)	1,039,584	0.35	1.1 B
Manufacturers Life Insurance Company (0000928047)	1,000,138	0.34	1 B
Held by Top 40	**145,730,684**	**48.84**	**151.1 billion**

Fig 36: Institutional Shareholder Activity - Net institutional selling: TTM ended March 31, 2018

Total reported Institutional buying = 31,600,015 shares

Total reported Institutional selling = 37,910,159 shares

Net reported institutional selling = 6,310,144 shares

Fig 37: Institutional Shareholder Activity - Reported institutional buying and selling (No of shares)

Quarter Ended	Mar 31	Dec 31, 2017	Sep 30, 2017	Jun 30, 2017
Buying	7,232,774	10,225,337	6,883,166	7,258,738
(Selling)	(11,307,462)	(9,040,924)	(7,621,721)	(9,940,052)
Net Buying/(Selling)	(4,074,688)	1,184,413	(738,555)	(2,681,314)
Holding (end of quarter)	226,400,412	234,154,783	228,782,707	229,731,635

Fig 38: Institutional Shareholder Activity - Reported holdings of institutions as of March 31, 2018

Total reported holdings of institutions = 226,400,412 shares

Market Value = $US234.8 billion

Quarter Ended	Mar 31	Dec 31, 2017	Sep 30, 2017	Jun 30, 2017
Market Value ($ Million)				
Reported Holdings of Institutions	234,809	246,818	222,770	213,577
% of issued capital	75.85	78.45	76.65	76.96

Institutional Shareholder Activity (continued)

Fig 39: Institutional Shareholder Activity - Net Buying/(Selling) by Institutions: Trailing 12 Months (TTM)

Institution	Q1'18	Q4'17	Q3'17	Q2'17	Total TTM	USD Value as on 31 May 2018
FMR LLC	(1,117,982)	(813,958)	(183,723)	367,634	(1,748,029)	1.9 billion
Vanguard Group Inc.	377,947	406,896	253,153	662,279	1,700,275	1.9 billion
Price T Rowe Associates Inc.,MD	(82,807)	12,981	(934,524)	(550,333)	(1,554,683)	1.7 billion
Bank of New York Mellon Corp	(233,186)	(321,383)	(164,987)	(253,017)	(972,573)	1.1 billion
State Street Corporation	(568,520)	180,182	(254,509)	(248,477)	(891,324)	980.5 million
Capital Research Global Investors	779,091	(34,997)	8,147	102,133	854,374	939.8 million
Goldman Sachs Group Inc.	(109,667)	220,504	(62,162)	(892,552)	(843,877)	928.3 million
Blackrock Inc.	269,848	(200,927)	30,341	567,337	666,599	733.3 million
California Public Employees Retirement System	216,119	374,121	26,144	23,500	639,884	703.9 million
Oppenheimer Funds Inc.	575,882	(14,561)	35,076	(12,617)	583,780	642.2 million
Jennison Associates LLC	(139,740)	(55,652)	(129,468)	(218,369)	(543,229)	597.6 million
Harding Loevner LP		(516,689)		(22,800)	(539,489)	593.4 million
Boston Partners	(112,752)	(78,438)	(98,230)	(248,741)	(538,161)	592 million
Bank of Montreal, CAN	419,180	144,201	(50,521)	8,375	521,235	573.4 million
Generation Investment Management LLP	(36,565)	(110,306)	(1,648)	(348,049)	(496,568)	546.2 million
Norges Bank		485,637			485,637	534.2 million
Ruane, Cunniff & Goldfarb Inc.		190,270	201,583	72,398	464,251	510.7 million
Viking Global Investors LP	1,026	(482,611)	792,921	(737,258)	(425,922)	468.5 million
Capital World Investors	158,475	(22,250)	2,141	280,710	419,076	461 million
Credit Agricole S A	(575)	(277,783)	(84,745)	(36,002)	(399,105)	439 million
Lazard Asset Management LLC	(134,411)	(117,189)	43,716	(189,215)	(397,099)	436.8 million
UBS Group AG	47,752	116,046	193,717	30,930	388,445	427.3 million
Edgewood Management LLC	43,561	16,635	272,851	44,368	377,415	415.2 million
Geode Capital Management, LLC	166,177	87,329	65,252	45,858	364,616	401.1 million
Fiera Capital Corporation	22,709	343,835	(922)	(1,115)	364,507	401 million
Canada Pension Plan Investment Board	2,684	206,856	58,800	85,800	354,140	389.6 million
Barclays PLC	288,417	53,626	13,891	(24,105)	331,829	365 million
Parametric Portfolio Associates LLC	18,497	88,406	27,989	196,357	331,249	364.4 million
Henderson Group PLC	7,018	21,381	23,364	277,659	329,422	362.4 million
Franklin Resources Inc.	(130,171)	(41,649)	(144,874)	(9,781)	(326,475)	359.1 million
D. E. Shaw & Co., Inc.	(16,424)	83,597	71,986	184,767	323,926	356.3 million

Institutional Shareholder Activity (continued)

Sands Capital Management, LLC	(82,000)	(42,694)	(89,734)	(99,889)	(314,317)	345.7 million
Wellington Management Group LLP	(1,093)	117,152	254,690	(70,627)	300,122	330.1 million
Citadel Advisors LLC	(180,770)	(104,545)	(207,260)	211,553	(281,022)	309.1 million
Brown Advisory Inc.	(144,943)	(38,491)	(128,478)	39,006	(272,906)	300.2 million
Waddell & Reed, Inc.	(35,015)	(46,377)	(88,202)	(91,312)	(260,906)	287 million
JP Morgan Chase & Co	86,817	305,655	(84,165)	(54,389)	253,918	279.3 million
Blue Ridge Capital, LLC			(127,500)	(117,700)	(245,200)	269.7 million
Marshall Wace Asia Ltd	(26,104)	(44,541)	6,772	(178,784)	(242,657)	266.9 million
Lansdowne Partners (UK) LLP	(67,679)	70,016	(142,491)	(95,822)	(235,976)	259.6 million
Veritas Asset Management LLP	8,250	40,750	(1,700)	(281,412)	(234,112)	257.5 million
Renaissance Technologies LLC		(215,700)	(4,100)	(13,352)	(233,152)	256.5 million
Glenview Capital Management, LLC	(90,024)	(116,358)	(8,843)	(16,415)	(231,640)	254.8 million
Bank of America Corp, DE	(13,136)	(254,250)	189,033	(145,324)	(223,677)	246 million
Wells Fargo & Company	(66,885)	(36,785)	(147,691)	28,858	(222,503)	244.8 million
Alecta Pensionsforsakring, Omsesidigt	(87,000)	(124,000)	(10,000)		(221,000)	243.1 million
Grantham, Mayo, Van Otterloo & Co. LLC	(46,203)	(52,269)	(13,571)	(107,450)	(219,493)	241.4 million
State of Wisconsin Investment Board	(130,981)	(60,120)	287,287	122,013	218,199	240 million
Alkeon Capital Management LLC	(184,762)	52,405	(82,010)	(500)	(214,867)	236.4 million
Flossbach von Storch AG	32,554	1,337	181,135	(3,209)	211,817	233 million
BNP Paribas Arbitrage, SA	(166,097)	(73,255)	105,438	(77,790)	(211,704)	232.9 million
Credit Suisse AG	(72,627)	1,893	(15,484)	(116,838)	(203,056)	223.4 million
Harris Associates LP	217,027	2,193	12,556	(31,803)	199,973	220 million
AQR Capital Management LLC	(104,600)	174,989	111,258	16,333	197,980	217.8 million
Artisan Partners Limited Partnership	(77,411)	(64,908)	(85,399)	30,286	(197,432)	217.2 million
Winslow Capital Management, LLC	(17,908)	(38,929)	(32,740)	(99,572)	(189,149)	208.1 million
Los Angeles Capital Management & Equity Research Inc.	(76)	18,182	62,188	107,944	188,238	207.1 million
Pioneer Investment Management Inc.	(41,356)	258,430	(3,576)	(26,432)	187,066	205.8 million
Polen Capital Management LLC	1,541	(3,600)	(97,981)	(84,161)	(184,201)	202.6 million
Voya Investment Management LLC	599	(20,433)	(155,154)	(642)	(175,630)	193.2 million
Capital Guardian Trust Co	(773)	1,104	(481)	(175,462)	(175,612)	193.2 million
Jackson Square Partners, LLC	(16,583)	(50,739)	(45,353)	(55,126)	(167,801)	184.6 million

Institutional Shareholder Activity (continued)

Dodge & Cox	(40,245)	(9,430)	(49,199)	(66,950)	(165,824)	182.4 million
Nomura Holdings Inc.	101,341	25,544	963	33,754	161,602	177.8 million
AllianceBernstein	(83,814)	(15,880)	(12,315)	(48,903)	(160,912)	177 million
Duquesne Family Office LLC	1,800	25,500	57,200	74,250	158,750	174.6 million
OZ Management LP	158,000				158,000	173.8 million
William Blair Investment Management, LLC	(20,013)	(80,961)	(37,547)	(11,814)	(150,335)	165.4 million
Two Sigma Advisers, LLC	(54,500)	(21,400)	(30,100)	(41,800)	(147,800)	162.6 million
Arrowstreet Capital, Limited Partnership	48,774	(386,052)	39,478	152,800	(145,000)	159.5 million
LLBH Private Wealth Management, LLC	(10)	(45)	100	(143,015)	(142,970)	157.3 million
Ameriprise Financial Inc.	166,016	(231,661)	(17,963)	(58,691)	(142,299)	156.5 million
American Century Companies Inc.	23,524	(39,742)	(67,985)	(57,211)	(141,414)	155.6 million
Investec Asset Management Ltd	(131,544)	(11,991)	12,752	(8,043)	(138,826)	152.7 million
Australian Super Pty Ltd	8,962	(146,162)			(137,200)	150.9 million
Deutsche Bank AG	75,744	(104,293)	(61,021)	(46,686)	(136,256)	149.9 million
Columbus Circle Investors	(38,023)	(12,783)	(62,460)	(22,941)	(136,207)	149.8 million
Morgan Stanley	(25,677)	279,663	(105,634)	(13,815)	134,537	148 million
FIL Ltd	51,202	22,889	12,381	45,658	132,130	145.3 million
Artemis Investment Management LLP	126,931	3,167	(1,399)	(298)	128,401	141.2 million
SEI Investments Co	(87,025)	(20,590)	(17,836)	(1,377)	(126,828)	139.5 million
TIAA CREF Investment Management LLC	(62,180)	(44,191)	(33,079)	14,631	(124,819)	137.3 million
Nine Masts Capital Ltd	(25,110)	(17,441)	87,288	75,720	120,457	132.5 million
Third Point LLC	(115,000)	375,000	(260,000)	120,000	120,000	132 million
DSM Capital Partners LLC	4,407	(13,470)	(92,303)	(18,531)	(119,897)	131.9 million
HSBC Holdings PLC	(28,320)	67,173	66,024	14,956	119,833	131.8 million
Jane Street Group, LLC	(234,146)	56,113	18,276	40,800	(118,957)	130.9 million
First Trust Advisors LP	83,962	1,950	37,261	(4,630)	118,543	130.4 million
Nordea Investment Management AB	5,872	(32,242)	28,853	(119,768)	(117,285)	129 million
Proshare Advisors LLC	37,912	47,561	12,982	18,665	117,120	128.8 million
Clearbridge Investments, LLC	19,407	31,714	8,908	56,540	116,569	128.2 million
Eagle Capital Management LLC	(11,159)	(24,111)	(24,665)	(56,338)	(116,273)	127.9 million
Schwab Charles Investment Management Inc.	31,587	26,196	13,758	43,543	115,084	126.6 million
Davis Selected Advisers	(26,247)	(14,289)	(33,392)	(39,886)	(113,814)	125.2 million
Her Majesty the Queen in Right of the Province of Alberta AS	13,300	84,800	3,400	12,042	113,542	124.9 million
Two Sigma Investments LLC		(87,089)	(33,981)	9,566	(111,504)	122.7 million
Marshall Wace LLP	(80,404)	(79,125)	78,241	(29,064)	(110,352)	121.4 million

Institutional Shareholder Activity (continued)

Lakewood Capital Management, LP	87,000	5,500	12,711	2,000	107,211	117.9 million
Toronto Dominion Bank	33,424	15,993	34,230	20,083	103,730	114.1 million
Fisher Asset Management, LLC	67,782	41,538	42,832	(49,857)	102,295	112.5 million
Brown Brothers Harriman & Co	(84,302)	(1,448)	(9,232)	(7,184)	(102,166)	112.4 million
Close Asset Management Ltd	1,074	(102,805)			(101,731)	111.9 million
Riverpark Advisors, LLC	(14,713)	(13,870)	(5,046)	(68,011)	(101,640)	111.8 million
CI Global Investments Inc.	(97,232)	(25,881)	158,732	(136,822)	(101,203)	111.3 million
Numeric Investors LLC		60,940	(71,330)	111,253	100,863	110.9 million
Mizuho Securities USA Inc.	97,250	(2,100)		4,865	100,015	110 million
Total					**(4,459,404)**	**4.9 billion**

Regulatory Announcements

Fig 40: Acquisitions

June 12 2017: Featured Company News - SoftBank to Acquire Boston Dynamics from Alphabet
Research Desk Line-up: Fang Holdings Post Earnings Coverage
LONDON, UK / ACCESSWIRE / June 12, 2017 /Pro-Trader Daily takes a look at the latest corporate events and news making the headlines for Alphabet, Inc. (NASDAQ:GOOGL) (NASDAQ:GOOG). SoftBank Group Corp., announced on June 09, 2017, that it has entered into a definitive agreement that, through a subsidiary, to acquire Boston Dynamics, an advanced dynamic robotics Company, from Alphabet, Inc.

June 08 2017: SoftBank Announces Agreement to Acquire Boston Dynamics
Companies to Collaborate in Advancing the Development of Smart Robotics Technologies
TOKYO--(BUSINESS WIRE)-- SoftBank Group Corp. ("SoftBank") today announced a subsidiary of SoftBank has entered into a definitive agreement to acquire robotics pioneer Boston Dynamics from Alphabet Inc. (NASDAQ: GOOGL, GOOG).

Fig 41: Financial Results announcements

February 01: Alphabet Inc. Class C to Host Earnings Call
NEW YORK, NY / / February 1, 2018 / Alphabet Inc. Class C (NASDAQ: GOOGL) will be discussing their earnings results in their Q4 Earnings Call to be held on February 1, 2018 at 4:30 PM Eastern Time.
To listen to the event live or access a replay of the call - visit https://www.investornetwork.com/company/24261

July 31 2017: Earnings Review and Free Research Report: Alphabet's Q2 Results Outperformed Forecasts
Research Desk Line-up: Baidu Post Earnings Coverage
LONDON, UK / ACCESSWIRE / July 31, 2017 /Pro-Trader Daily has just published a free post-earnings coverage on Alphabet Inc. (NASDAQ:GOOG) (NASDAQ:GOOGL), which can be viewed by registering at http://protraderdaily.com/optin/?symbol=GOOGL, following the Company's release of its financial on July 24, 2017, results for the second quarter fiscal 2017 (Q2 FY17).

July 28 2017: Financialinsiders.com Earnings Recap Week Ending July 28th, 2017
NEW YORK, July 28, 2017 /PRNewswire/ --
U.S. equities hit all-time highs during Thursday's trading session, but the major benchmarks gave up their gains in the afternoon and closed lower. The S&P 500 Index slipped 0.1 percent to 2,475.43 on Thursday and the Nasdaq Composite closed 0.63 percent lower to 6,382.19, while the Dow Jones Industrial Average gained 86.94 points to 21,797.95.

Fig 42: Awards/Recognition

November 07 2017: Frost & Sullivan Selects Arbor Networks for the 2017 DDoS Mitigation Products Market Leadership Award
Frost & Sullivan Selects Arbor Networks for the 2017 DDoS Mitigation Products Market Leadership Award Proven Mitigation Technology, Virtualized Portfolio Deliver High Value and Return on Investment BURLINGTON, Mass.---- Arbor Networks Inc., the security division of NETSCOUT (NASDAQ:NTCT), announced today that global industry analyst firm Frost & Sullivan has honored the company with the 2017 DDoS Mitigation Products Market Leadership Award.

8-K SEC Filings of Directors

June 09: Alphabet Class A Elects 12 Directors
Alphabet Class A (GOOGL) held its Annual General Meeting on June 7, 2017. According to an SEC filing under Section 8-K Item 5.07 the following directors were elected:

Larry Page
Sergey Brin
Eric E. Schmidt
L. John Doerr
Roger W. Ferguson, Jr.
Diane B. Greene
John L. Hennessy
Ann Mather
Alan R. Mulally
Paul S.
For more details click here.

8-K SEC Filings of significant events

April 23: Alphabet Announces First Quarter 2018 Results
MOUNTAIN VIEW, Calif. - April 23, 2018 - Alphabet Inc. (NASDAQ: GOOG, GOOGL) today announced financial results for the quarter ended March 31, 2018.

"Our ongoing strong revenue growth reflects our momentum globally, up 26% versus the first quarter of 2017 and 23% on a constant currency basis to $31.1 billion.
For more details click here.

June 27: Alphabet Class A: Other Events
On June 27, 2017, the European Commission (EC) announced its decision that certain actions taken by Google Inc. ("Google"), a wholly-owned subsidiary of Alphabet Inc. ("Alphabet"), regarding Google's display and ranking of shopping ads infringed European competition law. The EC decision imposes a EUR2.42 billion fine and directs the termination of the conduct at issue.
For more details click here.

Press Releases

March 08: Artifical Intelligence (AI) Influence on Internet of Things (IoT) and Mesh Technology Transforming Tech Industry
PALM BEACH, Florida, March 8, 2018 --
MarketNewsUpdates.com News Commentary
Artificial Intelligence continued influence and advancements for The Internet of Things (IoT) is transforming how businesses and consumers go about their daily activities. The technology that underlies this whole segment is evolving quickly, whether it's the rapid rise of the Amazon Echo and voice assistants upending the consumer space, or growth of AI-powered analytics platforms for the enterprise market.
For more details click here.

January 30: Wireless Innovation Forum Completes Foundational Standards Enabling Operation in the 3.5 GHz CBRS Band
Rollout of commercial CBRS networks can now begin while protection for incumbents is ensured
WASHINGTON---- The Wireless Innovation Forum (WInnForum) announced today the completion of the ten standards comprising the baseline specifications for commercial operations within the 3.5 GHz Citizens Broadband Radio Service (CBRS) band.

December 20 2017: WhereverTV Latino Launches on Google Chromecast
FORT MYERS, Fla., Dec. 20, 2017 -- WhereverTV Broadcasting Corp. (OTCQB:TVTV), which delivers Over the Top (OTT) subscription television services to a variety of devices including smartphones, TabletPCs, streaming media players, computers and connected TVs and announced today that WhereverTV Latino, a wholly-owned division of WhereverTV and Google (NASDAQ:GOOGL) announced their alliance through Google's Chromecast Division.

December 14 2017: What's Happening With These Internet Stocks? -- Alphabet, Sohu.com, VeriSign, and InterActiveCorp
NEW YORK, December 14, 2017 --
In keeping with the commitment to dynamically provide members with timely information, WallStEquities.com has issued free tailored Stock Review on GOOGL, SOHU, VRSN, and IAC which is a click away at www.wallstequities.com/registration. On Wednesday, December 13, 2017, the NASDAQ Composite and the Dow Jones Industrial Average edged 0.20% and 0.33% higher, respectively at the closing bell, while the S&P 500 stayed bearish, finishing marginally lower by 0.05%.

November 30 2017: Avangrid Renewables Signs PPAs with Google for Total Output of Two South Dakota Wind Farms
PORTLAND, Ore.---- Avangrid Renewables, a subsidiary of AVANGRID, Inc. (NYSE:AGR) announced today that it has signed its first major wind contracts with Google, a subsidiary company of Alphabet (NASDAQ:GOOGL), for 196 megawatts of new South Dakota wind power.
This press release features multimedia.

November 30 2017: EDF Renewable Energy Signs Agreement with Google to Supply 200 Megawatts of Wind Energy
SAN DIEGO---- EDF Renewable Energy has signed an agreement to supply Google, a subsidiary company of Alphabet (NASDAQ:GOOGL) with 200 megawatts (MW) of wind energy generated from the new Glaciers Edge Wind Project in Iowa.
Glaciers Edge Wind Project, located in Cherokee County in the northwest portion of the state, is expected to create more than 150 jobs during the construction phase along with millions of dollars injected into the local economy.

October 09 2017: FinancialInsiders.com Start of Week News October 9th, 2017
NEW YORK, October 9, 2017 -- U.S. equities fell slightly on Friday after the Bureau of Labor Statistics reported the first monthly jobs loss in seven years. Yet the stock market continues to still post strong weekly gains as investors feel optimistic about a possible tax reform. The Dow Jones industrial average posted a gain of 1.62 percent last week, while the S&P 500 was up 1.19 percent.

September 06 2017: Technical Research on Internet Equities -- Facebook, Alphabet, Groupon, and Wix.com
NEW YORK, September 6, 2017 /PRNewswire/ --
If you want a Stock Review on FB, GOOGL, GRPN, or WIX then come over to http://dailystocktracker.com/register/ and sign up for your free customized report today. This morning's research on DailyStockTracker.com is centered on the Internet Information Providers industry, which includes companies that operate media outlets through the Internet.

July 25 2017: Breakfast Technical Briefing on Internet Stocks -- Facebook, Fang, Wix.com, and Alphabet
NEW YORK, July 25, 2017 /PRNewswire/ --
If you want a Stock Review on FB, SFUN, WIX, or GOOGL then come over to http://dailystocktracker.com/register/ and sign up for your free customized report today. For today, DailyStockTracker.com directs investors' attention to Facebook Inc. (NASDAQ:FB), Fang Holdings Ltd (NYSE:SFUN), Wix.com Ltd (NASDAQ:WIX), and Alphabet Inc.

June 09 2017: Alphabet Class A: Submission of Matters to a Vote of Security Holders
Source: SEC
For more details click here.

Financials

GOOGL 2017 Annual Report: Key Parameters

FY2017 Annual Report: Alphabet Class A profits hit by 35.0% fall

Alphabet Class A (NASDAQ:GOOGL) reported net profit for the year-ended 31 December 2017 of $US12.7b, down 35% from $US19.5b in the previous year.

Major changes compared with previous year:

Favourable Changes:

- Total revenue to total assets up from 0.5 to 0.6
- Administration expenses to Sales down from 7.7% to 6.2%
- Fixed Assets to Total Assets up from 20.4% to 21.5%
- Total Liabilities to EBITDA of 1.6 compares favourably with the Joseph Piotroski benchmark of <5. However, it has deteriorated by 39.8% from the previous year's ratio of 1.2.
- Total Liabilities to Operating Cash Flow of 1.2 compares favourably with the Joseph Piotroski benchmark of <4. However, it has deteriorated by 53.2% from the previous year's ratio of 0.8.

Unfavourable Changes:

- Net profit slumps 35% from $US19.5b to $US12.7b
- EPS slumps 35.4% from $US27.85 to $US18.0
- EBIT Margin down from 26.8% to 24.5%
- EBIT to total assets down from 14.4% to 13.8%
- Cost of Goods Sold to Sales up from 38.9% to 41.1%
- Profit before tax to Sales down from 26.8% to 24.5%
- Current ratio down 18.3% from 6.3 to 5.1
- Working capital to total assets down from 52.9% to 50.7%
- Retained earnings to total assets down from 62.8% to 57.4%

Note:

- Tax expenses to Sales up from 5.2% to 13.1%
- Total liabilities to Total assets steady at 0.2
- Total current assets to Total Assets up from 62.9% to 63%
- Cash to Total Assets up from 51.5% to 51.6%
- Total non-current assets to Total Assets down from 37.1% to 37%
- Intangibles to Total Assets down from 11.8% to 9.9%

Annual

Company Name : Alphabet Inc(GOOGL)			
December 31 Description	2017 $US m	2016 $US m	Change (%)
Sales Revenue	110,855	90,272	Up 22.8
EBITDA	27,193	24,150	Up 12.6
EBIT	27,193	24,150	Up 12.6
Pre-Tax Profit/(Loss)	27,193	24,150	Up 12.6
Profit/(Loss) after Tax	12,662	19,478	Slumps 35
Working Capital	100,125	88,652	Up 12.9
Current Assets	124,308	105,408	Up 17.9
Current Liabilities	24,183	16,756	Up 44.3
Shareholders' Funds	152,502	139,036	Up 9.7

Financials (continued)

Total Liabilities	44,793	28,461	Up 57.4
Total Assets	197,295	167,497	Up 17.8
Non-Current Debt	3,969	3,935	Up 0.9
Total Debt	3,969	3,935	Up 0.9
Cash and cash equivalents	101,871	86,333	Up 18
Operating Cash Flow	37,091	36,036	Up 2.9
Net Assets	152,502	139,036	Up 9.7
Net Tangible Assets	133,063	119,261	Up 11.6

Per Share figures December 31	2017	2016	Change (%)
Description	$US	$US	-
EPS Final	18	27.9	Slumps 35.4
EPS Dilution Factor *	0.99	-	-

December 31 Performance Ratios	2017	2016	Change (%)
Return on Equity (%)	8.3	14	Down 40.7
Return on Assets (%)	6.4	11.6	Down 44.8
Total Liabilities to EBITDA	1.6	1.2	Up 39.8
Total Liabilities to Operating Cash Flow	1.2	0.8	Up 53.2
Total Liabilities/Total Assets (Up 35.3% from 0.17 to 0.23)	0.2	0.2	Up 35.3
Current Ratio	5.1	6.3	Down 18.3
Common Size Ratios by Assets %			
Total current assets to Total Assets	63.0	62.9	Up 0.1
Cash to Total Assets	51.6	51.5	Up 0.1
Total non-current assets to Total Assets	37.0	37.1	Down 0.2
Fixed Assets to Total Assets	21.5	20.4	Up 5.2
Intangibles to Total Assets	9.9	11.8	Down 16.1
Common Size Ratios by Sales %			
Cost of Goods Sold to Sales	41.1	38.9	Up 5.6
Profit before tax to Sales	24.5	26.8	Down 8.4
Tax expenses to Sales	13.1	5.2	Up 153.1
Sales and marketing expenses to Sales	11.6	11.6	Down 0.1
Administration expenses to Sales	6.2	7.7	Down 19.9

Fig 43: Historical perspective of growth and performance:

In the last 5 years Compound Annual Growth Rate (CAGR) averaged 19.2% for Total Revenue and 3.4% for Net Profit.

Financials (continued)

Description	Annual ($US B)	5-year Avg ($US B)	5-year CAGR %
Total Revenue	110.9	79.7	19.2
EBITDA	27.2	21.6	10.7
Operating Profit	27.2	20.8	15.2
Net Profit	12.7	15.1	3.4

Net Profit Margin 5-year average is 19.8% and Return on Equity 5-year average is 12.9%

Description	Annual	5-year Avg
EBITDA Margin	24.5	27.9
Operating Profit Margin	24.5	26.5
Net Profit Margin	11.4	19.8
Return on Equity	8.3	12.9
Return on Assets	6.4	10.3
Return on Capital Employed	15.7	15.8

All Figures in %

Financials (continued)

Fig 44: Five-Year History (All figures in USD)

Net profit for FY2017 was $US12,662 million, down 35% from $US19,478 million in FY2016. EPS for FY2017 was $US18.0, down 35.4% from $US27.85 in FY2016.

Description (December 31)	2017	2016	2015	2014	2013
Income Statement					
Sales (B)	110.9	90.3	75.3	66.8	55.5
EBITDA (B)	27.2	24.1	19.7	17.3	19.8
EBIT (B)	27.2	24.1	19.7	17.3	15.9
Profit before tax (B)	27.2	24.1	19.7	17.3	15.9
Tax (B)	14.5	4.7	3.3	3.6	2.6
Net profit (B)	12.7	19.5	15.8	14.1	12.9
EPS	18	27.85	22.84	20.26	38.13
Balance Sheet					
Equity Share Capital (B)	152.5	139	120.3	103.9	87.3
Retained Earnings (B)	113.2	105.1	89.2	75.1	61.3
Total Debt (B)	4	3.9	5.2	5.2	5.2
Total Assets (B)	197.3	167.5	147.5	129.2	110.9
Current Asset (B)	124.3	105.4	90.1	78.7	72.9
Fixed Asset (B)	42.4	34.2	29	23.9	16.5
Working Capital (B)	100.1	88.7	70.8	61.9	57
Cash Flow					
Operating Cash Flow (B)	37.1	36	26	22.4	18.7
Investing Cash Flow (B)	(31.4)	(31.2)	(23.7)	(21.1)	(13.7)
Financing Cash Flow	(8.3 B)	(8.3 B)	(3.7 B)	(1.4 B)	(857 M)
Net Cash Flow	(2.6 B)	(3.5 B)	(1.4 B)	(118 M)	4.1 B

GOOGL Q1 2018 Financial Results as reported

Quarterly Report Q1 2018: Alphabet Class A reports 31.5% sequential rise in quarterly Income Before Tax

Alphabet Class A (NASDAQ:GOOGL), reported income before tax of $US10.5b for the quarter-ended 31 March 2018, up 31.5% from the previous quarter and up 54.6% from the year-earlier period.

Financial statements as reported.

(In $US Million, except per share data and shares outstanding)

Fig 45: Q1 2018 GOOGL Income Statement as reported

Description	$US Million	$US Million	
Mar 31	2018	2017	Change %
Revenue	31,146	24,750	Up 25.8
Costs and expenses:			

Financials (continued)

Cost of revenues	13,467	9,795	Up 37.5
Research and development	5,039	3,942	Up 27.8
Sales and marketing	3,604	2,644	Up 36.3
General and administrative	2,035	1,801	Up 13.0
Total costs and expenses	24,145	18,182	Up 32.8
Income from operations	7,001	6,568	Up 6.6
Other income (expense), net	3,542	251	Up 1,311.2
Income before income taxes	10,543	6,819	Up 54.6
Provision for income taxes	1,142	1,393	Down 18.0
Net income	9,401	5,426	Up 73.3
Basic net income per share of Class A and B common stock and Class C capital stock (in dollars per share)	$US13.53	$US7.85	Up 72.4
Diluted net income per share of Class A and B common stock and Class C capital stock (in dollars per share)	$US13.33	$US7.73	Up 72.4

Fig 46: Q1 2018 GOOGL Balance Sheet as reported

Description	$US Million	$US Million	
	Mar 31, 2018	Dec 31, 2017	Change %
Current assets:			
Cash and cash equivalents	12,658	10,715	Up 18.1
Marketable securities	90,227	91,156	Down 1.0
Total cash, cash equivalents, and marketable securities	102,885	101,871	Up 1.0
Accounts receivable, net of allowance of $674 and $536	16,777	18,336	Down 8.5
Income taxes receivable, net	37	369	Down 90.0
Inventory	636	749	Down 15.1
Other current assets	3,426	2,983	Up 14.9
Total current assets	123,761	124,308	Down 0.4
Non-marketable investments	10,976	7,813	Up 40.5
Deferred income taxes	678	680	Down 0.3
Property and equipment, net	48,845	42,383	Up 15.2
Intangible assets, net	2,809	2,692	Up 4.3
Goodwill	17,862	16,747	Up 6.7
Other non-current assets	2,004	2,672	Down 25.0
	83,174	72,987	Up 14.0
Total assets	206,935	197,295	Up 4.9
Current liabilities:			
Accounts payable	3,526	3,137	Up 12.4
Short-term debt	1,329		
Accrued compensation and benefits	3,812	4,581	Down 16.8
Accrued expenses and other current liabilities	10,065	10,177	Down 1.1
Accrued revenue share	3,723	3,975	Down 6.3
Deferred revenue	1,596	1,432	Up 11.5
Income taxes payable, net	1,343	881	Up 52.4
Total current liabilities	25,394	24,183	Up 5.0

Financials (continued)

Long-term debt	3,973	3,969	Up 0.1
Deferred revenue, non-current	315	340	Down 7.4
Income taxes payable, non-current	12,885	12,812	Up 0.6
Deferred income taxes	394	430	Down 8.4
Other long-term liabilities	3,149	3,059	Up 2.9
	20,716	20,610	Up 0.5
Total liabilities	46,110	44,793	Up 2.9
Commitments and Contingencies (Note 9)			
Stockholders' equity:			
Convertible preferred stock, $0.001 par value per share, 100,000 shares authorized; no shares issued and outstanding			
Class A and Class B common stock, and Class C capital stock and additional paid-in capital, $0.001 par value per share: 15,000,000 shares authorized (Class A 9,000,000, Class B 3,000,000, Class C 3,000,000); 694,783 (Class A 298,470, Class B 46,972, Class C 349,341) and 694,945 (Class A 298,652, Class B 46,940, Class C 349,353) shares issued and outstanding	41,487	40,247	Up 3.1
Accumulated other comprehensive loss	-670	-992	Improved 32.5
Retained earnings	120,008	113,247	Up 6.0
Total stockholders' equity	160,825	152,502	Up 5.5
Total liabilities and stockholders' equity	206,935	197,295	Up 4.9

Fig 47: Q1 2018 GOOGL Cash Flow as reported

Description	$US Million	$US Million	
Mar 31	2018	2017	Change %
Operating activities			
Net income	9,401	5,426	Up 73.3
Adjustments:			
Depreciation and impairment of property and equipment	1,791	1,287	Up 39.2
Amortization and impairment of intangible assets	195	216	Down 9.7
Stock-based compensation expense	2,457	2,009	Up 22.3
Deferred income taxes	-18	613	Deterioration
(Gain) loss on debt and equity securities, net	-2,992	19	Deterioration
Other	-257	57	Deterioration
Changes in assets and liabilities, net of effects of acquisitions:			
Accounts receivable	1,700	1,267	Up 34.2
Income taxes, net	782	510	Up 53.3
Other assets	-241	-128	Deterioration 88.3
Accounts payable	122	103	Up 18.4
Accrued expenses and other liabilities	-1,142	-1,868	Improved 38.9
Accrued revenue share	-286	-74	Deterioration 286.5
Deferred revenue	130	111	Up 17.1
Net cash provided by operating activities	11,642	9,548	Up 21.9
Investing activities			

Financials (continued)

Purchases of property and equipment	-7,299	-2,508	Deterioration 191.0
Proceeds from disposals of property and equipment	30	41	Down 26.8
Purchases of marketable securities	-8,849	-20,119	Improved 56.0
Maturities and sales of marketable securities	9,351	19,362	Down 51.7
Purchases of non-marketable investments	-327	-354	Improved 7.6
Maturities and sales of non-marketable investments	498	78	Up 538.5
Acquisitions, net of cash acquired, and purchases of intangible assets	-1,250	-101	Deterioration 1,137.6
Proceeds from collection of notes receivable		750	
Net cash used in investing activities	-7,846	-2,851	Deterioration 175.2
Financing activities			
Net payments related to stock-based award activities	-1,158	-1,009	Deterioration 14.8
Repurchases of capital stock	-2,173	-1,127	Deterioration 92.8
Proceeds from issuance of debt, net of costs	4,691		
Repayments of debt	-3,378	-18	Deterioration 18,666.7
Proceeds from sale of subsidiary shares		480	
Net cash used in financing activities	-2,018	-1,674	Deterioration 20.5
Effect of exchange rate changes on cash and cash equivalents	165	191	Down 13.6
Net increase in cash and cash equivalents	1,943	5,214	Down 62.7
Cash and cash equivalents at beginning of period	10,715	12,918	Down 17.1
Cash and cash equivalents at end of period	12,658	18,132	Down 30.2

GOOGL 2017 Financial Results as reported (Annual)

FY2017 Annual Report: Alphabet Class A Revenue up 22.8%

Alphabet Class A (NASDAQ:GOOGL) reported total revenue for the year-ended 31 December 2017 of $US111b, up 22.8% from $US90.3b in the previous year.

Financial statements as reported.

(In $US Million, except per share data and shares outstanding)

Fig 48: 2017 GOOGL Income Statement as reported

Description	$US Million	$US Million	
Dec 31	2017	2016	Change %
Revenues	110,855	90,272	Up 22.8
Costs and expenses:			
Cost of revenues	45,583	35,138	Up 29.7
Research and development	16,625	13,948	Up 19.2
Sales and marketing	12,893	10,485	Up 23.0
General and administrative	6,872	6,985	Down 1.6
European Commission fine	2,736		
Total costs and expenses	84,709	66,556	Up 27.3
Income from operations	26,146	23,716	Up 10.2

Financials (continued)

Other income (expense), net	1,047	434	Up 141.2
Income before income taxes	27,193	24,150	Up 12.6
Provision for income taxes	14,531	4,672	Up 211.0
Net income (loss)	12,662	19,478	Down 35.0
Net income (loss)	12,662	19,478	Down 35.0
Basic earnings per share of Class A and B common stock and Class C capital stock	$US18.27	$US28.32	Down 35.5
Diluted earnings per share of Class A and B common stock and Class C capital stock	$US18.0	$US27.85	Down 35.4

Fig 49: 2017 GOOGL Balance Sheet as reported

Description	$US Million	$US Million	
Dec 31	2017	2016	Change %
Assets			
Current assets:			
Cash and cash equivalents	10,715	12,918	Down 17.1
Marketable securities	91,156	73,415	Up 24.2
Total cash, cash equivalents, and marketable securities	101,871	86,333	Up 18.0
Accounts receivable, net of allowance of $467 and $674	18,336	14,137	Up 29.7
Income taxes receivable, net	369	95	Up 288.4
Inventory	749	268	Up 179.5
Other current assets	2,983	4,575	Down 34.8
Total current assets	124,308	105,408	Up 17.9
Non-marketable investments	7,813	5,878	Up 32.9
Deferred income taxes	680	383	Up 77.5
Property and equipment, net	42,383	34,234	Up 23.8
Intangible assets, net	2,692	3,307	Down 18.6
Goodwill	16,747	16,468	Up 1.7
Other non-current assets	2,672	1,819	Up 46.9
	72,987	62,089	Up 17.6
Total assets	197,295	167,497	Up 17.8
Liabilities and Stockholders' Equity			
Current liabilities:			
Accounts payable	3,137	2,041	Up 53.7
Accrued compensation and benefits	4,581	3,976	Up 15.2
Accrued expenses and other current liabilities	10,177	6,144	Up 65.6
Accrued revenue share	3,975	2,942	Up 35.1
Deferred revenue	1,432	1,099	Up 30.3
Income taxes payable, net	881	554	Up 59.0
Total current liabilities	24,183	16,756	Up 44.3
Long-term debt	3,969	3,935	Up 0.9
Deferred revenue, non-current	340	202	Up 68.3
Income taxes payable, non-current	12,812	4,677	Up 173.9
Deferred income taxes	430	226	Up 90.3

Financials (continued)

Other long-term liabilities	3,059	2,665	Up 14.8
	20,610	11,705	Up 76.1
Total liabilities	44,793	28,461	Up 57.4
Commitments and contingencies			
Stockholders' equity:			
Convertible preferred stock, $0.001 par value per share, 100,000 shares authorized; no shares issued and outstanding			
ClassA and Class B common stock, and Class C capital stock and additional paid-in capital, $0.001 par value per share: 15,000,000 shares authorized(ClassA 9,000,000, Class B 3,000,000, Class C 3,000,000); 691,293 (ClassA 296,992, Class B 47,437, Class C 346,864) and 694,783 (ClassA 298,470, Class B 46,972, Class C 349,341) shares issued and outstanding	40,247	36,307	Up 10.9
Accumulated other comprehensive loss	-992	-2,402	Improved 58.7
Retained earnings	113,247	105,131	Up 7.7
Total stockholders' equity	152,502	139,036	Up 9.7
Total liabilities and stockholders' equity	197,295	167,497	Up 17.8

Fig 50: 2017 GOOGL Cash Flow as reported

Description	$US Million	$US Million	
Dec 31	2017	2016	Change %
Operating activities			
Net income (loss)	12,662	19,478	Down 35.0
Adjustments:			
Depreciation and impairment of property and equipment	6,103	5,267	Up 15.9
Amortization and impairment of intangible assets	812	877	Down 7.4
Stock-based compensation expense	7,679	6,703	Up 14.6
Deferred income taxes	258	-38	Recovery
Loss on marketable and non-marketable investments, net	194	275	Down 29.5
Other	137	174	Down 21.3
Changes in assets and liabilities, net of effects of acquisitions:			
Accounts receivable	-3,768	-2,578	Deterioration 46.2
Income taxes, net	8,211	3,125	Up 162.8
Other assets	-2,164	312	Deterioration
Accounts payable	731	110	Up 564.5
Accrued expenses and other liabilities	4,891	1,515	Up 222.8
Accrued revenue share	955	593	Up 61.0
Deferred revenue	390	223	Up 74.9
Net cash provided by operating activities	37,091	36,036	Up 2.9
Investing activities			
Purchases of property and equipment	-13,184	-10,212	Deterioration 29.1
Proceeds from disposals of property and equipment	99	240	Down 58.8
Purchases of marketable securities	-92,195	-84,509	Deterioration 9.1
Maturities and sales of marketable securities	73,959	66,895	Up 10.6
Purchases of non-marketable investments	-1,745	-1,109	Deterioration 57.3

Financials (continued)

Maturities and sales of non-marketable investments	533	494	Up 7.9
Cash collateral related to securities lending		-2,428	
Investments in reverse repurchase agreements		450	
Acquisitions, net of cash acquired, and purchases of intangible assets	-287	-986	Improved 70.9
Proceeds from collection of notes receivable	1,419		
Net cash used in investing activities	-31,401	-31,165	Deterioration 0.8
Financing activities			
Net payments related to stock-based award activities	-4,166	-3,304	Deterioration 26.1
Repurchases of capital stock	-4,846	-3,693	Deterioration 31.2
Proceeds from issuance of debt, net of costs	4,291	8,729	Down 50.8
Repayments of debt	-4,377	-10,064	Improved 56.5
Proceeds from sale of subsidiary shares	800		
Net cash used in financing activities	-8,298	-8,332	Improved 0.4
Effect of exchange rate changes on cash and cash equivalents	405	-170	Recovery
Net increase (decrease) in cash and cash equivalents	-2,203	-3,631	Improved 39.3
Cash and cash equivalents at beginning of period	12,918	16,549	Down 21.9
Cash and cash equivalents at end of period	10,715	12,918	Down 17.1

Margins %		
Dec 31	2017	2016
Gross Profit Margin	58.9	61.1
EBITDA Margin	24.5	26.8
Earnings from Cont. Ops. Margin	24.5	26.8
Net Income Margin	11.4	21.6

Fig 51: Average Income Tax paid

	2017	2016	2015	2014	2013	5-yr avg	10-yr avg
As % of profit before tax		19.3	16.8	21.1	16.1	25.3	23.8
As % of operating cash flow		19.3	16.8	21.1	12.9	24.7	21.7
As % of sales	13.1	5.2	4.4	5.5	4.6	6.5	6.8

Corporate Bonds

Quarterly Trend of Corporate Bonds

Short-Term Bonds

Short-Term Google Inc corporate bond yields (CUSIP: 38259PAB8), maturing in 2 years 11 months have decreased from 2.84% to 2.59% in the past quarter. Over the same period, spread with treasury has decreased 36 basis points.

For searches and sorting by bonds and variables, an interactive version of current day's Table is available here

Fig 52: Time [Yrs Mo Days] and Yield to Maturity as on May 31, 2018

CUSIP	Time to Maturity	Yld (%)	Treasury (%)	Spread (%)	YTM Chng 3 Mo (bps)	Moody's	S&P
38259PAB8	2 yrs 11 mo 19 d	2.75	2.56	0.2	-9	Aa2	AA

Fig 53: Key Statistics

Maturity	Yield to maturity %	Yrs to Maturity	% Rise/Fall 3-mo
May 2021	2.75	2.97	-0.71
Feb 2024	3.18	5.73	-0.69

Peer Group Analysis & Ranking

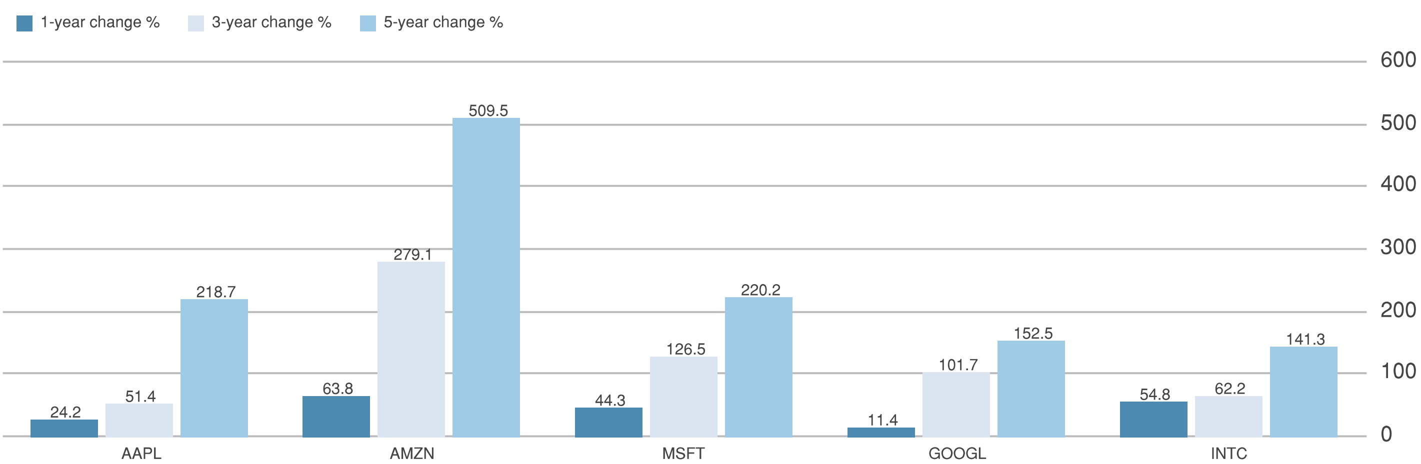
Fig 54: Global Peer Group Analysis (all figures in USD)

Name	Relative Str. (6 mo)	MCap	PV $1000 (1 yr)	Revenue	Net Profit	Total Assets
Apple (AAPL)	78	948.2B	1,261.8	232B	48.4B	375.3B
Amazon.com (AMZN)	94	788.9B	1,638.4	136B	2.4B	83.4B
Microsoft (MSFT)	87	761B	1,471.2	90B	21.2B	241.1B
Alphabet Class A (GOOGL)	75	328.3B	1,114.4	110.9B	12.7B	197.3B
Intel (INTC)	92	257.7B	1,600.4	62.8B	9.6B	123.2B
Cisco Systems (CSCO)	89	205.8B	1,422.5	48B	9.6B	129.8B
Oracle (ORCL)	57	190.7B	1,062.3	37.7B	9.3B	135B
SAP (SAP)	53	138.2B	1,081.2	27.2B	4.5B	54.5B
International Business Machines (IBM)	75	129.7B	995.7	79.1B	5.8B	125.4B

Global Peer Group Analysis (continued)

Code	Country Code	Last Price	P/E	P/S	P/Book	Turnover Rate (%)	% Disc to 52-w Hi	Retention Ratio
AAPL	US	$US186.87	17.9	3.8	7.5	132.4	1.7	74.9
AMZN	US	$US1,629.62		4.5		153.7	0.5	
MSFT	US	$US98.84	54.0	7.3	28.0	70.3	1.1	9.8
GOOGL	US	$US1,100.0	43.0	2.9	2.5	143.9	8.2	
INTC	US	$US55.20	23.6	4.0	8.1	117.3	1.8	39.4
CSCO	US	$US42.71	22.5	4.3	6.1	102.2	7.9	36.8
ORCL	US	$US46.72	21.1	5.1		94.5	12.3	65.6
SAP	DE	EUR96.34	28.7	5.0		4,205.7	2.9	58.3
IBM	US	$US141.31	23.2	1.6		138.8	16.5	

Fig 55: Global Peer Group - Price Performance



Peer Group Analysis & Ranking (continued)

Fig 56: Global Peer Group - Total Shareholder Return [TSR in USD]

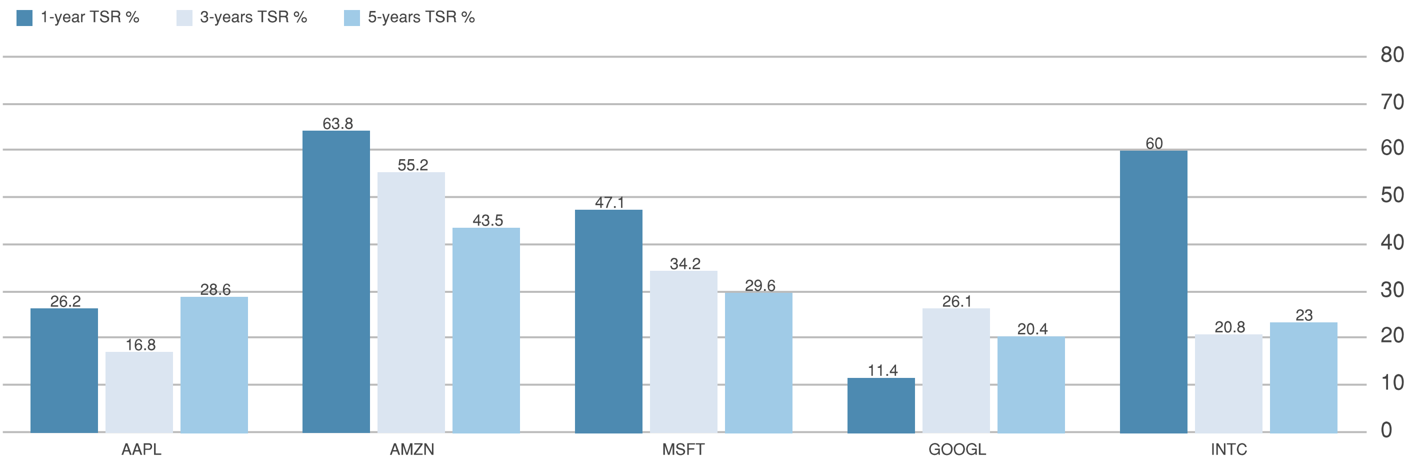


Fig 57: Compare and Sort: GOOGL vs Internet sector

Company Name	Code	MCap (USD, M)	52-W High	52-W Low	Rel. Str 6-Mo	PV$1000 1 year	P/NTA	P/E	Yield (%)
Alphabet Class A	GOOGL	328,342	1,198.0	915.3	58	1,114	2.5	43.0	-

For Company searches, or for sorting by stocks and variables, an interactive version of current day's Table is available here

Peer Group Analysis & Ranking (continued)

Fig 58: BuySellSignals Fundamentals Valuation Table: NASDAQ Market

-	NASDAQ Avg	GOOGL	Rank	Rank 1	Rank 2	Rank 3	Lowest Rank
P/Earnings	36.9x	43.05x	889	1.6x UPL	1.7x SNOA	1.8x VEON	-
Price/Net Tangible Assets	11.6x	2.5x	790	0.1x CREG	0.1x CNTF	0.1x GEVO	-
Total Debt/Equity	0.7x	0.03x	137	IPHS	ITRN	WILC	11.5x LNTH
Discount to 52-Wk High (%)	2.7	8.2	1456	99.98 TOPS	99.95 DCIX	99.5 INPX	0.04 GFED
Premium to 52-Wk Low (%)	18.4	20.2	639	0.1 ITRI	0.2 WIN	0.2 BCOM	4176.9 MARA
Total Assets US$	4.4 B	197.3 B	6	375.3 B AAPL	253.9 B PFG	241.1 B MSFT	1 M MARPS
Revenue US$	2 B	110.9 B	5	232 B AAPL	177.9 B AMZN	129 B COST	7,250 ZYNE
ROA (%)	3.5	6.4	426	89.4 TENX	73.7 MARPS	65.4 AZPN	0.01 SOHO
EBITDA Margin	15.9	24.5	533	89.1 SBRA	88.6 GGAL	88.4 VNOM	(88.7) CLBS

Values in bracket are negative.

Peer Group Analysis & Ranking (continued)

Fig 59: Independent Ratings

+ Top 50 BCG:
Alphabet Inc was ranked 2 in Boston Consulting Group's list of Top 50 Most Innovative Companies 2016; unchanged over a year from the same rank 2 in 2015.

+ Fortune's Change of the World list 50:
It was ranked 2 out of 50 companies in the Fortune's Change of the World list 2015.

+ Clarivate 100:
It is ranked in the Top 100 innovators by Clarivate Analytics.

+ PwC 100:
It was ranked 2 by MCap as at March 31, 2015 by PwC in the Top 100 Global companies; an improvement over 6 years from rank 22 as at March 31, 2009.

+ PwC Top100 Software Leaders:
It is the 52nd largest by revenue and 4th largest by MCap among the PwC Global Software Leaders.

+ FT 500:
It is the 80th largest by revenue in the FT Global 500.

+ Fortune 500:
It was ranked 65 by total revenues in the Fortune 500 annual list for 2017; an improvement over a year from rank 94 in 2016.

+ Forbes 2000:
It is the 121st largest by revenue in the Forbes Global 2000.

+ BSS/News Bites:
It is placed 1126/2183 in BSS News Bites' ranking of NASDAQ performers in the past year, a percentile ranking of 49.

+ Vanguard Total World Stock ETF 7581:
The stock was one of 7581 global stocks selected by Vanguard Total World Stock ETF (VT) who bought 4,200 shares in the period Jan 31, 2018 to Apr 30, 2018 worth $US4,352,528 at an estimated Volume Weighted Average Price (VWAP) of $US1036.3161. As at Apr 30, 2018, the Vanguard Total World Stock ETF held 84,295 shares worth $US87,356,266 or 0.52% by value of the ETF's portfolio [Ranked 11 out of 7581 by value and 5 out of 686 for NASDAQ].

Fig 60: Long-Term Fundamental Ranking: 4 out of 5

Alphabet Class A is ranked number 2 out of 32 listed internet companies [that traded today] in United States with a market capitalization of $US328.3 billion.
In the internet companies it has the 2nd highest total assets and 2nd highest revenues.
Within its sector it has a relatively moderate P/E of 43, moderate P/S of 2.9.
It has a moderate relative ROE of 8.3% and ROA of 6.4%.

Stocks are scored on a set of parameters reflecting fundamental analytical tools involving valuation, size and financial performance. They are ranked according to the average values of those parameters. The highest ranking is 5 and the lowest ranking is 1.

Market Share

Alphabet Class A vs Internet sector [Internet sector Total in Brackets]
Net Profit of $US12.7 billion [45.6% of Aggregate Sector Net Profit of $US27.7 billion; down from 47.7% in the previous year.]
EBIT of $US27.2 billion [47.1% of Aggregate Sector EBIT of $US57.8 billion; up from 28.7% in the previous year.]
MCap of $US328.3 billion [36.4% of Aggregate Sector MCap of $US902.1 billion; down from 37.8% in the previous year.]

Share in Index

Alphabet Class A is a constituent of the following indices. Its market capitalisation accounts for 5.9% of the combined MCap of the S&P 500 Index.

Index Name	MCap of Index (USD B)	MCap as % of Index
S&P 500 Index	5,525	5.9
The NASDAQ-100 Equal Weighted Index	7,869	4.2
NASDAQ-100 Index	8,188	4.0
NASDAQ Global Select Market Composite Index	10,413	3.2
NASDAQ Composite Index	10,814	3.0

Patents

Fig 61: Number of Patents Issued to Alphabet Class A (Past 12 Months)

There were a total of 2,229 patents issued to Alphabet Class A in the past 12 months. The highest number (328) were issued in January, 2018.

Month	No. of Patents Issued
May	255
April	229
March	181
February	171
January	328
December	130
November	175
October	309
September	229
August	222
Total (Past 12 Months)	2,229

Fig 62: Number of Patents (Past 12 Months): NASDAQ Market

There are 2,311 companies listed on the NASDAQ. Of these, 613 (or 26.5%) companies were issued a total of 28,237 patents. Of these 26,087 were issued by the USPTO and 2,150 by the European Patent Office in the past 12 months, an average of 46 patents per company. The highest number of patents [Rank 1] were issued to INTC at 3363. When ranked by patents issued, Intel rank is 1/613. The rank for Alphabet Class A is 4/613.

NASDAQ Avg	GOOGL	Rank	Rank1	Rank2	Rank3	% of Total
46	2229	4	3363 INTC	2395 AAPL	2394 QCOM	7.9

Fig 63: Number of Patents (Past 12 Months): Internet sector

There are 29 active stocks in the Internet sector. Of these, 6 companies were issued a total of 2,380 patents. Of these 2,073 were issued by the USPTO and 307 by the European Patent Office in the past 12 months, an average of 397 patents per company. In the Internet sector, the highest number of patents [Rank 1] were issued to GOOGL at 2229.

Internet sector Avg	GOOGL	Rank	Rank1	Rank2	Rank3	% of Total
397	2229	1	2229 GOOGL	58 AABA	43 VRSN	1.3

Patents (continued)

Fig 64: Patents issued by the US PTO and the EPO on same inventions

In the past 24 months 122 patents were issued by the USPTO and the European Patent Office (EPO) to Alphabet Class A. Recent 100 US PTO and the EPO on same inventions are as follows:

To view details, click on the "Patent No." link

Title	US PTO	EPO
Address Validation Using Signatures	9,749,319; 29 Aug, 2017	GB2553228 (A); 28 Feb, 2018
Advanced Motion Estimation	9,743,103; 22 Aug, 2017	US9743103 (B1); 22 Aug, 2017
Aggregating Resource Requests	9,887,930; 06 Feb, 2018	US9887930 (B1); 06 Feb, 2018
Annotation Framework For Video	9,805,012; 31 Oct, 2017	EP3324315 (A1); 23 May, 2018
Application Containers With Dynamic Sub-Package Loading	9,817,648; 14 Nov, 2017	GB2547536 (A); 23 Aug, 2017
Artifact Correction Using Neural Networks	9,798,612; 24 Oct, 2017	US9798612 (B1); 24 Oct, 2017
Authentication On A Computing Device	9,800,573; 24 Oct, 2017	US9800573 (B1); 24 Oct, 2017
Autocompletion Using Previously Submitted Query Data	9,740,780; 22 Aug, 2017	US9740780 (B1); 22 Aug, 2017
Automatic Detection Of Panoramic Gestures	9,936,128; 03 Apr, 2018	GB2553926 (A); 21 Mar, 2018
Automatic Discovery Of New Entities Using Graph Reconciliation	9,785,696; 10 Oct, 2017	US9785696 (B1); 10 Oct, 2017
Base With Rotating Mount That Increases Friction Of Rotation When Portable Computing Device Is Placed Onto Mount	9,740,240; 22 Aug, 2017	GB2548667 (A); 27 Sep, 2017
Batch Processing In A Neural Network Processor	9,842,293; 12 Dec, 2017	GB2553053 (A); 21 Feb, 2018
Blower Tray	9,763,361; 12 Sep, 2017	GB2556208 (A); 23 May, 2018
Border Detection In Videos	9,769,357; 19 Sep, 2017	US9769357 (B1); 19 Sep, 2017
Caller Preview For Video Calls	9,762,729; 12 Sep, 2017	US9762729 (B1); 12 Sep, 2017
Cam-Driven Differential Joint	9,840,005; 12 Dec, 2017	US9840005 (B1); 12 Dec, 2017
Clasp Mechanisms For Wristwatch Bands	9,839,264; 12 Dec, 2017	GB2552909 (A); 14 Feb, 2018
Classification And Storage Of Documents	9,870,420; 16 Jan, 2018	GB2550777 (A); 29 Nov, 2017
Cluster Based Photo Navigation	9,740,936; 22 Aug, 2017	GB2551667 (A); 27 Dec, 2017
Code Caching System	9,811,324; 07 Nov, 2017	GB2553444 (A); 07 Mar, 2018
Compressed Media With Still Images Selected From A Video Stream	9,877,056; 23 Jan, 2018	US9877056 (B1); 23 Jan, 2018
Configurable Colored Indicator On Computing Device	9,805,562; 31 Oct, 2017	US9805562 (B1); 31 Oct, 2017
Content Item Selection Based On Presentation Context	9,805,102; 31 Oct, 2017	US9805102 (B1); 31 Oct, 2017
Content Recommendation Platform	9,799,081; 24 Oct, 2017	US9799081 (B1); 24 Oct, 2017
Content Selection Based On Connection Information	9,978,079; 22 May, 2018	US9978079 (B1); 22 May, 2018
Conversational Call Quality Evaluator	9,876,901; 23 Jan, 2018	US9876901 (B1); 23 Jan, 2018

Patents (continued)

Cooling Electronic Devices In A Data Center	9,961,803; 01 May, 2018	GB2555025 (A); 18 Apr, 2018
Customizing Actions Based On Contextual Data And Voice-Based Inputs	9,837,076; 05 Dec, 2017	US9837076 (B1); 05 Dec, 2017
Data Reconstruction In Distributed Storage Systems	9,804,925; 31 Oct, 2017	US9804925 (B1); 31 Oct, 2017
Detection Of Creative Works On Broadcast Media	9,877,071; 23 Jan, 2018	US9877071 (B1); 23 Jan, 2018
Determining A User Habit	9,766,998; 19 Sep, 2017	US9766998 (B1); 19 Sep, 2017
Determining, By A Remote System, Applications Provided On A Device Based On Association With A Common Identifier	9,847,990; 19 Dec, 2017	US9847990 (B1); 19 Dec, 2017
Developer Voice Actions System	9,922,648; 20 Mar, 2018	GB2553234 (A); 28 Feb, 2018
Devices And Methods For Protecting Unattended Children In The Home	9,836,069; 05 Dec, 2017	US9836069 (B1); 05 Dec, 2017
Digital Magazine Distribution Using Feeds	9,774,663; 26 Sep, 2017	GB2550753 (A); 29 Nov, 2017
Displaying Graphical Content Items Based On Textual Content Items	9,779,065; 03 Oct, 2017	US9779065 (B1); 03 Oct, 2017
Dynamic, Interactive Objects For Posting	9,800,458; 24 Oct, 2017	US9800458 (B1); 24 Oct, 2017
Encrypted Augmentation Storage	9,847,981; 19 Dec, 2017	US9847981 (B1); 19 Dec, 2017
Evaluating Attribution Models	9,875,484; 23 Jan, 2018	US9875484 (B1); 23 Jan, 2018
Flat Gripper Actuator	9,737,995; 22 Aug, 2017	US9737995 (B1); 22 Aug, 2017
Force Sensing Using Capacitive Touch Surfaces	9,898,153; 20 Feb, 2018	GB2547969 (A); 06 Sep, 2017
Frame Synchronized Room Lighting	9,787,908; 10 Oct, 2017	US9787908 (B1); 10 Oct, 2017
Generating Compositions	9,842,418; 12 Dec, 2017	US9842418 (B1); 12 Dec, 2017
Generating Weighted Clustering Coefficients For A Social Network Graph	9,760,619; 12 Sep, 2017	US9760619 (B1); 12 Sep, 2017
Head Mounted Display Device With Dual Curved Displays	9,939,648; 10 Apr, 2018	DE112016002904 (T5); 08 Mar, 2018
Home Automation Input Interfaces Based On A Capacitive Touchscreen For Detecting Patterns Of Conductive Ink	9,977,547; 22 May, 2018	US9977547 (B1); 22 May, 2018
Hybrid Transform Scheme For Video Coding	9,942,568; 10 Apr, 2018	US9807423 (B1); 31 Oct, 2017
Identifying A Primary Version Of A Document	9,779,072; 03 Oct, 2017	US9779072 (B1); 03 Oct, 2017
Identifying Reference Content That Includes Third Party Content	9,986,280; 29 May, 2018	GB2550718 (A); 29 Nov, 2017
Implementing Neural Networks In Fixed Point Arithmetic Computing Systems	9,836,692; 05 Dec, 2017	US9836692 (B1); 05 Dec, 2017
In-Band Control Of Network Elements	9,806,819; 31 Oct, 2017	US9806819 (B1); 31 Oct, 2017

Patents (continued)

Fig 65: Design Patents issued by the US PTO in the past quarter

In the past quarter following 19 Design patents were issued by the US PTO to Alphabet Class A:

To view details, click on the "Patent No." link

Issue Date	Title	Patent No.
May 29, 2018	Display screen with graphical user interface for a messaging application	D819,045
May 29, 2018	Display screen with graphical user interface for an assistive agent	D819,044
May 29, 2018	Display screen with graphical user interface	D819,060
May 22, 2018	Display screen with an animated graphical user interface	D818,489
May 01, 2018	Connection mechanism	D816,617
Apr 24, 2018	Display screen portion with a transitional graphical user interface	D816,091
Apr 24, 2018	Display screen with animated graphical user interface	D816,105
Apr 24, 2018	Display screen with animated graphical user interface	D816,111
Apr 24, 2018	Display screen with animated graphical user interface	D816,110
Apr 17, 2018	Power and data connector	D815,600
Apr 17, 2018	Display screen with animated graphical user interface	D815,664
Apr 17, 2018	Display screen or portion thereof with an animated graphical user interface	D815,666
Apr 10, 2018	Display screen with graphical user interface	D815,109
Apr 10, 2018	Display screen with animated graphical user interface	D815,112
Apr 10, 2018	Display screen with animated graphical user interface	D815,113
Apr 03, 2018	Display screen with graphical user interface	D814,478
Mar 13, 2018	Display with wall mount	D812,610
Mar 06, 2018	Display screen with graphical user interface for monitoring remote video camera	D812,076
Mar 06, 2018	Camera stand	D812,124

Patents (continued)

Fig 66: Patents issued by the US PTO in the past quarter

In the past quarter 556 patents were issued by the US PTO to Alphabet Class A. Recent 100 patents are as follows:

To view details, click on the "Patent No." link

Issue Date	Title	Patent No.
May 29	Two-layer interactive textiles	9,983,747
May 29	Channel quality indicator for time, frequency and spatial channel in terrestrial radio access network	9,985,743
May 29	Energy-efficient location determination	9,986,375
May 29	Voice controlled audio recording system with adjustable beamforming	9,984,675
May 29	Using video to encode assets for swivel/360-degree spinners	9,984,495
May 29	Method and system for sharing virtual collaboration objects	9,983,759
May 29	Low-power near-field communication authentication	9,983,651
May 29	Electronic device with gesture-based task management	9,983,786
May 29	Dynamic shard allocation adjustment	9,983,901
May 29	Maintaining information facilitating deterministic network routing	9,986,484
May 29	Group curated media channels	9,985,998
May 29	Batch-optimized render and fetch architecture utilizing a virtual clock	9,984,130
May 29	Method and apparatus for encoding a block using a partitioned block and weighted prediction values	9,986,236
May 29	System and method for providing congestion notification in layer 3 networks	9,985,892
May 29	Block operations for an image processor having a two-dimensional execution lane array and a two-dimensional shift register	9,986,187
May 29	Inline discussions in search results around real-time clusterings	9,984,155
May 29	Media consumption context for personalized instant query suggest	9,984,075
May 29	Secure instant messaging system	9,985,790
May 29	Native gameplay experience across platforms	9,981,191
May 29	Identifying tasks in messages	9,984,058
May 29	Systems and methods for providing call context to content providers	9,984,049
May 29	Processing payment transactions without a secure element	9,984,360
May 29	Speculative actions based on user dwell time over selectable content	9,984,174
May 29	Online account reset, rollback, and backup	9,983,940
May 29	Hierarchical classification in credit card data extraction	9,984,313
May 29	Inducing command inputs from high precision and high recall data	9,984,684
May 29	Automatic speech recognition using multi-dimensional models	9,984,683
May 29	Methods and devices for efficient adaptive bitrate streaming	9,986,008
May 29	Providing information about content distribution	9,984,159
May 29	Short-range wireless controller filtering and reporting	9,986,507
May 29	Labeling visited locations based on contact information	9,986,386
May 29	Enhancing geolocation using barometric data to determine floors at a location	9,983,002
May 29	Generating author vectors	9,984,062
May 29	Ranking communities based on content	9,984,167
May 29	Cover to protect keyboard and bottom of laptop computer	9,983,632
May 29	Method and system for optical user recognition	9,984,519

Patents (continued)

May 29	Identifying reference content that includes third party content	9,986,280
May 29	Surfacing real-time notifications based on location	9,986,376
May 29	Facial detection, recognition and bookmarking in videos	9,984,729
May 29	Secure data entry via a virtual keyboard	9,983,787
May 22	Techniques for performing language detection and translation for multi-language content feeds	9,977,781
May 22	Systems and methods for correcting timestamps on data received from untrusted devices	9,977,724
May 22	Dual mode user interface system and method for 3D video	9,979,947
May 22	Core processes for block operations on an image processor having a two-dimensional execution lane array and a two-dimensional shift register	9,978,116
May 22	Graphical user interface	9,977,567
May 22	Methods for multi-source configuration of mobile applications	9,977,671
May 22	Smoothed activity signals for suggestion ranking	9,977,791
May 22	Determining user engagement with media content based on separate device usage	9,979,990
May 22	Content selection based on connection information	9,978,079
May 22	Determining dialog states for language models	9,978,367
May 22	Method and apparatus for tuning a communication device for multi band operation	9,979,531
May 22	Systems, methods, and computer-readable media for determining a salient region of geographic map	9,977,959
May 22	Use of accelerometer input to change operating state of convertible computing device	9,977,530
May 22	Mesh network of nearby mobile devices as a combined speaker system for audio	9,977,650
May 22	Providing beat matching	9,977,643
May 22	Task management system for a modular electronic device	9,977,697
May 22	Inadvertent dismissal prevention for graphical content	9,977,578
May 22	Adaptive on-demand tethering	9,980,304
May 22	Presenting images of multiple media entities	9,977,784
May 22	Dynamically updating CAPTCHA challenges	9,977,892
May 22	Testing applications with a defined input format	9,977,729
May 22	Keyboard with a suggested search query region	9,977,595
May 22	Password management	9,979,547
May 22	Systems and methods for inferential sharing of photos	9,978,001
May 22	Home automation input interfaces based on a capacitive touchscreen for detecting patterns of conductive ink	9,977,547
May 22	Feature selection for image based location determination	9,980,098
May 22	Method and apparatus for providing country detection on cellular devices using cell tower information	9,980,095
May 22	Single use identifier values for network accessible devices	9,979,731
May 22	Methods and apparatus for SIM-based authentication of non-SIM devices	9,980,142
May 22	Visual hot watch spots in content item playback	9,979,995
May 22	Computerized systems and methods for rendering an animation of an object in response to user input	9,977,566
May 22	Link-based ranking of objects that do not include explicitly defined links	9,977,816
May 22	Magnet keys	9,978,543
May 22	Scoring stream items with models based on user interests	9,979,777

Patents (continued)

May 22	Accessing data on distributed storage systems	9,977,760
May 22	Visitor options at an entryway to a smart-home	9,978,238
May 22	Modifying images with simulated light sources	9,979,894
May 22	Neural networks for speaker verification	9,978,374
May 15	Transmitter and receiver tracking techniques for user devices in a MIMO network	9,973,330
May 15	Sharing navigation data among co-located computing devices	9,973,887
May 15	Providing a program listing	9,973,826
May 15	Surround sound effects provided by cell phones	9,973,872
May 15	Selecting time-distributed panoramic images for display	9,972,121
May 15	Method and device for policy-based routing	9,974,115
May 15	Method of displaying location of a device	9,973,900
May 15	Smart camera user interface	9,973,705
May 15	Detecting multiple parts of a screen to fingerprint to detect abusive uploading videos	9,972,060
May 15	On-head detection with touch sensing and eye sensing	9,972,277
May 15	Identifying information using referenced text	9,971,746
May 15	Automatic learning of a video matching system	9,971,940
May 15	Methods for generating message notifications	9,973,462
May 15	Radar-based gesture-recognition through a wearable device	9,971,415
May 15	Reusing frequencies among high altitude platforms	9,973,268
May 15	Systems and methods for contextual discovery of device functions	9,974,045
May 15	Processing cell images using neural networks	9,971,966
May 15	Providing video transitions	9,972,359
May 15	Mobile device power management	9,974,017
May 15	Camera data access based on subscription status	9,973,802
May 15	Determining interest levels in videos	9,973,788
May 15	Integrated heat pump and thermoelectric cooling with a bladeless fan	9,970,669

Patents (continued)

Fig 67: Patents issued by the EPO in the past year

In the past year 292 patents were issued by the European Patent Office (EPO) to Alphabet Class A. Recent 100 Patents are as follows:

To view details, click on the "Patent No." link

Issue Date	Title	Patent No.
May 24	STREAMING APPLICATION ENVIRONMENT WITH REMOTE DEVICE INPUT SYNCHRONIZATION	US2018146018 (A1)
May 24	REMOVABLE COMPUTING DEVICE THAT FACILITATES COMMUNICATIONS	US2018146081 (A1)
May 24	OPENING LOCAL APPLICATIONS FROM BROWSERS	US2018146029 (A1)
May 23	ANNOTATION FRAMEWORK FOR VIDEO	EP3324315 (A1)
May 23	Near-eye display with stacked lightguides	GB2556203 (A)
May 23	Blower tray	GB2556208 (A)
May 23	Stereo rendering system	GB2556207 (A)
May 22	Link-based ranking of objects that do not include explicitly defined links	US9977816 (B1)
May 22	Single use identifier values for network accessible devices	US9979731 (B1)
May 22	Testing applications with a defined input format	US9977729 (B1)
May 22	Home automation input interfaces based on a capacitive touchscreen for detecting patterns of conductive ink	US9977547 (B1)
May 22	Content selection based on connection information	US9978079 (B1)
May 16	Mobile geographic application in automotive environment	GB2555975 (A)
May 16	System of Enclaves	IE20170239 (A1)
May 16	Systems and methods for dynamically selecting a communication identifier	GB2555977 (A)
May 16	Hierarchical annotation of dialog acts	GB2555945 (A)
May 16	Adjustable headphones	GB2555947 (A)
May 16	API for obtaining geographic location data	GB2555946 (A)
May 16	PROVIDING ACTIONABLE CONTENT TO A COMPUTING DEVICE BASED ON USER ACTIONS	EP3321816 (A1)
May 16	Performing kernel striding in hardware	IE20170205 (A1)
May 16	Systems and methods for content storage and retrieval	GB2555952 (A)
May 16	Democratized cellular network connectivity through small cells	GB2556003 (A)
May 16	Stabilizing video	GB2555991 (A)
May 03	METHOD AND DEVICE FOR DOMAIN WEB PAGE REGISTRATION	WO2018080674 (A1)
Apr 25	RECURRENT NEURAL NETWORK SYSTEM FOR DATA ITEM GENERATION	EP3312777 (A1)
Apr 25	DISAMBIGUATION OF CONTACT INFORMATION USING HISTORICAL DATA	EP3313055 (A1)
Apr 25	Change detection based imagery acquisition tasking system	GB2555228 (A)
Apr 19	SHAKE EVENT DETECTION SYSTEM	WO2018071136 (A1)
Apr 19	CREATING A CINEMATIC STORYTELLING EXPERIENCE USING NETWORK-ADDRESSABLE DEVICES	WO2018071212 (A1)
Apr 18	METHOD AND APPARATUS OF ROUTE GUIDANCE	EP3309515 (A1)
Apr 18	Software development and distribution platform	GB2555026 (A)
Apr 18	Cooling electronic devices in a data center	GB2555025 (A)
Apr 18	Generation of three dimensional fashion objects by drawing inside a virtual reality environment	GB2555021 (A)
Apr 18	Adding prescriptive correction to eyepieces for see-through head wearable displays	GB2555013 (A)

Patents (continued)

Apr 18	Methods, systems, and media for aggregating and presenting content relevant to a particular video game	GB2554993 (A)
Apr 11	Query restartability	GB2554810 (A)
Apr 11	Voice activated electronic device assembly with separable base	GB2554815 (A)
Apr 11	Modulating processor core operations	GB2554821 (A)
Apr 04	Binary translation on shared object level	GB2554553 (A)
Apr 04	Device-based filtering of content items associated with mobile applications	GB2554583 (A)
Apr 04	System for network discovery and synchronization	GB2554584 (A)
Apr 04	Systems and methods for attributing scroll event in an infinite scroll graphic user interface	GB2554622 (A)
Apr 04	DETERMINING HOTWORD SUITABILITY	EP3301671 (A1)
Apr 04	Detecting the context of a user using a mobile device based on wireless signal characteristics	GB2554581 (A)
Apr 04	Image capture system with motion compensation	GB2554579 (A)
Mar 28	IMAGE BASED LOCATION DETERMINATION	EP3300020 (A1)
Mar 28	Abuse detection for phone number lookups	GB2554270 (A)
Mar 28	Physical knowledge action triggers	GB2554269 (A)
Mar 28	Global communications network	GB2554266 (A)
Mar 28	Distributed storage system with replica location selection	GB2554250 (A)
Mar 28	Systems and methods for automatically managing placement of content slots in an information resource	GB2554248 (A)
Mar 28	Business discovery from imagery	GB2554238 (A)
Mar 28	Binary translation into native client	GB2554201 (A)
Mar 28	Systems and methods for contextual discovery of device functions	GB2554203 (A)
Mar 28	Compiler for translating between a virtual image processor instruction set architecture (ISA) and target hardware	GB2554204 (A)
Mar 28	Automatic connection of images using visual features	GB2554224 (A)
Mar 28	Efficient thin curved eyepiece for see-through head wearable display	GB2554223 (A)
Mar 28	Navigating event information	GB2554200 (A)
Mar 28	METHOD AND APPARATUS FOR SELECTING AN ALERT MODE BASED ON USER BIOMETRICS	EP3300343 (A1)
Mar 21	INTRUSIVE SOFTWARE MANAGEMENT	EP3296910 (A2)
Mar 21	Modeling personal entities	GB2553994 (A)
Mar 21	Systems and methods for enabling user voice interaction with a host computing device	GB2553974 (A)
Mar 21	Managing feature data for environment mapping on an electronic device	GB2553965 (A)
Mar 21	Access control for data resources	GB2553959 (A)
Mar 21	Secure host communications	GB2553944 (A)
Mar 21	Systems and methods for disambiguation of location entities associated with the current geographic location of a mobile device	GB2553943 (A)
Mar 21	Local persisting of data for selectively offline capable voice action in a voice-enabled electronic device	GB2553940 (A)
Mar 21	Methods, systems, and media for synchronizing media content using audio timecodes	GB2553912 (A)
Mar 21	Automatic detection of panoramic gestures	GB2553926 (A)
Mar 21	Systems and methods for notifying users of changes to files in cloud-based file-storage systems	GB2553930 (A)
Mar 21	Providing suggested voice-based action queries	GB2553936 (A)

Patents (continued)

Mar 21	Coordinated user word selection for translation and obtaining of contextual information for the selected word	GB2553932 (A)
Mar 21	PROVIDING CONTENT USING STORED QUERY INFORMATION	EP3296942 (A1)
Mar 14	DISTRIBUTION OF MULTIPLE APPLICATION VERSIONS	EP3293630 (A1)
Mar 14	Comparing an extracted user name with stored user data	GB2553722 (A)
Mar 14	Methods, systems and media for generating an advertisement from a video stream	GB2553698 (A)
Mar 14	EXTERNAL VIBRATION REDUCTION IN BONE-CONDUCTION SPEAKER	EP3293984 (A1)
Mar 14	Contextual information for a notification	GB2553660 (A)
Mar 14	Virtual reality content presentation including viewpoint transitions to prevent simulator sickness	GB2553693 (A)
Mar 14	Methods, systems, and media for ambient background noise modification based on mood and/or behavior information	GB2553682 (A)
Mar 08	THERMALLY CONDUCTIVE CABLES	DE102017119948 (A1)
Mar 08	HEAD MOUNTED DISPLAY DEVICE WITH DUAL CURVED DISPLAYS	DE112016002904 (T5)
Mar 08	COOLING ELECTRONIC DEVICES IN A DATA CENTER	DE112016002855 (T5)
Mar 07	METHOD AND APPARATUS FOR A NEAR-TO-EYE DISPLAY	EP3290991 (A1)
Mar 07	Code caching system	GB2553444 (A)
Mar 07	Interface for input selection using a touch sensitive proximity-sensitive display	GB2553445 (A)
Mar 07	Entity based temporal segmentation of video streams	GB2553446 (A)
Mar 07	Peer to peer attestation	GB2553457 (A)
Mar 07	Assist layer with automated extraction	GB2553443 (A)
Mar 07	METHOD AND APPARATUS FOR PERFORMING ROLE MANAGEMENT OF SHORT-RANGE WIRELESS CONNECTIONS	EP3291633 (A1)
Feb 28	Address validation using signatures	GB2553228 (A)
Feb 28	Systems and methods of generating and displaying location entity information associated with the current geographic location of a mobile device	GB2553239 (A)
Feb 28	Pre-fetched encoding for application streaming	GB2553237 (A)
Feb 28	Techniques for providing visual translation cards including contextually relevant definitions and examples	GB2553233 (A)
Feb 28	Developer voice actions system	GB2553234 (A)
Feb 28	Head mounted display device with dual curved displays	GB2553236 (A)
Feb 27	Using power-line networks to facilitate network access	US9906956 (B1)
Feb 22	MEMORY SYSTEM ARCHITECTURE	DE112016002356 (T5)
Feb 22	TECHNIQUES FOR SIMULATED PHYSICAL INTERACTION BETWEEN USERS VIA THEIR MOBILE COMPUTING DEVICES	DE112016002434 (T5)
Feb 22	CONTROLLING ACCESS TO RESOURCE FUNCTIONS AT A CONTROL POINT OF THE RESOURCE VIA A USER DEVICE	DE112016002436 (T5)

Board and Management & creation of shareholder value

Fig 68: Board of Directors

Name	Designation	Yrs Since Appointment
Lawrence E. Page	Chief Executive Officer	-
John L. Hennessy	Director	14 Yrs
John L. Hennessy	Chairman	-
Ruth M. Porat	Chief Financial Officer	-
Sundar Pichai	Director	-
K. Ram Shriram	Director	19 Yrs
Alan R. Mulally	Director	3 Yrs
Diane B. Greene	Director	-
Eric E. Schmidt	Director	2 Yrs
Shirley M. Tilghman	Director	12 Yrs
L. John Doerr	Director	19 Yrs
Sergey Brin	Director	19 Yrs
Roger W. Ferguson, Jr.	Director	-
Ann Mather	Director	12 Yrs
Larry Page	Director	19 Yrs

Fig 69: Profiles

John L. Hennessy
Chairman & Director

John L. Hennessy has served as a member of our board of directors since April 2004, and as Lead Independent Director since April 2007. John has served as the President of Stanford University since September 2000. John has also been a member of the board of directors of Cisco Systems, Inc., a networking equipment company, since January 2002, and serves on its nominating and governance committee and acquisition committee. He also serves as a trustee of the Gordon and Betty Moore Foundation. From 1994 to August 2000, John held various positions at Stanford, including Dean of the Stanford University School of Engineering and Chair of the Stanford University Department of Computer Science. John co-founded and served as the chairman of the board of directors of Atheros Communications, Inc., a wireless semiconductor company, from 1998 to 2010. John holds a Doctoral degree and a Master of Science degree in computer science from the State University of New York, Stony Brook, and a Bachelor of Science degree in electrical engineering from Villanova University.

Creation of shareholder value in Alphabet Class A:

Date of appointment: April 01, 2004

In the last 10 years the average annualized return to shareholders was 14.2%. The present value of USD1,000 (PV1000) invested 10 years ago is now US$3,756, a gain of US$2,756.

Board and Management & creation of shareholder value (continued)

L. John Doerr
Director

John Doerr joined Kleiner Perkins Caufield & Byers in 1980 and has since backed some of the world's most successful entrepreneurs, including Larry Page, Sergey Brin and Eric Schmidt of Google; Jeff Bezos of Amazon.com, and Scott Cook and Bill Campbell of Intuit. John's passion is helping entrepreneurs create the "Next Big Thing" in mobile and social networks, greentech innovation, education and economic development. Ventures sponsored by John have created more than 200,000 new jobs. John serves on the boards of Amyris, Google, and Zynga, as well as several private technology ventures. He also led KPCB's investment in Twitter.

John's technology career began in 1974 at Intel, just as the chipmaker was inventing the groundbreaking 8080 microprocessor. During his Intel years, he held roles in engineering, marketing, management and sales. John also learned about operating excellence from Intel co-founder Andy Grove - insight that he continues to share with entrepreneurs today. He later founded Silicon Compilers, a VLSI CAD software company, and co-founded @Home, the nationwide broadband cable Internet service.

Outside of KPCB, John supports entrepreneurs focused on the environment, public education and alleviating global poverty. These include NewSchools.org, TechNet.org, the Climate Reality Project and ONE.org. John earned B.S. and M.S. degrees in electrical engineering from Rice University and an M.B.A. from Harvard Business School. He also holds several patents for computer memory devices. John is a member of the American Academy of Arts and Sciences, and a member of U.S. President Barack Obama's Council on Jobs and Competitiveness.

Creation of shareholder value in Alphabet Class A:

Month of appointment: May 1999

In the last 10 years the average annualized return to shareholders was 14.2%. The present value of USD1,000 (PV1000) invested 10 years ago is now US$3,756, a gain of US$2,756.

Larry Page
Director

Larry Page, one of our founders, has served as a member of our board of directors since our inception in September 1998, and as our Chief Executive Officer since April 2011. From July 2001 to April 2011, Larry served as our President, Products. In addition, from September 1998 to July 2001, Larry served as our Chief Executive Officer, and from September 1998 to July 2002, as our Chief Financial Officer. Larry holds a Master of Science degree in computer science from Stanford University and a Bachelor of Science degree in engineering, with a concentration in computer engineering, from the University of Michigan.

Creation of shareholder value in Alphabet Class A:

Date of appointment: September 01, 1998

In the last 10 years the average annualized return to shareholders was 14.2%. The present value of USD1,000 (PV1000) invested 10 years ago is now US$3,756, a gain of US$2,756.

Forbes Billionaires Ranking

Larry Page was ranked 12 in the Forbes Billionaires list in the world for 2018, unchanged from the same rank 12 in 2017.According to Forbes, Larry Page's net worth had increased by (19.9%) US$40.7 billion to US$48.8 billion in 2018.

Diane B. Greene
Director

Diane B. Greene has served as a member of Alphabet's board of directors since October 2015 and has served as a member of Google's board of directors since January 2012. Diane has also been a member of the board of directors of Intuit Inc., a provider of business and financial management solutions, since August 2006 and serves on its audit and risk committee and nominating and corporate governance committee. Diane co-founded VMware, Inc., a virtualization software company, in 1998 and took the company public in 2007. She served as Chief Executive Officer and President of VMware from 1998 to 2008, as a member of the board of directors of VMware from 2007 to 2008, and as an Executive Vice President of EMC Corporation, a provider of information infrastructure and virtual infrastructure technologies, solutions and services, from 2005 to 2008. Prior to VMware, Diane held technical leadership positions at Silicon Graphics Inc., a provider of technical computing, storage and data center solutions, Tandem Computers, Inc., a manufacturer of computer systems, and Sybase Inc., an enterprise software and services company, and was Chief Executive Officer of VXtreme, Inc., a developer of streaming media solutions. Diane is also a member of The MIT Corporation, the governing body of the Massachusetts Institute of Technology. Diane holds a Master of Science degree in computer science from the University of California, Berkeley, a Master of Science degree in naval architecture from the Massachusetts Institute of Technology, and a Bachelor of Arts degree in mechanical engineering from the University of Vermont.

Board and Management & creation of shareholder value (continued)

Eric E. Schmidt
Director

Since joining Google in 2001, Eric Schmidt has helped grow the company from a Silicon Valley startup to a global leader in technology. As executive chairman, he is responsible for the external matters of Google: building partnerships and broader business relationships, government outreach and technology thought leadership, as well as advising the CEO and senior leadership on business and policy issues.
From 2001-2011, Eric served as Google's chief executive officer, overseeing the company's technical and business strategy alongside founders Sergey Brin and Larry Page. Under his leadership, Google dramatically scaled its infrastructure and diversified its product offerings while maintaining a strong culture of innovation.
Prior to joining Google, Eric was the chairman and CEO of Novell and chief technology officer at Sun Microsystems, Inc. Previously, he served on the research staff at Xerox Palo Alto Research Center (PARC), Bell Laboratories and Zilog. He holds a bachelor's degree in electrical engineering from Princeton University as well as a master's degree and Ph.D. in computer science from the University of California, Berkeley. Eric is a member of the President's Council of Advisors on Science and Technology and the Prime Minister's Advisory Council in the U.K. He was elected to the National Academy of Engineering in 2006 and inducted into the American Academy of Arts and Sciences as a fellow in 2007. He also chairs the board of the New America Foundation, and since 2008 has been a trustee of the Institute for Advanced Study in Princeton, New Jersey. In May 2012, Eric became a member of Khan Academy's board of directors and the following year he joined the board of The Economist. In 2013, Eric and Jared Cohen co-authored The New York Times bestselling book, The New Digital Age: Transforming Nations, Businesses, and Our Lives. In September 2014, Eric published his second New York Times best seller, How Google Works, which he and Jonathan Rosenberg co-authored with Alan Eagle.

Creation of shareholder value in Alphabet Class A:
Since appointment as Director: The present value of USD1,000 invested on the appointment date of October 05, 2015 at close price of US$671.68 is US$1,638, for a capital gain of US$638.

Alan R. Mulally
Director

Alan R. Mulally has served as a member of Alphabet's board of directors since October 2015 and has served as a member of Google's board of directors since July 2014. Alan served as President and Chief Executive Officer of Ford Motor Company, a global automotive company, from September 2006 through June 2014. Alan was previously a member of the board of directors of Ford and served on its finance committee from September 2006 through June 2014. From March 2001 to September 2006, Alan served as Executive Vice President of the Boeing Company and President and Chief Executive Officer of Boeing Commercial Airplanes, Inc. He also was a member of the Boeing Executive Council. Prior to that time, he served as President of Boeing's space and defense business. Alan served as co-chair of the Washington Competitiveness Council and sat on the advisory boards of NASA, the University of Washington, the University of Kansas, the Massachusetts Institute of Technology, and the U.S. Air Force Scientific Advisory Board. He is a member of the U.S. National Academy of Engineering and a fellow of England's Royal Academy of Engineering. Alan holds a Bachelor of Science and Master of Science degrees in aeronautical and astronautical engineering from the University of Kansas, and a Master's degree in Management from the Massachusetts Institute of Technology as a 1982 Alfred P. Sloan fellow.

Creation of shareholder value in Alphabet Class A:
Since appointment as Director: The present value of USD1,000 invested on the appointment date of July 09, 2014 at close price of US$581.63 is US$1,891, for a capital gain of US$891.

Shirley M. Tilghman
Director

Shirley M. Tilghman has served as a member of our board of directors since October 2005. Shirley served as the President of Princeton University from June 2001 to June 2013. Shirley also serves as a trustee of Institute for Advanced Study, Amherst College, the Advantage Testing Foundation, the Carnegie Endowment for International Peace, Leadership for a Diverse America, and the King Abdullah University of Science and Technology. From August 1986 to June 2001, she served as a Professor at Princeton University, and from August 1988 to June 2001, as an Investigator at Howard Hughes Medical Institute. In 1998, she took the role as founding director of Princeton's multi-disciplinary Lewis-Sigler Institute for Integrative Genomics. Shirley holds a Doctoral degree in biochemistry from Temple University, and a Bachelor of Science degree with honors in chemistry from Queen's University.

Creation of shareholder value in Alphabet Class A:
Month of appointment: October 2005
In the last 10 years the average annualized return to shareholders was 14.2%. The present value of USD1,000 (PV1000) invested 10 years ago is now US$3,756, a gain of US$2,756.

Board and Management & creation of shareholder value (continued)

Ann Mather
Director

Ann Mather has served as a member of our board of directors since November 2005. Ann has also been a member of the board of directors of: Arista Networks, Inc., a computer networking company, since June 2013, and serves as chair of its audit committee; Glu Mobile Inc., a publisher of mobile games, since September 2005, and serves on its nominating and corporate governance committee; Netflix, Inc., a streaming media company, since July 2010, and serves as chair of its audit committee; and Shutterfly, Inc., an internet-based image publishing company, since May 2013 and serves on its audit committee. Ann has also been an independent trustee to the Dodge & Cox Funds board of trustees since May 2011. Ann was previously a director of Central European Media Enterprises Group, a developer and operator of national commercial television channels and stations in Central and Eastern Europe, from 2004 to 2009; MoneyGram International, Inc., a global payment services company, from May 2010 to May 2013, and Solazyme, Inc., a biotechnology company, from April 2011 to November 2014. From 1999 to 2004, Ann was Executive Vice President and Chief Financial Officer of Pixar, a computer animation film studio. Prior to her service at Pixar, Ann was Executive Vice President and Chief Financial Officer of Village Roadshow Pictures, the film production division of Village Roadshow Limited. Ann holds a Master of Arts degree from Cambridge University in England and is a chartered accountant.

Creation of shareholder value in Alphabet Class A:

Date of appointment: November 22, 2005

In the last 10 years the average annualized return to shareholders was 14.2%. The present value of USD1,000 (PV1000) invested 10 years ago is now US$3,756, a gain of US$2,756.

Sergey Brin
Director

Sergey Brin, one of our founders, has served as a member of our board of directors since our inception in September 1998. From July 2001 to April 2011, Sergey served as our President, Technology. In addition, from September 1998 to July 2001, Sergey served as our President and chairman of our board of directors. Sergey holds a Master of Science degree in computer science from Stanford University and a Bachelor of Science degree with high honors in mathematics and computer science from the University of Maryland at College Park.

Creation of shareholder value in Alphabet Class A:

Date of appointment: September 01, 1998

In the last 10 years the average annualized return to shareholders was 14.2%. The present value of USD1,000 (PV1000) invested 10 years ago is now US$3,756, a gain of US$2,756.

Forbes Billionaires Ranking

Sergey Brin was ranked 13 in the Forbes Billionaires list in the world for 2018, unchanged from the same rank 13 in 2017.According to Forbes, Sergey Brin's net worth had increased by (19.35%) US$39.8 billion to US$47.5 billion in 2018.

K. Ram Shriram
Director

K. Ram Shriram has served as a member of our board of directors since September 1998. Ram has been a managing partner of Sherpalo Ventures, LLC, an angel venture investment company, since January 2000. From August 1998 to September 1999, Ram served as Vice President of Business Development at Amazon.com, Inc., an e-commerce company. Prior to that, Ram served as President at Junglee Corporation, a provider of database technology, which was acquired by Amazon.com in 1998. Ram was an early member of the executive team at Netscape Communications Corporation. Ram is also on the board of trustees of Stanford University. Ram holds a Bachelor of Science degree in mathematics from the University of Madras, India.

Creation of shareholder value in Alphabet Class A:

Date of appointment: September 01, 1998

In the last 10 years the average annualized return to shareholders was 14.2%. The present value of USD1,000 (PV1000) invested 10 years ago is now US$3,756, a gain of US$2,756.

Index

Section 1. Alphabet Class A (GOOGL) **1**
Company Overview 1
Figure 1: Activities 1
Fig 2: Stock Identifiers 1
Fig 3: Stock Summary 1
Fig 4: Financials Summary 1
Section 2. Analysis **2**
Introduction with Trends 2
Bullish Signals 2
Fig 5: Bullish Indicators 3
Bearish Signals 3
Fig 6: Shiller PE (CAPE Ratio) 3
Fig 7: Bearish Indicators 3
Fig 8: Rank in the NASDAQ-100 Index 3
Fig 9: Analyst Recommendations 4
Fig 10: MCap - Historical Perspective 4
Fig 11: Created Market Value [CMV: 10 yrs] ($US B) 4
Fig 12: PRESENT VALUE OF USD1000 INVESTED 10 YEARS AGO
Section 3. Period-based Shareholder Returns **5**
Fig 13: PRESENT VALUE OF $US1000 INVESTED IN THE PAST [3 Mo, 1 Yr, 3 Yrs] 5
Fig 14: Moving Annual Return 6
Fig 15: Total Shareholder Returns, Annualised [TSR %] 6
Fig 16: PRESENT VALUE OF USD1000 INVESTED 10 YEARS AGO 7
Section 4. Price Volume Dynamics (Past quarter) **8**
Fig 17: The Best 3 weeks 8
Fig 18: The Worst 3 weeks 8
Fig 19: Weekly Price Change (%) and Volume Index (Last 3 months) 8
Fig 20: Price Volume Trend: Trailing Quarter 9
Fig 21: Fibonacci Retracement 9
Fig 22: Trailing 3 months 9
Fig 23: Trailing Price Change % 9
Volatility 10
Fig 24: Price High Low Close 10
Fig 25: YTD Comparison Stock Sector Index (%) 10
Fig 26: Relative Strength 10
Fig 27: Price/Moving Avg Price [P/MAP200] 11
Fig 28: Turnover Rate & Period 11
Fig 29: % Change (Tr. 12 Mo): Stock (11.4%) v Index (20.2%) 11
Fig 30: Year-on-Year Comparison (Trailing year - ended 31 May) 11
Section 5. Institutional Shareholder Activity **12**
Fig 31: Institutional Shareholder Activity - Major Increases in Top 40 institutional shareholders [Quarter ended March 31, 2018] 12
Fig 32: Institutional Shareholder Activity - Major Decreases in Top 40 institutional shareholders [Quarter ended March 31, 2018] 13
Fig 33: Institutional Shareholder Activity - New Entrants in Top 40 institutional shareholders 13
Fig 34: Institutional Shareholder Activity - Drop Outs from Top 40 institutional shareholders 14

Index (continued)

Fig 35: Institutional Shareholder Activity - Top 40 Institutional Shareholders of Alphabet Class A as at March 31, 2018 15
Fig 36: Institutional Shareholder Activity - Net institutional selling: TTM ended March 31, 2018 16
Fig 37: Institutional Shareholder Activity - Reported institutional buying and selling (No of shares) 16
Fig 38: Institutional Shareholder Activity - Reported holdings of institutions as of March 31, 2018 16
Fig 39: Institutional Shareholder Activity - Net Buying/(Selling) by Institutions: Trailing 12 Months (TTM) 17

Section 6. Press Releases 22

Section 7. Financials 23

GOOGL 2017 Annual Report: Key Parameters
Fig 43: Historical perspective of growth and performance: 24
Fig 44: Five-Year History (All figures in USD) 26

GOOGL Q1 2018 Financial Results as reported
Fig 45: Q1 2018 GOOGL Income Statement as reported 26
Fig 46: Q1 2018 GOOGL Balance Sheet as reported 27
Fig 47: Q1 2018 GOOGL Cash Flow as reported 28

GOOGL 2017 Financial Results as reported (Annual)
Fig 48: 2017 GOOGL Income Statement as reported 29
Fig 49: 2017 GOOGL Balance Sheet as reported 30
Fig 50: 2017 GOOGL Cash Flow as reported 31
Fig 51: Average Income Tax paid 32

Section 8. Corporate Bonds 33
Quarterly Trend of Corporate Bonds 33
Fig 52: Time [Yrs Mo Days] and Yield to Maturity as on May 31, 2018 33
Fig 53: Key Statistics 33

Section 9. Peer Group Analysis & Ranking 34
Fig 54: Global Peer Group Analysis (all figures in USD) 34
Fig 55: Global Peer Group - Price Performance 34
Fig 56: Global Peer Group - Total Shareholder Return [TSR in USD] 35
Fig 57: Compare and Sort: GOOGL vs Internet sector 35
Fig 58: BuySellSignals Fundamentals Valuation Table: NASDAQ Market 36
Fig 59: Independent Ratings 37
Fig 60: Long-Term Fundamental Ranking: 4 out of 5 37
Market Share 37
Share in Index 37

Section 10. Patents 38
Fig 61: Number of Patents Issued to Alphabet Class A (Past 12 Months) 38
Fig 62: Number of Patents (Past 12 Months): NASDAQ Market 38
Fig 63: Number of Patents (Past 12 Months): Internet sector 38
Fig 64: Patents issued by the US PTO and the EPO on same inventions 39
Fig 65: Design Patents issued by the US PTO in the past quarter 41
Fig 66: Patents issued by the US PTO in the past quarter 42
Fig 67: Patents issued by the EPO in the past year 45

Section 11. Board and Management & creation of shareholder value 48
Names, Positions, Biographies, Performance
Fig 68: Board of Directors 48
Fig 69: Profiles 48

Glossary

Annual Return (Fig 14):
Dividends Paid In a 12-Month Period/Price at the Beginning of the Period + Capital Gain or Loss over 1 Year/Price 1 Year Ago (%)
Cash/MCap:
Cash plus Liquids/Market Capitalisation (times)
Debt/Equity (Fig 5):
Net Debt/Net Assets (times)
Earnings Yield:
Earnings Per Share/Share Price (%)
PV$US1000 (Fig 12, 13, 16):
Present value of $US1000 invested 1 year/'n' years ago
Price/Earnings (Fig 55, 58, 7, 8):
Share Price/Earnings Per Share (times)
Price/Sales (Fig 55):
Share Price/Sales Per Share (times)

Relative Strength (n-th Period) (Fig 26, 3, 54):
Price close today/Price close 'n' periods ago, then ranked by percentile within the entire market.
Return on Equity (Shareholders' Funds) (Fig 8):
Net Profit/Net Assets (%)

TTM (Fig 36, 39):
Trailing 12 Months
Turnover (Fig 5, 22):
Last Price * Volume
Turnover Rate (Fig 55, 28):
US Dollar value of annual trading volume as a percentage of market capitalisation
Volume Weighted Average Price (VWAP) (Fig 30):
The Volume Weighted Average Price (VWAP) is the summation of turnover divided by total volume in the same period.

Capital Gain/Loss from n Years Ago to n-1 Years Ago:
Capital Gain or Loss over 1 Year/Price 1 Year Ago (%)

Current Ratio:
Current Assets/Current Liabiliites (times)
EBIT Margin :
Earnings Before Interest and Tax/Revenue (%)
Moving Average Price (n periods) (Fig 27):
Sum of Prices for each Period/Number of Periods
Price Close/Moving Avg Price (Fig 27):
Latest Price/Moving Average Price
Price/NTA (Fig 8, 55):
Closing Share Price/Net Tangible Assets Per Share (times)
Relative Price Change [RPC] (Fig 30):
Relative price change is price change of stock with respect to Benchmark Index
Return on Assets:
Net Profit/Total Assets (%)

TSR (Fig 15, 56, 3):
TSR is expressed as an annualized rate of return for shareholders after allowing for capital appreciation and dividends
Total Liabilities/Total Assets:
Total Liabilities/Total Assets
Turnover Period (Fig 30):
Time Period required for trading all Outstanding Shares
Volume Index (VI) (Fig 19, 22):
Number of shares traded in the period/Average number of shares traded for the period

For further details on definitions and quotations from investing legends, Click here

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BARCLAYS

Equity Research
Internet & Media | U.S. Internet
31 May 2018

TOP PICK

Alphabet Inc.

The Sites TAC Relief Trade Is Back On

The Key Take-away

The last time Sites TAC went through a sharp deceleration phase was 2014 which, among other catalysts, set the stage for one of the best moves in GOOGL shares in the past few years (beginning in 2015). We may be in store for another similar move in the coming months as TAC growth rolls over. TAC isn't a major EPS driver, but it drives sentiment (every 10 percentage point deceleration from our base case assumption only amounts to ~$1 in EPS in 2019). We ultimately think TAC growth should gravitate to mobile search revenue growth rates in the mid 30%'s. GOOGL shares are largely out of favor currently vs. mega-cap peers, and the TAC improvement combined with better operating profit growth in 2Q could surprise the Street.

Revisiting The TAC Improvement Math: Last year we published "*Sites TAC Growth Rolling Over May Be A Positive For 2H17*"; 6/26/17, which was a few quarters early, but directionally accurate. Our math suggests that TAC rate is 26% on mobile & 4% on desktop, hence the rapid growth of mobile has been the primary driver of TAC growth in recent years. Further, Apple earns ~$13 in TAC per iOS user (ex-china) while Android OEMs earn closer to $3 per user (likely from rate and mix of int'l queries), so as iOS matures, Google should start to see leverage. Language around partner rate change has surfaced as the primary TAC growth driver in the last 3 prints (above shift to mobile, partner mix, etc) so Google may be comping unfavorable contract terms with AAPL, as evidenced by AAPL's 3Q disclosure around "one-time" $640m in Services Revenue.

More Symbolic than Accretive: TAC deceleration is more sentiment shifter than accretive to EPS. The last time TAC rolled, it set a 50%+ move in shares, which if a few things go the right way (margins, capital allocation, and an IPO of Waymo or Verily) wouldn't be completely unthinkable from current levels. And if Google ever decides to stop paying TAC outright, shares could re-rate meaningfully, but this is very unlikely near-to-mid term. TAC/user inflation is quite high & due for a slowdown.

GOOGL: Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	7.73A	13.33E	13.33E	13.33A	10.51E	10.51E	10.61E	72%	-21%
Q2	5.01A	9.83E	9.83E	9.69E	11.67E	11.67E	11.53E	96%	19%
Q3	9.57A	10.89E	10.89E	10.56E	12.83E	12.83E	12.52E	14%	18%
Q4	-4.35A	10.96E	10.96E	11.05E	12.69E	12.69E	12.73E	352%	16%
Year	17.96A	45.02E	45.02E	44.39E	47.70E	47.70E	47.58E	151%	6%
P/E	61.3		24.4			23.1			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 31-May-2018; 13:35 GMT

Stock Rating	OVERWEIGHT	Unchanged
Industry View	POSITIVE	Unchanged
Price Target	USD 1250.00	Unchanged

Price (31-May-2018)	USD 1100.00
Potential Upside/Downside	+13.6%
Tickers	GOOGL

Market Cap (USD mn)	758766
Shares Outstanding (mn)	694.55
Free Float (%)	99.85
52 Wk Avg Daily Volume (mn)	1.9
52 Wk Avg Daily Value (USD mn)	N/A
Dividend Yield (%)	N/A
Return on Equity TTM (%)	17.31
Current BVPS (USD)	231.42

Source: Thomson Reuters

Price Performance	Exchange-Nasdaq
52 Week range	USD 1198.00-915.31

Link to Barclays Live for interactive charting

U.S. Internet

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U.S. Internet **Industry View: POSITIVE**

Alphabet Inc. (GOOGL)

Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	89,183	109,496	132,177	N/A	N/A
EBITDA (adj)	43,476	51,605	61,614	N/A	N/A
EBIT (adj)	36,561	43,229	51,702	N/A	N/A
Pre-tax income (adj)	34,872	47,967	53,749	N/A	N/A
Net income (adj)	18,805	39,340	42,999	N/A	N/A
EPS (adj) ($)	17.96	45.02	47.70	N/A	N/A
Diluted shares (mn)	701.0	708.3	716.9	N/A	N/A
DPS ($)	0.00	0.00	0.00	N/A	N/A

Margin and return data					Average
EBITDA (adj) margin (%)	48.7	47.1	46.6	N/A	47.5
EBIT (adj) margin (%)	41.0	39.5	39.1	N/A	39.9
Pre-tax (adj) margin (%)	39.1	43.8	40.7	N/A	41.2
Net (adj) margin (%)	21.1	35.9	32.5	N/A	29.8
ROIC (%)	8.1	17.7	17.9	N/A	14.6
ROE (%)	8.7	20.8	19.4	N/A	16.3

Balance sheet and cash flow ($mn)					CAGR
Tangible fixed assets	42,383	11,702	N/A	N/A	N/A
Intangible fixed assets	2,692	9,187	N/A	N/A	N/A
Cash and equivalents	10,657	33,728	N/A	N/A	N/A
Total assets	197,295	205,195	N/A	N/A	N/A
Short and long-term debt	3,969	5,302	5,302	N/A	N/A
Other long-term liabilities	3,059	3,149	N/A	N/A	N/A
Total liabilities	44,793	51,354	N/A	N/A	N/A
Shareholders' equity	152,502	153,840	N/A	N/A	N/A
Net debt/(funds)	-6,688	-28,426	-65,203	N/A	N/A
Change in working capital	9,246	-1,631	N/A	N/A	N/A
Cash flow from operations	37,091	44,684	N/A	N/A	N/A
Capital expenditure	-13,184	-19,299	N/A	N/A	N/A
Free cash flow	23,907	25,385	N/A	N/A	N/A

Valuation and leverage metrics					Average
P/E (adj) (x)	61.3	24.4	23.1	N/A	36.3
EV/sales (x)	8.6	6.8	5.4	N/A	6.9
EV/EBITDA (adj) (x)	17.7	14.4	11.5	N/A	14.5
FCF yield (%)	3.1	3.4	N/A	N/A	3.3
Dividend yield (%)	0.0	0.0	0.0	N/A	0.0
Net debt/EBITDA (adj) (x)	-0.2	-0.6	-1.1	N/A	-0.6

Selected operating metrics				
Google sites net revenue ($mn)	77,788	97,233	118,940	N/A
Network sites net revenue ($mn)	17,587	19,871	21,858	N/A
TAC/gross revenue (%)	123.2	141.4	156.6	N/A
Paid click growth (%)	N/A	N/A	N/A	N/A
Cost per click growth (%)	N/A	N/A	N/A	N/A

Price (31-May-2018) **USD 1,100.00**

Price Target **USD 1,250.00**

Why Overweight? Google continues to grow revenue & EPS at ~20% CAGR and trades at 20x FY18E EPS. The company continues to innovate its product, and its machine learning capabilities should help advertisers get higher ROI, causing them to continue to allocate their advertising budgets to Google.

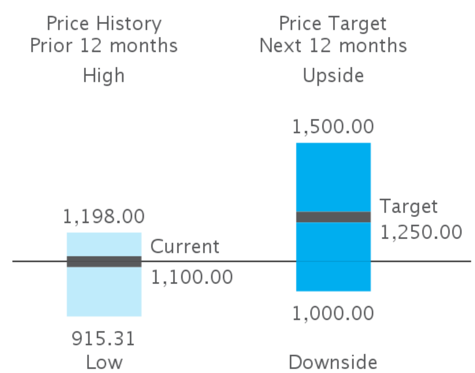
Upside case **USD 1,500.00**

We expect Google to continue to take share from other channels in mobile advertising, and 50% of every incremental dollar going forward. Reduction of losses in "Other Bets" could be a source of upside to estimates.

Downside case **USD 1,000.00**

Google is migrating towards lower-margin businesses, and having benefited from the massive improvement in mobile monetization growth rate may decelerate going forward.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

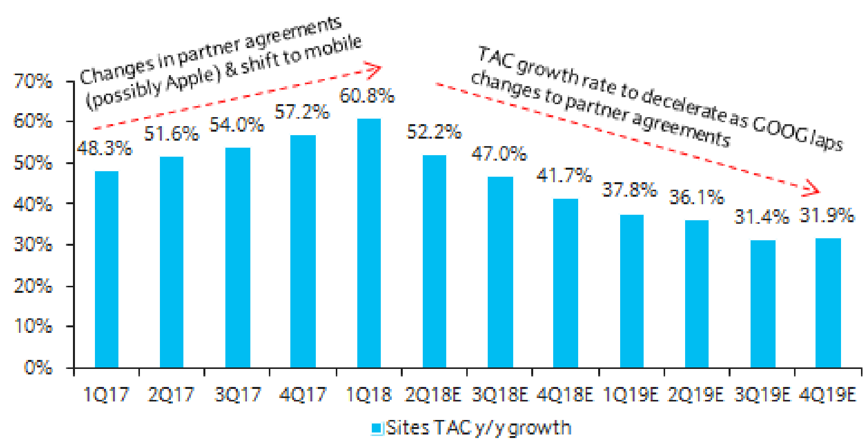
Revisiting the GOOG TAC Math

TAC has been a thorn in GOOGL investors' side for years, the one line that is deleveraging meaningfully and weighs on the story, despite having very little financial implications. On the one hand, TAC illustrates the rapid growth in mobile search over the past few years. On the other hand, we don't believe Google really needs to pay partners TAC anymore for search query monetization – where else will users go to conduct searches? As the Firefox 2015 contract shift to Yahoo highlighted, Google didn't really lose any noticeable query volume or revenue despite Yahoo becoming default search provider, users switched back to Google organically, and all that happened is Google's business became $150m more profitable as they stopped paying unnecessary TAC revenue share.

The company views TAC as a strategically important area and likely doesn't want to disrupt the overall momentum in mobile search globally, hence why Google continues to pay Apple, Samsung and other partners. Over time, we believe the need-to-pay will come down as the space matures. It was only 2015 that overall query mix topped 50% in mobile for the first time at Google, so the space is still far from being in a mature state. TAC is exploding over the past few years on mix shift to mobile, and because of rate changes within some of the partner agreements (most likely Apple). Samsung continues to shove all kinds of owned-and-operated apps onto its certified Android phones (the Bixby Assistant on Galaxy being case in point), hence these kinds of moves that limit the ability for Google to distribute O+O apps like Assistant, etc, should diminish the need to pay Android OEMs over time (that don't support Google app distribution). Pixel growing its share at the high-end of the Android market should also help reduce TAC, although this is still a nascent trend.

FIGURE 1

Sites TAC Finally In Roll-over Mode Starting 2Q18



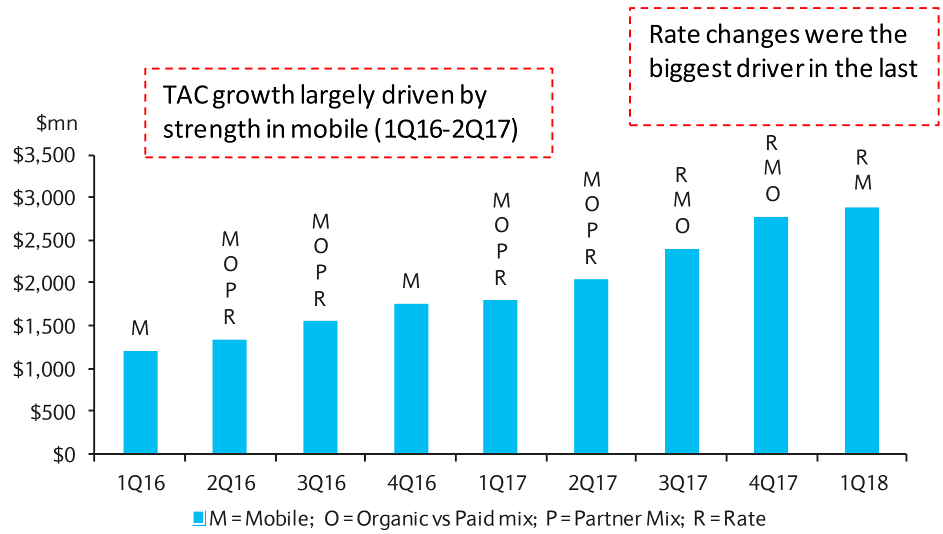
Source: Barclays Research

Google doesn't disclose much in the way of details on TAC, but offers hints each quarter in terms of the primary drivers of Y/Y TAC dollar growth, which usually comes down to: 1) mix to mobile, 2) mix within paid and organic channels, 3) partner mix, and 4) rate changes within each partner agreement.

Illustrated in Figure 2 on the next page, the rate change factor has been moved to the top driver of Y/Y TAC dollar growth for the past three quarters, above other factors, hence we think Google is about to lap an Apple related uptick.

FIGURE 2

Sites TAC Growth Mostly From Rate Changes Recently

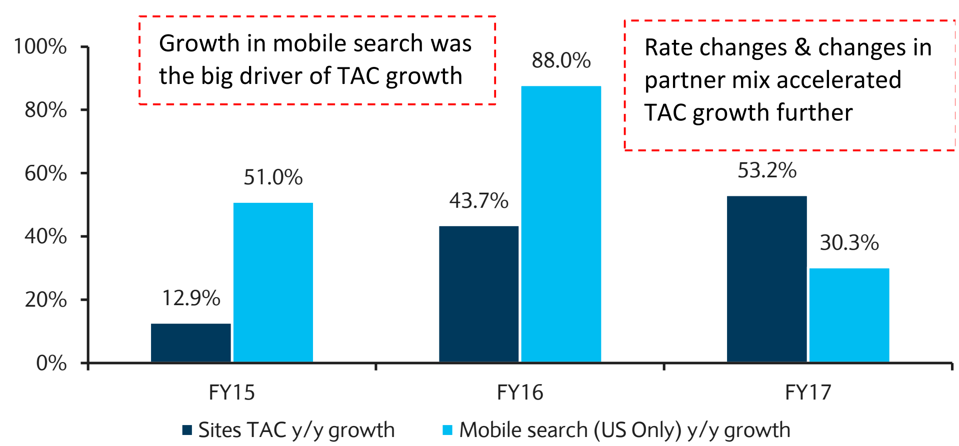


Source: Barclays Research

Despite these temporary drivers of acceleration in TAC dollar growth, the primary overall driver in growth comes from mobile search revenue growth. Illustrated below using US IAB mobile search revenue data, we can see that TAC is actually growing slower than mobile search revenue in 2016 and faster in 2017/2018. This actually foots with the Google's commentary in Figure 2 above, whereby mobile search and mix to paid vs. organic were the primary callouts in 2015 and 2016. Partner mix and rate changes only came into the picture in 2017 and 2018, as the growth rate of mobile search matured.

FIGURE 3

Sites TAC Growth Should Mirror Mobile Search Revenue (Y/Y)



Source: Barclays Research

So if we are finally on the back side of the massive run up in TAC from mobile search revenue and other factors, the next logical question is what growth rate should TAC be at in a steady state? We think somewhere closer to the mid-30%'s Y/Y global mobile search revenue growth ex-china makes the most sense, well below the 61% Y/Y reported in 1Q18. For every 10-percentage points of deceleration from our base case FY19 model (34% y/y growth in Sites TAC), Google should earn an additional ~$1 in EPS. So this TAC move isn't much of a financial driver, but more of a sentiment changer.

FIGURE 4

EPS Sensitivity for Every 5% Deceleration in Sites TAC Growth ($ in Millions, expect per share amounts)

	FY19 - Base Case	Sites TAC - 5% lower growth	Sites TAC - 10% lower growth
GOOG Gross Revenue	$166,404	$166,404	$166,404
GOOG Sites TAC	$18,069	$17,394	$16,720
y/y growth	34.0%	29.0%	24.0%
Total TAC	$34,226	$33,552	$32,878
GOOG Net Revenue	$132,177	$132,851	$133,526
Total Opex	$91,471	$91,709	$91,946
GAAP Operating Income	$40,706	$41,143	$41,579
GAAP Operating Margin	30.8%	31.0%	31.1%
Diluted EPS	$47.71	$48.20	$48.69
% change vs base case		1.0%	2.0%

Source: Barclays Research

Finally, we also ask ourselves if TAC growth could ever decelerate to a level BELOW mobile search revenue growth, and the answer is "likely, but timing is unclear". Our TAC model, based on the sporadic disclosures from the Oracle lawsuits during 2010-2015, shows that Google likely pays Apple around $13 in TAC per active user ex-China, and around $3 in TAC per Android user. As the mix shifts to more Android and less iOS, there should be further deceleration and leverage opportunities for TAC. And as mentioned above, if and when Google decides the space is mature enough to stop paying onerous TAC rates to all partners (Apple and Android) then much more meaningful deceleration in TAC would occur (perhaps even negative growth) along with much more EPS accretion. We can only hope that day comes sooner rather than later, and will likely generate a meaningful re-rating in Google shares. At the very least, the per user TAC inflation in both iOS and Android seems unsustainable over the past year and should change given the mobile search revenue growth rates noted above. TAC is growing at a significant premium vs. revenue vs. search queries vs. any metric, hence we think the roll over that starts in 2Q could have legs.

FIGURE 5 **Android vs iOS – TAC Mix ($ in Millions, expect per user amounts)**

	2014	2015	2016	2017	2018
Sites TAC	$3,633	$4,101	$5,894	$9,031	$13,483
Y/Y Crowth	23%	13%	44%	53%	49%
Desktop & Legacy TAC	$1,109	$1,010	$960	$912	$866
Y/Y growth	6.6%	-8.9%	-5.0%	-5.0%	-5.0%
iOS TAC ($M)	$1,000	$1,193	$2,053	$3,712	$5,831
Y/Y Crowth		19%	72%	81%	57%
iOS Installed Base ex-China (m)	291.0	335.0	380.0	430.0	430
iOS TAC per user	$3.44	$3.56	$5.40	$8.63	$13.56
Y/Y growth		3.6%	51.8%	59.8%	57.1%
Android TAC ($M)	$1,524	$1,898	$2,881	$4,407	$6,787
Y/Y growth		24.5%	51.8%	52.9%	54.0%
Android Installed Base (m)	1067.9	1400.0	1700.0	2000.0	2200
Android TAC per user	$1.43	$1.36	$1.69	$2.20	$3.08
Y/Y growth		-5.0%	25.0%	30.0%	40.0%

The TAC per user inflation seems unsustainable in the long term

Source: Barclays Research

Valuation

We have maintained our estimates and our price target of $1,250, based on 20x EPS, 12x EV/EBITDA and 4% FCF Yield on our FY19 estimates, consistent with prior methodology.

FIGURE 6

Valuation

Google Inc. -- Valuation Worksheet			
(in millions except per share amounts)			
Current Price	$1,100.00		
Shares Outstanding	694.6		
Current Market Cap	764,064		
Less Cash	101,871		
Adj. Enterprise Value	662,193		
Price to Earnings		**2018E**	**2019E**
GAAP EPS		$45.02	$47.70
Current P/E multiple		24.4x	23.1x
Adjusted EPS		$55.55	$59.97
Current P/E multiple		19.8x	18.3x
Target Multiple		**20.0x**	**20.0x**
Implied Stock Price on fwd. EPS		**$1,111**	**$1,199**
EV to EBITDA		**2018E**	**2019E**
Adjusted EBITDA		51,605	61,614
Current EV/EBITDA Multiple		12.8x	10.7x
Target Multiple		**12.0x**	**12.0x**
Enterprise Value		619,265	739,368
Plus FY End Cash		123,955	160,732
Equity Value		743,220	900,100
FY End Projected Sharecount		708.3	716.9
Implied Stock Price on fwd. EBITDA		**$1,049**	**$1,256**
FCF Yield		**2018E**	**2019E**
FCF per Share		$35.84	$51.19
Current FCF Yield		3.3%	4.7%
Target Yield		**4.0%**	**4.0%**
Implied Stock Price on FCF yield		**$896**	**$1,280**
Average		**$1,019**	**$1,245**
Target Price			**$1,250**

Source: Barclays Research

Income Statement

FIGURE 7 **Income Statement**

Google -- Quarterly Income Statement	FY2015A	FY2016A	FY2017A	FY2018E				FY2018E	FY2019E				FY2019E
($ in Millions, except per share amounts)				Mar A	Jun E	Sep E	Dec E		Mar E	Jun E	Sep E	Dec E	
FY Dec	FY2015A	FY2016A	FY2017A	1QA	2QE	3QE	4QE	FY2018E	1QE	2QE	3QE	4QE	FY2019E
Consolidated Net Revenue	60,646	73,479	89,183	24,858	25,852	27,170	31,616	109,496	30,118	31,247	32,714	38,098	132,177
Gross Revenue	74,989	90,272	110,855	31,146	32,484	34,273	39,685	137,588	37,862	39,376	41,306	47,860	166,404
Google Web Sites Revenue	52,357	63,785	77,788	21,998	23,289	24,528	27,418	97,233	27,124	28,599	29,854	33,364	118,940
Google Network Web Sites Revenue	15,033	15,598	17,587	4,644	4,771	4,867	5,589	19,871	5,108	5,248	5,354	6,148	21,858
TAC	14,343	16,793	21,672	6,288	6,632	7,103	8,070	28,093	7,744	8,129	8,592	9,761	34,226
Licensing & Other Revenue	7,599	10,889	15,480	4,504	4,424	4,879	6,678	20,484	5,630	5,530	6,098	8,348	25,605
Alphabet Net Revenue	60,646	73,479	89,183	24,858	25,852	27,170	31,616	109,496	30,118	31,247	32,714	38,098	132,177
			124.3%					125.7%					
Cost of Net Revenues	13,821	18,345	23,911	7,179	6,976	7,303	10,208	31,666	9,077	8,785	9,153	12,907	39,922
Gross Profit	46,825	55,134	65,272	17,679	18,876	19,867	21,407	77,830	21,041	22,461	23,561	25,191	92,255
Operating Expenses:													
Product Development	12,282	13,948	16,625	5,039	5,062	5,272	4,809	20,183	5,851	6,065	6,349	5,791	24,055
Sales and Marketing	9,047	10,485	12,893	3,604	3,632	3,684	5,330	16,250	4,141	4,359	4,403	6,385	19,287
General and Administrative	6,136	6,985	9,608	2,035	1,863	1,647	1,949	7,494	2,134	2,095	1,820	2,158	8,207
Stock Based Compensation	5,203	6,703	7,679	2,457	2,450	2,193	2,225	9,325	2,917	2,898	2,575	2,605	10,996
Other													
Operating Expenses (ex. COGS, Stock Comp)	27,465	31,418	39,126	10,678	10,557	10,604	12,088	43,926	12,126	12,518	12,571	14,334	51,549
Total Operating Expenses	41,286	49,763	63,037	17,857	17,533	17,906	22,296	75,592	21,203	21,304	21,724	27,241	91,471
Income from Operations (GAAP)	19,360	23,716	26,146	7,001	8,320	9,264	9,319	33,903	8,915	9,943	10,990	10,858	40,706
Non -GAAP operating income	24,563	30,419	36,561	9,458	10,769	11,457	11,545	43,229	11,832	12,841	13,565	13,463	51,702
Depreciation & Amortization	5,063	6,144	6,915	1,986	2,078	2,107	2,205	8,377	2,320	2,406	2,538	2,649	9,912
EBITDA (inc SBC)	24,423	29,860	33,061	8,987	10,398	11,371	11,525	42,280	11,235	12,349	13,528	13,507	50,618
Net Income Continuing Operations (GAAP)	16,348	19,478	12,662	9,401	6,954	7,728	7,797	31,880	7,497	8,354	9,214	9,138	34,203
Net Income (GAAP)	**15,826**	**19,478**	**12,662**	**9,401**	**6,954**	**7,728**	**7,797**	**31,880**	**7,497**	**8,354**	**9,214**	**9,138**	**34,203**
EPS (GAAP)	$22.83	$27.88	$17.96	$13.33	$9.83	$10.89	$10.96	$45.02	$10.51	$11.67	$12.83	$12.69	$47.70
Diluted Shares Outstanding	693	699	701	705	707	709	711	708	714	716	718	720	717
Adjusted Net Income	20,435	24,031	18,805	11,367	8,914	9,483	9,577	39,340	9,830	10,672	11,275	11,222	42,999
Adjusted EPS	**$29.48**	**$34.39**	**$44.80**	**$16.12**	**$12.60**	**$13.37**	**$13.46**	**$55.55**	**$13.77**	**$14.91**	**$15.70**	**$15.58**	**$59.97**
Adjusted EBITDA (ex SBC)	29,626	36,563	43,476	11,444	12,847	13,564	13,750	51,605	14,152	15,247	16,103	16,112	61,614
Adjusted Income from Operations	**24,563**	**30,419**	**33,825**	**9,458**	**10,769**	**11,457**	**11,545**	**43,229**	**11,832**	**12,841**	**13,565**	**13,463**	**51,702**
Free Cash Metrics													
Free Cash Flow	16,109	25,867	23,907	4,343	6,104	7,496	7,443	25,385	11,039	7,446	9,200	9,011	36,695
FCF per share	**$23.25**	**$37.03**	**$34.11**	**$6.16**	**$8.63**	**$10.57**	**$10.46**	**$35.82**	**$15.47**	**$10.40**	**$12.81**	**$12.51**	**$51.20**
Margin Analysis													
Gross Margin	77.2%	75.0%	73.2%	71.1%	73.0%	73.1%	67.7%	71.1%	69.9%	71.9%	72.0%	66.1%	69.8%
Sales and Marketing as % of Net Revenue	14.9%	14.3%	14.5%	14.5%	14.0%	13.6%	16.9%	14.8%	13.7%	13.9%	13.5%	16.8%	14.6%
Product Development as % of Net Revenue	20.3%	19.0%	18.6%	20.3%	19.6%	19.4%	15.2%	18.4%	19.4%	19.4%	19.4%	15.2%	18.2%
General and Administrative as % of Net Revenue	10.1%	9.5%	10.8%	8.2%	7.2%	6.1%	6.2%	6.8%	7.1%	6.7%	5.6%	5.7%	6.2%
Operating Margin (GAAP)	31.9%	32.3%	29.3%	28.2%	32.2%	34.1%	29.5%	31.0%	29.6%	31.8%	33.6%	28.5%	30.8%
Operating Margin (Non GAAP)	40.5%	41.4%	41.0%	38.0%	41.7%	42.2%	36.5%	39.5%	39.3%	41.1%	41.5%	35.3%	39.1%
EBITDA Margin	40.3%	40.6%	37.1%	36.2%	40.2%	41.9%	36.5%	38.6%	37.3%	39.5%	41.4%	35.5%	38.3%
Net Income (GAAP)	27.0%	26.5%	14.2%	37.8%	26.9%	28.4%	24.7%	29.1%	24.9%	26.7%	28.2%	24.0%	25.9%
Adjusted Net Income	33.7%	32.7%	21.1%	45.7%	34.5%	34.9%	30.3%	35.9%	32.6%	34.2%	34.5%	29.5%	32.5%
Adjusted EBITDA Margin	48.9%	49.8%	48.7%	46.0%	49.7%	49.9%	43.5%	47.1%	47.0%	48.8%	49.2%	42.3%	46.6%
Effective Tax Rate	16.8%	19.3%	53.4%	10.8%	20.0%	20.0%	20.0%	17.5%	20.0%	20.0%	20.0%	20.0%	20.0%
Pretax Income	32.4%	32.9%	30.5%	42.4%	33.6%	35.6%	30.8%	35.3%	31.1%	33.4%	35.2%	30.0%	32.3%
Year Over Year Growth													
Net Revenue	15.5%	21.2%	21.4%	23.5%	23.6%	22.0%	22.2%	22.8%	21.2%	20.9%	20.4%	20.5%	20.7%
Gross Profit	14.6%	17.7%	18.4%	18.2%	20.7%	19.5%	18.6%	19.2%	19.0%	19.0%	18.6%	17.7%	18.5%
Product Development	60.9%	13.6%	19.2%	27.8%	21.3%	25.4%	11.7%	21.4%	16.1%	19.8%	20.4%	20.4%	19.2%
Sales and Marketing	22.0%	15.9%	23.0%	36.3%	25.4%	21.1%	23.7%	26.0%	14.9%	20.0%	19.5%	19.8%	18.7%
General and Administrative	19.7%	13.8%	37.6%	13.0%	-58.0%	3.3%	9.7%	-22.0%	4.9%	12.5%	10.5%	10.7%	9.5%
Operating Expenses (ex. COGS, Stock Comp)	36.1%	14.4%	24.5%	27.3%	-8.2%	19.9%	16.3%	12.3%	13.6%	18.6%	18.6%	18.6%	17.4%
Operating Income (GAAP)	17.4%	22.5%	10.2%	6.6%	101.3%	19.0%	21.6%	29.7%	27.3%	19.5%	18.6%	16.5%	20.1%
Adjusted Net Income	18.3%	17.6%	-21.7%	61.6%	13.4%	15.8%	15.2%	109.2%	-13.5%	19.7%	18.9%	17.2%	9.3%
Adjusted EPS	17.2%	16.7%	30.3%	60.9%	12.8%	14.9%	12.4%	24.0%	-14.5%	18.3%	17.5%	15.8%	8.0%
Adjusted Operating Margin	18.8%	23.8%	11.2%	10.3%	75.5%	19.3%	21.4%	27.8%	25.1%	19.2%	18.4%	16.6%	19.6%
FCF	45.0%	60.6%	-7.6%	-38.3%	33.5%	18.3%	24.9%	6.2%	154.2%	22.0%	22.7%	21.1%	44.6%
Gross Revenue Breakdown by Geography													
Domestic	34,810	42,781	52,449	14,144	14,834	15,523	18,458	62,959	16,855	17,656	18,462	21,979	74,952
International	40,179	47,491	58,406	17,002	17,649	18,750	21,227	74,629	21,007	21,720	22,844	25,881	91,452

Source: Barclays Research

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Primary Stocks (Ticker, Date, Price)

Alphabet Inc. (GOOGL, 31-May-2018, USD 1100.00), Overweight/Positive, CD/CE/J/K/M/N

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U.S. Internet

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Booking Holdings Inc. (BKNG)	Ctrip.com International Ltd. (CTRP)	eBay, Inc. (EBAY)
Electronic Arts, Inc. (EA)	Expedia Inc. (EXPE)	Facebook, Inc. (FB)
GoDaddy Inc. (GDDY)	Groupon, Inc. (GRPN)	GrubHub, Inc. (GRUB)
IAC/InterActiveCorp (IAC)	Match Group, Inc. (MTCH)	MercadoLibre (MELI)

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Zillow, Inc. (ZG)		

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Alphabet Inc. (GOOGL / GOOGL)

USD 1100.00 (31-May-2018)

Stock Rating: **OVERWEIGHT**

Industry View: **POSITIVE**

Rating and Price Target Chart - USD (as of 31-May-2018)

Source: IDC, Barclays Research

Currency=USD

Publication Date	Closing Price	Rating	Adjusted Price Target
23-Apr-2018	1073.81		1250.00
02-Feb-2018	1119.20		1330.00
27-Oct-2017	1033.67		1260.00
25-Jul-2017	969.03		1060.00
28-Mar-2017	840.63	Overweight	1065.00
06-May-2016	725.18	Coverage Dropped	
02-Feb-2016	780.91		900.00
23-Oct-2015	719.33		800.00
17-Jul-2015	699.62		675.00

On 31-May-2015, prior to any intra-day change that may have been published, the rating for this security was Overweight, and the adjusted price target was 620.00.

Source: Thomson Reuters, Barclays Research

Historical stock prices and price targets may have been adjusted for stock splits and dividends.

Link to Barclays Live for interactive charting

CD: Barclays Bank PLC and/or an affiliate is a market-maker in debt securities issued by Alphabet Inc..

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Valuation Methodology: Our price target of $1,250 is based on 20x EPS, 12x EV/EBITDA and 4% FCF Yield on our FY19 estimates, consistent with prior methodology.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Increasing competition and regulatory issues could cause multiple compression and downward estimate revision, while continued innovation, successful product launches and an uptick in GCP adoption could cause upside to our current estimates. Below, we discuss in detail where we could get upside/downside to current estimates.

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Alphabet Class C (GOOG)

Alphabet Class C strengthens 4% in 2018, outperforming Internet sector

Alphabet Inc, the NASDAQ's largest Internet company by market cap, has strengthened $US39.18 (or 3.7%) year-to-date (YTD) in 2018 to close at $US1,084.99. This makes the stock the highest rising one in the Internet sector which is up 2.5% in 2018. Compared with the NASDAQ-100 Index which has risen 8.9% YTD, this is a relative price change of -5.2%. The average daily volume of 1.6 million shares so far in 2018 was 1.1 times the average daily volume in 2017. Revenue surged at a brisk 23.9% year-on-year. EPS showed a precipitous fall of 58.7% quarter-on-quarter.

DIRECTORS SELLING

Sundar Pichai, director sold 3,675 shares worth $US3,959,114 on May 16. The price was $US1,077.31.

Company Overview

Figure 1: Activities

Alphabet Inc maintains an index of Websites and other online content, and makes this information freely available through its search engine to anyone with an Internet connection. The Company's automated search technology helps people obtain nearly instant access to relevant information from its online index. The Company generates revenue primarily by delivering online advertising. Businesses use its AdWords program to promote their products and services with targeted advertising.

Further details can be found at **https://www.abc.xyz**

Economic Sector	Technology
Business Sector	Software & IT Services
Industry Group	Software & IT Services
Industry	Internet Services

Fig 2: Stock Identifiers

ISIN	US02079K1079
PermID	4295899948
Central Index Key (CIK)	1652044
CUSIP	02079K107

Fig 3: Stock Summary

Shares Outstanding	349,844,000
Sector	Internet
Market Cap	$US379.6 billion
TSR (3 yrs)	26.5%
52-Week Range	$US894.79-$US1,186.89
Relative Strength (3 mo)	41
EPS Growth % (y.o.y)	72.4

Fig 4: Financials Summary

Year ended	Dec 2017	Dec 2016	Dec 2015
Sales (USD B)	110.9	90.3	75.3
Pretax (USD B)	27.2	24.1	19.7
Net (USD B)	12.7	19.5	15.8
EPS (USD)	18	27.85	22.8392

Net profit was down 35% from US$19.5 billion in 2016 to US$12.7 billion in 2017. Earnings Per Share (EPS) was down 35.4% from $US27.85 to $US18.0.

In this Report:

Highlights:	Page
Summary	1
Analysis	2
Period-based Shareholder Returns	5
Price Volume Dynamics	8
Institutional Activity	13
News	22
Financials	27
Peer Group Analysis	37
Board and Management	40
Index and Glossary	43

Note also:

Section Headers and Figures are mapped as Bookmarks in the PDF menu (left, top)

Analysis

Introduction with Trends

We are currently bullish on this stock in the long-term based on fundamental metrics, but are neutral in the short-term based on technical indicators

What makes us bullish on the stock is the following:

- The Price to Book of 2.9 lower than average of 2.9 for the Internet sector. We estimate the shares are trading at a current year Price to Book of 2.5 and a forward year Price to Book of 2.2.
- Return on Equity of 8.3% versus sector average of 6.1% and market average of 11.1%.
- Return on Assets of 6.4% versus sector average of 5.6% and market average of 3.5%.

However, there are some reasons why we remain neutral on the stock for the short-term:

- In the last three months the number of rises outnumbered falls 34:30 or 1.1:1.
- Its Moving Average Convergence Divergence indicators are rising, with its 12-day EMA higher than its 26-day EMA.

Bullish Signals

- Rises to Falls: In the last three months the number of rises outnumbered falls 34:30 or 1.1:1.
- In the last 21 trading sessions there has been a net rise of 5.9%; the stock has advanced eleven times and the biggest one day rise was 2.7% on May 09.
- In the NASDAQ market of 2,292 stocks and 4 units traded today, the stock has a 6-month relative strength of 58 which means it has outperformed 58% of the market.
- The Moving Average Convergence Divergence (MACD) indicator of 12-day Exponential Moving Average (EMA) of 1,076.68 minus the 26-day EMA of 1,062.64 is positive suggesting a bullish signal. The 12-day EMA is rising and 26-Day EMA is decreasing, is a bullish signal.
- The price to 200-day MAP ratio is 1.05, a bullish indicator. In the past 200 days this ratio has exceeded 1.05, 147 times suggesting further upside. The stock is trading above both its MAPs and the 50-day MAP of $US1,050.60 is higher than the 200-day MAP of $US1,036.71, another bullish indicator.

Undervaluation:

- Price/Sales of 3.23 versus sector average of 3.4 and market average of 3.1. We estimate the shares are trading at a current year Price/Sales of 2.8 and a forward year Price/Sales of 2.3.
- The Price to Book of 2.9 lower than average of 2.9 for the Internet sector. We estimate the shares are trading at a current year Price to Book of 2.5 and a forward year Price to Book of 2.2.
- The company is cash rich with Cash to Market Capitalisation at 26.8%.
- The Q Ratio, defined by James Tobin as MCap divided by Total Assets, is 1.9. Compared with the rest of the market the stock is undervalued.

Other Bullish Signals:

- Return on Equity of 8.3% versus sector average of 6.1% and market average of 11.1%.
- Total Liabilities/EBITDA of 1.6 is less than 5, this compares favourably with the Joseph Piotroski benchmark of 5.
- Return on Assets of 6.4% versus sector average of 5.6% and market average of 3.5%.
- Return on Capital Employed of 15.7% versus sector average of 13.3% and market average of 9.0%.
- Net profit margin has averaged 18.3% in the last 3 years. This is considered superior and suggests a high margin of safety.
- As per the Du Pont analysis, Return on Equity of 8.3% is better than sector average of 6.1%. This is computed as net profit margin of 11.4% times asset turnover [sales/assets] of 0.56 times leverage factor [total assets/shareholders' equity] of 1.3.

Also, the following criteria set by Benjamin Graham:

- "Total debt less than tangible book value"; total debt of USD4 Billion is less than tangible book value of USD133.1 Billion.
- "Current ratio of two or more"; current assets are 5.1 times current liabilities.
- "Stability of growth in earnings over the last 5 years, defined as no more than two declines of 5% or greater in year-end earnings"; there have been 2 declines in earnings in the last 5 years.

Analysis (continued)

Fig 5: Bullish Indicators

Description	Value	Rank In Nasdaq
MCap	$US379.6 billion	In Top 1%
Tr 12 months Revenue	$US117.5 billion	In Top 1%
Turnover in Quarter	$US123.8 billion	In Top 1%
Total Debt to Equity	0.03	In Top 10%
Cash to MCap %	26.8	In Top Quartile
Price Change % (3 mo)	1.6	In Top Quartile

Bearish Signals

Overvaluation:

- Price/Earnings of 46 versus sector average of 32.4 and market average of 36.9. We estimate the shares are trading at a current year P/E of 30.9 and a forward year P/E of 31.8.
- The earnings yield of 2.2% below 10-year bond yield of 2.85%.

Other Bearish Signals:

The stock has a score of merely 4 out of 9 set by Joseph Piotroski [pass mark >=5]:

Positive net income; positive operating cashflow; good quality of earnings [operating cashflow exceeds net income]; improvement in asset turnover [growth in revenue of 23.8% exceeded growth in assets of 17.8%].

Fig 6: Bearish Indicators

Description	Value	Rank In Nasdaq
P/E * P/NTA	131.24	In Bottom Quartile
Price Earnings	46	In Bottom Quartile

Note

- It is at a discount of 8.6% to the 12-month high of $US1,186.89 on 29 Jan, 2018. It is also at a premium of 21.3% to the 12-month low of $US894.79 on 03 Jul, 2017.

Beta & Standard Deviation (SD)

The Beta of this stock is 1.3. A Beta greater than 1 suggests this is a higher risk, higher return stock with volatility greater than that of the market.

SD is a statistical measure of deviation from the mean. The SD of 1.4% gives it a percentile rank of 13 meaning that 13% of stocks in the NASDAQ market are less volatile than this stock.

Fig 7: Rank in the NASDAQ-100 Index

Description	Value	Rank
MCap (US$ B)	379.6	5
Total Assets (US$ B)	197.3	3
Revenue (US$ B)	117.5	5
Net Profit (US$ B)	12.7	4
Return on Equity %	8.3	76
Net Profit Margin %	11.4	55
Price to Book	2.9	6
Price Earnings	46.0	58
PV$1000 (1Year) US$	1,125	56
% Change YTD	3.7	49

Fig 8: Other Listings

Exchange	RIC	Avg. Daily Volume	Volume % of Total
Primary Exchange (United States)			
Nasdaq	GOOG.O	2,141,786	99.95
Other Listings			
Germany			
Xetra	ABECG.DE	828	0.05
Total			100.00

Fig 9: Analyst Recommendations

Date	Brokerage	Action	Rating
18-May	Morgan Stanley	Reiterates	Buy
24-Apr	Deutsche Bank	Reiterates	Buy
24-Apr	Oppenheimer	Raises Target	Outperform
24-Apr	JPMorgan Chase & Co.	Reiterates	Overweight
20-Apr	Credit Suisse Group	Reiterates	Buy
10-Apr	Morgan Stanley	Reiterates	Buy

Analysis (continued)

Fig 10: MCap - Historical Perspective

In the past 3 years Market Capitalization has increased by $US197.8 billion from $US181.8 billion to $US379.6 billion. Based on a dynamic start date of 3 years ago, there has been no decline in MCap over the last 3 years.

	Price	MCap (US$ B)
Last	$US1,084.99	379.6
1 Year ago	$US966.95	333
2 Years ago	$US735.72	253
3 Years ago	$US532.11	181.8

Period-based Shareholder Returns

PAST QUARTER

Alphabet Class C strengthens 1% in past quarter
Alphabet Inc (NASDAQ:GOOG), has strengthened $US15.47 (or 1.4%) in the past quarter to close at $US1,084.99. Compared with the NASDAQ-100 Index which rose 113.3 points (or 1.6%) in the past quarter, this represented a relative price change of -0.2%.

The stock rose 34 times (53.1% of the time) and fell 30 times (46.9% of the time). The aggregate volume was 0.8 times average trading of 2.1 million shares. The value of $US1,000 invested 3 months ago is $US1,014 [vs $US1,019 for the NASDAQ-100 Index] for a capital gain of $US14.

YEAR-TO-DATE

Alphabet Class C strengthens 4% in 2018
Alphabet Inc (NASDAQ:GOOG), strengthened $US39.18 (or 3.7%) year-to-date (YTD) in 2018 to close at $US1,084.99. Compared with the NASDAQ-100 Index which has risen 8.9% YTD, this is a relative price change of -5.2%.

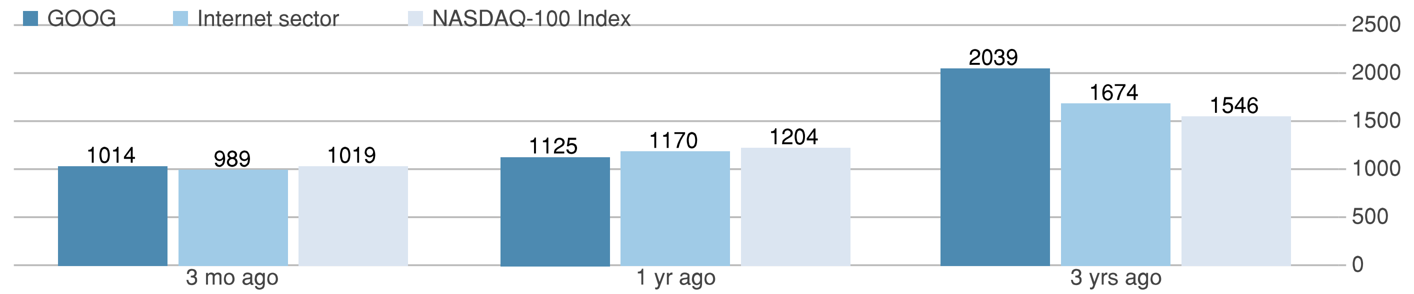
PAST YEAR

Alphabet Class C adds 12% in past year
Alphabet Inc (NASDAQ:GOOG), added $US120.13 (or 12.5%) in the past year to close at $US1,084.99. Compared with the NASDAQ-100 Index which has risen 20.2% over the same period, this is a relative price change of -7.8%.

The stock rose 135 times (53.6% of the time) and fell 117 times (46.4% of the time). The value of $US1,000 invested a year ago is $US1,125 [vs $US1,204 for the NASDAQ-100 Index] for a capital gain of $US125.

Fig 12: PRESENT VALUE OF $US1000 INVESTED IN THE PAST [3 Mo, 1 Yr, 3 Yrs]

PV$US1,000	3 mo ago	1 yr ago	3 yrs ago
GOOG	$US1,014	$US1,125	$US2,039
Internet sector	$US989	$US1,170	$US1,674
NASDAQ-100 Index	$US1,019	$US1,204	$US1,546



Period-based Shareholder Returns (continued)

Fig 13: Moving Annual Return

Based on a dynamic start date of 3 years ago, the Moving Annual Return has consistently exceeded 12%.

GOOG	Close (USD)	Annual Return %
May 31	1,084.99	12.5
1 Yr ago	964.86	31.7
2 Yrs ago	732.66	37.7

Close 3 years ago $US532.11

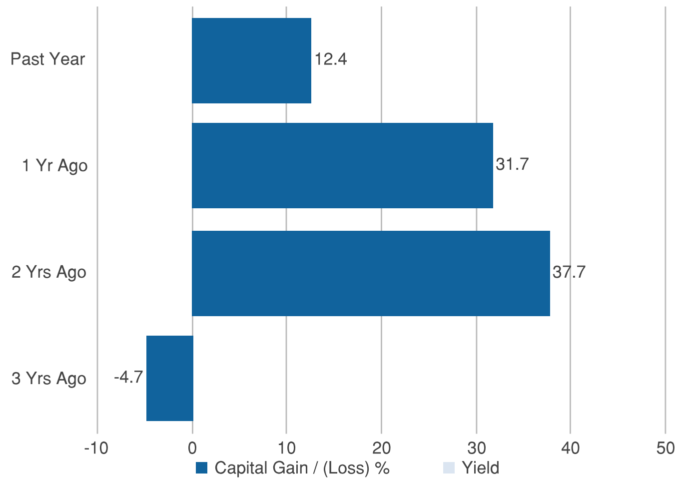
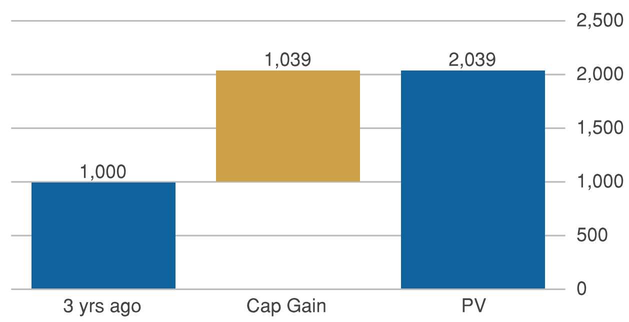


Fig 14: Total Shareholder Returns, Annualised [TSR %]

TSR %	1 yr	3 yrs
GOOG	12.4	26.5

Period-based Shareholder Returns

Fig 15: PRESENT VALUE OF USD1000 INVESTED 3 YEARS AGO



Present Value (PV) of $US1000 invested 3 years ago = $US2,039
Comprising Capital gain of $US1,039

- The present value of USD1,000 (PV1000) invested three years ago in Alphabet Class C is $US2,039, for a capital gain of $US1,039.
- 3 years Multiplier in USD = 2.039x
- Compound Annual Growth Rate (CAGR) in USD = 26.5%

Price Volume Dynamics (Past quarter)

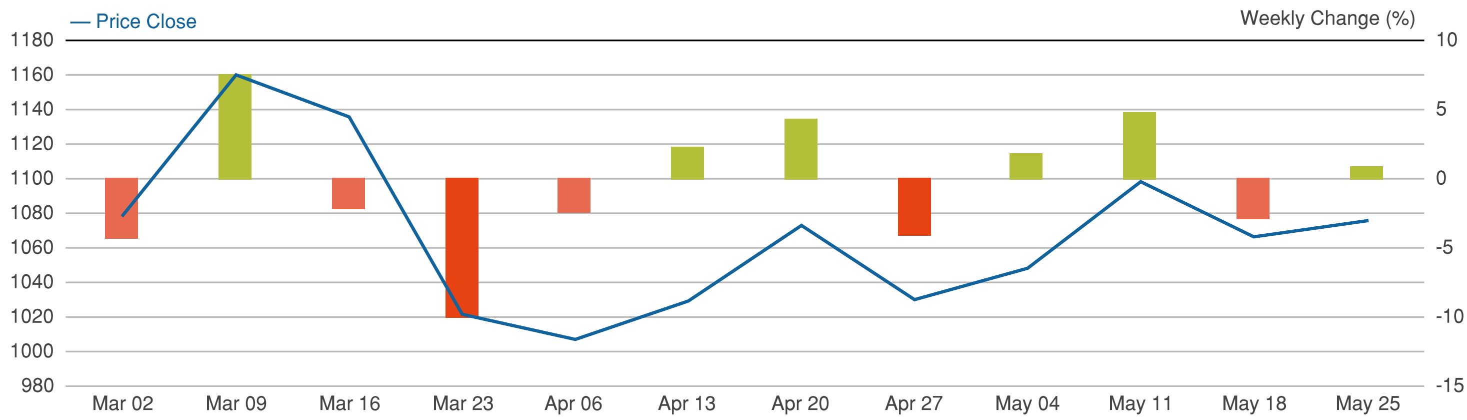
Fig 16: The Best 3 weeks

Mon-Fri	Change %	NASDA Q-100 index Change %	RPC %	Vol Ind [1 is avg]
Mar 05-09	7.5	4.3	3.3	0.7
May 07-11	4.8	2.7	2.1	0.7
Apr 16-20	4.2	0.6	3.6	0.8

Fig 17: The Worst 3 weeks

Mon-Fri	Change %	NASDA Q-100 index Change %	RPC %	Vol Ind [1 is avg]
Mar 19-23	-10.1	-7.3	-2.8	1
Feb 26-Mar 02	-4.2	-1.2	-3	0.9
Apr 23-27	-4	-0.2	-3.8	1.2

Fig 18: Weekly Price Change (%) and Volume Index (Last 3 months)

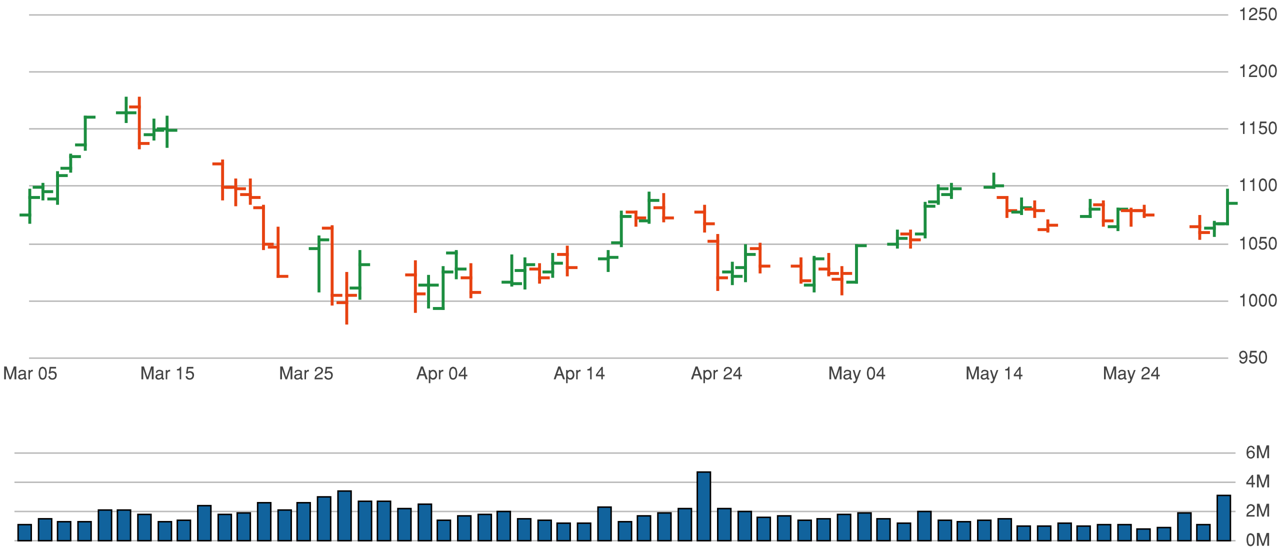


Price increase fuelled by above average Volume
Price decrease fuelled by above average Volume
Price increase on below average Volume
Price decrease on below average Volume

In the last 13 weeks the share price was up 1.4%. It rose in 6/13 weeks.

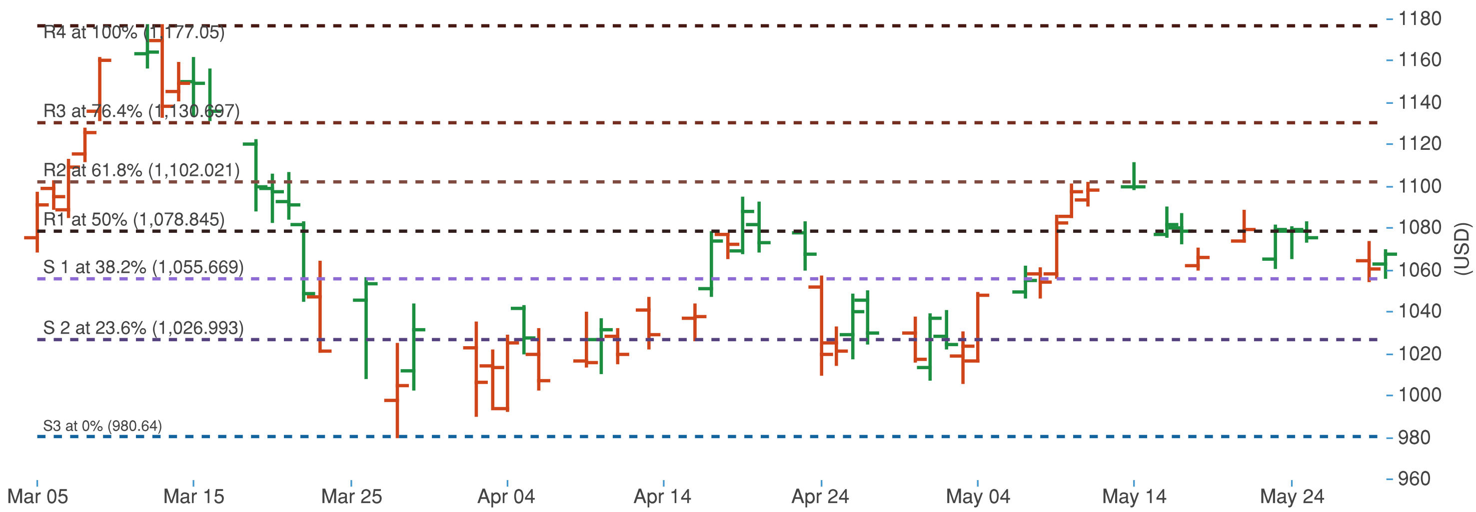
Price Volume Dynamics (continued)

Fig 19: Price Volume Trend: Trailing Quarter



Alphabet Class C hit a 3-month high of $US1,177.05 on Mar 12 and a 3-month low of $US980.64 on Mar 28.

Fig 20: Fibonacci Retracement



Immediate Support Level: 1,055.67; Immediate Resistance Level: 1,078.85

Fig 21: Trailing 3 months

Turnover	US$123.8 billion
Volume	116,624,528
Volume Index (1 is avg)	0.9

Fig 22: Trailing Price Change %

3-Year price change of 103.9% for GOOG outperformed the change of 54.6% in the NASDAQ-100 index for a relative price change of 49.3%.

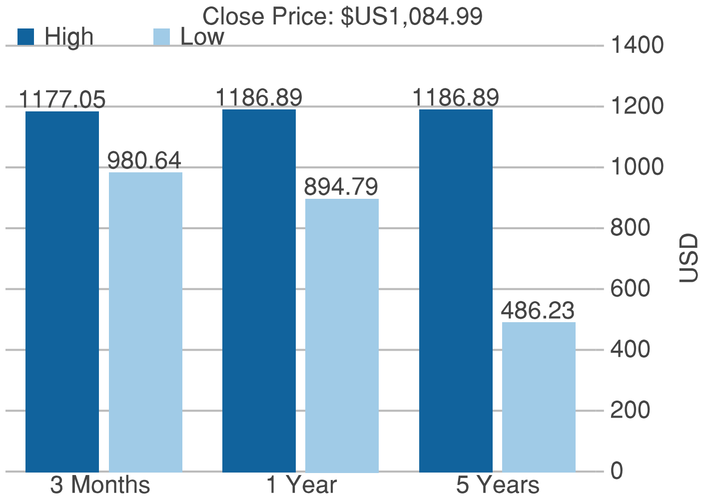
Price Change %	Quarter	Year	3 Years
GOOG	1.4	12.5	103.9
Internet	-1.1	15.8	67.4
NASDAQ-100 index	1.6	20.2	54.6

Price Volume Dynamics (continued)

Volatility

The stock traded between a 52-week low of $US894.79 and a high of $US1,186.89. The average daily volatility of 1.7% places the stock in the 4th quartile in the market meaning it is least volatile.

Fig 23: Price High Low Close



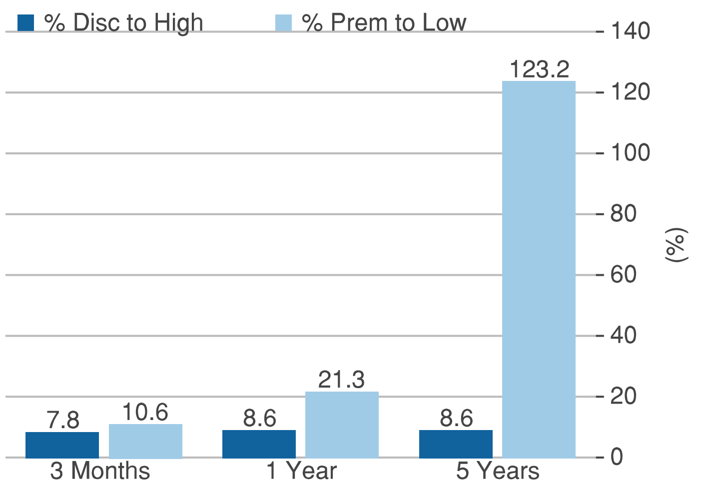


Fig 24: YTD Comparison Stock Sector Index (%)

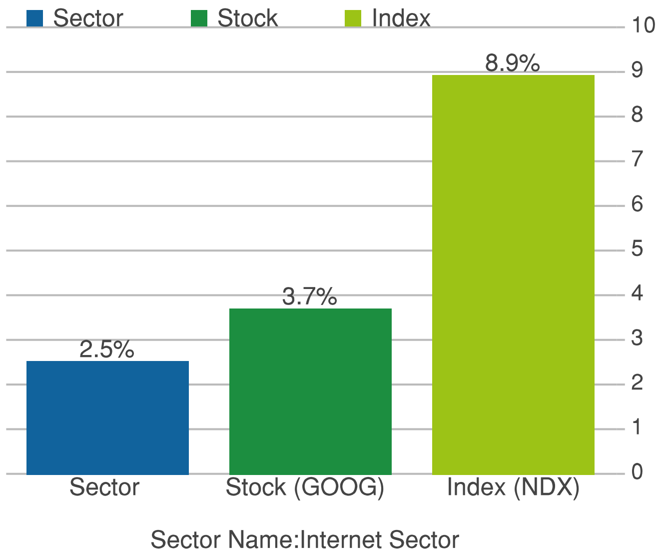
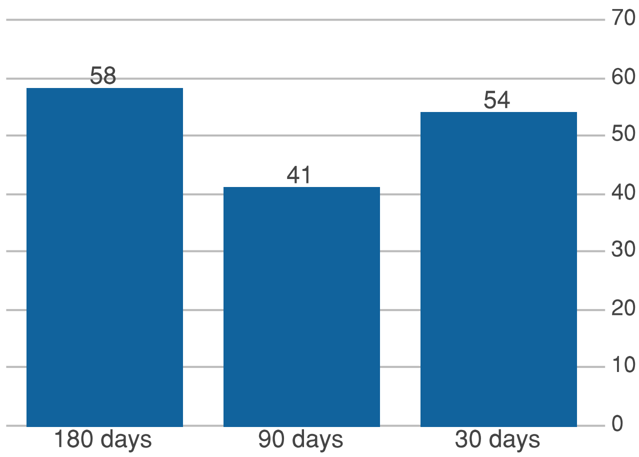
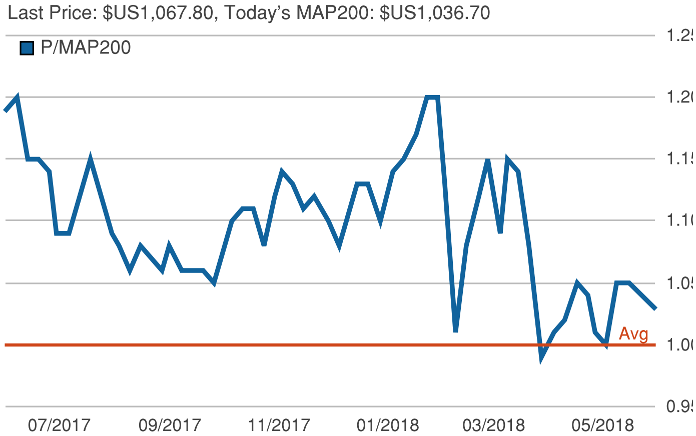


Fig 25: Relative Strength



Price Volume Dynamics (continued)

Fig 26: Price/Moving Avg Price [P/MAP200]



In the last 30 days the share price has exceeded Moving Avg Price on 21/23 days; a bullish signal.

Fig 27: Turnover Rate & Period

1. Annual Turnover $US410 billion
2. MCap $US380 billion
3. Turnover Rate (1/2) =108.5%
4. Turnover Period (1/3) =11 months

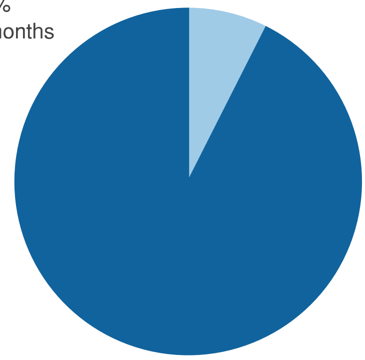


Fig 28: % Change (Tr. 12 Mo): Stock (12.5%) v Index (20.2%)

In the trailing 12 months Alphabet Class C has underperformed the NASDAQ-100 index by 7.8%.

Price Volume Dynamics (continued)

Fig 29: Year-on-Year Comparison (Trailing year - ended 31 May)

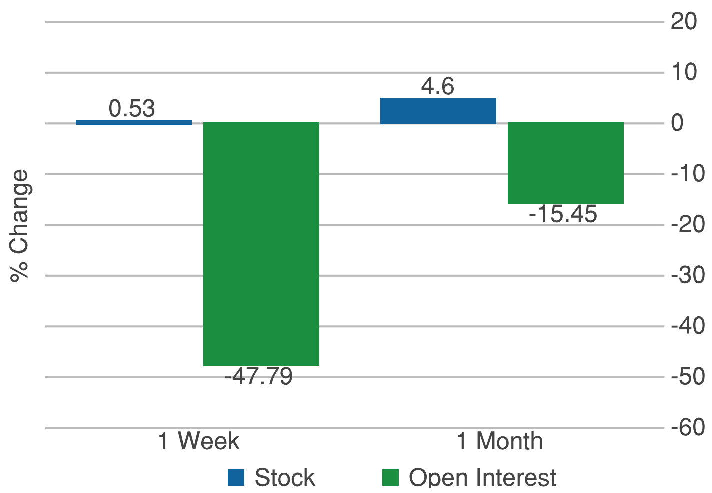
	2018	2017	2016	2015	2014
Price 31 May (USD)	1,084.99	964.86	735.72	532.11	558.36
% Price Change	12.5	31.1	38.3	-4.7	
Avg Daily Volume	1,589,412	1,455,299	2,190,949	1,646,354	2,300,363
VWAP (USD)	1,018.09	795.48	678.57	546.75	536.11
Turnover Period	11 mo	1 yr 52 d	8 mo	9 mo	3 yrs 4 mo
Price Range (USD)	894.79 - 1,186.89	663.28 - 979.27	515.18 - 789.87	486.23 - 598.01	501.42 - 603.17
Index Change %	20.4	28	0.3	20.6	
Relative Price Change %	-7.9	3.2	37.9	-25.3	

Stock Exchange Listings

Primary Exchange and Year-to-date (YTD) Aggregate Volume

+Nasdaq: GOOG.NASDAQ year-to-date volume is 182,953,199; volume 99.95% of aggregate. Average daily volume is 1,742,411.
Year-to-date (YTD) Volume Weighted Average Price (VWAP): $US1,077.0.
Other listings and Year-to-date (YTD) Aggregate Volumes
+Xetra: ABEC.ETR year-to-date volume is 86,846; volume 0.05% of aggregate. Average daily volume is 819.
Year-to-date (YTD) VWAP: EUR880.0.
Using the current exchange rate of EUR1 equals 1.1681USD, the shares are at a 4.6% discount to the year-to-date VWAP on Nasdaq.
+YTD Aggregate volume: there were 183,040,045 shares of Alphabet Class C worth USD197.1 billion traded year-to-date.

Fig 30: Open Interest Trend



Open interest plummeted 15.4% from 16,431 a month ago while the stock climbed 4.6% from $US1,017.33 a month ago. Combined with the rising price this suggests the market is weakening.

Institutional Shareholder Activity

Fig 31: Institutional Shareholder Activity - Major Increases in Top 40 institutional shareholders [Quarter ended March 31, 2018]

Capital Research Global Investors increased their shareholding in Alphabet Class C by 1.1 million shares worth USD 1.2 billion. Vanguard Group Inc. increased their shareholding by 504,655 shares worth USD 552.6 million.

Institution (CIK)	Increase in Shares	Change, $USD
Capital Research Global Investors (0001422848)	1,107,068	1.2 B
Vanguard Group Inc. (0000102909)	504,655	552.6 M
TCI Fund Management Ltd (0001647251)	441,115	483.1 M
Blackrock Inc. (0001364742)	352,952	386.5 M
Capital World Investors (0001422849)	284,050	311.1 M
Geode Capital Management, LLC (0001214717)	188,596	206.5 M
Henderson Group PLC (0001274173)	128,220	140.4 M
Morgan Stanley (0000895421)	113,399	124.2 M
Schwab Charles Investment Management Inc. (0000884546)	45,157	49.5 M
Royal Bank Of Canada (0001000275)	27,813	30.5 M
Clearbridge Investments, LLC (0001348883)	21,645	23.7 M
Eagle Capital Management LLC (0000945631)	15,079	16.5 M
Invesco Ltd. (0000914208)	12,814	14 M
Massachusetts Financial Services Co,MA (0000912938)	11,529	12.6 M
Bank of Montreal, CAN (0000927971)	10,924	12 M
Ameriprise Financial Inc. (0000820027)	9,166	10 M
Goldman Sachs Group Inc. (0000886982)	4,034	4.4 M
Sanders Capital, LLC (0001508097)	287	314,289
Total	**3,278,503**	**-**

Institutional Shareholder Activity (continued)

Fig 32: Institutional Shareholder Activity - Major Decreases in Top 40 institutional shareholders [Quarter ended March 31, 2018]

FMR LLC reduced their shareholding in Alphabet Class C by 1.4 million shares worth USD 1.5 billion. Price T Rowe Associates Inc.,MD reduced their shareholding by 620,071 shares worth USD 679 million.

Institution (CIK)	Decrease in Shares	Change, $USD
FMR LLC (0000315066)	1,370,928	(1.5 B)
Price T Rowe Associates Inc.,MD (0000080255)	620,071	(679 M)
State Street Corporation (0000093751)	548,242	(600.4 M)
JP Morgan Chase & Co (0000019617)	338,141	(370.3 M)
Wellington Management Group LLP (0000902219)	310,952	(340.5 M)
Baillie Gifford & Co (0001088875)	284,643	(311.7 M)
Harris Associates LP (0000813917)	203,187	(222.5 M)
Wells Fargo & Company (0000072971)	172,877	(189.3 M)
Jennison Associates LLC (0000053417)	162,434	(177.9 M)
Swiss National Bank (0001582202)	145,400	(159.2 M)
Bank of New York Mellon Corp (0001390777)	141,761	(155.2 M)
Northern Trust Corp (0000073124)	76,295	(83.5 M)
AllianceBernstein (0001109448)	73,887	(80.9 M)
Legal & General Group PLC (0000764068)	70,563	(77.3 M)
Bank of America Corp, DE (0000070858)	69,859	(76.5 M)
Dodge & Cox (0000200217)	52,754	(57.8 M)
Davis Selected Advisers (0001036325)	20,826	(22.8 M)
TIAA CREF Investment Management LLC (0000887793)	12,758	(14 M)
Total	**4,675,578**	**-**

Fig 33: Institutional Shareholder Activity - New Entrants in Top 40 institutional shareholders

Institution (CIK)	Shares	Value, $USD
Magellan Asset Management Ltd (0001536105)	2,114,849	2.2 B
UBS Global Asset Management Americas Inc. (0000861177)	1,079,610	1.1 B
Deutsche Bank AG (0000948046)	992,345	1 B
Polen Capital Management LLC (0001034524)	990,728	1 B
Total	**5,177,532**	**-**

Institutional Shareholder Activity (continued)

Fig 34: Institutional Shareholder Activity - Drop Outs from Top 40 institutional shareholders

Institution (CIK)	Shares	Value, $USD
Eaton Vance Management (0001076598)	974,063	1 B
BNP Paribas Arbitrage, SA (0001166588)	969,458	1 B
Oppenheimer Funds Inc. (0000728889)	906,000	934.8 M
Total	**2,849,521**	**-**

Institutional Shareholder Activity (continued)

Fig 35: Institutional Shareholder Activity - Top 40 Institutional Shareholders of Alphabet Class C as at March 31, 2018

The top 40 institutional shareholders held 44.5% shares of Alphabet Class C. The largest shareholder was Vanguard Group Inc. with 6.26% of Alphabet Class C. The second largest shareholder was Blackrock Inc. with 5.45%.

Institution (CIK)	Shares	Holding %	Value $USD
Vanguard Group Inc. (0000102909)	21,911,115	6.26	22.6 B
Blackrock Inc. (0001364742)	19,071,440	5.45	19.7 B
State Street Corporation (0000093751)	11,298,581	3.23	11.7 B
FMR LLC (0000315066)	11,282,760	3.23	11.6 B
Price T Rowe Associates Inc.,MD (0000080255)	9,247,159	2.64	9.5 B
Capital World Investors (0001422849)	6,754,659	1.93	7 B
Capital Research Global Investors (0001422848)	6,135,662	1.75	6.3 B
JP Morgan Chase & Co (0000019617)	4,174,947	1.19	4.3 B
Northern Trust Corp (0000073124)	4,015,404	1.15	4.1 B
Bank of New York Mellon Corp (0001390777)	3,617,442	1.03	3.7 B
Geode Capital Management, LLC (0001214717)	3,546,238	1.01	3.7 B
Invesco Ltd. (0000914208)	3,482,800	1	3.6 B
Henderson Group PLC (0001274173)	3,288,548	0.94	3.4 B
Dodge & Cox (0000200217)	3,159,044	0.9	3.3 B
AllianceBernstein (0001109448)	3,154,572	0.9	3.3 B
Morgan Stanley (0000895421)	2,912,574	0.83	3 B
Wellington Management Group LLP (0000902219)	2,464,948	0.7	2.5 B
Baillie Gifford & Co (0001088875)	2,405,566	0.69	2.5 B
TIAA CREF Investment Management LLC (0000887793)	2,392,124	0.68	2.5 B
Harris Associates LP (0000813917)	2,363,905	0.68	2.4 B
TCI Fund Management Ltd (0001647251)	2,359,642	0.67	2.4 B
Bank of America Corp, DE (0000070858)	2,125,869	0.61	2.2 B
Magellan Asset Management Ltd (0001536105)	2,114,849	0.6	2.2 B
Goldman Sachs Group Inc. (0000886982)	2,109,165	0.6	2.2 B
Wells Fargo & Company (0000072971)	1,839,268	0.53	1.9 B
Ameriprise Financial Inc. (0000820027)	1,696,549	0.48	1.8 B
Eagle Capital Management LLC (0000945631)	1,646,502	0.47	1.7 B
Jennison Associates LLC (0000053417)	1,505,424	0.43	1.6 B
Bank of Montreal, CAN (0000927971)	1,457,102	0.42	1.5 B
Legal & General Group PLC (0000764068)	1,403,344	0.4	1.4 B
Sanders Capital, LLC (0001508097)	1,305,538	0.37	1.3 B
Davis Selected Advisers (0001036325)	1,144,081	0.33	1.2 B
Clearbridge Investments, LLC (0001348883)	1,083,818	0.31	1.1 B

Institutional Shareholder Activity (continued)

Schwab Charles Investment Management Inc. (0000884546)	1,079,768	0.31	1.1 B
UBS Global Asset Management Americas Inc. (0000861177)	1,079,610	0.31	1.1 B
Massachusetts Financial Services Co,MA (0000912938)	1,069,808	0.31	1.1 B
Royal Bank Of Canada (0001000275)	1,041,606	0.3	1.1 B
Swiss National Bank (0001582202)	1,009,066	0.29	1 B
Deutsche Bank AG (0000948046)	992,345	0.28	1 B
Polen Capital Management LLC (0001034524)	990,728	0.28	1 B
Held by Top 40	**155,733,570**	**44.49**	**160.7 billion**

Fig 36: Institutional Shareholder Activity - Net institutional selling: TTM ended March 31, 2018

Total reported Institutional buying = 36,591,022 shares

Total reported Institutional selling = 37,137,946 shares

Net reported institutional selling = 546,924 shares

Fig 37: Institutional Shareholder Activity - Reported institutional buying and selling (No of shares)

Quarter Ended	Mar 31	Dec 31, 2017	Sep 30, 2017	Jun 30, 2017
Buying	9,182,973	7,210,706	8,790,965	11,406,378
(Selling)	(11,235,345)	(9,611,220)	(7,453,154)	(8,838,227)
Net Buying/(Selling)	(2,052,372)	(2,400,514)	1,337,811	2,568,151
Holding (end of quarter)	233,499,873	238,329,871	236,676,131	235,360,908

Fig 38: Institutional Shareholder Activity - Reported holdings of institutions as of March 31, 2018

Total reported holdings of institutions = 233,499,873 shares

Market Value = $US240.9 billion

Quarter Ended	Mar 31	Dec 31, 2017	Sep 30, 2017	Jun 30, 2017
Market Value ($ Million)				
Reported Holdings of Institutions	240,923	249,249	226,998	213,880
% of issued capital	66.74	68.12	67.65	67.28

Institutional Shareholder Activity (continued)

Fig 39: Institutional Shareholder Activity - Net Buying/(Selling) by Institutions: Trailing 12 Months (TTM)

Institution	Q1'18	Q4'17	Q3'17	Q2'17	Total TTM	USD Value as on 31 May 2018
Henderson Group PLC	128,220	(53,014)	9,255	2,831,099	2,915,560	3.2 billion
FMR LLC	(1,370,928)	(735,472)	(582,519)	62,507	(2,626,412)	2.8 billion
Vanguard Group Inc.	504,655	410,567	555,855	589,654	2,060,731	2.2 billion
TCI Fund Management Ltd	441,115	1,431,050			1,872,165	2 billion
Blackrock Inc.	352,952	71,862	588,620	826,480	1,839,914	2 billion
Capital Research Global Investors	1,107,068	(44,393)	89,556	155,151	1,307,382	1.4 billion
Price T Rowe Associates Inc.,MD	(620,071)	358,602	(560,123)	(407,582)	(1,229,174)	1.3 billion
Capital World Investors	284,050	(59,469)	158,722	776,853	1,160,156	1.3 billion
Oppenheimer Funds Inc.	(865,400)	(28,184)	(86,557)	(34,828)	(1,014,969)	1.1 billion
JP Morgan Chase & Co	(338,141)	(2,581)	(45,663)	(448,147)	(834,532)	905.5 million
Frontier Wealth Management LLC			262	(773,959)	(773,697)	839.5 million
State Street Corporation	(548,242)	107,671	(184,515)	(144,008)	(769,094)	834.5 million
Baillie Gifford & Co	(284,643)	(146,693)	(82,370)	(66,973)	(580,679)	630 million
Norges Bank		(578,685)			(578,685)	627.9 million
Jennison Associates LLC	(162,434)	(57,944)	(130,629)	(222,745)	(573,752)	622.5 million
Orbis Allan Gray Ltd	41,456	154,239	(7,259)	334,584	523,020	567.5 million
California Public Employees Retirement System	(302,343)	(342,601)	62,032	66,300	(516,612)	560.5 million
Vulcan Value Partners, LLC	(21,538)	(12,240)	520,890		487,112	528.5 million
Wellington Management Group LLP	(310,952)	138,157	993,787	(342,319)	478,673	519.4 million
Diam Co., Ltd.	3,234	(571)	462,324	(1,109)	463,878	503.3 million
Geode Capital Management, LLC	188,596	105,985	94,475	66,827	455,883	494.6 million
Sands Capital Management, LLC	(35,493)	(32,679)	(324,742)	(47,138)	(440,052)	477.5 million
Fred Alger Management Inc.	(86,817)	(33,094)	(145,448)	(173,873)	(439,232)	476.6 million
Southeastern Asset Management Inc. /TN	(53,393)	(171,199)	(44,645)	(164,748)	(433,985)	470.9 million
Ruane, Cunniff & Goldfarb Inc.		(5,838)	386,289	39,163	419,614	455.3 million
Bank of New York Mellon Corp	(141,761)	(84,258)	(49,491)	(137,468)	(412,978)	448.1 million
Artisan Partners Limited Partnership	(26,799)	(2,227)	(191,760)	(171,661)	(392,447)	425.8 million
Soroban Capital Partners LLC	(50,900)	16,622	425,300		391,022	424.3 million
Caisse De Depot Et Placement Du Quebec	154,500	182,128	125,672	(76,900)	385,400	418.2 million

Institutional Shareholder Activity (continued)

Magellan Asset Management Ltd	1,845,160	(1,747,844)	178,989	97,020	373,325	405.1 million
Wells Fargo & Company	(172,877)	204,488	(44,821)	(359,655)	(372,865)	404.6 million
Putnam Investments LLC	(198,988)	(69,839)	(102,647)	10,790	(360,684)	391.3 million
Goldman Sachs Group Inc.	4,034	290,153	(60,908)	88,558	321,837	349.2 million
Jackson Square Partners, LLC	(9,806)	(176,061)	(27,891)	(84,008)	(297,766)	323.1 million
Canada Pension Plan Investment Board	150,635	83,100	4,239	23,200	261,174	283.4 million
Brown Brothers Harriman & Co	(82,805)	(92,458)	(15,808)	(62,735)	(253,806)	275.4 million
Barclays PLC	25,089	244,677	(102,419)	70,155	237,502	257.7 million
Bank of Montreal, CAN	10,924	(23,303)	(63,717)	(159,344)	(235,440)	255.5 million
Egerton Capital (UK) LLP	128,792	336,103		(230,508)	234,387	254.3 million
Renaissance Technologies LLC	(157,800)	(74,800)			(232,600)	252.4 million
American Century Companies Inc.	(13,467)	(73,303)	(118,138)	(25,718)	(230,626)	250.2 million
Brown Advisory Inc.	(116,452)	(23,470)	(149,302)	64,600	(224,624)	243.7 million
Credit Agricole S A	644	(204,025)	(15,249)	(293)	(218,923)	237.5 million
Credit Suisse AG	(51,971)	(6,741)	24,661	(176,584)	(210,635)	228.5 million
Jane Street Group, LLC	(332,389)	(10,236)	141,961	(9,636)	(210,300)	228.2 million
Winslow Capital Management, LLC	(20,093)	(42,602)	(35,629)	(108,697)	(207,021)	224.6 million
AllianceBernstein	(73,887)	23,200	176,162	79,676	205,151	222.6 million
Arrowstreet Capital, Limited Partnership	(184,537)	(308,056)	49,600	239,288	(203,705)	221 million
Maplelane Capital, LLC	(19,999)	(115,000)	(126,958)	63,957	(198,000)	214.8 million
Los Angeles Capital Management & Equity Research Inc.	(44)	19,023	63,242	107,225	189,446	205.5 million
CIBC World Markets Corp	(110,035)	(21,632)	(17,254)	(36,414)	(185,335)	201.1 million
Schwab Charles Investment Management Inc.	45,157	41,354	43,193	55,267	184,971	200.7 million
Parnassus Investments,CA	1,928	162	(191,356)	7,008	(182,258)	197.7 million
Citigroup Inc.	184,632	(140,350)	103,232	33,955	181,469	196.9 million
The Wellcome Trust Limited	(180,000)				(180,000)	195.3 million
Fisher Asset Management, LLC	(6,982)	(7,711)	(5,146)	(157,981)	(177,820)	192.9 million
Parametric Portfolio Associates LLC	12,581	41,695	30,522	91,470	176,268	191.2 million
Capital Guardian Trust Co	(1,080)	932	8,812	(180,944)	(172,280)	186.9 million
Northern Trust Corp	(76,295)	(71,879)	147,586	169,593	169,005	183.4 million
SEI Investments Co	(68,181)	(12,891)	(44,314)	(32,111)	(157,497)	170.9 million
Public Sector Pension Investment Board	66,300	(76,854)	(58,685)	(88,187)	(157,426)	170.8 million
Manufacturers Life Insurance Company	(82,216)	(23,213)	(45,695)	(4,344)	(155,468)	168.7 million

Institutional Shareholder Activity (continued)

Owl Creek Asset Management, L.P	(155,341)				(155,341)	168.5 million
LLBH Private Wealth Management, LLC	(40)	(72)	8	(155,116)	(155,220)	168.4 million
Eaton Vance Management	(40,333)	(50,793)	858	(63,837)	(154,105)	167.2 million
UBS Group AG	(72,390)	104,045	(102,934)	223,317	152,038	165 million
GQG Partners LLC	(12,187)	6,952	94,011	60,354	149,130	161.8 million
Citadel Advisors LLC	(61,937)	(73,892)	(92,302)	79,232	(148,899)	161.6 million
Morgan Stanley	113,399	10,889	(166,907)	190,881	148,262	160.9 million
Hound Partners, LLC		1,035	48,376	(197,397)	(147,986)	160.6 million
Westpac Banking Corp	2,328	(521)	(388)	(143,205)	(141,786)	153.8 million
Clearbridge Investments, LLC	21,645	45,179	17,406	56,167	140,397	152.3 million
Bessemer Group Inc.	(105,158)	1,141	(40,190)	3,813	(140,394)	152.3 million
Proshare Advisors LLC	44,316	56,648	12,585	22,911	136,460	148.1 million
Ameriprise Financial Inc.	9,166	14,974	(31,534)	(127,608)	(135,002)	146.5 million
State of New Jersey Common Pension Fund D	(13,000)	(28,000)	(30,000)	(62,000)	(133,000)	144.3 million
Highfields Capital Management LP		(42,445)	54,728	(142,549)	(130,266)	141.3 million
Bank of America Corp, DE	(69,859)	(325,159)	344,042	(78,349)	(129,325)	140.3 million
Darsana Capital Partners LP		55,000	70,000		125,000	135.6 million
Vontobel Asset Management Inc.	(111,884)	(81,973)	(18,831)	89,703	(122,985)	133.4 million
Pictet Asset Management Ltd	69,863	16,477	32,237	4,208	122,785	133.2 million
Polen Capital Management LLC	21,615	13,495	28,888	58,683	122,681	133.1 million
SPO Advisory Corp	25,000		96,800		121,800	132.2 million
Sentry Investments Corp.	(31,339)	(78,550)	(4,470)	(2,850)	(117,209)	127.2 million
Hs Management Partners, LLC	(62,458)	(10,973)	2,442	(44,629)	(115,618)	125.4 million
Macquarie Group Ltd	(4,289)	(60,970)	(3,902)	(44,147)	(113,308)	122.9 million
CI Investments Inc.	(16,303)	(49,183)	(58,632)	12,516	(111,602)	121.1 million
TCE Group Inc.	(46,847)	(18,827)	(18,750)	(25,097)	(109,521)	118.8 million
Nomura Holdings Inc.	53,050	(84,678)	83,543	56,812	108,727	118 million
OZ Management LP	328,243	(93,874)	(43,864)	(82,898)	107,607	116.8 million
Davis Selected Advisers	(20,826)	16,682	(42,570)	(59,881)	(106,595)	115.7 million
Sanders Capital, LLC	287	26,380	46,696	32,770	106,133	115.2 million
Discovery Capital Management, LLC,CT	15,150		(28,050)	(90,611)	(103,511)	112.3 million
First Trust Advisors LP	80,473	(1,273)	19,489	4,596	103,285	112.1 million
Mairs & Power Inc.	32,919	109	52,724	13,215	98,967	107.4 million
Grantham, Mayo, Van Otterloo & Co. LLC	(19,682)	(11,542)	(61,351)	(5,994)	(98,569)	106.9 million
Arthur M. Cohen & Associates, LLC	97	182	(98,260)		(97,981)	106.3 million
Prudential Financial Inc.	(134,516)	3,795	(4,410)	39,225	(95,906)	104.1 million
Millennium Management LLC	22,295	59,882	(38,795)	50,610	93,992	102 million

Institutional Shareholder Activity (continued)

BNP Paribas Arbitrage, SA	(182,240)	(322,631)	84,501	513,612	93,242	101.2 million
Swiss National Bank	(145,400)	3,200	10,300	40,500	(91,400)	99.2 million
Alyeska Investment Group, L.P.			(91,228)		(91,228)	99 million
Maverick Capital Ltd	114,676	(94,303)	110,815	(40,394)	90,794	98.5 million
California State Teachers Retirement System	78,634	(45,405)	(70,057)	(51,481)	(88,309)	95.8 million
HSBC Holdings PLC	61,913	(11,281)	3,882	33,289	87,803	95.3 million
CIBC World Markets Inc.	(39,376)	(20,370)	37,149	(64,582)	(87,179)	94.6 million
Total					**(159,476)**	**173 million**

Regulatory Announcements

Fig 40: Acquisitions

June 12 2017: Featured Company News - SoftBank to Acquire Boston Dynamics from Alphabet
Research Desk Line-up: Fang Holdings Post Earnings Coverage
LONDON, UK / ACCESSWIRE / June 12, 2017 /Pro-Trader Daily takes a look at the latest corporate events and news making the headlines for Alphabet, Inc. (NASDAQ:GOOGL) (NASDAQ:GOOG). SoftBank Group Corp., announced on June 09, 2017, that it has entered into a definitive agreement that, through a subsidiary, to acquire Boston Dynamics, an advanced dynamic robotics Company, from Alphabet, Inc.

June 08 2017: SoftBank Announces Agreement to Acquire Boston Dynamics
Companies to Collaborate in Advancing the Development of Smart Robotics Technologies
TOKYO--(BUSINESS WIRE)-- SoftBank Group Corp. ("SoftBank") today announced a subsidiary of SoftBank has entered into a definitive agreement to acquire robotics pioneer Boston Dynamics from Alphabet Inc. (NASDAQ: GOOGL, GOOG).

Fig 41: Financial Results announcements

July 31 2017: Earnings Review and Free Research Report: Alphabet's Q2 Results Outperformed Forecasts
Research Desk Line-up: Baidu Post Earnings Coverage
LONDON, UK / ACCESSWIRE / July 31, 2017 /Pro-Trader Daily has just published a free post-earnings coverage on Alphabet Inc. (NASDAQ:GOOG) (NASDAQ:GOOGL), which can be viewed by registering at http://protraderdaily.com/optin/?symbol=GOOGL, following the Company's release of its financial on July 24, 2017, results for the second quarter fiscal 2017 (Q2 FY17).

8-K SEC Filings of Directors

June 09: Alphabet Class C Elects 12 Directors
Alphabet Class C (GOOG) held its Annual General Meeting on June 7, 2017. According to an SEC filing under Section 8-K Item 5.07 the following directors were elected:

Larry Page
Sergey Brin
Eric E. Schmidt
L. John Doerr
Roger W. Ferguson, Jr.
Diane B. Greene
John L. Hennessy
Ann Mather
Alan R. Mulally
Paul S.
For more details click here.

8-K SEC Filings of significant events

April 23: Alphabet Announces First Quarter 2018 Results
MOUNTAIN VIEW, Calif. - April 23, 2018 - Alphabet Inc. (NASDAQ: GOOG, GOOGL) today announced financial results for the quarter ended March 31, 2018.

"Our ongoing strong revenue growth reflects our momentum globally, up 26% versus the first quarter of 2017 and 23% on a constant currency basis to $31.1 billion.
For more details click here.

June 27: Alphabet Class C: The European Commission decision on online shopping: the other side of the story
When you shop online, you want to find the products you're looking for quickly and easily. And advertisers want to promote those same products. That's why Google shows shopping ads, connecting our users with thousands of advertisers, large and small, in ways that are useful for both.

We believe the European Commission's online shopping decision underestimates the value of those

kinds of fast and easy connections.
For more details click here.

Regulatory Announcements

Insider Trading Summary

Fig 42: Insider Selling Summary (Trailing 12 Months)

Month	No. of Shares	Price, USD	Value, USD
Pichai Sundar [Director]			
May '18	8,000	1,053.4	8,427,077
Apr '18	8,000	1,035.7	8,285,898
Mar '18	8,000	1,091.1	8,728,844
Feb '18	8,000	1,062.3	8,498,777
Jan '18	8,000	1,096.2	8,769,530
Dec '17	8,000	1,037.7	8,301,985
Nov '17	8,000	1,019.8	8,158,644
Oct '17	8,000	976.0	7,807,898
Sep '17	4,000	931.4	3,725,745
Aug '17	8,000	928.6	7,428,995
Jul '17	8,000	936.9	7,495,129
Jun '17	8,000	968.3	7,746,780
Sub-Total	**92,000**	**1,014.9**	**93,375,302**
Mather Ann [Director]			
May 02, 2018	37	1,028.1	38,040
April 02, 2018	39	1,023.1	39,901
March 01, 2018	37	1,107.9	40,991
February 01, 2018	38	1,162.6	44,179
January 02, 2018	38	1,048.3	39,837
December 01, 2017	38	1,015.8	38,600
November 02, 2017	38	1,017.2	38,654
October 03, 2017	38	959.3	36,452
September 05, 2017	37	940.7	34,805
August 02, 2017	629	932.3	586,404
Jul '17	24	915.5	21,973
Sub-Total	**993**	**966.6**	**959,836**
Hennessy John L [Director]			
Feb '18	1,026	1,092.4	1,120,834
Greene Diane B [Director]			
August 02, 2017	1,863	932.4	1,737,024
Total	**95,882**	**1,013.7**	**97,192,996**

Regulatory Announcements (continued)

Reported awards of options

Fig 43: Reported awards of stocks and options

July 07 2017: Alphabet Class C director awarded shares
Alphabet Class C (NASDAQ:GOOG) director Roger W. Ferguson, was awarded 372 shares worth $US339,156 on July 05.
For more details click here.

July 07 2017: Alphabet Class C director awarded shares
Alphabet Class C (NASDAQ:GOOG) director Paul S. Otellini, was awarded 390 shares worth $US355,567 on July 05.
For more details click here.

July 07 2017: Alphabet Class C director awarded shares
Alphabet Class C (NASDAQ:GOOG) director Ann Mather, was awarded 390 shares worth $US355,567 on July 05.
For more details click here.

July 07 2017: Alphabet Class C director awarded shares
Alphabet Class C (NASDAQ:GOOG) director Alan R. Mulally, was awarded 390 shares worth $US355,567 on July 05.
For more details click here.

July 07 2017: Alphabet Class C director awarded shares
Alphabet Class C (NASDAQ:GOOG) director K. Ram Shriram, was awarded 390 shares worth $US355,567 on July 05.
For more details click here.

July 07 2017: Alphabet Class C director awarded shares
Alphabet Class C (NASDAQ:GOOG) director John L. Hennessy, was awarded 390 shares worth $US355,567 on July 05.
For more details click here.

Press Releases

March 08: Artifical Intelligence (AI) Influence on Internet of Things (IoT) and Mesh Technology Transforming Tech Industry
PALM BEACH, Florida, March 8, 2018 -- MarketNewsUpdates.com News Commentary Artificial Intelligence continued influence and advancements for The Internet of Things (IoT) is transforming how businesses and consumers go about their daily activities. The technology that underlies this whole segment is evolving quickly, whether it's the rapid rise of the Amazon Echo and voice assistants upending the consumer space, or growth of AI-powered analytics platforms for the enterprise market.
For more details click here.

March 05: New Research Coverage Highlights NII, Alphabet, Altria Group, Apartment Investment and Management, tronc, and Aspen Technology - Consolidated Revenues, Company Growth, and Expectations for 2018
NEW YORK, March 05, 2018 -- In new independent research reports released early this morning, Fundamental Markets released its latest key findings for all current investors, traders, and shareholders of NII Holdings, Inc. (NASDAQ:NIHD), Alphabet Inc. (NASDAQ:GOOG), Altria Group (NYSE:MO), Apartment Investment and Management Company (NYSE:AIV), tronc, Inc.
For more details click here.

December 28 2017: What's Happening With These Internet Information Providers Stocks? -- Match, Alphabet, Redfin, and Fang
NEW YORK, Dec. 28, 2017 -- WallStEquities.com strives to bring the best free research to the investment community. Today we are offering reports on MTCH, GOOG, RDFN, and SFUN which can be accessed for free by signing up to www.wallstequities.com/registration. On Wednesday, December 27, 2017, 2017, the NASDAQ Composite, the Dow Jones Industrial Average, and the S&P 500 edged higher at the closing bell.

November 16 2017: Virtual and Augmented Reality Markets Expected to Show Strong Growth
NEW YORK, November 16, 2017 -- According to a report published by International Data Corporation (IDC), forecasts worldwide revenues for the augmented reality and virtual reality (AR/VR) market to reach $13.9 billion in 2017, an increase of 130.5% over the $6.1 billion spent in 2016. AR/VR spending is expected to accelerate over the next several years, achieving a compound annual growth rate (CAGR) of 198.0% over the 2015-2020 forecast period and totaling $143.3 billion in 2020.

November 02 2017: AutoNation Signs Multi-Year Service Agreement with Waymo
FORT LAUDERDALE, Fla., Nov. 2, 2017 -- AutoNation, Inc. (NYSE:AN), America's largest automotive retailer, today announced that it has partnered with Waymo, the Alphabet Inc., self-driving technology company, in a multi-year agreement to support Waymo's autonomous vehicle program. AutoNation will offer strategic capabilities to maximize the life of Waymo's vehicles across the United States.

October 30 2017: Election Interference / Fake News: Tech Giants Heading To Capitol Hill Hearings Face Tougher Questions From Shareholders
BOSTON, Oct. 30, 2017 /-USNewswire/ -- All eyes will be on top officials from Twitter, Facebook and Alphabet Inc./Google when they testify Wednesday before a Senate Intelligence Committee. But it may be that the tech titans will feel more heat from their shareholders when they are called to task about "fake news," election interference, and hate speech.

October 20 2017: How These Internet Stocks are Performing? -- Redfin, Zillow, Alphabet, and Match
NEW YORK, October 20, 2017 -- If you want a Stock Review on RDFN, ZG, GOOG, or MTCH then come over to http://dailystocktracker.com/register/ and sign up for your free customized report. On Thursday, October 19, 2017, the Dow Jones Industrial Average and the S&P 500 edged 0.02% and 0.03% higher, respectively at the closing bell, while the NASDAQ Composite stayed bearish, finishing marginally lower by 0.29%.

October 19 2017: Latest Innovation of Workforce Engagement Management Boosting Gig Economy Opportunities
PALM BEACH, Florida, October 19, 2017 -- Today more than ever, companies rely on the energy, commitment and engagement of their workforce in order to survive and thrive in the twenty-first century. More and more organizations are seeking a new way of interacting with and managing their workforce. With the rise of the gig economy, more individuals are working on a temporary versus permanent basis such as for freelance contractors, for retail, restaurant and hospitality companies as variable hour employees, or simply for themselves.

September 27 2017: Arjuna Capital: Google/Alphabet Inc. Must Fully Disclose Gender Pay Gap Data Now That Investors Have Been Provided "Contradictory" Data
BOSTON, Sept. 27, 2017 /PRNewswire/ -- After shooting down gender pay equity shareholder proposals for two years running, and now in the wake of contradictory data about the treatment of women at the U.S. tech leader, the board and management of Alphabet Inc./Google must present a detailed report on their gender pay gap data, according to a letter sent to Executive Chairman Eric E.

September 11 2017: /OFF HOLD OFF HOLD OFF HOLD -- FinancialBuzz.com/
NEW YORK, September 11, 2017 /PRNewswire/ -- /OFF HOLD OFF HOLD OFF HOLD -- FinancialBuzz.com, PIV879778 The following release: "E-commerce Sales are Projected to Grow as Retails Shift Focus" is now OFF HOLD. Distribution time: 11 Sep 201713:35 GMT Changed the the entire Chineseinvestors.com, Inc. paragraph

Press Releases (continued)

August 18 2017: Pre-Market Technical Recap on Internet Stocks -- Twitter, Yelp, JD.com, and Alphabet
NEW YORK, August 18, 2017 /PRNewswire/ --
If you want a Stock Review on TWTR, YELP, JD, or GOOG then come over to http://dailystocktracker.com/register/ and sign up for your free customized report today. DailyStockTracker.com has initiated research coverage on Twitter Inc. (NYSE:TWTR), Yelp Inc. (NYSE:YELP), JD.com Inc.

August 10 2017: Growing Number of Independent Workers and the Short-term Workforce Embracing the Gig Economy
PALM BEACH, Florida, August 10, 2017 /PRNewswire/ --
The gig economy continues to be one of the most talked about new economies across the globe leading to large companies and tech giants to pour millions into the development of enhancing human capital and leveraging rising momentum of freelance workers along with the benefits they can provide the workforce.

July 12 2017: Google Partners with TransLoc for Smart Public Transit Data Management
TransLoc's web application enables all transit agencies to make their transit info accessible in Google Maps for free DURHAM, N.C.--(BUSINESS WIRE)-- TransLoc, a transportation technology provider of the most flexible agency-owned microtransit demand-response solution, announced today a partnership with Google (NASDAQ:GOOG) to ensure accurate public transit information is efficiently integrated onto Google Maps at no cost to the public transit agency.

June 20 2017: Technical Insights on Internet Stocks -- Alphabet, Zillow, YY Inc., and 58.com
NEW YORK, June 20, 2017 /PRNewswire/ --
If you want a stock review on GOOG, Z, YY, or WUBA then come over to http://dailystocktracker.com/register/ and sign up for your free customized reports today. On Monday, benchmark US indices were in bullish colors as the NASDAQ Composite closed the trading session up 1.42%; the Dow Jones Industrial Average edged 0.68% higher; and the S&P 500 was up 0.83%.

June 09 2017: Alphabet Class C: Submission of Matters to a Vote of Security Holders
Source: SEC
For more details click here.

Financials

GOOG 2017 Annual Report: Key Parameters

FY2017 Annual Report: Alphabet Class C profits hit by 35.0% fall

Alphabet Class C (NASDAQ:GOOG) reported net profit for the year-ended 31 December 2017 of $US12.7b, down 35% from $US19.5b in the previous year.

Major changes compared with previous year:

Favourable Changes:

- Total revenue to total assets up from 0.5 to 0.6
- Administration expenses to Sales down from 7.7% to 6.2%
- Fixed Assets to Total Assets up from 20.4% to 21.5%
- Total Liabilities to EBITDA of 1.6 compares favourably with the Joseph Piotroski benchmark of <5. However, it has deteriorated by 39.8% from the previous year's ratio of 1.2.
- Total Liabilities to Operating Cash Flow of 1.2 compares favourably with the Joseph Piotroski benchmark of <4. However, it has deteriorated by 53.2% from the previous year's ratio of 0.8.

Unfavourable Changes:

- Net profit slumps 35% from $US19.5b to $US12.7b
- EPS slumps 35.4% from $US27.85 to $US18.0
- EBIT Margin down from 26.8% to 24.5%
- EBIT to total assets down from 14.4% to 13.8%
- Cost of Goods Sold to Sales up from 38.9% to 41.1%
- Profit before tax to Sales down from 26.8% to 24.5%
- Current ratio down 18.3% from 6.3 to 5.1
- Working capital to total assets down from 52.9% to 50.7%
- Retained earnings to total assets down from 62.8% to 57.4%

Note:

- Tax expenses to Sales up from 5.2% to 13.1%
- Total liabilities to Total assets steady at 0.2
- Total current assets to Total Assets up from 62.9% to 63%
- Cash to Total Assets up from 51.5% to 51.6%
- Total non-current assets to Total Assets down from 37.1% to 37%
- Intangibles to Total Assets down from 11.8% to 9.9%

Annual

Company Name : Alphabet Inc(GOOG)			
December 31 Description	2017 $US m	2016 $US m	Change (%)
Sales Revenue	110,855	90,272	Up 22.8
EBITDA	27,193	24,150	Up 12.6
EBIT	27,193	24,150	Up 12.6
Pre-Tax Profit/(Loss)	27,193	24,150	Up 12.6
Profit/(Loss) after Tax	12,662	19,478	Slumps 35
Working Capital	100,125	88,652	Up 12.9
Current Assets	124,308	105,408	Up 17.9
Current Liabilities	24,183	16,756	Up 44.3
Shareholders' Funds	152,502	139,036	Up 9.7

Financials (continued)

Total Liabilities	44,793	28,461	Up 57.4
Total Assets	197,295	167,497	Up 17.8
Non-Current Debt	3,969	3,935	Up 0.9
Total Debt	3,969	3,935	Up 0.9
Cash and cash equivalents	101,871	86,333	Up 18
Operating Cash Flow	37,091	36,036	Up 2.9
Net Assets	152,502	139,036	Up 9.7
Net Tangible Assets	133,063	119,261	Up 11.6

Per Share figures December 31	2017	2016	Change (%)
Description	$US	$US	-
EPS Final	18	27.9	Slumps 35.4
EPS Dilution Factor *	0.99	-	-

December 31 Performance Ratios	2017	2016	Change (%)
Return on Equity (%)	8.3	14	Down 40.7
Return on Assets (%)	6.4	11.6	Down 44.8
Total Liabilities to EBITDA	1.6	1.2	Up 39.8
Total Liabilities to Operating Cash Flow	1.2	0.8	Up 53.2
Total Liabilities/Total Assets (Up 35.3% from 0.17 to 0.23)	0.2	0.2	Up 35.3
Current Ratio	5.1	6.3	Down 18.3
Common Size Ratios by Assets %			
Total current assets to Total Assets	63.0	62.9	Up 0.1
Cash to Total Assets	51.6	51.5	Up 0.1
Total non-current assets to Total Assets	37.0	37.1	Down 0.2
Fixed Assets to Total Assets	21.5	20.4	Up 5.2
Intangibles to Total Assets	9.9	11.8	Down 16.1
Common Size Ratios by Sales %			
Cost of Goods Sold to Sales	41.1	38.9	Up 5.6
Profit before tax to Sales	24.5	26.8	Down 8.4
Tax expenses to Sales	13.1	5.2	Up 153.1
Sales and marketing expenses to Sales	11.6	11.6	Down 0.1
Administration expenses to Sales	6.2	7.7	Down 19.9

Fig 44: Historical perspective of growth and performance:

In the last 5 years Compound Annual Growth Rate (CAGR) averaged 19.2% for Total Revenue and 3.4% for Net Profit.

Financials (continued)

Description	Annual ($US B)	5-year Avg ($US B)	5-year CAGR %
Total Revenue	110.9	79.7	19.2
EBITDA	27.2	21.6	10.7
Operating Profit	27.2	20.8	15.2
Net Profit	12.7	15.1	3.4

Net Profit Margin 5-year average is 19.8% and Return on Equity 5-year average is 12.9%

Description	Annual	5-year Avg
EBITDA Margin	24.5	27.9
Operating Profit Margin	24.5	26.5
Net Profit Margin	11.4	19.8
Return on Equity	8.3	12.9
Return on Assets	6.4	10.3
Return on Capital Employed	15.7	15.8

All Figures in %

Financials (continued)

Fig 45: Five-Year History (All figures in USD)

Net profit for FY2017 was $US12,662 million, down 35% from $US19,478 million in FY2016. EPS for FY2017 was $US18.0, down 35.4% from $US27.85 in FY2016.

Description (December 31)	2017	2016	2015	2014	2013
Income Statement					
Sales (B)	110.9	90.3	75.3	66.8	55.5
EBITDA (B)	27.2	24.1	19.7	17.3	19.8
EBIT (B)	27.2	24.1	19.7	17.3	15.9
Profit before tax (B)	27.2	24.1	19.7	17.3	15.9
Tax (B)	14.5	4.7	3.3	3.6	2.6
Net profit (B)	12.7	19.5	15.8	14.1	12.9
EPS	18	27.85	22.84	20.31	19.02
Balance Sheet					
Equity Share Capital (B)	152.5	139	120.3	103.9	87.3
Retained Earnings (B)	113.2	105.1	89.2	75.1	61.3
Total Debt (B)	4	3.9	5.2	5.2	5.2
Total Assets (B)	197.3	167.5	147.5	129.2	110.9
Current Asset (B)	124.3	105.4	90.1	78.7	72.9
Fixed Asset (B)	42.4	34.2	29	23.9	16.5
Working Capital (B)	100.1	88.7	70.8	61.9	57
Cash Flow					
Operating Cash Flow (B)	37.1	36	26	22.4	18.7
Investing Cash Flow (B)	(31.4)	(31.2)	(23.7)	(21.1)	(13.7)
Financing Cash Flow	(8.3 B)	(8.3 B)	(3.7 B)	(1.4 B)	(857 M)
Net Cash Flow	(2.6 B)	(3.5 B)	(1.4 B)	(118 M)	4.1 B

GOOG Q1 2018 Financial Results as reported

Quarterly Report Q1 2018: Alphabet Class C reports 31.5% sequential rise in quarterly Income Before Tax

Alphabet Class C (NASDAQ:GOOG), reported income before tax of $US10.5b for the quarter-ended 31 March 2018, up 31.5% from the previous quarter and up 54.6% from the year-earlier period.

Financial statements as reported.

(In $US Million, except per share data and shares outstanding)

Fig 46: Q1 2018 GOOG Income Statement as reported

Description	$US Million	$US Million	
Mar 31	2018	2017	Change %
Revenue	31,146	24,750	Up 25.8
Costs and expenses:			

Financials (continued)

Cost of revenues	13,467	9,795	Up 37.5
Research and development	5,039	3,942	Up 27.8
Sales and marketing	3,604	2,644	Up 36.3
General and administrative	2,035	1,801	Up 13.0
Total costs and expenses	24,145	18,182	Up 32.8
Income from operations	7,001	6,568	Up 6.6
Other income (expense), net	3,542	251	Up 1,311.2
Income before income taxes	10,543	6,819	Up 54.6
Provision for income taxes	1,142	1,393	Down 18.0
Net income	9,401	5,426	Up 73.3
Basic net income per share of Class A and B common stock and Class C capital stock (in dollars per share)	$US13.53	$US7.85	Up 72.4
Diluted net income per share of Class A and B common stock and Class C capital stock (in dollars per share)	$US13.33	$US7.73	Up 72.4

Fig 47: Q1 2018 GOOG Balance Sheet as reported

Description	$US Million	$US Million	
	Mar 31, 2018	Dec 31, 2017	Change %
Current assets:			
Cash and cash equivalents	12,658	10,715	Up 18.1
Marketable securities	90,227	91,156	Down 1.0
Total cash, cash equivalents, and marketable securities	102,885	101,871	Up 1.0
Accounts receivable, net of allowance of $674 and $536	16,777	18,336	Down 8.5
Income taxes receivable, net	37	369	Down 90.0
Inventory	636	749	Down 15.1
Other current assets	3,426	2,983	Up 14.9
Total current assets	123,761	124,308	Down 0.4
Non-marketable investments	10,976	7,813	Up 40.5
Deferred income taxes	678	680	Down 0.3
Property and equipment, net	48,845	42,383	Up 15.2
Intangible assets, net	2,809	2,692	Up 4.3
Goodwill	17,862	16,747	Up 6.7
Other non-current assets	2,004	2,672	Down 25.0
	83,174	72,987	Up 14.0
Total assets	206,935	197,295	Up 4.9
Current liabilities:			
Accounts payable	3,526	3,137	Up 12.4
Short-term debt	1,329		
Accrued compensation and benefits	3,812	4,581	Down 16.8
Accrued expenses and other current liabilities	10,065	10,177	Down 1.1
Accrued revenue share	3,723	3,975	Down 6.3
Deferred revenue	1,596	1,432	Up 11.5
Income taxes payable, net	1,343	881	Up 52.4
Total current liabilities	25,394	24,183	Up 5.0

Financials (continued)

Long-term debt	3,973	3,969	Up 0.1
Deferred revenue, non-current	315	340	Down 7.4
Income taxes payable, non-current	12,885	12,812	Up 0.6
Deferred income taxes	394	430	Down 8.4
Other long-term liabilities	3,149	3,059	Up 2.9
	20,716	20,610	Up 0.5
Total liabilities	46,110	44,793	Up 2.9
Commitments and Contingencies (Note 9)			
Stockholders' equity:			
Convertible preferred stock, $0.001 par value per share, 100,000 shares authorized; no shares issued and outstanding			
Class A and Class B common stock, and Class C capital stock and additional paid-in capital, $0.001 par value per share: 15,000,000 shares authorized (Class A 9,000,000, Class B 3,000,000, Class C 3,000,000); 694,783 (Class A 298,470, Class B 46,972, Class C 349,341) and 694,945 (Class A 298,652, Class B 46,940, Class C 349,353) shares issued and outstanding	41,487	40,247	Up 3.1
Accumulated other comprehensive loss	-670	-992	Improved 32.5
Retained earnings	120,008	113,247	Up 6.0
Total stockholders' equity	160,825	152,502	Up 5.5
Total liabilities and stockholders' equity	206,935	197,295	Up 4.9

Fig 48: Q1 2018 GOOG Cash Flow as reported

Description	$US Million	$US Million	
Mar 31	2018	2017	Change %
Operating activities			
Net income	9,401	5,426	Up 73.3
Adjustments:			
Depreciation and impairment of property and equipment	1,791	1,287	Up 39.2
Amortization and impairment of intangible assets	195	216	Down 9.7
Stock-based compensation expense	2,457	2,009	Up 22.3
Deferred income taxes	-18	613	Deterioration
(Gain) loss on debt and equity securities, net	-2,992	19	Deterioration
Other	-257	57	Deterioration
Changes in assets and liabilities, net of effects of acquisitions:			
Accounts receivable	1,700	1,267	Up 34.2
Income taxes, net	782	510	Up 53.3
Other assets	-241	-128	Deterioration 88.3
Accounts payable	122	103	Up 18.4
Accrued expenses and other liabilities	-1,142	-1,868	Improved 38.9
Accrued revenue share	-286	-74	Deterioration 286.5
Deferred revenue	130	111	Up 17.1
Net cash provided by operating activities	11,642	9,548	Up 21.9
Investing activities			

Financials (continued)

Purchases of property and equipment	-7,299	-2,508	Deterioration 191.0
Proceeds from disposals of property and equipment	30	41	Down 26.8
Purchases of marketable securities	-8,849	-20,119	Improved 56.0
Maturities and sales of marketable securities	9,351	19,362	Down 51.7
Purchases of non-marketable investments	-327	-354	Improved 7.6
Maturities and sales of non-marketable investments	498	78	Up 538.5
Acquisitions, net of cash acquired, and purchases of intangible assets	-1,250	-101	Deterioration 1,137.6
Proceeds from collection of notes receivable		750	
Net cash used in investing activities	-7,846	-2,851	Deterioration 175.2
Financing activities			
Net payments related to stock-based award activities	-1,158	-1,009	Deterioration 14.8
Repurchases of capital stock	-2,173	-1,127	Deterioration 92.8
Proceeds from issuance of debt, net of costs	4,691		
Repayments of debt	-3,378	-18	Deterioration 18,666.7
Proceeds from sale of subsidiary shares		480	
Net cash used in financing activities	-2,018	-1,674	Deterioration 20.5
Effect of exchange rate changes on cash and cash equivalents	165	191	Down 13.6
Net increase in cash and cash equivalents	1,943	5,214	Down 62.7
Cash and cash equivalents at beginning of period	10,715	12,918	Down 17.1
Cash and cash equivalents at end of period	12,658	18,132	Down 30.2

GOOG 2017 Financial Results as reported (Annual)

FY2017 Annual Report: Alphabet Class C Revenue up 22.8%

Alphabet Class C (NASDAQ:GOOG) reported total revenue for the year-ended 31 December 2017 of $US111b, up 22.8% from $US90.3b in the previous year.

Financial statements as reported.

(In $US Million, except per share data and shares outstanding)

Fig 49: 2017 GOOG Income Statement as reported

Description	$US Million	$US Million	
Dec 31	2017	2016	Change %
Revenues	110,855	90,272	Up 22.8
Costs and expenses:			
Cost of revenues	45,583	35,138	Up 29.7
Research and development	16,625	13,948	Up 19.2
Sales and marketing	12,893	10,485	Up 23.0
General and administrative	6,872	6,985	Down 1.6
European Commission fine	2,736		
Total costs and expenses	84,709	66,556	Up 27.3
Income from operations	26,146	23,716	Up 10.2

Financials (continued)

Other income (expense), net	1,047	434	Up 141.2
Income before income taxes	27,193	24,150	Up 12.6
Provision for income taxes	14,531	4,672	Up 211.0
Net income (loss)	12,662	19,478	Down 35.0
Net income (loss)	12,662	19,478	Down 35.0
Basic earnings per share of Class A and B common stock and Class C capital stock	$US18.27	$US28.32	Down 35.5
Diluted earnings per share of Class A and B common stock and Class C capital stock	$US18.0	$US27.85	Down 35.4

Fig 50: 2017 GOOG Balance Sheet as reported

Description	$US Million	$US Million	
Dec 31	2017	2016	Change %
Assets			
Current assets:			
Cash and cash equivalents	10,715	12,918	Down 17.1
Marketable securities	91,156	73,415	Up 24.2
Total cash, cash equivalents, and marketable securities	101,871	86,333	Up 18.0
Accounts receivable, net of allowance of $467 and $674	18,336	14,137	Up 29.7
Income taxes receivable, net	369	95	Up 288.4
Inventory	749	268	Up 179.5
Other current assets	2,983	4,575	Down 34.8
Total current assets	124,308	105,408	Up 17.9
Non-marketable investments	7,813	5,878	Up 32.9
Deferred income taxes	680	383	Up 77.5
Property and equipment, net	42,383	34,234	Up 23.8
Intangible assets, net	2,692	3,307	Down 18.6
Goodwill	16,747	16,468	Up 1.7
Other non-current assets	2,672	1,819	Up 46.9
	72,987	62,089	Up 17.6
Total assets	197,295	167,497	Up 17.8
Liabilities and Stockholders' Equity			
Current liabilities:			
Accounts payable	3,137	2,041	Up 53.7
Accrued compensation and benefits	4,581	3,976	Up 15.2
Accrued expenses and other current liabilities	10,177	6,144	Up 65.6
Accrued revenue share	3,975	2,942	Up 35.1
Deferred revenue	1,432	1,099	Up 30.3
Income taxes payable, net	881	554	Up 59.0
Total current liabilities	24,183	16,756	Up 44.3
Long-term debt	3,969	3,935	Up 0.9
Deferred revenue, non-current	340	202	Up 68.3
Income taxes payable, non-current	12,812	4,677	Up 173.9
Deferred income taxes	430	226	Up 90.3

Financials (continued)

Other long-term liabilities	3,059	2,665	Up 14.8
	20,610	11,705	Up 76.1
Total liabilities	44,793	28,461	Up 57.4
Commitments and contingencies			
Stockholders' equity:			
Convertible preferred stock, $0.001 par value per share, 100,000 shares authorized; no shares issued and outstanding			
ClassA and Class B common stock, and Class C capital stock and additional paid-in capital, $0.001 par value per share: 15,000,000 shares authorized(ClassA 9,000,000, Class B 3,000,000, Class C 3,000,000); 691,293 (ClassA 296,992, Class B 47,437, Class C 346,864) and 694,783 (ClassA 298,470, Class B 46,972, Class C 349,341) shares issued and outstanding	40,247	36,307	Up 10.9
Accumulated other comprehensive loss	-992	-2,402	Improved 58.7
Retained earnings	113,247	105,131	Up 7.7
Total stockholders' equity	152,502	139,036	Up 9.7
Total liabilities and stockholders' equity	197,295	167,497	Up 17.8

Fig 51: 2017 GOOG Cash Flow as reported

Description	$US Million	$US Million	
Dec 31	2017	2016	Change %
Operating activities			
Net income (loss)	12,662	19,478	Down 35.0
Adjustments:			
Depreciation and impairment of property and equipment	6,103	5,267	Up 15.9
Amortization and impairment of intangible assets	812	877	Down 7.4
Stock-based compensation expense	7,679	6,703	Up 14.6
Deferred income taxes	258	-38	Recovery
Loss on marketable and non-marketable investments, net	194	275	Down 29.5
Other	137	174	Down 21.3
Changes in assets and liabilities, net of effects of acquisitions:			
Accounts receivable	-3,768	-2,578	Deterioration 46.2
Income taxes, net	8,211	3,125	Up 162.8
Other assets	-2,164	312	Deterioration
Accounts payable	731	110	Up 564.5
Accrued expenses and other liabilities	4,891	1,515	Up 222.8
Accrued revenue share	955	593	Up 61.0
Deferred revenue	390	223	Up 74.9
Net cash provided by operating activities	37,091	36,036	Up 2.9
Investing activities			
Purchases of property and equipment	-13,184	-10,212	Deterioration 29.1
Proceeds from disposals of property and equipment	99	240	Down 58.8
Purchases of marketable securities	-92,195	-84,509	Deterioration 9.1
Maturities and sales of marketable securities	73,959	66,895	Up 10.6
Purchases of non-marketable investments	-1,745	-1,109	Deterioration 57.3

Financials (continued)

Maturities and sales of non-marketable investments	533	494	Up 7.9
Cash collateral related to securities lending		-2,428	
Investments in reverse repurchase agreements		450	
Acquisitions, net of cash acquired, and purchases of intangible assets	-287	-986	Improved 70.9
Proceeds from collection of notes receivable	1,419		
Net cash used in investing activities	-31,401	-31,165	Deterioration 0.8
Financing activities			
Net payments related to stock-based award activities	-4,166	-3,304	Deterioration 26.1
Repurchases of capital stock	-4,846	-3,693	Deterioration 31.2
Proceeds from issuance of debt, net of costs	4,291	8,729	Down 50.8
Repayments of debt	-4,377	-10,064	Improved 56.5
Proceeds from sale of subsidiary shares	800		
Net cash used in financing activities	-8,298	-8,332	Improved 0.4
Effect of exchange rate changes on cash and cash equivalents	405	-170	Recovery
Net increase (decrease) in cash and cash equivalents	-2,203	-3,631	Improved 39.3
Cash and cash equivalents at beginning of period	12,918	16,549	Down 21.9
Cash and cash equivalents at end of period	10,715	12,918	Down 17.1

Margins %		
Dec 31	2017	2016
Gross Profit Margin	58.9	61.1
EBITDA Margin	24.5	26.8
Earnings from Cont. Ops. Margin	24.5	26.8
Net Income Margin	11.4	21.6

Fig 52: Average Income Tax paid

	2017	2016	2015	2014	2013	5-yr avg	10-yr avg
As % of profit before tax		19.3	16.8	21.1	16.1	25.3	23.8
As % of operating cash flow		19.3	16.8	21.1	12.9	24.7	23.2
As % of sales	13.1	5.2	4.4	5.5	4.6	6.5	6.8

Peer Group Analysis & Ranking

Fig 53: Global Peer Group Analysis (all figures in USD)

Name	Relative Str. (6 mo)	MCap	PV $1000 (1 yr)	Revenue	Net Profit	Total Assets
Tencent Holdings (00700)	87	489.4B	1,486.3	25.2B	6.5B	63.1B
Alphabet Class C (GOOG)	76	379.6B	1,124.5	110.9B	12.7B	197.3B
Netflix (NFLX)	96	152.6B	2,156.1	11.7B	558.9M	19B
Booking Holdings (BKNG)	81	101.8B	1,123.5	12.7B	2.3B	25.5B
salesforce.com (CRM)	88	94.6B	1,442.8	10.5B	127.5M	21B
Altaba (AABA)	80	63.7B	1,533.4	5.2B	(214.3M)	48.1B
Tata Consultancy Services (TCS)	83	49.3B	1,374.8	18.8B	4B	15.9B
JD.com (JD)	74	42.4B	878.8		(548.3M)	23.1B
Electronic Arts (EA)	70	40.2B	1,155.1	4.8B	967M	7.7B

Global Peer Group Analysis (continued)

Code	Country Code	Last Price	P/E	P/S	P/Book	Turnover Rate (%)	% Disc to 52-w Hi
00700	HK	HKD404.0	43.5	12.0	14.5	62.5	15.1
GOOG	US	$US1,084.99	46.0	3.2	2.9	108.5	8.6
NFLX	US	$US351.60		13.1	42.6	299.3	1.3
BKNG	US	$US2,108.92	44.1	8.0	16.1	218.3	5.4
CRM	US	$US129.33		9.0		135.5	2.4
AABA	US	$US77.16		12.3	2.1	295.5	4.2
TCS	IN	Rs1,732.45	26.2	5.5	8.1	13.7	4.4
JD	US	$US35.18			15.6	279.0	30.6
EA	US	$US130.91	42.5	8.3	17.1	217.1	2.8

Fig 54: Compare and Sort: GOOG vs Internet sector

Company Name	Code	MCap (USD, M)	52-W High	52-W Low	Rel. Str 6-Mo	PV$1000 1 year	P/NTA	P/E	Yield (%)
Alphabet Class C	GOOG	379,577	1,186.9	894.8	58	1,125	2.9	46.0	-

For Company searches, or for sorting by stocks and variables, an interactive version of current day's Table is available here

Peer Group Analysis & Ranking (continued)

Fig 55: BuySellSignals Fundamentals Valuation Table: NASDAQ Market

-	NASDAQ Avg	GOOG	Rank	Rank 1	Rank 2	Rank 3	Lowest Rank
P/Earnings	36.9x	46.05x	910	1.6x UPL	1.7x SNOA	1.8x VEON	-
Price/Net Tangible Assets	11.6x	2.9x	884	0.1x CREG	0.1x CNTF	0.1x GEVO	-
Total Debt/Equity	0.7x	0.03x	137	IPHS	ITRN	WILC	11.5x LNTH
Discount to 52-Wk High (%)	2.7	8.6	1434	99.98 TOPS	99.95 DCIX	99.5 INPX	0.04 GFED
Premium to 52-Wk Low (%)	18.4	21.3	676	0.1 ITRI	0.2 WIN	0.2 BCOM	4176.9 MARA
Total Assets US$	4.4 B	197.3 B	6	375.3 B AAPL	253.9 B PFG	241.1 B MSFT	1 M MARPS
Revenue US$	2 B	110.9 B	5	232 B AAPL	177.9 B AMZN	129 B COST	7,250 ZYNE
ROA (%)	3.5	6.4	426	89.4 TENX	73.7 MARPS	65.4 AZPN	0.01 SOHO
EBITDA Margin	15.9	24.5	533	89.1 SBRA	88.6 GGAL	88.4 VNOM	(88.7) CLBS

Values in bracket are negative.

Peer Group Analysis & Ranking (continued)

Fig 56: Independent Ratings

+ BSS/News Bites:
Alphabet Inc is placed 1093/2183 in BSS News Bites' ranking of NASDAQ performers in the past year, a percentile ranking of 50.

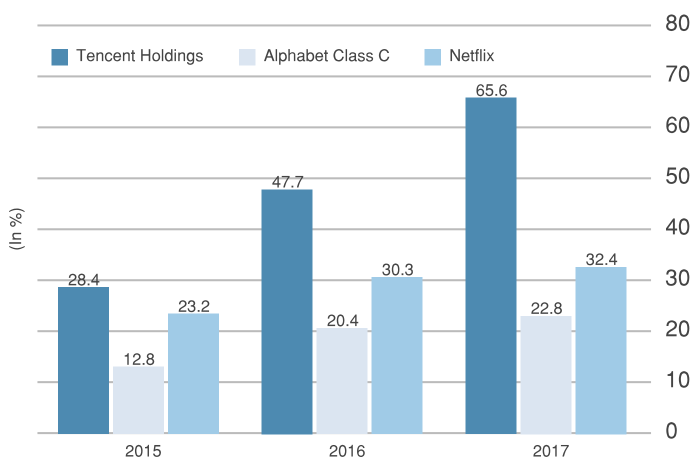
+ Vanguard Total World Stock ETF 7581:
The stock was one of 7581 global stocks selected by Vanguard Total World Stock ETF (VT) who bought 11,336 shares in the period Jan 31, 2018 to Apr 30, 2018 worth $US11,698,736 at an estimated Volume Weighted Average Price (VWAP) of $US1031.9986. As at Apr 30, 2018, the Vanguard Total World Stock ETF held 104,521 shares worth $US107,865,526 or 0.64% by value of the ETF's portfolio [Ranked 7 out of 7581 by value and 4 out of 686 for NASDAQ].

Fig 57: Long-Term Fundamental Ranking: 4 out of 5

Alphabet Class C is ranked number 1 out of 32 listed internet companies [that traded today] in United States with a market capitalization of $US379.6 billion.
Within its sector it has a relatively moderate P/E of 46, moderate P/S of 3.2.
It has a strong relative ROE of 8.3% and ROA of 6.4%.

Stocks are scored on a set of parameters reflecting fundamental analytical tools involving valuation, size and financial performance. They are ranked according to the average values of those parameters. The highest ranking is 5 and the lowest ranking is 1.

Fig 58: Peer Comparison-Revenue Growth (%)



Market Share

Alphabet Class C vs Internet sector [Internet sector Total in Brackets]
Net Profit of $US12.7 billion [45.6% of Aggregate Sector Net Profit of $US27.7 billion; down from 47.7% in the previous year.]
EBIT of $US27.2 billion [47.1% of Aggregate Sector EBIT of $US57.8 billion; up from 28.7% in the previous year.]
MCap of $US379.6 billion [42.1% of Aggregate Sector MCap of $US902.1 billion; down from 43.1% in the previous year.]

Share in Index

Alphabet Class C is a constituent of the following indices. Its market capitalisation accounts for 4.8% of the combined MCap of the The NASDAQ-100 Equal Weighted Index.

Index Name	MCap of Index (USD B)	MCap as % of Index
The NASDAQ-100 Equal Weighted Index	7,869	4.8
NASDAQ-100 Index	8,188	4.6
NASDAQ Global Select Market Composite Index	10,413	3.6
NASDAQ Composite Index	10,814	3.5

Board and Management & creation of shareholder value

Fig 59: Board of Directors

Name	Designation	Yrs Since Appointment
Larry Page	Chief Executive Officer	2 Yrs
Larry Page	Director	-
Sergey Brin	Director, President	2 Yrs
Eric E. Schmidt	Executive Chairman	2 Yrs
Alan R. Mulally	Director	-
Diane B. Greene	Director	-
John L. Hennessy	Director	-
Paul S. Otellini	Director	-
Roger W. Ferguson	Director	-
Shirley M. Tilghman	Director	-
Sundar Pichai	Director	-
L. John Doerr	Director	-
Ann Mather	Director	-
K. Ram Shriram	Director	-

Fig 60: Profiles

Larry Page
CEO & Director

Larry Page, the Chief Executive Officer of Alphabet, was one of Google's founders and has served as a member of our Board of Directors since its inception in September 1998, and as Google's Chief Executive Officer from April 2011 to October 2015 (when he became the Chief Executive Officer of Alphabet). From July 2001 to April 2011, Larry served as Google's President, Products. In addition, from September 1998 to July 2001, Larry served as Google's Chief Executive Officer, and from September 1998 to July 2002, as Google's Chief Financial Officer. Larry holds a Master of Science degree in computer science from Stanford University and a Bachelor of Science degree in engineering, with a concentration in computer engineering, from the University of Michigan.

Creation of shareholder value in Alphabet Class C:
Since appointment as CEO: The present value of USD1,000 invested on the appointment date of October 05, 2015 at close price of US$641.47 is US$1,691, for a capital gain of US$691.

Remuneration:
Year:2016
Salary ($):1
Total ($): 1

Forbes Billionaires Ranking
Larry Page was ranked 12 in the Forbes Billionaires list in the world for 2018, unchanged from the same rank 12 in 2017.According to Forbes, Larry Page's net worth had increased by (19.9%) US$40.7 billion to US$48.8 billion in 2018.

Sergey Brin
President & Director

Sergey Brin, President of Alphabet, was one of Google's founders and has served as a member of our Board of Directors since its inception in September 1998. Previously, Sergey served as Google's President, Technology and Co-Founder. In addition, from September 1998 to July 2001, Sergey served as Google's President and Chairman of Google's Board of Directors. Sergey holds a Master of Science degree in computer science from Stanford University and a Bachelor of Science degree with high honors in mathematics and computer science from the University of Maryland at College Park.

Creation of shareholder value in Alphabet Class C:
Since appointment as President: The present value of USD1,000 invested on the appointment date of October 05, 2015 at close price of US$641.47 is US$1,691, for a capital gain of US$691.

Remuneration:
Year:2016
Salary ($): 1
Total ($): 1

Forbes Billionaires Ranking
Sergey Brin was ranked 13 in the Forbes Billionaires list in the world for 2018, unchanged from the same rank 13 in 2017.According to Forbes, Sergey Brin's net worth had increased by (19.35%) US$39.8 billion to US$47.5 billion in 2018.

Board and Management & creation of shareholder value (continued)

Eric E. Schmidt
Executive Chairman

Eric E. Schmidt, Executive Chairman of the Board of Directors of Alphabet, has served as the Executive Chairman of our Board of Directors since April 2011 and as a member of our Board of Directors since March 2001. From July 2001 to April 2011, Eric served as Google's Chief Executive Officer. He was the chairman of Google's Board of Directors from March 2001 to April 2004, and again from April 2007 to April 2011. Prior to joining Google, from April 1997 to November 2001, Eric served as chairman of the Board of Directors of Novell, Inc., a computer networking company, and, from April 1997 to July 2001, as the Chief Executive Officer of Novell. From 1983 until March 1997, Eric held various positions at Sun Microsystems, Inc., a supplier of network computing solutions, including Chief Technology Officer from February 1994 to March 1997, and President of Sun Technology Enterprises from February 1991 until February 1994. Eric holds a Doctoral degree and a Master of Science degree in computer science from the University of California, Berkeley, and a Bachelor of Science degree in electrical engineering from Princeton University.

Creation of shareholder value in Alphabet Class C:
Since appointment as Executive Chairman: The present value of USD1,000 invested on the appointment date of October 05, 2015 at close price of US$641.47 is US$1,691, for a capital gain of US$691.

Remuneration:
Year:2016
Salary ($):1,250,000
Non-Equity Incentive Plan Compensation ($): 2,430,685
All Other Compensation ($): 629,106
Total ($): 4,309,791

L. John Doerr
Director

L. John Doerr has served as a member of our Board of Directors since May 1999. John has been a General Partner of Kleiner Perkins Caufield & Byers, a venture capital firm, since August 1980. John has also been a member of the board of directors of Amyris, Inc., a renewable products company, since May 2006, and serves on its nominating and governance committee; and Zynga, Inc., a provider of social game services, since April 2013. John holds a Master of Business Administration degree from Harvard Business School, and a Master of Science degree in electrical engineering and computer science, and a Bachelor of Science degree in electrical engineering from Rice University.

Diane B. Greene
Director

Diane B. Greene has served as a member of our Board of Directors since January 2012 and as a Senior Vice President of Google since December 2015. Diane founded bebop Technologies, Inc. (bebop) and served as Chief Executive Officer and a member of its board of directors from December 2012 to December 2015 when bebop was acquired by Google. Diane has also been a member of the board of directors of Intuit Inc., a provider of business and financial management solutions, since August 2006 and serves on its compensation committee and as chair of its nominating and corporate governance committee. Diane co-founded VMware, Inc., a virtualization software company, in 1998 and took the company public in 2007. She served as Chief Executive Officer and President of VMware from 1998 to 2008, as a member of the board of directors of VMware from 2007 to 2008, and as an Executive Vice President of EMC Corporation, a provider of information infrastructure and virtual infrastructure technologies, solutions and services, from 2005 to 2008. Prior to VMware, Diane held technical leadership positions at Silicon Graphics Inc., a provider of technical computing, storage and data center solutions, Tandem Computers, Inc., a manufacturer of computer systems, and Sybase Inc., an enterprise software and services company, and was Chief Executive Officer of VXtreme, Inc., a developer of streaming media solutions. Diane is also a lifetime member of The MIT Corporation, the governing body of the Massachusetts Institute of Technology. Diane holds a Master of Science degree in computer science from the University of California, Berkeley, a Master of Science degree in naval architecture from the Massachusetts Institute of Technology, and a Bachelor of Arts degree in mechanical engineering from the University of Vermont.

John L. Hennessy
Director

John L. Hennessy has served as a member of our Board of Directors since April 2004, and as Lead Independent Director since April 2007. John served as the President of Stanford University from September 2000 to August 2016. John has also been a member of the board of directors of Cisco Systems, Inc., a networking equipment company, since January 2002, and serves on its nominating and governance committee and acquisition committee. He also serves as a trustee of the Gordon and Betty Moore Foundation and as a director of the Chan Zuckerberg Biohub. From 1994 to August 2000, John held various positions at Stanford, including Dean of the Stanford University School of Engineering and Chair of the Stanford University Department of Computer Science. John holds a Doctoral degree and a Master of Science degree in computer science from the State University of New York, Stony Brook, and a Bachelor of Science degree in electrical engineering from Villanova University.

Board and Management & creation of shareholder value (continued)

Paul S. Otellini
Director

Paul S. Otellini has served as a member of our Board of Directors since April 2004. Paul served as the Chief Executive Officer and President of Intel Corporation, a semiconductor manufacturing company, from May 2005 to May 2013, and as a member of its board of directors from 2002 to May 2013. He also served as Intel's Chief Operating Officer from 2002 to May 2005. From 1974 to 2002, Paul held various positions at Intel, including Executive Vice President and General Manager, Intel Architecture Group, and Executive Vice President and General Manager, Sales and Marketing Group. Paul holds a Master of Business Administration degree from the University of California, Berkeley, and a Bachelor of Arts degree in economics from the University of San Francisco.

Alan R. Mulally
Director

Alan R. Mulally has served as a member of our Board of Directors since July 2014. Alan served as President and Chief Executive Officer of Ford Motor Company, a global automotive company, from September 2006 through June 2014. Alan was previously a member of the board of directors of Ford and served on its finance committee from September 2006 through June 2014. From March 2001 to September 2006, Alan served as Executive Vice President of the Boeing Company and President and Chief Executive Officer of Boeing Commercial Airplanes, Inc. He also was a member of the Boeing Executive Council. Prior to that time, he served as President of Boeing's space and defense business. Alan served as co-chair of the Washington Competitiveness Council and sat on the advisory boards of NASA, the University of Washington, the University of Kansas, the Massachusetts Institute of Technology, and the U.S. Air Force Scientific Advisory Board. He is a member of the U.S. National Academy of Engineering and a fellow of England's Royal Academy of Engineering. Alan holds a Bachelor of Science and Master of Science degrees in aeronautical and astronautical engineering from the University of Kansas, and a Master's degree in Management from the Massachusetts Institute of Technology as a 1982 Alfred P. Sloan fellow.

Roger W. Ferguson
Director

Roger W. Ferguson, Jr. has served as a member of our Board of Directors since June 2016. Roger has served as the President and Chief Executive Officer of TIAA, a major financial services company, since April 2008. He joined TIAA after his tenure at Swiss Re, a global reinsurance company, where he served as Chairman of the firm's America Holding Corporation, Head of Financial Services, and a member of the Executive Committee from 2006 to 2008. Prior to that, Roger joined the Board of Governors of the U.S. Federal Reserve System in 1997 and served as its Vice Chairman from 1999 to 2006, and was a consultant at McKinsey & Company from 1984 to 1997. Roger has been a member of the board of directors of General Mills, Inc., a manufacturer and marketer of branded consumer foods, since December 2015, and serves on its corporate governance committee and finance committee; and International Flavors & Fragrances, Inc., a creator of flavors and fragrances, since April 2010, and serves as chair of its compensation committee. He is currently Chairman of the Conference Board and serves on the board of trustees of the Institute for Advanced Study and the board of trustees of the Memorial Sloan Kettering Cancer Center. Roger holds a Bachelor of Arts degree in economics, a Doctoral degree in economics, and a Juris Doctor degree, all from Harvard University.

Shirley M. Tilghman
Director

Shirley M. Tilghman has served as a member of our Board of Directors since October 2005. Shirley served as the President of Princeton University from June 2001 to June 2013. Shirley serves as a trustee of the Institute for Advanced Study, Amherst College, the Advantage Testing Foundation, and the King Abdullah University of Science and Technology, as a fellow for Harvard College, as a director of the Broad Institute, and as a member of the Science Advisory Board of the Chan Zuckerberg Initiative. From August 1986 to June 2001, she served as a Professor at Princeton University, and from August 1988 to June 2001, as an Investigator at Howard Hughes Medical Institute. In 1998, she took the role as founding director of Princeton's multi-disciplinary Lewis-Sigler Institute for Integrative Genomics. Shirley holds a Doctoral degree in biochemistry from Temple University, and a Bachelor of Science degree with honors in chemistry from Queen's University.

Board and Management & creation of shareholder value (continued)

Ann Mather
Director

Ann Mather has served as a member of our Board of Directors since November 2005. Ann has also been a member of the board of directors of: Arista Networks, Inc., a computer networking company, since June 2013, and serves as chair of its audit committee; Glu Mobile Inc., a publisher of mobile games, since September 2005, and serves on its nominating and corporate governance committee; Netflix, Inc., a streaming media company, since July 2010, and serves as chair of its audit committee; and Shutterfly, Inc., an internet-based image publishing company, since May 2013 and serves on its audit committee. Ann has also been an independent trustee to the Dodge & Cox Funds board of trustees since May 2011. Ann was previously a director of MoneyGram International, Inc., a global payment services company, from May 2010 to May 2013, and Solazyme, Inc., a biotechnology company, from April 2011 to November 2014. From 1999 to 2004, Ann was Executive Vice President and Chief Financial Officer of Pixar, a computer animation film studio. Prior to her service at Pixar, Ann was Executive Vice President and Chief Financial Officer of Village Roadshow Pictures, the film production division of Village Roadshow Limited. Ann holds a Master of Arts degree from Cambridge University in England, is an honorary fellow of Sidney Sussex College, Cambridge, and is a chartered accountant.

K. Ram Shriram
Director

K. Ram Shriram has served as a member of our Board of Directors since September 1998. Ram has been a managing partner of Sherpalo Ventures, LLC, an angel venture investment company, since January 2000. From August 1998 to September 1999, Ram served as Vice President of Business Development at Amazon.com, Inc., an ecommerce company. Prior to that, Ram served as President at Junglee Corporation, a provider of database technology, which was acquired by Amazon.com in 1998. Ram was an early member of the executive team at Netscape Communications Corporation. Ram is also on the Stanford University Board of Trustees. Ram holds a Bachelor of Science degree in mathematics from the University of Madras, India.

Index

Section 1. Alphabet Class C (GOOG) . . . 1
Company Overview . . . 1
Figure 1: Activities . . . 1
Fig 2: Stock Identifiers . . . 1
Fig 3: Stock Summary . . . 1
Fig 4: Financials Summary . . . 1

Section 2. Analysis . . . 2
Introduction with Trends . . . 2
Bullish Signals . . . 2
Fig 5: Bullish Indicators . . . 3
Bearish Signals . . . 3
Fig 6: Bearish Indicators . . . 3
Fig 7: Rank in the NASDAQ-100 Index . . . 3
Fig 8: Other Listings . . . 3
Fig 9: Analyst Recommendations . . . 3
Fig 10: MCap - Historical Perspective . . . 4
Fig 11: PRESENT VALUE OF USD1000 INVESTED 3 YEARS AGO

Section 3. Period-based Shareholder Returns . . . 5
Fig 12: PRESENT VALUE OF $US1000 INVESTED IN THE PAST [3 Mo, 1 Yr, 3 Yrs] . . . 5
Fig 13: Moving Annual Return . . . 6
Fig 14: Total Shareholder Returns, Annualised [TSR %] . . . 6
Fig 15: PRESENT VALUE OF USD1000 INVESTED 3 YEARS AGO . . . 7

Section 4. Price Volume Dynamics (Past quarter) . . . 8
Fig 16: The Best 3 weeks . . . 8
Fig 17: The Worst 3 weeks . . . 8
Fig 18: Weekly Price Change (%) and Volume Index (Last 3 months) . . . 8
Fig 19: Price Volume Trend: Trailing Quarter . . . 9
Fig 20: Fibonacci Retracement . . . 9
Fig 21: Trailing 3 months . . . 9
Fig 22: Trailing Price Change % . . . 9
Volatility . . . 10
Fig 23: Price High Low Close . . . 10
Fig 24: YTD Comparison Stock Sector Index (%) . . . 10
Fig 25: Relative Strength . . . 10
Fig 26: Price/Moving Avg Price [P/MAP200] . . . 11
Fig 27: Turnover Rate & Period . . . 11
Fig 28: % Change (Tr. 12 Mo): Stock (12.5%) v Index (20.2%) . . . 11
Fig 29: Year-on-Year Comparison (Trailing year - ended 31 May) . . . 12
Stock Exchange Listings . . . 12
Fig 30: Open Interest Trend . . . 12

Section 5. Institutional Shareholder Activity . . . 13
Fig 31: Institutional Shareholder Activity - Major Increases in Top 40 institutional shareholders [Quarter ended March 31, 2018] . . . 13
Fig 32: Institutional Shareholder Activity - Major Decreases in Top 40 institutional shareholders [Quarter ended March 31, 2018] . . . 14
Fig 33: Institutional Shareholder Activity - New Entrants in Top 40 institutional shareholders . . . 14

Index (continued)

Fig 34: Institutional Shareholder Activity - Drop Outs from Top 40 institutional shareholders 15
Fig 35: Institutional Shareholder Activity - Top 40 Institutional Shareholders of Alphabet Class C as at March 31, 2018 16
Fig 36: Institutional Shareholder Activity - Net institutional selling: TTM ended March 31, 2018 17
Fig 37: Institutional Shareholder Activity - Reported institutional buying and selling (No of shares) 17
Fig 38: Institutional Shareholder Activity - Reported holdings of institutions as of March 31, 2018 17
Fig 39: Institutional Shareholder Activity - Net Buying/(Selling) by Institutions: Trailing 12 Months (TTM) 18

Section 6. Regulatory Announcements 22

Fig 40: Acquisitions 22
Fig 41: Financial Results announcements 22
8-K SEC Filings of Directors 22
8-K SEC Filings of significant events 22
Insider Trading Summary
Fig 42: Insider Selling Summary (Trailing 12 Months) 23
Reported awards of options
Fig 43: Reported awards of stocks and options 24

Section 7. Press Releases 25

Section 8. Financials 27

GOOG 2017 Annual Report: Key Parameters
Fig 44: Historical perspective of growth and performance: 28
Fig 45: Five-Year History (All figures in USD) 30
GOOG Q1 2018 Financial Results as reported
Fig 46: Q1 2018 GOOG Income Statement as reported 30
Fig 47: Q1 2018 GOOG Balance Sheet as reported 31
Fig 48: Q1 2018 GOOG Cash Flow as reported 32
GOOG 2017 Financial Results as reported (Annual)
Fig 49: 2017 GOOG Income Statement as reported 33
Fig 50: 2017 GOOG Balance Sheet as reported 34
Fig 51: 2017 GOOG Cash Flow as reported 35
Fig 52: Average Income Tax paid 36

Section 9. Peer Group Analysis & Ranking 37

Fig 53: Global Peer Group Analysis (all figures in USD) 37
Fig 54: Compare and Sort: GOOG vs Internet sector 37
Fig 55: BuySellSignals Fundamentals Valuation Table: NASDAQ Market 38
Fig 56: Independent Ratings 39
Fig 57: Long-Term Fundamental Ranking: 4 out of 5 39
Fig 58: Peer Comparison-Revenue Growth (%) 39
Market Share 39
Share in Index 39

Section 10. Board and Management & creation of shareholder value 40

Names, Positions, Biographies, Performance
Fig 59: Board of Directors 40
Fig 60: Profiles 40

Glossary

Annual Return (Fig 13):
Dividends Paid In a 12-Month Period/Price at the Beginning of the Period + Capital Gain or Loss over 1 Year/Price 1 Year Ago (%)
Cash/MCap:
Cash plus Liquids/Market Capitalisation (times)
Debt/Equity (Fig 5):
Net Debt/Net Assets (times)
Earnings Yield:
Earnings Per Share/Share Price (%)
PV$US1000 (Fig 11, 12, 15):
Present value of $US1000 invested 1 year/'n' years ago
Price/Earnings (Fig 6, 54, 55, 7):
Share Price/Earnings Per Share (times)
Price/Sales (Fig 54):
Share Price/Sales Per Share (times)

Relative Strength (n-th Period) (Fig 25, 3, 53):
Price close today/Price close 'n' periods ago, then ranked by percentile within the entire market.
Return on Equity (Shareholders' Funds) (Fig 7):
Net Profit/Net Assets (%)

TTM (Fig 36, 39):
Trailing 12 Months
Turnover (Fig 5, 21):
Last Price * Volume
Turnover Rate (Fig 54, 27):
US Dollar value of annual trading volume as a percentage of market capitalisation
Volume Weighted Average Price (VWAP) (Fig 29):
The Volume Weighted Average Price (VWAP) is the summation of turnover divided by total volume in the same period.

Capital Gain/Loss from n Years Ago to n-1 Years Ago:
Capital Gain or Loss over 1 Year/Price 1 Year Ago (%)

Current Ratio:
Current Assets/Current Liabiliites (times)
EBIT Margin :
Earnings Before Interest and Tax/Revenue (%)
Moving Average Price (n periods) (Fig 26):
Sum of Prices for each Period/Number of Periods
Price Close/Moving Avg Price (Fig 26):
Latest Price/Moving Average Price
Price/NTA (Fig 7, 54):
Closing Share Price/Net Tangible Assets Per Share (times)
Relative Price Change [RPC] (Fig 29):
Relative price change is price change of stock with respect to Benchmark Index
Return on Assets:
Net Profit/Total Assets (%)

TSR (Fig 14, 3):
TSR is expressed as an annualized rate of return for shareholders after allowing for capital appreciation and dividends
Total Liabilities/Total Assets:
Total Liabilities/Total Assets
Turnover Period (Fig 29):
Time Period required for trading all Outstanding Shares
Volume Index (VI) (Fig 18, 21):
Number of shares traded in the period/Average number of shares traded for the period

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May 30, 2018 02:27 PM GMT

Alphabet Inc.

GDPR Pushing More Ad Dollars to GOOGL?

Stock Rating	Industry View	Price Target
Overweight	In-Line	$1,200.00

GOOGL is trying to make publishers and advertisers to use the GOOGL tracking/ID system and saying that if you as a platform or ad tech player are using a third party tracking system, we (GOOGL) need to ensure that you have obtained full consent from users to use our ad tech stack. It is essentially GOOGL using GDPR and regulation as a tool to drive adoption of its consent-obtained tools....and raise the walls around the walled garden. FYI, in our 1Q call back this is what CRTO was most concerned about (when they talked about some players raising standards because of GDPR on the conference call, they meant GOOGL). This is bullish tactically for GOOGL and speaks to how GOOGL is not afraid to use regulation to their advantage (consistent with our work about how regulation will likely favor large players).

MORGAN STANLEY & CO. LLC

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Alphabet Inc. (GOOGL.O, GOOGL US)

Internet / United States of America

Stock Rating	**Overweight**
Industry View	**In-Line**
Price target	**$1,200.00**
Shr price, close (May 29, 2018)	$1,068.07
Mkt cap, curr (mm)	$771,343
52-Week Range	$1,198.00-915.31

Glossary of Terms:

GDPR = General Data Protection Regulation

GOOGL.O

GOOGL PT is $1,050. GOOGL's core Websites business grows ~21% (ex-FX) in 2017 and non-GAAP operating losses in "Other Bets" moderate. Assumes mid-teens search revenue growth through 2017, as mobile device proliferation leads to search advertising taking share of global ad budgets. Mobile search continues to drive forward growth while desktop search also contributes and YouTube gains online video share.

Risks to PT:

- Search is a key component of GOOGL's advertising business. While we believe Search will continue to take share of global ad budgets and Google will retain its dominant share, growth in US and UK markets has slowed.
- Improved disclosure around the Google Inc. and Other Alphabet segments may not decrease the overall investment activity of the business.
- Deterioration in the advertising market, particularly as vast majority of revenue is driven by advertising.
- Negative resolution of EU antitrust probe.

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Equal-weight and Not-Rated to hold and Underweight to sell recommendations, respectively.

	COVERAGE UNIVERSE		INVESTMENT BANKING CLIENTS (IBC)			OTHER MATERIAL INVESTMENT SERVICES CLIENTS (MISC)	
STOCK RATING CATEGORY	COUNT	% OF TOTAL	COUNT	% OF TOTAL IBC	% OF RATING CATEGORY	COUNT	% OF TOTAL OTHER MISC
Overweight/Buy	**1168**	**38%**	**305**	**40%**	**26%**	**550**	**39%**
Equal-weight/Hold	**1337**	**43%**	**371**	**49%**	**28%**	**641**	**46%**
Not-Rated/Hold	**53**	**2%**	**5**	**1%**	**9%**	**7**	**0%**
Underweight/Sell	**539**	**17%**	**83**	**11%**	**15%**	**207**	**15%**
TOTAL	**3,097**		**764**			**1405**	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

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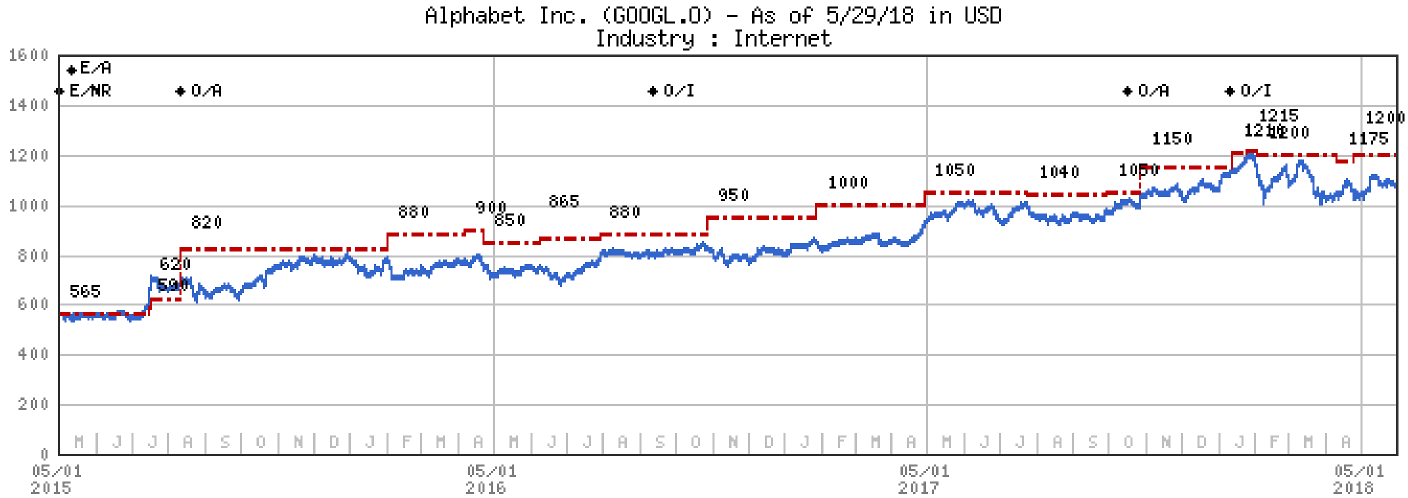

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INDUSTRY COVERAGE: Internet

COMPANY (TICKER)	RATING (AS OF)	PRICE* (05/29/2018)
Brian Nowak, CFA		
Activision Blizzard Inc (ATVI.O)	O (09/23/2016)	$70.64
Alphabet Inc. (GOOGL.O)	O (08/11/2015)	$1,068.07
Amazon.com Inc (AMZN.O)	O (04/24/2015)	$1,612.87
Blue Apron Holdings Inc (APRN.N)	E (07/24/2017)	$2.94
Booking Holdings Inc (BKNG.O)	O (06/30/2016)	$2,076.03
Criteo SA (CRTO.O)	E (01/26/2016)	$24.40
Despegar.com Corp (DESP.N)	E (10/16/2017)	$22.79
eBay Inc (EBAY.O)	O (04/18/2018)	$37.53
Electronic Arts Inc (EA.O)	E (01/12/2018)	$131.25
Etsy Inc (ETSY.O)	U (01/12/2018)	$30.41
Expedia Inc. (EXPE.O)	O (01/10/2018)	$117.26
Facebook Inc (FB.O)	O (04/27/2016)	$185.74
GrubHub Inc. (GRUB.N)	E (04/18/2018)	$101.13
Snap Inc. (SNAP.N)	U (11/09/2017)	$10.55
Take-Two Interactive Software (TTWO.O)	O (02/01/2018)	$110.78
TRIVAGO NV (TRVG.O)	E (09/28/2017)	$4.72
Twitter Inc (TWTR.N)	E (04/17/2018)	$34.04
Yelp Inc (YELP.N)	E (07/29/2015)	$42.59
Zynga Inc (ZNGA.O)	O (06/08/2017)	$4.18
Jonathan Lanterman, CFA		
Groupon, Inc. (GRPN.O)	E (03/05/2018)	$4.72
TrueCar Inc (TRUE.O)	E (01/12/2018)	$9.53
Zillow Group Inc (Z.O)	E (04/18/2018)	$54.76

Stock Ratings are subject to change. Please see latest research for each company.
* Historical prices are not split adjusted.

Trend Watch

WILLIAM O'NEIL+CO.

Every winning stock begins with what's NEW or what's NEXT

May 30, 2018

Romeo Alvarez 310.448.6913

AI

'The Sims' Is Teaching the Household Robots of Tomorrow - This year's Google I/O revealed that the tech company is nearing the completion of an AI secretary that can book appointments without you having to lift a finger. (Inverse)

AI Technology Revolution Is Just Getting Started - AI computing has been around for decades. What's known as machine learning goes back to at least the 1970s. The problem with that kind of AI was that it involved human programmers laboriously coding explicit instructions for machines. (Barrons)

Facebook Is Designing Its Own Chips to Help Filter Live Videos – The company's chief AI scientist says Facebook is working on more energy-efficient semiconductors. (Bloomberg)

Automation

Las Vegas Food Service Workers Are Going on Strike So They Don't Lose Their Jobs to Robots. (Futurism)

How Amazon's robot warehouses swing into action the moment you press 'buy'. (Digitaltrends)

Autonomous trucks will haul your stuff before you ride in a self-driving car - It's one of the most common jobs in the US, but there's also a big shortage of drivers. (Arstechnica)

Self-driving technology is going to change a lot more than cars - How self-driving technology could transform everything from retail to transit. (Xenpac)

Self-driving vehicles to surpass 30% of new cars in Japan by 2030 - Abe government writes target in new national growth strategy. (Nikkeiasianreview)

Media/Entertainment

Snapchat's Evan Spiegel on Facebook: 'We would really appreciate it if they copied our data protection practices'. (Theverge)

WhatsApp Hastens Payments Push for 200 Million Indians – Facebook looking to claw market share from Google, Paytm. (Bloomberg)

Retail

Amazon introduced 10% savings at Whole Foods for Prime members earlier this month, and today it kicked off a nationwide expansion of the initiative. (Techcrunch)

Other/Miscellaneous

8 Amazing CRISPR projects that could change life as we know it. (Digitaltrends)

Bird, the electric scooter company that first launched in L.A., is reportedly raising $150M - The financing round would value the company at $1B.

Elon Musk unveils plans for 10,000 Tesla superchargers that can refuel cars in minutes. (Xenpac)

"America is a country of innovators. It's your job as a stock trader to find new innovative companies, charts in each cycle" - William O'Neil

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Morgan Stanley | RESEARCH

UPDATE

2018 年 5 月 24 日 01:36 AM GMT

Alphabet Inc.

YouTubeが有料音楽配信に注力する理由

投資判断	業界投資判断	目標株価
Overweight	In-Line	$1,200.00

YouTubeの新サービスMusicとPremiumは、サブスクリプションへの注力の表れであり、ユーザーのマネタイズ機会が13倍に拡大する可能性がある。Musicの会員数が100万人増加するごとにYouTubeの売上高は約1%増加するため、SOTPによるAlphabetの価値にも重要と考える。

最新情報：一つ目は、改良を加えたYouTube Musicサービスに関する発表である。これには、無料サービス(広告あり)と、月額10ドルのサブスクリプション料金を支払う有料サービス(広告なし)がある。新しいMusicには、カスタム・プレイリスト、楽曲のダウンロード、Alphabetのデータセットを活用したパーソナライズ化(視聴履歴や利用場所などのユーザー情報に基づくホーム画面やレコメンド・エンジンの最適化)などの機能を持つ。**二つ目は、**新たな有料ストリーミング・サービスである**YouTube Premium**(これまでのYouTube Red)に関する発表である。これには広告なしのYouTube Music、YouTubeオリジナル・コンテンツ、広告なしのYouTubeエクスペリエンスが含まれる。サブスクリプション料金は、YouTube Redの月額10ドルに対し月額12ドルとなる。**YouTubeの価格設定戦略**(月額料金の引き上げを10ドルから12ドルと最小限にとどめる)**は注目に値する**と弊社は考える。YouTubeがユーザーを有料会員へと導き、**事業モデルをサブスクリプション・ベースへと移行**している様子が伺えるからである。弊社分析に基づくなら、こうした**事業モデルのシフトはYouTubeのユーザー当たりのマネタイズ機会を大きく押し上げる可能性がある。**勿論、YouTubeの音楽配信事業に関する試みはこれが初めてではなく、有料会員数の増加については注意深く見守る必要がある。ただ、成功を控えめに見積もった場合(向こう5年間で有料会員数は現在の800万人から2,500万人に増加)でも、マネタイズ機会は大幅に拡大する。

YouTubeが音楽配信に注力する3つの理由：(1)音楽配信市場は規模が大きく、普及が進んでいる(世界のスマートフォン・ユーザー全体に占める音楽配信サービス利用者の比率は17年の約6%に対し、22年までに約15%に拡大する見通し。Media: リバイバル：音楽 市場 への投資機会 (2018年 5月 8日)参照)。**(2)** YouTubeが有する世界18億人のMAUへの音楽配信サービス・プロモーションが普及促進につながる。米国ではYouTubeユーザーの約65%が週に1度はミュージックビデオを視聴しており、最も利用されているのユースケースは音楽と弊社は考える。**(3)YouTube Musicの成功がマネタイズの機会につながり、結果としてSOTPによるAlphabetの価値を押し上げる**(時価総額1兆ドル達成に向けてAlphabetが情報開示を改善すべき数多の理由 (2018年 2月 6日)参照)。

サブスクリプション型の事業モデルへのシフトを前提とした弊社強気ケースの試算：ユーザー当たりのマネタイズ機会が現在の年間約10ドルから月間約10ドルに拡大する可能性：弊社は、YouTubeの18年の総売上高を180億ドルと予想(ARPUは有料会員1人当たり10ドルが示唆される)。**これに基づけば、YouTube**

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Alphabet Inc. (GOOGL.O, GOOGL US)

Internet / United States of America

投資判断	**Overweight**
業界投資判断	**In-Line**
目標株価	**$1,200.00**
直近終値 (2018年 5月 17日)	$1,081.26
時価総額 (百万)	$780,869
52週　高-安	$1,198.00-915.31

本レポートは、5月18日発行の"Alphabet Inc.: Why is YouTube Focused on Music Subscriptions?"の翻訳版(抄訳)です。日本語文への翻訳に際してはその解釈や表現に細心の注意を払っておりますが、万一、英文と日本語文との間に解釈や表現の違いが生じた場合は英文が優先します。

の無料ユーザー100万人がYouTube Musicに移行する毎に売上高は約1%増加する(現在の広告ARPUの40%が、広告なしの音楽配信サービスへの移行で失われると想定)。音楽配信に関する弊社マクロモデル(弊社アナリストBen Swinburneとの共作)では、**YouTube Musicの有料会員数は22年までに2,500万人に達すると予想しており、これに基づけば、22年のYouTubeの総売上高は約30億ドルとなる。**当然、この試算が完璧なものではないことは理解している。先進国のYouTubeユーザーの方がマネタイズの機会は大きいと見るが、YouTube Musicのマネタイズ規模はユーザー当たり年間120ドルを大幅に下回ると弊社では見ている。弊社は、SOTPによるYouTubeの価値を1,600億ドル(売上高予想の7倍)としているほか、トップダウン分析に基づく売上高予想ではYouTubeの広告収入の減少を見込んでいることから、Alphabetのバリュエーションにも重要と考える。

音楽業界への影響：AppleとAmazonのプレゼンスにもかかわらず、サブスクリプション型のストリーミングでは、**Spotify**(弊社担当アナリストBen Swinburne)が依然市場を牽引している。ただし、最大のライバルであるApple Musicと比較した場合、Androidスマートフォンを使用するユーザー層(特に米国外)の高さがアドバンテージとなっている。**YouTubeのPremium Musicは、AppleやAmazonのAndroidスマートフォンでの実績を上回り、Spotifyの成功見通しにリスクとなる可能性がある。**ただし、弊社は以下の二つの理由からSpotifyの投資判断OWを維持する。**(1)** 世界のサブスクリプション型ストリーミング市場で見込まれる機会は大きく、過去2年間で有料ユーザー数は世界全体で1億人増加、米国では17年のユーザー純増数が16年から倍層した。**(2)** 弊社はYouTubeの音楽配信事業への注力を真剣に受け止めているが、これまで何年にもわたりGoogle Play Musicを展開していたにもかかわらず、有料音楽配信事業を積極的に推し進めることができなかったことも事実である。**今回は違った展開を見せられるのか？**YouTubeをアーティストの価値を損なう原因の一つと考える業界(リンクはこちら)と見解を同じくする音楽レーベルは、今回は違う展開になることを期待している。YouTubeによる音楽配信事業の再展開は、事業構築を目指したものなのか、音楽業界に歩み寄るためのものなのか、時間が経てば分かるだろう。レーベル、音楽出版社、アーティストにとって、大手業者の有料音楽配信サービスは明らかに強みであり、**Vivendi**(弊社担当アナリストはOmar Sheik)の投資判断OWを支える材料となっている。

バリュエーション手法及びリスク

GOOGL.O

DCF法に基づく。19年調整後弊社EBITDA予想約600億ドルベースで13倍。ここから「Other Bets(その他)」部門の損失を現在価値に割戻して差引き、目標株価を1,200ドルとした。DCF分析ではWACCを約7%、永久成長率を2%(他の成長志向型インターネット企業と同水準)と想定した。

目標株価に達しないリスク

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- Google Inc.をはじめAlphabetのその他の部門に関する情報開示を改善しても、検索事業への全般的な投資が減少しない可能性。
- 売上高の大部分を広告から得ている中での広告市場の悪化。
- EUによる独占禁止法違反調査のネガティブな結果。

SPOT.O

目標株価は190ドル。WACCを9%、長期成長率を2.5%とを想定したDCF法に基づくフェア・バリュー。弊社基本ケースで想定するフォワード売上高倍率4倍がこれを裏付ける。

目標株価に達しないリスク：

- 供給サイドの大手寡占が進めば、Spotifyの楽曲カタログの価値はレーベルとの契約に大きく左右されることになる。
- Apple Music、Amazon、また、可能性としてYouTubeとFacebookを含む音楽配信業者すべてが、インタラクティブ・ミュージック事業をロスリーダーと捉える可能性。
- スマート・スピーカーの普及：Amazon Echo、Google Home、Apple HomePodの普及加速。

北米Media：業界投資判断 In-Line 、株価は5月22日終値：154.37ドル

VIV.PA

目標株価は27ユーロ。SOTPに基づき、構成事業の資産価値を合計して算出した。

目標株価に達しないリスク：

- 予想を下回る有料ストリーミング・サービス会員数の伸び。
- ストリーミング収入分配比率引き上げに関するコンテンツ配信元やアーティストからの圧力。
- 現金残高や企業価値を損なうM&A。

ヨーロッパMedia & Internet：業界投資判断 Attractive、株価は5月22日終値：22.86ユーロ

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Morgan Stanleyは過去12ヵ月の間に、各種商品および投資銀行業務以外の業務に対する報酬を次の会社から受領しています：Amazon.com Inc、Booking Holdings Inc、Electronic Arts Inc、eBay Inc、Expedia Inc.、Facebook Inc、**Alphabet Inc.**。

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Morgan Stanleyでは、Overweight、Equal-weight、Not-RatedまたはUnderweightといった用語を用い、相対評価の投資判断システムを採用しています(下記の定義を参照)。Morgan Stanleyは弊社の調査対象銘柄にBuy、Hold、Sellといった投資判断を付していません。Overweight、Equal-weight、Not-Rated およびUnderweightは買い、保持、売りと同等ではありません。投資家各位には、Morgan Stanley Researchで使用されているすべての投資判断の定義を慎重にご検討いただく必要があります。また、Morgan Stanley Researchにはアナリストの見解に関するより完全な情報が含まれているため、投資家各位は調査レポート全体を熟読すべきであり、投資判断の記載のみからレポートの内容を推測すべきではありません。いかなる場合も、投資判断(もしくは調査)を投資アドバイスとして利用したり、これらに依拠したりすべきではありません。株式の購入や売却は、投資家の個々の事情 (既存の保有高など)およびその他の状況を考慮に入れて決定される必要があります。

投資判断のグローバル分布状況

（2018年4月30日現在）
以下に記述されている投資判断はMorgan Stanleyのファンダメンタル株式調査を対象としており、当ファームが作成している負債調査には該当しません。(NASDとNYSEの規則に基づく)情報開示目的から、当社ではBuy、HoldおよびSellの分類見出しを当社の投資判断であるOverweight、Equal-weight、Not-RatedおよびUnderweightに併記しています。モルガン・スタンレーは当社の調査対象銘柄にBuy、HoldまたはSellという投資判断を付していません。Overweight、Equal-weight、Not-RatedおよびUnderweightはそれぞれBuy、HoldおよびSellと同等ではなく、相対的な推奨ウエートを表します (下記の定義を参照)。上記規則の要件を満たす意味では、当社の最も積極的な投資判断であるOverweightは買い推奨に相当し、Equal-weightおよびNot-Ratedは保持、Underweightは売り推奨に相当するといえます。

	全調査対象銘柄		投資銀行部門顧客(IBC)			その他の重要な投資サービス顧客（MISC)	
投資判断	数	合計比	数	IBC合計比	投資判断別IBC比率	数	MISC合計比率
Overweight/Buy	**1168**	**38%**	**305**	**40%**	**26%**	**550**	**39%**
Equal-weight/Hold	**1337**	**43%**	**371**	**49%**	**28%**	**641**	**46%**
Not-Rated/Hold	**53**	**2%**	**5**	**1%**	**9%**	**7**	**0%**
Underweight/Sell	**539**	**17%**	**83**	**11%**	**15%**	**207**	**15%**
合計	**3,097**		**764**			**1405**	

上表中の数字には、現在、投資判断が付されている普通株式とADRが含まれます。投資銀行部門顧客とは、モルガン・スタンレーが過去12ヵ月間に、投資銀行業務に対する報酬を受け取った会社を表します。小数点以下は切り捨てているため、”%”の欄に表示された数字を合計しても100とならない場合があります。

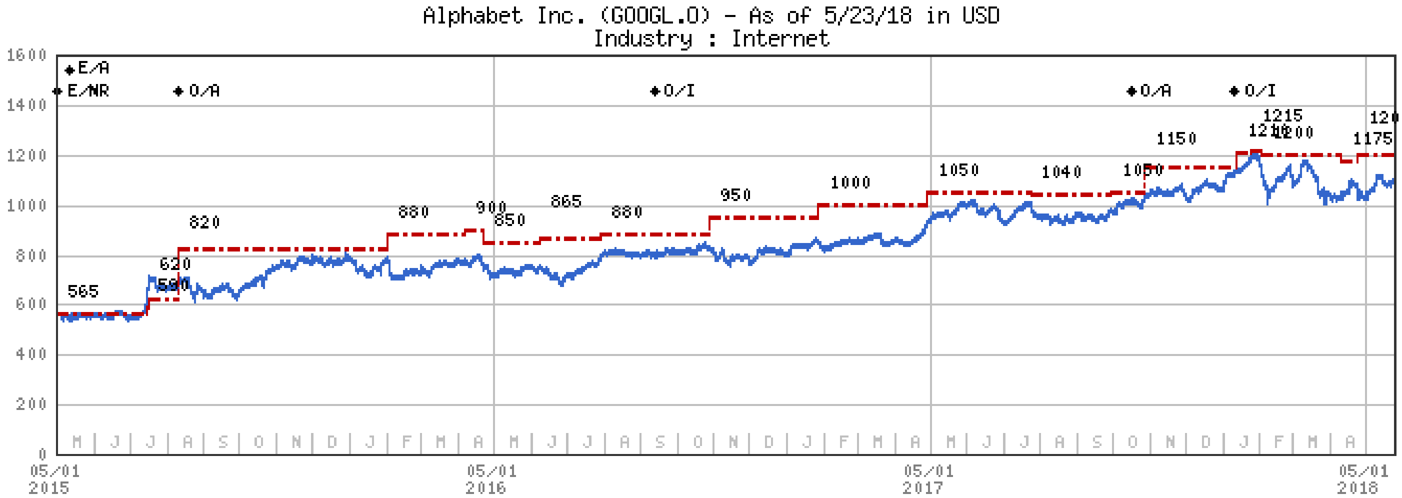
個別銘柄に対するアナリストの投資判断

Overweight (O)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率を上回る総投資収益率が期待される銘柄。
Equal-weight (E)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率と同程度の総投資収益率が期待される銘柄。
Not-Rated (NR)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率に対する総投資利益率について当該アナリストが十分な判断を下せない銘柄。
Underweight (U)：リスク調整済みベースで今後12～18ヵ月間に、当該業界(アナリストまたはその業界チームのカバレッジユニバース)の平均総投資収益率を下回る総投資収益率が予想される銘柄。
Morgan Stanley Researchに目標株価が記載されている場合、特に断りがない限り、その達成の予想期間は今後12～18ヵ月です。

業界に対するアナリストの投資判断

Attractive (A)：今後12～18ヵ月間について、市場全体のベンチマークである下記の株価指数との比較で、当該業界(アナリストのカバレッジユニバース)のパフォーマンスが魅力的であるとアナリストが期待している場合。
In-Line (I)：今後12～18ヵ月間について、当該業界(アナリストのカバレッジユニバース)のパフォーマンスが、市場全体のベンチマークである下記の株価指数と同程度になるとアナリストが期待している場合。
Cautious (C)：今後12～18ヵ月間について、市場全体のベンチマークである下記の株価指数との比較で、当該業界(アナリストのカバレッジユニバース)のパフォーマンスをアナリストが慎重にみている場合。
各地域のベンチマーク指数：北米はS&P500、ラテンアメリカは当該MSCI国別指数またはMSCIラテンアメリカ指数、ヨーロッパはMSCIヨーロッパ、日本はTOPIX、アジアは当該MSCI国別指数、当該MSCI地域別指数、またはMSCIアジア太平洋株価指数（日本除く）。

株価、目標株価、投資判断の推移 (投資判断の定義を参照)



Stock Rating History: 5/1/15 : E/NR; 5/11/15 : E/A; 8/11/15 : O/A; 9/12/16 : O/I; 10/16/17 : O/A; 1/10/18 : O/I

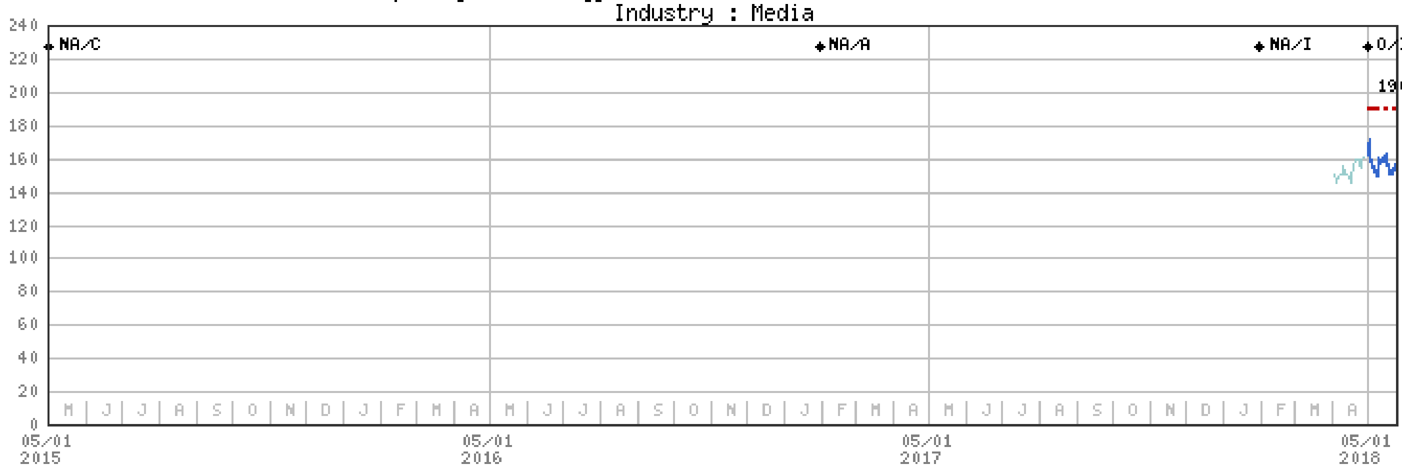
Price Target History: 4/24/15 : 565; 7/15/15 : 590; 7/17/15 : 620; 8/11/15 : 820; 2/2/16 : 880; 4/7/16 : 900; 4/22/16 : 850; 6/8/16 : 865; 7/29/16 : 880; 10/28/16 : 950; 1/27/17 : 1000; 4/28/17 : 1050; 7/24/17 : 1040; 9/29/17 : 1050; 10/27/17 : 1150; 1/12/18 : 1210; 1/25/18 : 1215; 2/2/18 : 1200; 4/10/18 : 1175; 4/24/18 : 1200

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Spotify Technology SA (SPOT.N) - As of 5/23/18 in USD
Industry : Media



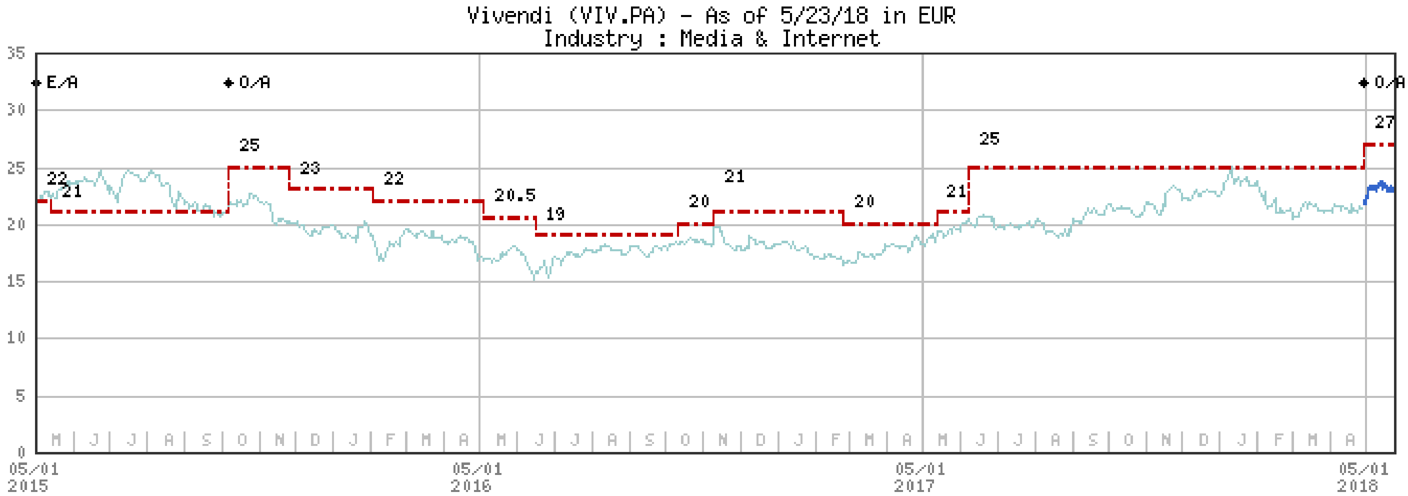
Stock Rating History: 5/1/15 : NA/C; 1/30/17 : NA/A; 1/30/18 : NA/I; 4/30/18 : O/I

Price Target History: 4/30/18 : 190

Source: Morgan Stanley Research   Date Format : MM/DD/YY   Price Target   No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst)   Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.



Stock Rating History: 5/1/15 : E/A; 10/6/15 : O/A; 4/30/18 : O/A

Price Target History: 4/10/15 : 22; 5/13/15 : 21; 10/6/15 : 25; 11/26/15 : 23; 2/3/16 : 22; 5/4/16 : 20.5; 6/15/16 : 19; 10/11/16 : 20; 11/10/16 : 21; 2/24/17 : 20; 5/12/17 : 21; 6/7/17 : 25; 4/30/18 : 27

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

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調査対象銘柄の一覧表： Internet

会社（コード）	投資判断(更新日)	株価* (2018/05/23)
Brian Nowak, CFA		
Activision Blizzard Inc (ATVI.O)	O (2016/09/23)	$71.74
Alphabet Inc. (GOOGL.O)	O (2015/08/11)	$1,085.96
Amazon.com Inc (AMZN.O)	O (2015/04/24)	$1,601.86
Blue Apron Holdings Inc (APRN.N)	E (2017/07/24)	$2.97
Booking Holdings Inc (BKNG.O)	O (2016/06/30)	$2,085.25
Criteo SA (CRTO.O)	E (2016/01/26)	$26.20
Despegar.com Corp (DESP.N)	E (2017/10/16)	$23.08
eBay Inc (EBAY.O)	O (2018/04/18)	$38.04
Electronic Arts Inc (EA.O)	E (2018/01/12)	$133.50
Etsy Inc (ETSY.O)	U (2018/01/12)	$29.38
Expedia Inc. (EXPE.O)	O (2018/01/10)	$115.23
Facebook Inc (FB.O)	O (2016/04/27)	$186.90
GrubHub Inc. (GRUB.N)	E (2018/04/18)	$102.75
Snap Inc. (SNAP.N)	U (2017/11/09)	$10.65
Take-Two Interactive Software (TTWO.O)	O (2018/02/01)	$112.60
TRIVAGO NV (TRVG.O)	E (2017/09/28)	$4.76
Twitter Inc (TWTR.N)	E (2018/04/17)	$33.42
Yelp Inc (YELP.N)	E (2015/07/29)	$44.47
Zynga Inc (ZNGA.O)	O (2017/06/08)	$4.13
Jonathan Lanterman, CFA		
Groupon, Inc. (GRPN.O)	E (2018/03/05)	$4.64
TrueCar Inc (TRUE.O)	E (2018/01/12)	$9.59
Zillow Group Inc (Z.O)	E (2018/04/18)	$54.56

投資判断は変更される可能性があります。各個別銘柄に関する最新の調査をご覧ください。
*株価は株式分割調整前。

A Wright Investors' Service Research Report:

Alphabet Inc

WRIGHT INVESTORS' SERVICE
177 West Putnam Avenue
Greenwich, Connecticut 06830-5203
U.S.A.

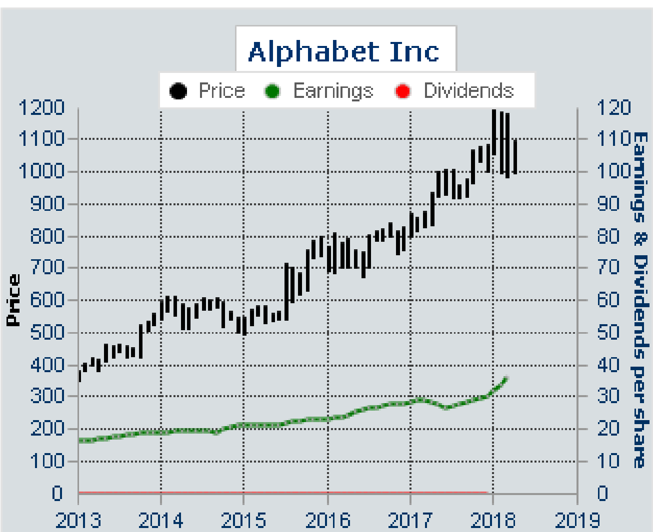
COMPANY PROFILE

Figures in U.S. Dollars

Wright Quality Rating: AAB13

Alphabet Inc. is a holding company. The Company's businesses include Google Inc. (Google) and its Internet products, such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo and X. The Company's segments include Google and Other Bets. The Google segment includes its Internet products, such as Search, Ads, Commerce, Maps, YouTube, Google Cloud, Android, Chrome and Google Play, as well as its hardware initiatives. The Google segment is engaged in advertising, sales of digital content, applications and cloud offerings, and sales of hardware products. The Other Bets segment is engaged in the sales of Internet and television services through Google Fiber, sales of Nest products and services, and licensing and research and development (R&D) services through Verily. It offers Google Assistant, which allows users to type or talk with Google; Google Maps, which helps users navigate to a store, and Google Photos, which helps users store and organize all of their photos.

Stock Chart



Stock Price (5/18/2018): 1,069.64

Recent stock performance

1 Week	-3.1%
4 Weeks	-0.7%
13 Weeks	-2.4%
52 Weeks	12.0%

Officers

Chairman
Dr. John L. Hennessy

Chief Executive Officer
Lawrence E. Page

President
Sergey Brin

Senior Vice President & Chief Financial Officer
Ruth M. Porat

Key Data

Ticker:
GOOGL

2017 Sales:
110,855,000,000

Major Industry:
Miscellaneous

Sub Industry:
Service Organizations

Country:
United States

Currency:
U.S. Dollars

Fiscal Year Ends:
December

Employees
80,110

Exchanges:
NAS FRA MXK

Share Type:
CLass A

Market Capitalization:
743,340,969,800

Total Shares Outstanding:
694,945,000

Closely Held Shares:
88,404,174

Earnings / Dividends (as of 3/31/2018)

	Earnings	Dividends
Most Recent Qtr	13.33	0.00
Last 12 Months	36.06	0.00

Ratio Analysis

Price / Earnings Ratio	29.66	Dividend Yield	0.00%
Price / Sales Ratio	6.71	Payout Ratio	0.00%
Price / Book Ratio	4.87	% Held by Insiders	12.72%

Address

1600 Amphitheatre Pkwy
Mountain View, CALIFORNIA 94043-1351
UNITED STATES

Phone
+1 650 253-0000
Home Page
http://abc.xyz

Comparative Business Analysis: Alphabet Inc

Report Date: May 21, 2018

Company Description

Alphabet Inc. is a holding company. The Company's businesses include Google Inc. (Google) and its Internet products, such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo and X. The Company's segments include Google and Other Bets. The Google segment includes its Internet products, such as Search, Ads, Commerce, Maps, YouTube, Google Cloud, Android, Chrome and Google Play, as well as its hardware initiatives. The Google segment is engaged in advertising, sales of digital content, applications and cloud offerings, and sales of hardware products. The Other Bets segment is engaged in the sales of Internet and television services through Google Fiber, sales of Nest products and services, and licensing and research and development (R&D) services through Verily. It offers Google Assistant, which allows users to type or talk with Google; Google Maps, which helps users navigate to a store, and Google Photos, which helps users store and organize all of their photos.

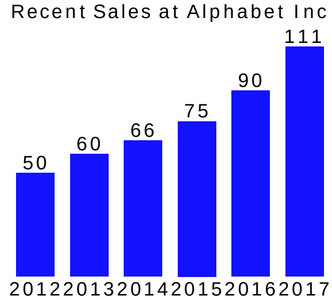
Competitor Analysis

Alphabet Inc operates in the Information retrieval services sector. This analysis compares Alphabet Inc with three other companies: Microsoft Corporation (2017 sales of $89.95 billion of which 43% was More Personal Computing), SK Holdings Co Ltd of South Korea (93.30 trillion Korean Won [US$86.58 billion] of which 45% was SK Innovation), and International Business Machines Corporation ($79.14 billion of which 43% was Technology serivces&Cloud Platforms).

Sales Analysis

During the first quarter of 2018, sales at Alphabet Inc totalled $31.15 billion. This is an increase of 25.8% from the $24.75 billion in sales at the company during the first quarter of 2017. This was the largest same quarter increase in sales since the first quarter of 2013. During the previous 33 quarters, sales at Alphabet Inc have increased compared with the same quarter in the previous year. Sales at Alphabet Inc appear to have some seasonality: during each of the previous 9 years, sales have been highest during the fourth quarter, which has accounted for between 27.4% and 29.2% of the annual sales. Alphabet Inc reported sales of $110.86 billion for the year ending December of 2017. This represents an increase of 22.8% versus 2016, when the company's sales were $90.27 billion. Sales at Alphabet Inc have increased during each of the previous five years (and since 2012, sales have increased a total of 121%). Sales of Other Bets saw an increase that was more than double the company's growth rate: sales were up 48.7% in 2017, from $809.00 million to $1.20 billion.

Recent Sales at Alphabet Inc



(Figures in Billions of U.S. Dollars)

Although Alphabet Inc is headquartered in the United States, it derives most of its sales outside of its home market: sales in the United States were $52.45 billion which was only 47.3% of 2017's sales. During 2017, the company's sales increased at a faster rate than all three comparable companies. While Alphabet Inc enjoyed a sales increase of 22.8%, the other companies saw smaller increases: Microsoft Corporation sales were up 5.4%, SK Holdings Co Ltd increased 11.6%, and International Business Machines Corporation experienced a sales decline of 1.0%. Alphabet Inc currently has 80,110 employees. With sales of $110.86 billion , this equates to sales of US$1,383,785 per employee. The sales per employee levels at the three comparable companies vary greatly, from US$215,873 to US$21,014,328, as shown in the following table. Some of the variation may be due to the way each of these companies counts employees (and if they count subcontractors, independent contractors, etc).

Sales Comparisons (Fiscal Year ending 2017)

Company	Year Ended	Sales (US$blns)	Sales Growth	Sales / Emp (US$)	Largest Region
Alphabet Inc	Dec 2017	110.855	22.8%	1,383,785	the United States (47.3%)
Microsoft Corporation	Jun 2017	89.950	5.4%	725,403	the United States (50.3%)
SK Holdings Co Ltd	Dec 2017	86.579	11.6%	21,014,328	South Korea
International Business Machines Corporation	Dec 2017	79.139	-1.0%	215,873	the Americas (47.4%)

Recent Stock Performance

During each of the previous 3 years, this stock has increased in value (at the end of 2014, the stock was at $530.66). For the 52 weeks ending 5/18/2018, the stock of this company was up 12.0% to $1,069.64 . During the past 13 weeks, the stock has fallen 2.4%. During the 12 months ending 3/31/2018, earnings per share totalled $36.06 per share. Thus, the Price / Earnings ratio is 29.66. These 12 month earnings are greater than the earnings per share achieved during the calendar year ending last December, when the company reported earnings of 29.95 per share. Earnings per share rose 7.4% in 2017 from 2016. This company is currently trading at 6.71 times sales. The three companies vary greatly in terms of price to sales ratio: trading from 0.18 times all the way up to 8.24 times their annual sales. Alphabet Inc is trading at 4.87 times book value.

Summary of company valuations (as of 5/18/2018).

Company	P/E	Price / Book	Price / Sales	52 Wk Pr Chg
Alphabet Inc	29.7	4.87	6.71	12.00%
Microsoft Corporation	52.9	9.00	8.24	42.35%
SK Holdings Co Ltd	9.7	1.24	0.18	13.91%
International Business Machines Corporation	12.2	7.47	1.67	-5.20%

The market capitalization of this company is $743.34 billion . The capitalization of the floating stock (i.e., that which is not closely held) is $648.78 billion .

Dividend Analysis

This company has paid no dividends during the last 12 months. The three comparable companies all paid dividends during the previous 12 months, however. The company has not paid any dividends during the previous 6 calendar years.

Profitability Analysis

On the $110.86 billion in sales reported by the company in 2017, the cost of goods sold totalled $38.68 billion, or 34.9% of sales (i.e., the gross profit was 65.1% of sales). This gross profit margin is lower than the company achieved in 2016, when cost of goods sold totalled 32.2% of sales. There was a wide variation in the gross profit margins at the three comparable companies, from 13.6% of sales to 71.7% of sales. Some of this disparity may be due to different accounting standards. The company's earnings before interest, taxes, depreciation and amorization (EBITDA) were $35.78 billion, or 32.3% of sales. This EBITDA to sales ratio is roughly on par with what the company achieved in 2016, when the EBITDA ratio was 33.0% of sales. In 2017, earnings before extraordinary items at Alphabet Inc were $22.49 billion, or 20.3% of sales. This profit margin is lower than the level the company achieved in 2016, when the profit margin was 21.6% of sales. Earnings before extraordinary items have grown for each of the past 5 years (and since 2013, earnings before extraordinary items have grown a total of 74%). The company's return on equity in 2017 was 16.2%. This was a decline in performance from the 16.2% return that the company achieved in 2016. (Extraordinary items have been excluded).

Profitability Comparison

Company	Year	Gross Profit Margin	EBITDA Margin	Earnings before extras
Alphabet Inc	2017	65.1%	32.3%	20.3%

Alphabet Inc	2016	67.8%	33.0%	21.6%
Microsoft Corporation	2017	71.7%	34.9%	23.6%
SK Holdings Co Ltd	2017	13.6%	12.3%	1.8%
International Business Machines Corporation	2017	50.9%	18.9%	14.2%

During the first quarter of 2018, Alphabet Inc reported earnings per share of $13.33. This is an increase of 84% versus the first quarter of 2017, when the company reported earnings of $7.23 per share.

Research and Development

Research and Development Expenses at Alphabet Inc in 2017 were $16.63 billion, which is equivalent to 15.0% of sales. In 2016, Alphabet Inc spent $13.95 billion on R&D, which was 15.5% of sales. The company's expenditures on R&D in 2017 were higher than all three comparable companies (as a percentage of sales): Microsoft Corporation spent 14.5% of its sales on R&D, SK Holdings Co Ltd spent 1.2%, and International Business Machines Corporation spent 7.3%. During each of the previous 5 years, the company has increased the amount of money it has spent on Research and Development (in 2012, Alphabet Inc spent $6.79 billion versus $16.63 billion in 2017).

Financial Position

As of December 2017, the company's long term debt was $3.97 billion and total liabilities (i.e., all monies owed) were $44.11 billion. The long term debt to equity ratio of the company is very low, at only 0.03. As of December 2017, the accounts receivable for the company were $18.71 billion, which is equivalent to 62 days of sales. This is slightly higher than at the end of 2016, when Alphabet Inc had 58 days of sales in accounts receivable. The company's outstanding payroll is quite high. At the end of 2017, Alphabet Inc had outstanding payroll of $4.58 billion. Since the company currently has 80,110 employees, this equates to $57,183.87 per employee.

Financial Positions

Company	Year	LT Debt/ Equity	Days AR	R&D/ Sales
Alphabet Inc	2017	0.03	62	15.0%
Microsoft Corporation	2017	1.05	80	14.5%
SK Holdings Co Ltd	2017	1.71	54	1.2%
International Business Machines Corporation	2017	2.26	146	7.3%

SUMMARY ANALYSIS: Alphabet Inc

Per Share- U.S. Dollars

Year	Price	Value Ratios			Equity Capital			Earnings		Dividends	
Calendar Year	Market Price Last	Price/ Earnings Ratio	Price/ Book Ratio	Dividend Yield	% Earned Growth	% Profit Rate (ROE)	Book Value Begin Yr	12 Month Earnings Per Share	% Change	% Payout Ratio	12 Month Dividends Per Share
2009	309.99	30.4	7.0	0.0%	23.1%	23.1%	44.21	10.21	53.3%	0.0%	0.00
2010	296.99	22.6	5.4	0.0%	23.7%	23.7%	55.47	13.16	28.9%	0.0%	0.00
2011	322.95	21.7	4.6	0.0%	21.0%	21.0%	70.82	14.88	13.1%	0.0%	0.00
2012	353.69	21.9	4.0	0.0%	18.1%	18.1%	89.48	16.16	8.6%	0.0%	0.00
2013	560.36	29.4	5.2	0.0%	17.5%	17.5%	108.67	19.07	18.0%	0.0%	0.00
2014	530.66	25.2	4.1	0.0%	16.2%	16.2%	129.99	21.02	10.3%	0.0%	0.00
2015	778.01	34.1	5.1	0.0%	14.9%	14.9%	153.64	22.84	8.6%	0.0%	0.00
2016	792.45	28.4	4.5	0.0%	15.9%	15.9%	175.07	27.88	22.1%	0.0%	0.00
2017	1,053.40	35.2	5.2	0.0%	14.9%	14.9%	201.12	29.95	7.4%	0.0%	0.00
5/18/2018	1,069.64	29.7	4.9	0.0%	n/a	n/a	219.50	36.06	n/c	0.0%	0.00

SALES ANALYSIS: **Alphabet Inc**

Figures in millions of U.S. Dollars

	Sales		Cost of Goods Sold		Earnings before Interest, Taxes, Depreciation, and Amortization (EBITDA)		After Tax Income before Extraordinary Charges and Credits		Employees		
Year	Amount *in millions*	Year-to-year Growth	Amount *in millions*	% of Sales	Amount *in millions*	% of Sales	Amount *in millions*	% of Sales	Number	Sales Per Employee	After Tax Income Per Employee
2008	21,796	31.3%	7,122	32.7%	7,353	33.7%	4,227	19.4%	20,222	1,077,814	209,023
2009	23,326	7.0%	7,320	31.4%	9,905	42.5%	6,520	28.0%	19,835	1,175,995	328,734
2010	29,118	24.8%	9,021	31.0%	12,192	41.9%	8,505	29.2%	24,400	1,193,361	348,566
2011	37,862	30.0%	11,337	29.9%	14,235	37.6%	9,737	25.7%	32,467	1,166,169	299,905
2012	50,175	32.5%	17,672	35.2%	16,432	32.7%	10,737	21.4%	53,861	931,565	199,346
2013	59,825	19.2%	21,885	36.6%	18,518	31.0%	12,920	21.6%	47,756	1,252,722	270,542
2014	66,001	10.3%	20,711	31.4%	21,962	33.3%	14,444	21.9%	53,600	1,231,362	269,478
2015	74,989	13.6%	23,140	30.9%	24,779	33.0%	15,826	21.1%	61,814	1,213,139	256,026
2016	90,272	20.4%	29,038	32.2%	30,374	33.6%	19,478	21.6%	72,053	1,252,856	270,329
2017	110,855	22.8%	38,684	34.9%	34,201	30.9%	22,486	20.3%	80,110	1,383,785	280,689

PRICE ANALYSIS: Alphabet Inc

Per Share- U.S. Dollars

Quarter		High Price	Low Price	Closing Price	Quarterly %Change	12 months % Change
2009	Jan - Mar	190.500	141.375	174.030	n/a	n/a
	Apr - Jun	223.670	170.305	210.795	21.1%	n/a
	Jul - Sep	253.500	197.990	247.925	17.6%	n/a
	Oct - Dec	312.995	241.300	309.990	25.0%	n/a
2010	Jan - Mar	314.755	260.000	283.560	-8.5%	62.9%
	Apr - Jun	298.920	222.360	222.475	-21.5%	5.5%
	Jul - Sep	268.425	216.815	262.895	18.2%	6.0%
	Oct - Dec	315.425	259.425	296.985	13.0%	-4.2%
2011	Jan - Mar	321.480	275.640	293.380	-1.2%	3.5%
	Apr - Jun	297.595	236.510	253.190	-13.7%	13.8%
	Jul - Sep	313.750	245.430	257.520	1.7%	-2.0%
	Oct - Dec	323.380	240.298	322.950	25.4%	8.7%
2012	Jan - Mar	335.125	282.275	320.620	-0.7%	9.3%
	Apr - Jun	326.570	278.260	290.035	-9.5%	14.6%
	Jul - Sep	382.445	281.045	377.250	30.1%	46.5%
	Oct - Dec	387.190	318.000	353.690	-6.2%	9.5%
2013	Jan - Mar	422.000	347.760	397.094	12.3%	23.9%
	Apr - Jun	460.300	380.630	440.185	10.9%	51.8%
	Jul - Sep	464.000	422.780	437.955	-0.5%	16.1%
	Oct - Dec	560.500	421.490	560.355	27.9%	58.4%
2014	Jan - Mar	614.440	541.135	557.255	-0.6%	40.3%
	Apr - Jun	589.600	511.000	584.670	4.9%	32.8%
	Jul - Sep	608.910	567.450	588.410	0.6%	34.4%
	Oct - Dec	592.400	497.190	530.660	-9.8%	-5.3%
2015	Jan - Mar	583.200	490.910	554.700	4.5%	-0.5%
	Apr - Jun	584.700	529.000	540.040	-2.6%	-7.6%

	Jul - Sep	713.330	539.760	638.370	18.2%	8.5%
	Oct - Dec	798.690	631.115	778.010	21.9%	46.6%
2016	Jan - Mar	810.350	682.010	762.900	-1.9%	37.5%
	Apr - Jun	790.950	672.660	703.530	-7.8%	30.3%
	Jul - Sep	819.060	699.000	804.060	14.3%	26.0%
	Oct - Dec	839.000	743.590	792.450	-1.4%	1.9%
2017	Jan - Mar	874.420	796.890	847.800	7.0%	11.1%
	Apr - Jun	1,008.610	834.600	929.680	9.7%	32.1%
	Jul - Sep	1,006.190	915.310	973.720	4.7%	21.1%
	Oct - Dec	1,086.490	961.950	1,053.400	8.2%	32.9%
2018	Jan - Mar	1,198.000	984.000	1,037.140	-1.5%	22.3%
5/18/2018				1,069.640	-2.4%	12.0%

EARNINGS AND DIVIDENDS ANALYSIS: Alphabet Inc

Per Share- U.S. Dollars
Fiscal Year Ends in December

	Earnings Per Share						Dividends Per Share						
	12 Months		Quarterly Reported Earnings				12 Months		Quarterly Reported Dividends				
Calendar Years	**Earnings**	**% Change**	Q1 Mar.	Q2 Jun.	Q3 Sep.	Q4 Dec.	**Dividends**	**% Change**	Q1 Mar.	Q2 Jun.	Q3 Sep.	Q4 Dec.	**% Payout**
2007	6.65	33.7%	1.60	1.47	1.69	1.90	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2008	6.66	0.2%	2.06	1.96	2.03	0.61	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2009	10.21	53.3%	2.25	2.33	2.57	3.07	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2010	13.16	28.9%	3.04	2.86	3.36	3.91	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2011	14.88	13.1%	2.76	3.85	4.17	4.11	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2012	16.16	8.6%	4.45	4.14	3.27	4.31	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2013	19.07	18.0%	4.97	4.77	4.38	4.95	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2014	21.02	10.3%	5.02	4.98	4.09	6.92	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2015	22.84	8.6%	5.07	4.92	5.74	7.10	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2016	27.88	22.1%	6.02	6.98	7.24	7.63	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2017	29.95	7.4%	7.23	4.69	8.97	9.06	0.00	n/c	0.00	0.00	0.00	0.00	0.0%
2018	n/a	n/c	13.33	n/a	n/a	n/a	n/a	n/c	n/a	n/a	n/a	n/a	n/c

Annual Balance Sheet - (Actual Values): **Alphabet Inc**
All figures in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Assets					
Total Assets	**196,615**	**167,114**	**147,210**	**131,133**	**110,920**
Total Current Assets	124,308	105,408	90,114	80,685	72,886
Cash & Short Term Investments	101,951	86,929	73,694	65,247	58,949
Cash	10,715	12,918	16,549	18,347	18,898
Short Term Investments	91,236	74,011	57,145	46,900	40,051
Receivables (Net)	18,705	14,232	13,909	11,556	9,390
Inventories -Total	749	268	0	0	426
Raw Materials			0	0	115
Work in Process			0	0	
Finished Goods			0	0	311
Progress Payments & Other			0	0	
Prepaid Expenses					
Other Current Assets	2,903	3,979	2,511	3,882	4,121
Long Term Receivables	0	0	0	0	0
Investment in Associated Companies	0	0	0	0	0
Other Investments	7,813	5,878	5,183	3,079	1,976
Property Plant and Equipment - Gross	59,647	47,527	40,146	32,746	23,837
Accumulated Depreciation	17,264	13,293	11,130	8,863	7,313
Property Plant and Equipment – Net	42,383	34,234	29,016	23,883	16,524
Other Assets	22,111	21,594	22,897	23,486	19,534
Deferred Charges	2,672	1,819	3,181	3,280	1,976

Tangible Other Assets	0	0	0	0	0
Intangible Other Assets	19,439	19,775	19,716	20,206	17,558
Total Assets	196,615	167,114	147,210	131,133	110,920
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**196,615**	**167,114**	**147,210**	**131,133**	**110,920**
Total Current Liabilities	24,183	16,756	19,310	16,805	15,908
Accounts Payable	3,137	2,041	1,931	1,715	2,453
Short Term Debt & Current Portion of Long Term Debt	0	0	3,225	2,019	4,018
Accrued Payroll	4,581	3,976	3,539	3,065	
Income Taxes Payable	881	554	302	96	24
Dividends Payable					
Other Current Liabilities	15,584	10,185	10,313	9,910	9,413
Long Term Debt	3,969	3,935	1,995	3,228	2,236
Long Term Debt Excluding Capitalized Leases	3,943	3,935	1,995	2,992	1,990
Capitalized Lease Obligations	26	0	0	236	246
Provision for Risks and Charges					
Deferred Income	340	202	151	104	139
Deferred Taxes	-250	-157	-62	1,971	1,947
Deferred Taxes - Credit	430	226	189	1,971	1,947
Deferred Taxes - Debit	680	383	251		
Other Liabilities	15,871	7,342	5,485	4,525	3,381
Total Liabilities	44,113	28,078	26,879	26,633	23,611
Non-Equity Reserves	0	0	0	0	0
Minority Interest	0	0	0	0	0
Preferred Stock	0	0	0	0	0

Common Equity	152,502	139,036	120,331	104,500	87,309
Total Liabilities & Shareholders' Equity	196,615	167,114	147,210	131,133	110,920

Annual Balance Sheet - (Common Size): **Alphabet Inc**

Figures are expressed as Percent of Total Assets.
Total Assets are in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Assets					
Total Assets	**196,615.0**	**167,114.0**	**147,210.0**	**131,133.0**	**110,920.0**
Total Current Assets	63.2%	63.1%	61.2%	61.5%	65.7%
Cash & Short Term Investments	51.9%	52.0%	50.1%	49.8%	53.1%
Cash	5.4%	7.7%	11.2%	14.0%	17.0%
Short Term Investments	46.4%	44.3%	38.8%	35.8%	36.1%
Receivables (Net)	9.5%	8.5%	9.4%	8.8%	8.5%
Inventories -Total	0.4%	0.2%	0.0%	0.0%	0.4%
Raw Materials			0.0%	0.0%	0.1%
Work in Process			0.0%	0.0%	
Finished Goods			0.0%	0.0%	0.3%
Progress Payments & Other			0.0%	0.0%	
Prepaid Expenses					
Other Current Assets	1.5%	2.4%	1.7%	3.0%	3.7%
Long Term Receivables	0.0%	0.0%	0.0%	0.0%	0.0%
Investment in Associated Companies	0.0%	0.0%	0.0%	0.0%	0.0%
Other Investments	4.0%	3.5%	3.5%	2.3%	1.8%
Property Plant and Equipment - Gross	30.3%	28.4%	27.3%	25.0%	21.5%
Accumulated Depreciation	8.8%	8.0%	7.6%	6.8%	6.6%
Property Plant and Equipment – Net	21.6%	20.5%	19.7%	18.2%	14.9%
Other Assets	11.2%	12.9%	15.6%	17.9%	17.6%

Deferred Charges	1.4%	1.1%	2.2%	2.5%	1.8%
Tangible Other Assets	0.0%	0.0%	0.0%	0.0%	0.0%
Intangible Other Assets	9.9%	11.8%	13.4%	15.4%	15.8%
Total Assets	100.0%	100.0%	100.0%	100.0%	100.0%
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**196,615.0**	**167,114.0**	**147,210.0**	**131,133.0**	**110,920.0**
Total Current Liabilities	12.3%	10.0%	13.1%	12.8%	14.3%
Accounts Payable	1.6%	1.2%	1.3%	1.3%	2.2%
Short Term Debt & Current Portion of Long Term Debt	0.0%	0.0%	2.2%	1.5%	3.6%
Accrued Payroll	2.3%	2.4%	2.4%	2.3%	
Income Taxes Payable	0.4%	0.3%	0.2%	0.1%	0.0%
Dividends Payable					
Other Current Liabilities	7.9%	6.1%	7.0%	7.6%	8.5%
Long Term Debt	2.0%	2.4%	1.4%	2.5%	2.0%
Long Term Debt Excluding Capitalized Leases	2.0%	2.4%	1.4%	2.3%	1.8%
Capitalized Lease Obligations	0.0%	0.0%	0.0%	0.2%	0.2%
Provision for Risks and Charges					
Deferred Income	0.2%	0.1%	0.1%	0.1%	0.1%
Deferred Taxes	-0.1%	-0.1%	-0.0%	1.5%	1.8%
Deferred Taxes - Credit	0.2%	0.1%	0.1%	1.5%	1.8%
Deferred Taxes - Debit	0.3%	0.2%	0.2%		
Other Liabilities	8.1%	4.4%	3.7%	3.5%	3.0%
Total Liabilities	22.4%	16.8%	18.3%	20.3%	21.3%
Non-Equity Reserves	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest	0.0%	0.0%	0.0%	0.0%	0.0%

Preferred Stock	0.0%	0.0%	0.0%	0.0%	0.0%
Common Equity	77.6%	83.2%	81.7%	79.7%	78.7%
Total Liabilities & Shareholders' Equity	100.0%	100.0%	100.0%	100.0%	100.0%

Balance Sheet - (Year to Year Percent Change): **Alphabet Inc**
Figures are the Percent Changes from the Prior Year.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Assets					
Total Assets	**17.7%**	**13.5%**	**12.3%**	**18.2%**	**18.3%**
Cash & Short Term Investments	17.3%	18.0%	12.9%	10.7%	22.1%
Cash	-17.1%	-21.9%	-9.8%	-2.9%	32.9%
Short Term Investments	23.3%	29.5%	21.8%	17.1%	17.6%
Receivables (Net)	31.4%	2.3%	20.4%	23.1%	9.4%
Inventories -Total	179.5%			-100.0%	-15.6%
Raw Materials				-100.0%	
Work in Process					
Finished Goods				-100.0%	-38.4%
Progress Payments & Other					
Prepaid Expenses					
Other Current Assets	-27.0%	58.5%	-35.3%	-5.8%	33.0%
Current Assets - Total	17.9%	17.0%	11.7%	10.7%	20.6%
Long Term Receivables					
Investment in Associated Companies					
Other Investments	32.9%	13.4%	68.3%	55.8%	34.5%
Property Plant and Equipment - Gross	25.5%	18.4%	22.6%	37.4%	34.7%
Accumulated Depreciation	29.9%	19.4%	25.6%	21.2%	25.2%
Property Plant and Equipment – Net	23.8%	18.0%	21.5%	44.5%	39.4%
Other Assets	2.4%	-5.7%	-2.5%	20.2%	-2.4%
Deferred Charges	46.9%	-42.8%	-3.0%	66.0%	-1.7%

Tangible Other Assets					
Intangible Other Assets	-1.7%	0.3%	-2.4%	15.1%	-2.5%
Total Assets	17.7%	13.5%	12.3%	18.2%	18.3%
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**17.7%**	**13.5%**	**12.3%**	**18.2%**	**18.3%**
Accounts Payable	53.7%	5.7%	12.6%	-30.1%	21.9%
Short Term Debt & Current Portion of Long Term Debt		-100.0%	59.7%	-49.8%	57.6%
Accrued Payroll	15.2%	12.3%	15.5%		
Income Taxes Payable	59.0%	83.4%	214.6%	300.0%	-90.0%
Dividends Payable					
Other Current Liabilities	53.0%	-1.2%	4.1%	5.3%	29.0%
Current Liabilities - Total	44.3%	-13.2%	14.9%	5.6%	11.0%
Long Term Debt	0.9%	97.2%	-38.2%	44.4%	-25.2%
Long Term Debt Excluding Capitalized Leases	0.2%	97.2%	-33.3%	50.4%	-33.4%
Capitalized Lease Obligations			-100.0%	-4.1%	
Provision for Risks and Charges					
Deferred Income	68.3%	33.8%	45.2%	-25.2%	39.0%
Deferred Taxes			-103.1%	1.2%	4.0%
Deferred Taxes - Credit	90.3%	19.6%	-90.4%	1.2%	4.0%
Deferred Taxes - Debit	77.5%	52.6%			
Deferred Tax Liability in Untaxed Reserves					
Other Liabilities	116.2%	33.9%	21.2%	33.8%	21.4%
Total Liabilities	57.1%	4.5%	0.9%	12.8%	6.9%
Non-Equity Reserves					
Minority Interest					

Preferred Stock					
Preferred Stock Issued for ESOP					
ESOP Guarantees - Preferred Issued					
Common Equity	9.7%	15.5%	15.1%	19.7%	21.7%
Total Liabilities & Shareholders' Equity	17.7%	13.5%	12.3%	18.2%	18.3%

Balance Sheet - (5 Year Averages): **Alphabet Inc**
Figures in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Assets					
Total Assets	**150,598.4**	**130,035.0**	**111,127.0**	**93,202.2**	**75,022.4**
Cash & Short Term Investments	77,354.0	66,617.0	58,223.8	50,548.4	42,417.1
Cash	15,485.4	16,185.6	15,491.8	14,713.4	12,335.5
Short Term Investments	61,868.6	50,431.4	42,732.0	35,835.0	30,081.5
Receivables (Net)	13,558.4	11,534.4	9,922.4	8,141.0	6,470.1
Inventories -Total	288.6	239.8	186.2	186.2	186.2
Raw Materials			23.0	23.0	23.0
Work in Process					
Finished Goods			163.2	163.2	163.2
Progress Payments & Other					
Prepaid Expenses					
Other Current Assets	3,479.2	3,518.2	3,047.0	2,793.4	2,292.0
Current Assets - Total	94,680.2	81,909.4	71,379.4	61,669.0	51,365.4
Long Term Receivables	0.0	0.0	0.0	0.0	0.0
Investment in Associated Companies	0.0				
Other Investments	4,785.8	3,517.0	2,499.4	1,567.4	977.4
Property Plant and Equipment - Gross	40,780.6	32,390.6	25,765.2	20,090.2	15,167.0
Accumulated Depreciation	11,572.6	9,288.4	7,589.2	6,165.6	5,050.1
Property Plant and Equipment – Net	29,208.0	23,102.2	18,176.0	13,924.6	10,116.9
Other Assets	21,924.4	21,506.4	19,072.2	16,041.2	12,562.7
Deferred Charges	2,585.6	2,453.4	2,189.4	1,641.6	1,068.8

Tangible Other Assets	0.0	0.0	0.0	0.0	0.0
Intangible Other Assets	19,338.8	19,053.0	16,882.8	14,399.6	11,493.9
Total Assets	150,598.4	130,035.0	111,127.0	93,202.2	75,022.4
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**150,598.4**	**130,035.0**	**111,127.0**	**93,202.2**	**75,022.4**
Accounts Payable	2,255.4	2,030.4	1,739.8	1,450.2	1,150.4
Short Term Debt & Current Portion of Long Term Debt	1,852.4	2,362.2	2,605.8	2,653.8	2,250.0
Accrued Payroll					
Income Taxes Payable	371.4	243.2	171.8	118.8	
Dividends Payable					
Other Current Liabilities	11,081.0	9,423.6	8,405.0	7,262.6	5,590.4
Current Liabilities - Total	18,592.4	16,623.2	15,054.6	13,191.8	10,380.3
Long Term Debt	3,072.6	2,876.4	2,686.6	2,287.6	1,642.0
Long Term Debt Excluding Capitalized Leases	2,971.0	2,780.0	2,590.2	2,191.2	1,592.8
Capitalized Lease Obligations	101.6	96.4	96.4	96.4	49.2
Provision for Risks and Charges					
Deferred Income	187.2	139.2	107.6	84.4	71.9
Deferred Taxes	689.8	1,114.2	1,203.0	1,162.4	715.7
Deferred Taxes - Credit	952.6	1,241.0	1,253.2		
Deferred Taxes - Debit					
Deferred Tax Liability in Untaxed Reserves					
Other Liabilities	7,320.8	4,703.8	3,675.2	2,654.0	1,811.2
Total Liabilities	29,862.8	25,456.8	22,727.0	19,620.2	15,139.6
Non-Equity Reserves	0.0	0.0	0.0	0.0	0.0
Minority Interest	0.0	0.0	0.0	0.0	0.0

Preferred Stock	0.0	0.0	0.0	0.0	0.0
Preferred Stock Issued for ESOP					
ESOP Guarantees - Preferred Issued					
Common Equity	120,735.6	104,578.2	88,400.0	73,582.0	59,882.8
Total Liabilities & Shareholders' Equity	150,598.4	130,035.0	111,127.0	93,202.2	75,022.4

Interim Balance Sheet - (Actual Values): **Alphabet Inc**

All figures in millions of U.S. Dollars.

Fiscal Period End Date	**03/31/2018**	**12/31/2017**	**09/30/2017**	**06/30/2017**	**03/31/2017**
Assets					
Total Assets	**206,257**	**196,615**	**189,031**	**178,245**	**172,391**
Total Current Assets	123,761	124,308	119,345	112,386	108,794
Cash & Short Term Investments	103,071	101,951	100,309	94,771	92,599
Receivables (Net)	16,814	18,705	15,577	14,877	12,969
Inventories - Total	636	749	765	398	280
Prepaid Expenses					
Other Current Assets	3,240	2,903	2,694	2,340	2,946
Investment in Associated Companies	0	0	0	0	0
Property Plant and Equipment - Gross	67,801	59,647	56,358	53,341	50,321
Accumulated Depreciation	18,956	17,264	16,238	15,665	14,385
Property Plant and Equipment – Net	48,845	42,383	40,120	37,676	35,936
Other Assets	33,651	29,924	29,566	28,183	27,661
Intangible Other Assets	20,671	19,439	19,614	19,537	19,684
Total Assets	206,257	196,615	189,031	178,245	172,391
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**206,257**	**196,615**	**189,031**	**178,245**	**172,391**
Total Current Liabilities	25,394	24,183	20,693	18,685	15,256
Accounts Payable	3,526	3,137	2,674	2,488	2,306
Short Term Debt & Current Portion of Long Term Debt	1,329	0	0	0	0
Income Taxes Payable	1,343	881	221	133	803

Other Current Liabilities	19,196	20,165	17,798	16,064	12,147
Long Term Debt	3,973	3,969	3,964	3,955	3,937
Long Term Debt Excluding Capitalized Leases	3,944	3,943	3,941	3,939	3,937
Capitalized Lease Obligations	29	26	23	16	
Deferred Taxes	-284	-250	-354	-7	239
Deferred Taxes - Credit	394	430	151	369	604
Deferred Taxes - Debit	678	680	505	376	365
Other Liabilities	16,349	16,211	7,628	7,326	8,010
Total Liabilities	45,432	44,113	31,931	29,959	27,442
Non-Equity Reserves	0	0	0	0	0
Minority Interest	0	0	0	0	0
Preferred Stock	0	0	0	0	0
Common Equity	160,825	152,502	157,100	148,286	144,949
Total Liabilities & Shareholders' Equity	206,257	196,615	189,031	178,245	172,391

Interim Balance Sheet - (Common Size): **Alphabet Inc**

Figures are expressed as Percent of Total Assets.
Total Assets are in millions of U.S. Dollars.

Fiscal Period End Date	**03/31/2018**	**12/31/2017**	**09/30/2017**	**06/30/2017**	**03/31/2017**
Assets					
Total Assets	**206,257.0**	**196,615.0**	**189,031.0**	**178,245.0**	**172,391.0**
Total Current Assets	60.0%	63.2%	63.1%	63.1%	63.1%
Cash & Short Term Investments	50.0%	51.9%	53.1%	53.2%	53.7%
Receivables (Net)	8.2%	9.5%	8.2%	8.3%	7.5%
Inventories - Total	0.3%	0.4%	0.4%	0.2%	0.2%
Prepaid Expenses					
Other Current Assets	1.6%	1.5%	1.4%	1.3%	1.7%
Investment in Associated Companies	0.0%	0.0%	0.0%	0.0%	0.0%
Property Plant and Equipment - Gross	32.9%	30.3%	29.8%	29.9%	29.2%
Accumulated Depreciation	9.2%	8.8%	8.6%	8.8%	8.3%
Property Plant and Equipment – Net	23.7%	21.6%	21.2%	21.1%	20.8%
Other Assets	16.3%	15.2%	15.6%	15.8%	16.0%
Intangible Other Assets	10.0%	9.9%	10.4%	11.0%	11.4%
Total Assets	100.0%	100.0%	100.0%	100.0%	100.0%
Liabilities & Shareholders' Equity					
Total Liabilities & Shareholders' Equity	**206,257.0**	**196,615.0**	**189,031.0**	**178,245.0**	**172,391.0**
Total Current Liabilities	12.3%	12.3%	10.9%	10.5%	8.8%
Accounts Payable	1.7%	1.6%	1.4%	1.4%	1.3%
Short Term Debt & Current Portion of Long Term Debt	0.6%	0.0%	0.0%	0.0%	0.0%
Income Taxes Payable	0.7%	0.4%	0.1%	0.1%	0.5%

Other Current Liabilities	9.3%	10.3%	9.4%	9.0%	7.0%
Long Term Debt	1.9%	2.0%	2.1%	2.2%	2.3%
Long Term Debt Excluding Capitalized Leases	1.9%	2.0%	2.1%	2.2%	2.3%
Capitalized Lease Obligations	0.0%	0.0%	0.0%	0.0%	
Deferred Taxes	-0.1%	-0.1%	-0.2%	-0.0%	0.1%
Deferred Taxes - Credit	0.2%	0.2%	0.1%	0.2%	0.4%
Deferred Taxes - Debit	0.3%	0.3%	0.3%	0.2%	0.2%
Other Liabilities	7.9%	8.2%	4.0%	4.1%	4.6%
Total Liabilities	22.0%	22.4%	16.9%	16.8%	15.9%
Non-Equity Reserves	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock	0.0%	0.0%	0.0%	0.0%	0.0%
Common Equity	78.0%	77.6%	83.1%	83.2%	84.1%
Total Liabilities & Shareholders' Equity	100.0%	100.0%	100.0%	100.0%	100.0%

Annual Income Statement - (Actual Values): **Alphabet Inc**
All figures in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Net Sales or Revenues	**110,855**	**90,272**	**74,989**	**66,001**	**59,825**
Cost of Goods Sold	38,684	29,038	23,140	20,711	21,885
Depreciation, Depletion & Amortization	6,899	6,100	5,024	4,602	3,939
Gross Income	65,272	55,134	46,825	40,688	34,001
Selling, General & Administrative Expenses	36,390	31,418	27,465	23,814	19,912
Other Operating Expenses	0	0	0	0	0
Operating Expenses - Total	81,973	66,556	55,629	49,127	45,736
Operating Income	28,882	23,716	19,360	16,874	14,089
Extraordinary Credit - Pretax	280	278	371	354	138
Extraordinary Charge - Pretax	3,140	534	475	501	428
Non-Operating Interest Income	1,312	1,220	999	790	785
Reserves - Increase/Decrease	0	0	0	0	0
Pretax Equity in Earnings	0	0	0	0	0
Other Income/Expense - Net	-32	-406	-500	-157	-5
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	34,201	30,374	24,779	21,962	18,518
Earnings before Interest & Taxes(EBIT)	27,302	24,274	19,755	17,360	14,579
Interest Expense on Debt					
Interest Capitalized	48	0	0	0	0
Pretax Income	27,193	24,150	19,651	17,259	14,496
Income Taxes	4,707	4,672	3,303	3,331	2,282
Minority Interest	0	0	0	0	0

Equity in Earnings	0	0	0	0	0
After Tax Other Income/Expense	0	0	-522	0	0
Discontinued Operations	0	0	0	516	706
Net Income before Extraordinary Items/Preferred Dividends	22,486	19,478	15,826	14,444	12,920
Extraordinary Items & Gain/Loss Sale of Assets	-9,824	0	0	0	0
Preferred Dividend Requirements	0	0	0	0	0
Net Income after Preferred Dividends - available to Common	22,486	19,478	15,826	14,444	12,920

Annual Income Statement - (Common Size): **Alphabet Inc**
Figures are expressed as Percent of Net Sales or Revenues.
Net Sales or Revenues are in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Net Sales or Revenues	**110,855.0**	**90,272.0**	**74,989.0**	**66,001.0**	**59,825.0**
Cost of Goods Sold	34.9%	32.2%	30.9%	31.4%	36.6%
Depreciation, Depletion & Amortization	6.2%	6.8%	6.7%	7.0%	6.6%
Gross Income	58.9%	61.1%	62.4%	61.6%	56.8%
Selling, General & Administrative Expenses	32.8%	34.8%	36.6%	36.1%	33.3%
Other Operating Expenses	0.0%	0.0%	0.0%	0.0%	0.0%
Operating Expenses - Total	73.9%	73.7%	74.2%	74.4%	76.4%
Operating Income	26.1%	26.3%	25.8%	25.6%	23.6%
Extraordinary Credit - Pretax	0.3%	0.3%	0.5%	0.5%	0.2%
Extraordinary Charge - Pretax	2.8%	0.6%	0.6%	0.8%	0.7%
Non-Operating Interest Income	1.2%	1.4%	1.3%	1.2%	1.3%
Reserves - Increase/Decrease	0.0%	0.0%	0.0%	0.0%	0.0%
Pretax Equity in Earnings	0.0%	0.0%	0.0%	0.0%	0.0%
Other Income/Expense - Net	-0.0%	-0.4%	-0.7%	-0.2%	-0.0%
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	30.9%	33.6%	33.0%	33.3%	31.0%
Earnings before Interest & Taxes(EBIT)	24.6%	26.9%	26.3%	26.3%	24.4%
Interest Expense on Debt					
Interest Capitalized	0.0%	0.0%	0.0%	0.0%	0.0%
Pretax Income	24.5%	26.8%	26.2%	26.1%	24.2%
Income Taxes	4.2%	5.2%	4.4%	5.0%	3.8%

Minority Interest	0.0%	0.0%	0.0%	0.0%	0.0%
Equity in Earnings	0.0%	0.0%	0.0%	0.0%	0.0%
After Tax Other Income/Expense	0.0%	0.0%	-0.7%	0.0%	0.0%
Discontinued Operations	0.0%	0.0%	0.0%	0.8%	1.2%
Net Income before Extraordinary Items/Preferred Dividends	20.3%	21.6%	21.1%	21.9%	21.6%
Extraordinary Items & Gain/Loss Sale of Assets	-8.9%	0.0%	0.0%	0.0%	0.0%
Preferred Dividend Requirements	0.0%	0.0%	0.0%	0.0%	0.0%
Net Income after Preferred Dividends - available to Common	20.3%	21.6%	21.1%	21.9%	21.6%

Income Statement - (Year to Year Percent Change): **Alphabet Inc**

Figures are the Percent Changes from the Prior Year.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Net Sales or Revenues	**22.8%**	**20.4%**	**13.6%**	**10.3%**	**19.2%**
Cost of Goods Sold	33.2%	25.5%	11.7%	-5.4%	23.8%
Depreciation, Depletion & Amortization	13.1%	21.4%	9.2%	16.8%	33.0%
Gross Income	18.4%	17.7%	15.1%	19.7%	15.1%
Selling, General & Administrative Expenses	15.8%	14.4%	15.3%	19.6%	18.7%
Other Operating Expenses					
Operating Expenses - Total	23.2%	19.6%	13.2%	7.4%	22.2%
Operating Income	21.8%	22.5%	14.7%	19.8%	10.4%
Extraordinary Credit - Pretax	0.7%	-25.1%	4.8%	156.5%	500.0%
Extraordinary Charge - Pretax	488.0%	12.4%	-5.2%	17.1%	-22.3%
Non-Operating Interest Income	7.5%	22.1%	26.5%	0.6%	10.1%
Reserves - Increase/Decrease					
Pretax Equity in Earnings					
Other Income/Expense - Net					-101.0%
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	12.6%	22.6%	12.8%	18.6%	12.7%
Earnings before Interest & Taxes(EBIT)	12.5%	22.9%	13.8%	19.1%	8.2%
Interest Expense on Debt	26.6%	19.2%	3.0%	21.7%	-1.2%
Interest Capitalized					
Pretax Income	12.6%	22.9%	13.9%	19.1%	8.3%
Income Taxes	0.7%	41.4%	-0.8%	46.0%	-12.2%
Minority Interest					
Equity in Earnings					
After Tax Other Income/Expense					
Discontinued Operations			-100.0%	-26.9%	

Net Income before Extraordinary Items/Preferred Dividends	15.4%	23.1%	9.6%	11.8%	20.3%
Extraordinary Items & Gain/Loss Sale of Assets					
Preferred Dividend Requirements					
Net Income after Preferred Dividends - available to Common	15.4%	23.1%	9.6%	11.8%	20.3%

Income Statement - (5 Year Averages): Alphabet Inc

Figures in millions of U.S. Dollars.

Fiscal Year	2017	2016	2015	2014	2013
Net Sales or Revenues	**80,388.4**	**68,252.4**	**57,770.4**	**48,596.2**	**40,061.2**
Cost of Goods Sold	26,691.6	22,489.2	18,949.0	16,125.2	13,447.0
Depreciation, Depletion & Amortization	5,312.8	4,525.4	3,675.6	2,950.0	2,334.5
Gross Income	48,384.0	41,237.8	35,145.8	29,521.0	24,279.7
Selling, General & Administrative Expenses	27,799.8	23,878.0	20,089.4	16,301.0	12,837.1
Other Operating Expenses	0.0	0.0	0.0	0.0	0.0
Operating Expenses - Total	59,804.2	50,892.6	42,714.0	35,376.2	28,618.5
Operating Income	20,584.2	17,359.8	15,056.4	13,220.0	11,442.7
Extraordinary Credit - Pretax	284.2	232.8	183.0	114.6	
Extraordinary Charge - Pretax	1,015.6	497.8	584.2	568.2	468.0
Non-Operating Interest Income	1,021.2	901.4	819.8	735.8	623.7
Reserves - Increase/Decrease	0.0	0.0	0.0	0.0	0.0
Pretax Equity in Earnings	0.0				
Other Income/Expense - Net	-220.0	-108.6	34.6	215.6	279.8
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	25,966.8	22,413.0	19,185.2	16,667.8	14,256.5
Earnings before Interest & Taxes(EBIT)	20,654.0	17,887.6	15,509.6	13,717.8	11,922.0
Interest Expense on Debt	113.8	99.2	86.0	65.2	45.0
Interest Capitalized	9.6	0.0	0.0	0.0	0.0
Pretax Income	20,549.8	17,788.4	15,423.6	13,652.6	11,877.0
Income Taxes	3,659.0	3,237.2	2,820.6	2,618.2	2,324.1
Minority Interest	0.0	0.0	0.0	0.0	0.0
Equity in Earnings	0.0	0.0	0.0	0.0	0.0
After Tax Other Income/Expense	-104.4	-104.4	-104.4	0.0	0.0
Discontinued Operations	244.4	234.2	234.2	234.2	131.0

Net Income before Extraordinary Items/Preferred Dividends	17,030.8	14,681.0	12,732.8	11,268.6	9,683.9
Extraordinary Items & Gain/Loss Sale of Assets	-1,964.8	0.0	0.0	0.0	0.0
Preferred Dividend Requirements	0.0	0.0	0.0	0.0	0.0
Net Income after Preferred Dividends - available to Common	17,030.8	14,681.0	12,732.8	11,268.6	9,683.9

Interim Income Statement - (Actual Values): Alphabet Inc
All figures in millions of U.S. Dollars.

Fiscal Period End Date	03/31/2018	12/31/2017	09/30/2017	06/30/2017	03/31/2017
Net Sales or Revenues	**31,146**	**32,323**	**27,772**	**26,010**	**24,750**
Cost of Goods Sold	11,481	12,240	9,393	8,749	8,302
Depreciation, Depletion & Amortization	1,986	2,027	1,755	1,624	1,493
Gross Income	17,679	18,056	16,624	15,637	14,955
Selling, General & Administrative Expenses	10,678	10,392	8,842	8,769	8,387
Other Operating Expenses	0	0	0	0	0
Operating Expenses - Total					
Operating Income	7,001	7,664	7,782	6,868	6,568
Extraordinary Credit - Pretax	124	86	120	105	78
Extraordinary Charge - Pretax	220	33	128	2,838	249
Non-Operating Interest Income					
Reserves - Increase/Decrease					
Pretax Equity in Earnings	0	0	0	0	0
Other Income/Expense - Net	3,668	337	232	263	447
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	12,559	10,081	9,761	6,022	8,337
Earnings before Interest & Taxes(EBIT)	10,573	8,054	8,006	4,398	6,844
Interest Expense on Debt					
Interest Capitalized					
Pretax Income	10,543	8,018	7,979	4,377	6,819
Income Taxes	1,142	1,214	1,247	853	1,393
Minority Interest	0	0	0	0	0
Equity in Earnings	0	0	0	0	0

After Tax Other Income/Expense					
Discontinued Operations	0	0	0	0	0
Net Income before Extraordinary Items/Preferred Dividends	9,401	6,804	6,732	3,524	5,426
Extraordinary Items & Gain/Loss Sale of Assets	0	-9,824	0	0	0
Preferred Dividend Requirements	0	0	0	0	0
Net Income after Preferred Dividends - available to Common	9,401	6,804	6,732	3,524	5,426

Interim Income Statement - (Common Size): **Alphabet Inc**
Figures are expressed as Percent of Net Sales or Revenues.
Net Sales or Revenues are in millions of U.S. Dollars.

Fiscal Period End Date	**03/31/2018**	**12/31/2017**	**09/30/2017**	**06/30/2017**	**03/31/2017**
Net Sales or Revenues	**31,146.0**	**32,323.0**	**27,772.0**	**26,010.0**	**24,750.0**
Cost of Goods Sold	36.9%	37.9%	33.8%	33.6%	33.5%
Depreciation, Depletion & Amortization	6.4%	6.3%	6.3%	6.2%	6.0%
Gross Income	56.8%	55.9%	59.9%	60.1%	60.4%
Selling, General & Administrative Expenses	34.3%	32.2%	31.8%	33.7%	33.9%
Other Operating Expenses	0.0%	0.0%	0.0%	0.0%	0.0%
Operating Expenses - Total					
Operating Income	22.5%	23.7%	28.0%	26.4%	26.5%
Extraordinary Credit - Pretax	0.4%	0.3%	0.4%	0.4%	0.3%
Extraordinary Charge - Pretax	0.7%	0.1%	0.5%	10.9%	1.0%
Non-Operating Interest Income					
Reserves - Increase/Decrease					
Pretax Equity in Earnings	0.0%	0.0%	0.0%	0.0%	0.0%
Other Income/Expense - Net	11.8%	1.0%	0.8%	1.0%	1.8%
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	40.3%	31.2%	35.1%	23.2%	33.7%
Earnings before Interest & Taxes(EBIT)	33.9%	24.9%	28.8%	16.9%	27.7%
Interest Expense on Debt					
Interest Capitalized					
Pretax Income	33.9%	24.8%	28.7%	16.8%	27.6%
Income Taxes	3.7%	3.8%	4.5%	3.3%	5.6%
Minority Interest	0.0%	0.0%	0.0%	0.0%	0.0%

Equity in Earnings	0.0%	0.0%	0.0%	0.0%	0.0%
After Tax Other Income/Expense					
Discontinued Operations	0.0%	0.0%	0.0%	0.0%	0.0%
Net Income before Extraordinary Items/Preferred Dividends	30.2%	21.1%	24.2%	13.5%	21.9%
Extraordinary Items & Gain/Loss Sale of Assets	0.0%	-30.4%	0.0%	0.0%	0.0%
Preferred Dividend Requirements	0.0%	0.0%	0.0%	0.0%	0.0%
Net Income after Preferred Dividends - available to Common	30.2%	21.1%	24.2%	13.5%	21.9%

Sources of Capital: Alphabet Inc

Currency figures are in millions of U.S. Dollars.
Year to year % changes pertain to reported Balance Sheet values.

Fiscal Year	2017	2016	2015	2014	2013
Fiscal Year End Date	12/31/2017	12/31/2016	12/31/2015	12/31/2014	12/31/2013
Total Capital	**156,471.0**	**142,971.0**	**122,326.0**	**107,728.0**	**89,545.0**
Percent of Total Capital					
Short Term Debt	0.0%	0.0%	2.6%	1.9%	4.5%
Long Term Debt	2.5%	2.8%	1.6%	3.0%	2.5%
Other Liabilities	10.1%	5.1%	4.5%	4.2%	3.8%
Total Liabilities	28.2%	19.6%	22.0%	24.7%	26.4%
Minority Interest	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock	0.0%	0.0%	0.0%	0.0%	0.0%
Retained Earnings	72.4%	73.5%	72.9%	70.3%	68.4%
Common Equity	97.5%	97.2%	98.4%	97.0%	97.5%
Total Capital	100.0%	100.0%	100.0%	100.0%	100.0%
Year to Year Net Changes					
Short Term Debt	0.0	-322.5	120.6	-199.9	146.9
Long Term Debt	3.4	194.0	-123.3	99.2	-75.2
Other Liabilities	852.9	185.7	96.0	114.4	59.5
Total Liabilities	1,603.5	119.9	24.6	302.2	152.8
Minority Interest	0.0	0.0	0.0	0.0	0.0
Preferred Stock	0.0	0.0	0.0	0.0	0.0
Retained Earnings	811.6	1,590.8	1,351.7	1,444.4	1,292.0
Common Equity	1,346.6	1,870.5	1,583.1	1,719.1	1,559.4
Total Capital	1,350.0	2,064.5	1,459.8	1,818.3	1,484.2
Year to Year Percent Changes					
Short Term Debt		-100.0%	59.7%	-49.8%	57.6%
Long Term Debt	0.9%	97.2%	-38.2%	44.4%	-25.2%

Other Liabilities	116.2%	33.9%	21.2%	33.8%	21.4%
Total Liabilities	57.1%	4.5%	0.9%	12.8%	6.9%
Minority Interest					
Preferred Stock					
Retained Earnings	7.7%	17.8%	17.9%	23.6%	26.7%
Common Equity	9.7%	15.5%	15.1%	19.7%	21.7%
Total Capital	9.4%	16.9%	13.6%	20.3%	19.9%
Total Liabilities & Common Equity					
Total Liabilities	44,113.0	28,078.0	26,879.0	26,633.0	23,611.0
Net Change in Liabilities as % of Total Liabilities	36.3%	4.3%	0.9%	11.3%	6.5%
Common Equity	152,502.0	139,036.0	120,331.0	104,500.0	87,309.0
Net Change in Common Equity as % of Common Equity	8.8%	13.5%	13.2%	16.5%	17.9%
Cash Flow					
Operating Activities	37,091.0	36,036.0	26,024.0	22,376.0	18,659.0
Financing Activities	-8,298.0	-8,332.0	-3,677.0	-1,439.0	-857.0
Investing Activities	31,401.0	31,165.0	23,711.0	21,055.0	13,679.0

Accounting Ratios: **Alphabet Inc**

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Receivables Turnover	5.9	6.3	5.4	5.7	6.4
Receivables - Number of Days	54.2	56.9	60.3	57.9	54.8
Inventory Turnover	76.1	216.7			47.0
Inventory - Number of Days	4.8	1.7			7.8
Gross Property, Plant & Equipment Turnover	1.9	1.9	1.9	2.0	2.5
Net Property, Plant & Equipment Turnover	2.6	2.6	2.6	2.8	3.6
Depreciation, Depletion & Amortization % of Gross Property, Plant & Equipment	11.6%	12.8%	12.5%	14.1%	16.5%
Depreciation, Depletion & Amortization Year to Year Change	79.9	107.6	42.2	66.3	97.7
Depreciation, Depletion & Amortization Year to Year % Change	13.1%	21.4%	9.2%	16.8%	33.0%

Asset Utilization: Alphabet Inc

Figures are expressed as the ratio of Net Sales.
Net Sales are in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Net Sales	**110,855.0**	**90,272.0**	**74,989.0**	**66,001.0**	**59,825.0**
Cash & Cash Equivalents	92.0%	96.3%	98.3%	98.9%	98.5%
Short-Term Investments	82.3%	82.0%	76.2%	71.1%	66.9%
Accounts Receivable	16.9%	15.8%	18.5%	17.5%	15.7%
Inventories	0.7%	0.3%	0.0%	0.0%	0.7%
Other Current Assets	2.6%	4.4%	3.3%	5.9%	6.9%
Total Current Assets	112.1%	116.8%	120.2%	122.2%	121.8%
Total Long Term Receivables & Investments	7.0%	6.5%	6.9%	4.7%	3.3%
Long Term Receivables	0.0%	0.0%	0.0%	0.0%	0.0%
Investments in Associated Companies	0.0%	0.0%	0.0%	0.0%	0.0%
Other Investments	7.0%	6.5%	6.9%	4.7%	3.3%
Property, Plant & Equipment - Gross	53.8%	52.6%	53.5%	49.6%	39.8%
Accumulated Depreciation	15.6%	14.7%	14.8%	13.4%	12.2%
Property Plant & Equipment - Net	38.2%	37.9%	38.7%	36.2%	27.6%
Other Assets	19.9%	23.9%	30.5%	35.6%	32.7%
Total Assets	177.4%	185.1%	196.3%	198.7%	185.4%

Employee Efficiency: **Alphabet Inc**

Values per Employee are in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Employees	**80,110**	**72,053**	**61,814**	**53,600**	**47,756**
Values per Employee					
Sales	1,383,785	1,252,856	1,213,139	1,231,362	1,252,722
Net Income	280,689	270,329	256,026	269,478	270,542
Cash Earnings	347,585	454,332	427,622	410,672	391,364
Working Capital	1,249,844	1,230,372	1,145,436	1,191,791	1,193,107
Total Debt	49,544	54,613	84,447	97,892	130,957
Total Capital	1,953,202	1,984,248	1,978,937	2,009,851	1,875,052
Total Assets	2,454,313	2,319,321	2,381,499	2,446,511	2,322,640
Year to Year % Change per Employee					
Employees	11.2%	16.6%	15.3%	12.2%	-11.3%
Sales	10.5%	3.3%	-1.5%	-1.7%	34.5%
Net Income	3.8%	5.6%	-5.0%	-0.4%	35.7%
Cash Earnings	-23.5%	6.2%	4.1%	4.9%	34.1%
Working Capital	1.6%	7.4%	-3.9%	-0.1%	39.3%
Total Debt	-9.3%	-35.3%	-13.7%	-25.2%	27.4%
Total Capital	-1.6%	0.3%	-1.5%	7.2%	35.2%
Total Assets	5.8%	-2.6%	-2.7%	5.3%	33.4%

Fixed Charges Coverage: **Alphabet Inc**

Fiscal Year	2017	2016	2015	2014	2013
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
EBIT/Total Interest Expense	173.9	195.8	190.0	171.9	175.7
EBIT/Net Interest					
EBIT/(Total Interest Exp + Pfd Div)	173.9	195.8	190.0	171.9	175.7
EBIT/Dividends on Common Shares					
EBIT/(Dividends on Common + Pfd)					
EBITDA/Total Interest Expense	217.8	245.0	238.3	217.4	223.1
EBITDA/Net Interest					
EBITDA/(Total Interest Exp + Pfd Div)	217.8	245.0	238.3	217.4	223.1
EBITDA/Dividends on Com Shares					
EBITDA/(Dividends on Com + Pfd)					

Leverage Analysis: Alphabet Inc

Fiscal Year	2017	2016	2015	2014	2013
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Long Term Debt % of EBIT	14.5%	16.2%	10.1%	18.6%	15.3%
Long Term Debt % of EBITDA	11.6%	13.0%	8.1%	14.7%	12.1%
Long Term Debt % of Total Assets	2.0%	2.4%	1.4%	2.5%	2.0%
Long Term Debt % of Total Capital	2.5%	2.8%	1.6%	3.0%	2.5%
Long Term Debt % of Com Equity	2.6%	2.8%	1.7%	3.1%	2.6%
Total Debt % of EBIT	14.5%	16.2%	26.4%	30.2%	42.9%
Total Debt % of EBITDA	11.6%	13.0%	21.1%	23.9%	33.8%
Total Debt % of Total Assets	2.0%	2.4%	3.5%	4.0%	5.6%
Total Debt % of Total Capital	2.5%	2.8%	4.3%	4.9%	7.0%
Total Debt % of Total Capital & Short Term Debt	2.5%	2.8%	4.2%	4.8%	6.7%
Total Debt % of Common Equity	2.6%	2.8%	4.3%	5.0%	7.2%
Minority Interest % of EBIT	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest % of EBITDA	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest % of Total Assets	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest % of Total Capital	0.0%	0.0%	0.0%	0.0%	0.0%
Minority Interest % of Com Equity	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock % of EBIT	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock % of EDITDA	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock % of Total Assets	0.0%	0.0%	0.0%	0.0%	0.0%

Preferred Stock % of Total Capital	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Stock % of Total Equity	0.0%	0.0%	0.0%	0.0%	0.0%
Common Equity % of Total Assets	77.6%	83.2%	81.7%	79.7%	78.7%
Common Equity % of Total Capital	97.5%	97.2%	98.4%	97.0%	97.5%
Total Capital % of Total Assets	79.6%	85.6%	83.1%	82.2%	80.7%
Capital Expenditure % of Sales	11.9%	11.3%	13.2%	16.6%	12.3%
Fixed Assets % of Common Equity	27.8%	24.6%	24.1%	22.9%	18.9%
Working Capital % of Total Capital	64.0%	62.0%	57.9%	59.3%	63.6%
Dividend Payout	0.0%	0.0%	0.0%	0.0%	0.0%
Funds From Operations % of Total Debt	701.6%	831.9%	506.4%	419.5%	298.8%

Liquidity Analysis: **Alphabet Inc**

Fiscal Year	2017	2016	2015	2014	2013
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Total Current Assets % Net Sales	112.1%	116.8%	120.2%	122.2%	121.8%
Cash % of Current Assets	8.6%	12.3%	18.4%	22.7%	25.9%
Cash & Equivalents % of Current Assets	82.0%	82.5%	81.8%	80.9%	80.9%
Quick Ratio	5.0	6.0	4.5	4.6	4.3
Receivables % of Current Assets	15.0%	13.5%	15.4%	14.3%	12.9%
Receivable Turnover - number of days	54.2	56.9	60.3	57.9	54.8
Inventories % of Current Assets	0.6%	0.3%	0.0%	0.0%	0.6%
Inventory Turnover - number of days	4.8	1.7			7.8
Inventory to Cash & Equivalents - number of days	49,001.8	116,770.3			49,816.1
Receivables % of Total Assets	9.5%	8.5%	9.4%	8.8%	8.5%
Current Ratio	5.1	6.3	4.7	4.8	4.6
Total Debt % of Total Capital	2.5%	2.8%	4.2%	4.8%	6.7%
Funds from Operations % of Current Liabilities	115.1%	195.4%	136.9%	131.0%	117.5%
Funds from Operations % of Long Term Debt	701.6%	831.9%	1,325.0%	681.9%	835.9%
Funds from Operations % of Total Debt	701.6%	831.9%	506.4%	419.5%	298.8%
Funds from Operations % of Total Capital	17.8%	22.9%	21.6%	20.4%	20.9%
Cash Flow (in milllions of U.S. Dollars)					
Operating Activities	37,091.0	36,036.0	26,024.0	22,376.0	18,659.0

Financing Activities	-8,298.0	-8,332.0	-3,677.0	-1,439.0	-857.0
Investing Activities	31,401.0	31,165.0	23,711.0	21,055.0	13,679.0

Per Share Data: **Alphabet Inc**

Figures are expressed as per unit of respective shares.
Figures are in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Sales	159.55	130.58	109.10	97.04	89.07
Operating Income	41.57	34.31	28.17	24.81	20.98
Pre-tax Income	39.14	34.93	28.59	25.37	21.58
Net Income (Continuing Operations)	18.22	28.18	23.78	21.24	19.24
Net Income Before Extra Items	32.36	28.18	23.02	21.24	19.24
Extraordinary Items		0.00	0.00	0.00	0.00
Net Income After Extraordinary Items	18.22	28.18	23.02	21.24	19.24
Net Income Available to Common Shares	29.95	27.88	22.84	21.02	19.07
Fully Diluted Earnings	29.95	27.88	22.84	21.02	19.07
Common Dividends	0.00	0.00	0.00	0.00	0.00
Cash Earnings	37.09	46.85	38.15	32.04	27.58
Book Value	219.50	201.12	175.07	153.64	129.99
Retained Earnings	163.00	152.08	129.81	111.30	91.21
Assets	282.99	241.74	214.17	192.79	165.14

Profitability Analysis: Alphabet Inc
Currency figures are in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**
Fiscal Year End Date	**12/31/2017**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Gross Income Margin	58.9%	61.1%	62.4%	61.6%	56.8%
Operating Income Margin	26.1%	26.3%	25.8%	25.6%	23.6%
Pretax Income Margin	24.5%	26.8%	26.2%	26.1%	24.2%
EBIT Margin	24.6%	26.9%	26.3%	26.3%	24.4%
Net Income Margin	11.4%	21.6%	21.1%	21.9%	21.6%
Return on Equity - Total	8.7%	15.0%	14.1%	15.1%	16.2%
Return on Invested Capital	8.5%	14.6%	13.5%	14.3%	15.2%
Return on Assets	7.0%	12.4%	11.5%	12.0%	12.7%
Asset Turnover	0.6	0.5	0.5	0.5	0.5
Financial Leverage	2.6%	2.8%	4.3%	5.0%	7.2%
Interest Expense on Debt	157,000,000	124,000,000	104,000,000	101,000,000	83,000,000
Effective Tax Rate	17.3%	19.3%	16.8%	19.3%	15.7%
Cash Flow % Sales	25.1%	36.3%	35.2%	33.4%	31.2%
Selling, General & Administrative Expenses % of Sales	32.8%	34.8%	36.6%	36.1%	33.3%
Research & Development Expense	15.0%	15.5%	16.4%	14.9%	13.2%
Operating Income Return On Total Capital	9.4%	16.9%	13.6%	20.3%	19.9%

Wright Quality Rating - Investment Acceptance: Alphabet Inc

Currency figures are in millions of U.S. Dollars.

Wright Quality Rating	**AAB13**
Investment Acceptance Rating	**A**
Total Market Value of Shares Outstanding - Three Year Average	581,957
- Current Year	743,341
Public Market Value (Excludes Closely Held) - Three Year Average	507,926
- Current Year	648,780
Trading Volume - Three Year Average	402,751
- Current Year	490,037
Turnover Rate - Three Year Average	69.2%
- Current Year	65.9%
Stock Exchange Listings	NAS FRA MXK
Number of Institutional Investors	3,149
Number of Shareholders	3,074
Closely Held Shares as % of Total Shares Outstanding	12.7%

Wright Quality Rating - Financial Strength: Alphabet Inc

Wright Quality Rating	**AAB13**
Financial Strength Rating	**A**
Total Shareholders' Equity (Millions of U.S. Dollars)	160,825
Total Shareholders' Equity as % Total Capital	96.8%
Preferred Stock as % of Total Capital	0.0%
Long Term Debt as % of Total Capital	2.4%
Long Term Debt (Millions of U.S. Dollars)	3,973
Lease Obligations (Millions of U.S. Dollars)	29
Long Term Debt including Leases (Millions of U.S. Dollars)	4,002
Total Debt as % of Total Capital	3.2%
Fixed Charge Coverage Ratio: Pretax Income to Interest Expense & Preferred Dividends	192.4
Fixed Charge Coverage Ratio: Pretax Income to Net Interest Income & Preferred Dividends	-26.2
Quick Ratio (Cash & Receivables / Current Liabilities)	4.7
Current Ratio (Current Assets / Current Liabilities)	4.9

Wright Quality Rating - Profitability & Stability: Alphabet Inc

Wright Quality Rating	**AAB13**
Profitability & Stability Rating	**B**
Profit Rate of Earnings on Equity Capital - Time-Weighted Normal	15.9%
- Basic Trend	-0.4%
Cash Earnings Return on Equity - Time-Weighted Average	22.9%
- Basic Trend	-0.6%
Cash Earnings Return on Equity - Stability Index	59.8%
Return On Assets (Time-Weighted Average)	14.0%
Pre-Tax Income as % of Total Assets (Time-Weighted Average)	14.2%
Operating Income as % of Total Assets (Time-Weighted Average)	13.7%
Operating Income as % of Total Capital (Adjusted Rate)	18.9%
Pre-Tax Income as % of Total Assets (Time-Weighted Average)	14.2%
Operating Income as % of Total Assets (Time-Weighted Average)	13.7%
Operating Income as % of Total Capital (Adjusted Rate)	18.9%

Wright Quality Rating - Corporate Growth: **Alphabet Inc**

Figures are expressed on a Per Share Basis.

Wright Quality Rating	**AAB13**
Growth Rating	**13**
Normal Earnings Growth	15.5%
Cash Earnings Growth	10.9%
Cash Earnings Stability Index	81.3%
Earned Equity Growth	15.9%
Dividend Growth	0.0%
Operating Income Growth	14.5%
Assets Growth	12.1%
Sales/Revenues Growth	13.2%

Wright Industry Averages Reports

Introduction

The following pages are comprised of seven reports which contain averages for the companies in the Software & Services (Global) sector. The primary source of the data contained in these reports is the Worldscope® Database. The "averages" reports are compiled from the fundamental data compiled on the companies which make up this industry.

Industry Averages - Report Types

- Sales Analysis
- Income Statement
- Balance Sheet
- Sources of Capital
- Leverage Analysis Ratios
- Per Share Data Ratios
- Profitability Analysis Ratios

The Wright Industry Averages Reports are compiled on a fiscal year basis. Companies ending their fiscal year in January are grouped with the prior year's reports. The values for 2012 for example are contributed by those companies that ended their fiscal year after 31 January 2012 and prior to 1 February 2013. The values shown for all reports are presented in U.S. dollars.

Data Compilation Steps

All companies in the industry with more than $1 million (U.S.) in net sales were included. Currency items in the financial statements were converted to U.S. dollars using an average exchange rate for each fiscal year. A sum (aggregate value) was computed for all financial statement items by totaling the values reported by each company in the industry sector. Industry Average report values were computed by dividing the aggregate value by the number of companies reporting.

Per share ratios were computed by using in the numerator a specific value that represents the aggregate sum for all companies in the industry divided by the aggregate value of the average number of appropriate common shares for each company.

Most companies in the industry reported Operating Income along with the major components that go into the calculation of Operating Income. For the minority of companies that did not report all underlying cost components those components were derived, where possible, utilizing the reported items. For example, if Cost of Goods Sold was not reported it was derived on a company-specific basis from the other reported items (i.e. Sales, Gross Income and Depreciation, Depletion & Amortization). The derived value was then included in the calculation of the industry average.

Summary Analysis: Software & Services Industry Averages (Global)

Figures are expressed on a Per Share Basis in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Market Prices						
High	11.99	8.89	9.37	8.70	7.84	6.50
Low	7.69	5.85	5.62	5.73	4.81	4.38
Average	9.84	7.37	7.50	7.22	6.32	5.44
Last	10.89	7.70	7.89	7.48	7.33	5.57
Value Ratios						
High Price / Earnings	39.7	35.1	43.0	29.8	26.5	29.6
Low Price / Earnings	25.5	23.1	25.8	19.6	16.2	19.9
Average Price / Earnings	32.6	29.1	34.4	24.7	21.3	24.7
Last Price / Earnings	36.1	30.5	36.2	25.6	24.7	25.3
Average Price / Book Value	5.0	4.3	4.4	3.9	3.6	3.4
Last Price / Book Value	5.6	4.5	4.7	4.0	4.2	3.5
Dividends / Average Price (Dividend Yield)	0.9%	1.2%	1.0%	1.0%	1.2%	1.3%
Dividends / Last Price (Dividend Yield)	0.8%	1.1%	0.9%	1.0%	1.0%	1.2%
Common Equity						
Earned Equity Growth	13.7%	10.4%	9.0%	12.9%	14.0%	10.5%
Return on Equity	17.1%	15.8%	13.3%	17.3%	18.9%	15.3%
Book Value	1.96	1.73	1.69	1.85	1.75	1.59
Common Shares (in millions)						
Common Shares Outstanding	332.0	299.8	285.4	251.9	242.7	241.7
Common Shares Used to Compute EPS	332.0	299.8	285.4	251.9	242.7	241.7
Common Stock Earnings						
Earnings per Share	0.30	0.25	0.22	0.29	0.30	0.22
Percent Change	19.4%	16.0%	-25.2%	-1.6%	34.7%	-20.5%
Income Tax Rate	21.6%	23.5%	27.3%	27.0%	25.1%	32.4%
Common Stock Dividends						
Dividends per Share	0.09	0.09	0.07	0.07	0.07	0.07
Percent Change	2.1%	20.2%	-2.9%	-1.9%	9.4%	15.7%
Total Common Dividends (in millions of US$)	29.1	25.7	20.3	18.5	18.2	16.5

Dividends / Earnings (% Payout)	29.0%	33.9%	32.7%	25.2%	25.3%	31.1%
Capital Expenditure (in millions of US$)	46.0	34.3	29.7	28.7	25.4	23.7
Sales						
Sales (in millions of US$)	881.0	682.5	622.6	612.2	618.1	628.6
Percent Change	29.1%	9.6%	1.7%	-1.0%	-1.7%	10.5%
Sales per Share	2.65	2.28	2.18	2.43	2.55	2.60
Percent Change	16.6%	4.3%	-10.2%	-4.6%	-2.1%	9.1%

Sales Analysis: Software & Services Industry Averages (Global)

Figures are expressed in thousands of U.S. Dollars. Values per Employee are in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Sales	880,956	682,450	622,600	612,166	618,121	628,638
Percent Change	29.1%	9.6%	1.7%	-1.0%	-1.7%	10.5%
Cost of Goods Sold	413,435	329,572	297,102	289,330	298,800	307,913
Percent of Sales	46.9%	48.3%	47.7%	47.3%	48.3%	49.0%
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	189,533	144,554	125,708	139,622	131,708	110,851
Percent of Sales	21.5%	21.2%	20.2%	22.8%	21.3%	17.6%
Net Income after Preferred Dividends - available to Common	100,249	75,852	62,216	73,442	71,919	53,155
Percent of Sales	11.4%	11.1%	10.0%	12.0%	11.6%	8.5%
Employees	5,838	5,194	4,544	4,033	3,825	3,550
Sales per Employee	150,895	131,390	137,025	151,804	161,621	177,104
Net Income per Employee	17,171	14,604	13,693	18,212	18,805	14,975

Income Statement - (Actual Values): Software & Services Industry Averages (Global)

All figures in millions of U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Net Sales or Revenues	**881.0**	**682.5**	**622.6**	**612.2**	**618.1**	**628.6**
Cost of Goods Sold	413.4	329.6	297.1	289.3	298.8	307.9
Depreciation, Depletion & Amortization	54.3	40.3	35.6	34.1	33.5	32.7
Other Costs	-0.1	0.1	0.1	-0.2	1.4	0.1
Gross Income	413.3	312.5	289.8	289.0	284.4	287.9
Selling, General & Administrative Expenses	266.0	201.1	186.3	180.8	179.8	181.4
Other Operating Expenses	9.2	6.5	5.6	6.6	4.4	4.8
Operating Expenses - Total	742.8	577.5	524.6	510.8	516.5	526.8
Operating Income	138.2	104.9	98.0	101.6	100.2	101.7
Extraordinary Credit - Pretax	4.2	2.3	2.9	2.6	1.4	2.6
Extraordinary Charge - Pretax	16.7	12.2	17.5	9.0	7.2	28.8
Non-Operating Interest Income	4.3	3.1	2.5	2.4	2.2	2.8
Reserves - Increase/Decrease	0.0	0.0	0.0	0.0	-0.0	-0.0
Pretax Equity in Earnings	1.6	0.6	0.6	0.1	0.2	-0.0
Other Income/Expense - Net	-8.2	-7.8	-5.9	-10.9	-3.4	-6.8
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	189.5	144.6	125.7	139.6	131.7	110.9
Earnings before Interest & Taxes(EBIT)	136.3	104.6	90.4	106.4	97.6	79.2
Interest Expense on Debt	11.7	8.5	7.2	6.7	6.5	6.6
Interest Capitalized	0.1	0.1	0.1	0.0	0.0	0.0
Pretax Income	128.1	98.0	85.3	102.1	93.8	78.5
Income Taxes	27.6	23.1	23.3	27.5	23.6	25.4
Minority Interest	0.9	1.5	0.8	0.6	0.6	0.5
Equity in Earnings	0.2	0.2	0.2	0.8	0.8	0.8
After Tax Other Income/Expense	-0.2	-0.1	-0.3	-0.1	-0.1	-0.1
Discontinued Operations	0.7	2.4	1.2	-1.1	1.6	-0.1
Net Income before Extraordinary Items/Preferred Dividends	100.3	75.9	62.3	73.5	72.0	53.3
Extraordinary Items & Gain/Loss Sale of Assets	-11.7	-0.0	0.1	0.0	0.8	0.3

Preferred Dividend Requirements	0.1	0.0	0.1	0.1	0.1	0.1
Net Income after Preferred Dividends - available to Common	100.2	75.9	62.2	73.4	71.9	53.2

Balance Sheet - (Actual Values): Software & Services Industry Averages (Global)

All figures in millions of U.S. Dollars.

Fiscal Year	2017	2016	2015	2014	2013	2012
Assets						
Total Assets	**1,565.4**	**1,195.2**	**1,069.4**	**986.9**	**911.2**	**889.0**
Cash & Short Term Investments	447.2	328.3	289.1	253.8	237.6	213.3
Cash	279.8	196.3	168.9	147.0	135.5	124.8
Short Term Investments	167.3	132.1	120.2	106.9	102.1	88.5
Receivables (Net)	226.2	173.2	161.2	153.3	149.3	144.1
Inventories -Total	24.3	18.5	17.8	15.9	16.7	16.7
Raw Materials	5.7	4.1	4.1	3.9	3.6	3.2
Work in Process	8.0	7.1	6.7	7.2	7.9	7.4
Finished Goods	10.2	8.1	8.1	7.0	7.5	6.6
Progress Payments & Other	0.5	-0.9	-1.1	-2.2	-2.4	-0.6
Prepaid Expenses	7.4	5.5	5.0	4.5	4.2	3.7
Other Current Assets	72.3	61.3	50.5	53.2	53.4	54.5
Current Assets - Total	775.3	584.5	521.2	478.4	459.6	432.0
Long Term Receivables	24.5	18.4	17.3	16.9	17.9	10.9
Investment in Associated Companies	36.5	27.0	24.7	21.4	18.1	11.1
Other Investments	51.3	35.1	33.3	24.2	22.2	26.2
Property Plant and Equipment - Gross	306.5	235.2	218.5	182.1	177.3	175.5
Accumulated Depreciation	154.0	121.0	113.6	97.9	96.1	99.2
Property Plant and Equipment – Net	152.6	114.3	105.3	84.6	81.3	76.5
Other Assets	521.2	412.4	363.5	357.4	302.7	279.0
Deferred Charges	11.6	8.6	8.3	7.2	10.6	8.1
Tangible Other Assets	37.3	23.8	21.4	21.2	21.8	11.5
Intangible Other Assets	470.0	361.4	316.6	305.9	270.5	257.6
Total Assets	1,565.4	1,195.2	1,069.4	986.9	911.2	889.0
Liabilities & Shareholders' Equity						
Total Liabilities & Shareholders' Equity	**1,565.4**	**1,195.2**	**1,069.4**	**986.9**	**911.2**	**889.0**
Accounts Payable	83.3	61.6	55.7	51.7	49.5	43.6

Short Term Debt & Current Portion of Long Term Debt	68.1	45.8	39.4	31.3	34.9	32.7
Accrued Payroll	32.5	25.7	24.2	23.3	20.4	21.0
Income Taxes Payable	12.7	9.2	8.2	11.6	10.3	9.2
Dividends Payable	0.8	1.0	1.0	0.8	0.4	1.3
Other Current Liabilities	251.6	188.5	168.4	156.3	155.3	145.7
Current Liabilities - Total	448.6	331.5	296.7	274.5	270.1	253.8
Long Term Debt	302.5	214.3	183.2	149.3	126.7	118.3
Long Term Debt Excluding Capitalized Leases	233.0	168.0	145.1	115.2	95.7	87.4
Capitalized Lease Obligations	69.5	46.3	38.1	34.2	31.1	30.8
Provision for Risks and Charges	29.5	25.8	23.5	26.4	23.8	35.1
Deferred Income	20.6	14.9	12.0	11.3	10.8	9.9
Deferred Taxes	5.2	10.9	11.8	14.8	5.6	3.5
Deferred Tax Liability in Untaxed Reserves						0.0
Other Liabilities	56.0	39.1	35.0	32.3	28.0	16.1
Total Liabilities	862.8	636.8	562.3	506.6	464.6	435.2
Non-Equity Reserves	0.1	0.1	0.1	0.1	0.1	0.2
Minority Interest	45.6	34.2	23.3	11.5	11.6	11.5
Preferred Stock	5.3	5.5	2.5	1.9	2.8	3.0
Preferred Stock Issued for ESOP	0.0	0.0	0.0	0.0	0.0	0.0
ESOP Guarantees - Preferred Issued						0.0
Common Equity	651.5	518.5	481.2	466.9	425.8	384.8
Total Liabilities & Shareholders' Equity	1,565.4	1,195.2	1,069.4	986.9	911.2	889.0

Sources of Capital: Software & Services Industry Averages (Global)

Currency figures are in millions of U.S. Dollars.
Year to year % changes pertain to reported Balance Sheet values.

Fiscal Year	2017	2016	2015	2014	2013	2012
Actual Values						
Total Capital	**1,005.1**	**772.4**	**690.3**	**629.7**	**567.0**	**517.7**
Long Term Debt	302.5	214.3	183.2	149.3	126.7	118.3
Minority Interest	45.6	34.2	23.3	11.5	11.6	11.5
Preferred Stock	5.3	5.5	2.5	1.9	2.8	3.0
Common Equity	651.5	518.5	481.2	466.9	425.8	384.8
Percent of Total Capital						
Long Term Debt	30.1%	27.7%	26.5%	23.7%	22.4%	22.8%
Minority Interest	4.5%	4.4%	3.4%	1.8%	2.0%	2.2%
Preferred Stock	0.5%	0.7%	0.4%	0.3%	0.5%	0.6%
Common Equity	64.8%	67.1%	69.7%	74.2%	75.1%	74.3%
Total Capital	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Year to Year Net Changes (in millions of U.S. Dollars)						
Long Term Debt	88.2	31.1	33.9	22.6	8.5	8.8
Minority Interest	11.4	10.9	11.9	-0.2	0.1	3.0
Preferred Stock	-0.2	3.0	0.6	-0.9	-0.2	0.1
Common Equity	133.0	37.3	14.3	41.1	41.0	36.5
Total Capital	232.6	82.1	60.7	62.6	49.4	48.5
Year to Year Percent Changes						
Long Term Debt	41.1%	17.0%	22.7%	17.8%	7.2%	8.1%
Minority Interest	33.3%	46.6%	103.7%	-1.3%	1.2%	36.2%
Preferred Stock	-3.1%	117.9%	30.9%	-31.1%	-6.2%	2.1%
Common Equity	25.7%	7.8%	3.1%	9.7%	10.7%	10.5%
Total Capital	30.1%	11.9%	9.6%	11.0%	9.5%	10.3%
Total Liabilities & Common Equity						
Total Liabilities	862.8	636.8	562.3	506.6	464.6	435.2
Net Change in Liabilities as % of Total Liabilities	26.2%	11.7%	9.9%	8.3%	6.3%	5.0%

Common Equity	651.5	518.5	481.2	466.9	425.8	384.8
Net Change in Common Equity as % of Common Equity	20.4%	7.2%	3.0%	8.8%	9.6%	9.5%
Cash Flow						
Operating Activities	185.3	134.9	113.6	114.9	111.0	113.7
Financing Activities	-3.9	-15.2	2.6	-15.6	-25.5	-27.1
Investing Activities	159.6	103.3	98.0	83.9	69.1	79.8

Leverage Analysis: Software & Services Industry Averages (Global)

Fiscal Year	2017	2016	2015	2014	2013	2012
Long Term Debt % of EBIT	222.0%	204.9%	202.6%	140.4%	129.8%	149.3%
Long Term Debt % of EBITDA	159.6%	148.3%	145.7%	106.9%	96.2%	106.7%
Long Term Debt % of Total Assets	19.3%	17.9%	17.1%	15.1%	13.9%	13.3%
Long Term Debt % of Total Capital	30.1%	27.7%	26.5%	23.7%	22.4%	22.8%
Long Term Debt % of Com Equity	46.4%	41.3%	38.1%	32.0%	29.8%	30.7%
Total Debt % of EBIT	271.9%	248.8%	246.1%	169.8%	165.5%	190.6%
Total Debt % of EBITDA	195.5%	180.0%	177.1%	129.4%	122.7%	136.2%
Total Debt % of Total Assets	23.7%	21.8%	20.8%	18.3%	17.7%	17.0%
Total Debt % of Total Capital	36.9%	33.7%	32.2%	28.7%	28.5%	29.2%
Total Debt % of Total Capital & Short Term Debt	36.9%	33.7%	32.2%	28.7%	28.5%	29.2%
Total Debt % of Common Equity	56.9%	50.2%	46.3%	38.7%	38.0%	39.3%
Minority Interest % of EBIT	33.5%	32.7%	25.8%	10.8%	11.9%	14.5%
Minority Interest % of EBITDA	24.1%	23.7%	18.6%	8.2%	8.8%	10.3%
Minority Interest % of Total Assets	2.9%	2.9%	2.2%	1.2%	1.3%	1.3%
Minority Interest % of Total Capital	4.5%	4.4%	3.4%	1.8%	2.0%	2.2%
Minority Interest % of Com Equity	7.0%	6.6%	4.9%	2.5%	2.7%	3.0%
Preferred Stock % of EBIT	3.9%	5.3%	2.8%	1.8%	2.9%	3.8%
Preferred Stock % of EDITDA	2.8%	3.8%	2.0%	1.4%	2.1%	2.7%
Preferred Stock % of Total Assets	0.3%	0.5%	0.2%	0.2%	0.3%	0.3%
Preferred Stock % of Total Capital	0.5%	0.7%	0.4%	0.3%	0.5%	0.6%
Preferred Stock % of Total Equity	0.8%	1.1%	0.5%	0.4%	0.7%	0.8%
Common Equity % of Total Assets	41.6%	43.4%	45.0%	47.3%	46.7%	43.3%
Common Equity % of Total Capital	64.8%	67.1%	69.7%	74.2%	75.1%	74.3%
Total Capital % of Total Assets	64.2%	64.6%	64.6%	63.8%	62.2%	58.2%
Capital Expenditure % of Sales	5.2%	5.0%	4.8%	4.7%	4.1%	3.8%
Fixed Assets % of Common Equity	23.4%	22.0%	21.9%	18.1%	19.1%	19.9%
Working Capital % of Total Capital	32.5%	32.8%	32.5%	32.4%	33.4%	34.4%
Dividend Payout	29.0%	33.9%	32.7%	25.2%	25.3%	31.1%
Funds From Operations % of Total Debt	48.3%	52.5%	54.0%	63.7%	73.6%	77.9%

Per Share Data: Software & Services Industry Averages (Global)

Figures are expressed as per unit of respective shares.
Figures are in U.S. Dollars.

Fiscal Year	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Sales	2.65	2.28	2.18	2.43	2.55	2.60
Operating Income	0.42	0.35	0.34	0.40	0.41	0.42
Pre-tax Income	0.39	0.33	0.30	0.41	0.39	0.32
Net Income (Continuing Operations)	0.28	0.27	0.23	0.31	0.32	0.24
Net Income Before Extra Items	0.30	0.25	0.22	0.29	0.30	0.22
Extraordinary Items	0.00	-0.00	-0.00	0.00	0.00	0.00
Net Income After Extraordinary Items	0.27	0.25	0.22	0.29	0.30	0.22
Net Income Available to Common Shares	0.30	0.25	0.22	0.29	0.30	0.22
Fully Diluted Earnings	0.30	0.25	0.22	0.29	0.29	0.22
Common Dividends	0.09	0.09	0.07	0.07	0.07	0.07
Cash Earnings	0.54	0.46	0.42	0.46	0.49	0.49
Book Value	1.96	1.73	1.69	1.85	1.75	1.59
Retained Earnings	1.19	1.02	0.96	1.09	0.99	0.86
Assets	4.71	3.99	3.75	3.92	3.75	3.68

Profitability Analysis: Software & Services Industry Averages (Global)

Currency figures are in U.S. Dollars.

Fiscal Year	2017	2016	2015	2014	2013	2012
Gross Income Margin	46.9%	45.8%	46.6%	47.2%	46.0%	45.8%
Operating Income Margin	15.7%	15.4%	15.7%	16.6%	16.2%	16.2%
Pretax Income Margin	14.5%	14.4%	13.7%	16.7%	15.2%	12.5%
EBIT Margin	15.5%	15.3%	14.5%	17.4%	15.8%	12.6%
Net Income Margin	10.1%	11.1%	10.0%	12.0%	11.8%	8.5%
Return on Equity - Total	17.1%	15.8%	13.3%	17.3%	18.9%	15.3%
Return on Invested Capital	11.5%	11.0%	9.9%	13.0%	14.0%	11.4%
Return on Assets	7.4%	7.1%	6.3%	8.1%	8.2%	6.9%
Asset Turnover	0.6	0.6	0.6	0.6	0.7	0.7
Financial Leverage	56.9%	50.2%	46.3%	38.7%	38.0%	39.3%
Interest Expense on Debt	11,720,440	8,470,228	7,204,879	6,690,201	6,492,121	6,631,052
Effective Tax Rate	21.6%	23.5%	27.3%	27.0%	25.1%	32.4%
Cash Flow % Sales	20.3%	20.0%	19.3%	18.8%	19.2%	18.7%
Selling, General & Administrative Expenses % of Sales	30.2%	29.5%	29.9%	29.5%	29.1%	28.9%
Research & Development Expense % of Sales	7.4%	7.1%	7.1%	6.7%	6.1%	6.1%
Operating Income Return On Total Capital	30.1%	11.9%	9.6%	11.0%	9.5%	10.3%

Wright Quality Rating®

Since 1970, Wright Investors' Service has rated all of the companies in its database (when there is sufficient information available). The Wright Quality Rating, measures the overall investment quality of a company.

Wright Quality Ratings are based on numerous individual measures of quality, grouped into four principal components: (1) Investment Acceptance (i.e. stock liquidity), (2) Financial Strength, (3) Profitability & Stability, and (4) Growth. The ratings are based on established principles using 5-6 years of corporate record and other investment data.

The ratings consist of three letters and a number. Each letter reflects a composite qualitative measurement of numerous individual standards which may be summarized as follows:

A = Outstanding; **B** = Excellent; **C** = Good; **D** = Fair; **L** = Limited; **N** = Not Rated.

The number component of the Quality Rating is also a composite measurement of the annual corporate growth, based on earnings and modified by growth rates of equity, dividends, and sales per common share. The Growth rating may vary from 0 (lowest) to 20 (highest). (See sample Quality Rating below.)

Example:

Wright Quality Rating: BAC8

Investment Acceptance	B	Excellent
Financial Strength	A	Outstanding
Profitability & Stability	C	Good
Growth	8	

The highest quality rating assigned by Wright is AAA20. This rating would be assigned to a company that has a large and broad base of shareholders, an outstanding balance sheet and strong and stable profitability. The company would also have experienced superior growth over the past several years.

The Wright Quality Rating assigned to a company also takes into consideration country and industry variations. If there is not sufficient information available, the quality rating will not be assigned or an “N” (not-rated) will be applied for that particular quality criteria.

Stock Report | **May 21, 2018** | NasdaqGS Symbol: **GOOGL** | **GOOGL** is in the S&P 500

Alphabet Inc.

Recommendation	**Price**	**12-Mo. Target Price**	**Report Currency**	**Investment Style**
STRONG BUY ★★★★★	$1084.01 (as of May 21, 2018 4:00 PM ET)	$1235.00	USD	Large-Cap Growth

Equity Analyst Scott Kessler

UPDATE: PLEASE SEE THE ANALYST'S LATEST RESEARCH NOTE IN THE RESEARCH NOTES SECTION

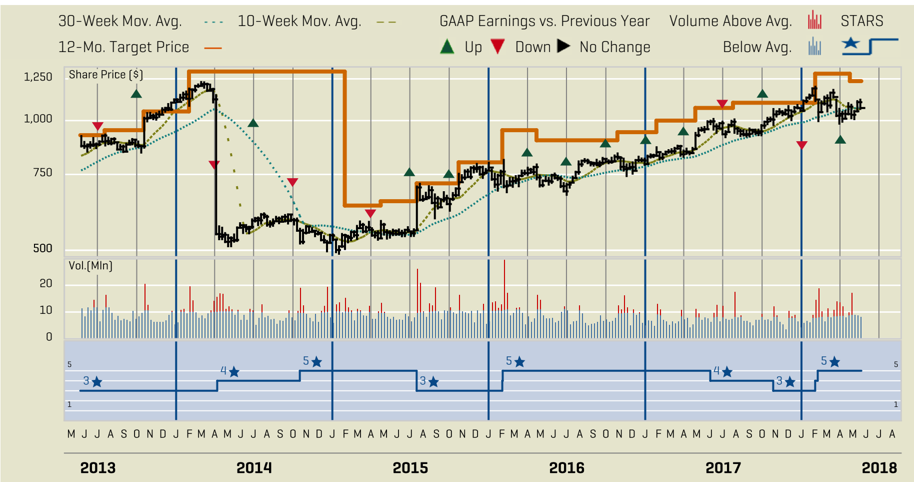
GICS Sector Information Technology
Sub-Industry Internet Software & Services

Summary Alphabet is the world's largest Internet company, specializing in search and advertising.

Key Stock Statistics (Source: CFRA, S&P Global Market Intelligence (SPGMI), Company Reports)

52-Wk Range	**$1,198.0 - 915.3**	Oper. EPS 2018**E**	**42.58**	Market Capitalization[B]	**$751.4**	Beta	**1.09**
Trailing 12-Month EPS	**23.62**	Oper. EPS 2019**E**	**47.05**	Yield [%]	**NA**	3-Yr Proj. EPS CAGR[%]	**20**
Trailing 12-Month P/E	**45.29**	P/E on Oper. EPS 2018**E**	**25.12**	Dividend Rate/Share	**NA**	SPGMI's Quality Ranking	**B+**
$10K Invested 5 Yrs Ago	**$23,496**	Common Shares Outstg.[M]	**694.55**	Institutional Ownership [%]	**71**		

Price Performance



Source: CFRA, S&P Global Market Intelligence
Past performance is not an indication of future performance and should not be relied upon as such.
Analysis prepared by Equity Analyst **Scott Kessler** on Apr 24, 2018 10:49 AM, when the stock traded at **$1073.81.**

Highlights

- We project revenues will rise 23% in 2018, 17% in 2019, and 18% in 2020. We see revenue growth driven by pricing improvements in mobile and increasing traction across display offerings, most notably YouTube. We see a weak U.S. dollar as a positive for top-line growth.
- EBITDA margins trended lower through 2017, reflecting a less favorable revenue mix and an increase in traffic acquisition costs. We also note continuing spending related to new offerings and government inquiries/investigations, especially those involving the European Commission (we point to a related 2.4 billion euro fine, accounted for as a value of $2.7 billion, announced in June 2017). However, we see stability of around 38% annually through 2020.
- In February 2017, GOOGL announced an $8.6 billion stock buyback. In May 2012, GOOGL acquired Motorola Mobility for $12.5 billion. In April 2013, GOOGL sold Motorola's Home unit to Arris in a deal valued at $2.4 billion. In October 2014, GOOGL sold the remainder of Motorola for some $2.9 billion. However, GOOGL retained considerable intellectual property, despite selling related businesses.

Investment Rationale/Risk

- We see healthy growth, with opportunities related to mobile, video (YouTube, in particular), and cloud, while anticipating continued pricing improvements. We think CFO Ruth Porat, who held the same role at Morgan Stanley and joined in May 2015, has contributed to greater transparency and more expense discipline. Nonetheless, we see continuing aggressive investments. In August 2015, GOOGL announced it would change its name to Alphabet and that Google would be its primary operating business. We see GOOGL benefiting from the new U.S. tax law, which will allow it to repatriate what we expect to be tens of billions of dollars in foreign capital, for domestic investment.
- Risks to our recommendation and target price include the potential for market share losses, excess expenditures associated with expansion, and adverse legal/regulatory developments.
- Our 12-month target price is $1,235. Global Internet peers recently had a median forward P/E of 32.8X and a P/E-to-growth (PEG) ratio of 1.2. Applying these multiples to GOOGL and averaging the outputs resulted in our target. GOOGL recently had $103 billion in cash and investments.

Analyst's Risk Assessment

LOW	**MEDIUM**	HIGH

Our risk assessment reflects significant competition, substantial and increasing investment and related new offerings and considerable ongoing legal and regulatory matters, including antitrust matters in Europe.

Revenue/Earnings Data

Revenue (Million U.S. $)

	1Q	2Q	3Q	4Q	Year
2018	31,146	--	--	--	--
2017	24,750	26,010	27,772	32,323	110,855
2016	20,257	21,500	22,451	26,064	90,272
2015	17,258	17,727	18,675	21,329	74,989
2014	15,420	15,955	16,523	--	66,001
2013	12,951	13,107	13,754	--	55,519

Earnings Per Share (U.S. $)

	1Q	2Q	3Q	4Q	Year
2019	**E** 10.19	**E** 10.97	**E** 11.73	**E** 11.66	**E** 47.05
2018	13.33	**E** 9.64	**E** 10.44	**E** 10.98	**E** 42.58
2017	7.73	5.01	9.57	-4.35	18.00
2016	6.02	7.00	7.25	7.62	27.88
2015	5.10	5.69	5.73	7.06	23.59
2014	5.21	4.98	4.25	--	19.82

Fiscal year ended Dec 31. Next earnings report expected: Late Jul. EPS Estimates based on CFRA's Operating Earnings; historical GAAP earnings are as reported in Company reports.

Dividend Data

No cash dividends have been paid in the last year.

Alphabet Inc.

Business Summary April 24, 2018

CORPORATE OVERVIEW. Alphabet (formerly Google) is a global technology company whose stated mission is to organize the world's information and make it universally accessible and useful. GOOGL has amassed and maintains the Internet's largest index of information (consisting of billions of items, including Web pages, images and videos), and makes most of it freely accessible and usable to anyone with online access. GOOGL's websites are a leading Internet destination, and the Google brand is one of the most recognized in the world. International sources contribute more than half of revenues.

In October 2015, the company changed its name to Alphabet, as part of a new operating structure. Alphabet consists of Google, which includes Google Maps, YouTube, Chrome and Android, as well as less-related assets and offerings, including connected-home company Nest, the company's investment arms and a number of emerging/"moonshoot" initiatives. We think the realignment should offer more transparency into GOOGL's operations and assets. Google co-founders Larry Page and Sergey Brin are Alphabet's CEO and President, respectively, and Sundar Pichai is Google's CEO.

GOOGL's advertising program, called AdWords, enables advertisers to present online ads when users are searching for related information. Advertisers employ GOOGL's tools to create text-based ads, bid on keywords that trigger display of their ads and set daily spending budgets. Ads are ranked for presentation based on the maximum cost per click set by the advertiser, click-through rates and other factors used to determine ad relevance. This process is designed to favor the most relevant ads. GOOGL's AdSense technology enables Google Network websites to provide targeted ads from AdWords advertisers.

GOOGL acquired Motorola Mobility in May 2012 for $12.5 billion. Motorola manufactures smartphones, tablets, and set-top boxes. We expect Motorola to account for 7% of GOOGL's revenues from continuing operations in 2013. In December 2012, GOOGL announced the pending sale of the Motorola Home settop-box business to Arris Group, in a transaction valued at $2.4 billion in cash and stock. The transaction closed in April 2013. GOOGL announced the pending sale of Motorola to Lenovo in a deal valued at $2.9 billion in January 2014. The transaction was consummated in October 2014. Earlier that month, GOOGL announced the planned purchase of Nest Labs, a privately held provider of smart thermostats and smoke alarms, for $3.2 billion.

CORPORATE STRATEGY. The word "Google" has become synonymous with the Internet search category. We think this reflects GOOGL's historically strong focus on the search segment, and the company's related market share leadership in many countries around the world, including the U.S. GOOGL has been expanding its efforts beyond the traditional online search category. We think these initiatives have been intended to broaden GOOGL's reach, and to increasingly attract users and spur activity and engagement. The company has been discontinuing investment in and operations of offerings that have not gained sufficient traction.

COMPETITIVE LANDSCAPE. GOOGL's leading competitors in the search segment include Baidu, Microsoft, Verzion (after the mid-2017 acquisition of Yahoo), and Yandex (Russia). In October 2015, IAC/InterActiveCorp announced it had renewed its partnership with GOOGL until March 2020.

FINANCIAL TRENDS. GOOGL has a somewhat limited operating history, particularly as a publicly traded company (its IPO was completed in August 2004). In our view, GOOGL's historical annual pro forma operating margins (of between 35% and 45%) and net margins (between 25% and 35%) were quite robust. However, these margins could be adversely affected as GOOGL invests to bolster its Internet search offerings and endeavors to diversify into new businesses (including M&A activity). We also expect greater competition to negatively affect the company's pricing. Moreover, we project that Motorola Mobility will continue to impair GOOGL's operating margins. Our EPS estimates include notable expenses related to stock-based compensation.

Capital expenditures increased from $37 million in 2002 to $838 million in 2005, and more than doubled in 2006, reflecting notable plans for expansion (hiring people, securing facilities) and investment (technology infrastructure, including hardware and telecommunications capacity). They fell 1% in 2008 and plummeted 66% in 2009, but surged nearly five-fold in 2010 (reflecting the purchase of a building in Manhattan). Capex fell 14% in 2011 and 5% in 2012, but rose 125% in 2013 and nearly 50% in 2014. They fell 10% in 2015, rose only 3% in 2016, and increased 40% in 2017, and we see gains over the next few years, especially focused on the U.S. given the new tax law. Capex in 2018 reflects the purchase of the Chelsea Market building in New York for around $2.5 billion. We think Motorola contributed to higher capex.

In April 2012, GOOGL announced that for each existing Class A and Class B share, it would pay a stock dividend of a Class C share, which do not include voting rights. We think this was a way for GOOGL to implement a stock split desired by many shareholders, while consolidating power for its founders and chairman. A lawsuit delayed implementation, and the company completed the split in April 2014.

Corporate Information

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Officers

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Co-Founder, President & Director
S. Brin

Senior VP & CFO
R. M. Porat

Chairman & Lead Director
J. L. Hennessy

Senior VP of Corporate Development, Chief Legal Officer & Secretary
D. C. Drummond

Co-Founder, CEO & Director
L. E. Page

Board Members

A. Mather
A. R. Mulally
D. B. Greene
E. E. Schmidt
J. L. Hennessy
K. R. Shriram
L. E. Page
L. J. Doerr
R. W. Ferguson
S. Brin
S. Pichai

Domicile
Delaware

Auditor
Ernst & Young LLP

Founded
1998

Employees
80,110

Alphabet Inc.

Quantitative Evaluations

Fair Value Rank 3

1	2	3	4	5
LOWEST				HIGHEST

Based on CFRA's proprietary quantitative model, stocks are ranked from most overvalued (1) to most undervalued (5).

Fair Value Calculation **$937.51** Analysis of the stock's current worth, based on CFRA's proprietary quantitative model suggests that GOOGL is overvalued by $146.50 or 13.5%.

Volatility LOW | AVERAGE | HIGH

Technical Evaluation **NEUTRAL** Since May, 2018, the technical indicators for GOOGL have been NEUTRAL.

Insider Activity UNFAVORABLE | NEUTRAL | FAVORABLE

Expanded Ratio Analysis

	2017	2016	2015	2014
Price/Sales	6.69	6.13	7.19	5.52
Price/EBITDA	20.71	18.57	22.11	16.98
Price/Pretax Income	27.26	22.93	27.43	21.13
P/E Ratio	58.53	28.43	32.98	26.77
Avg. Diluted Shares Outsg.(M)	704	699	693	687

Figures based on fiscal year-end price

Key Growth Rates and Averages

Past Growth Rate (%)	1 Year	3 Years	5 Years
Sales	22.80	18.87	19.21
Net Income	-34.99	-3.60	3.35

Ratio Analysis (Annual Avg.)			
Net Margin (%)	NM	NM	NM
% LT Debt to Capitalization	2.52	NA	NA
Return on Equity (%)	8.69	NA	NA

Company Financials Fiscal year ending Dec. 31

Per Share Data (U.S. $)	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Tangible Book Value	191.52	172.52	146.38	122.82	103.71	81.38	75.75	60.60	47.72	35.55
Free Cash Flow	34.50	37.55	24.28	17.77	16.98	20.39	17.24	11.08	13.45	8.75
Earnings	18.00	27.88	23.59	19.82	19.42	17.36	14.88	13.15	10.21	6.66
Earnings (Normalized)	26.76	21.85	18.03	15.69	14.56	13.16	12.11	10.26	8.10	6.75
Dividends	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Payout Ratio (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prices: High	1,086.49	839.00	798.69	1,228.88	1,121.00	774.38	646.76	630.85	625.99	697.37
Prices: Low	796.89	672.66	490.91	497.19	695.52	556.52	473.02	433.63	282.75	247.30
P/E Ratio: High	36.7	35.6	33.6	67.7	55.9	45.6	52.0	80.9	74.2	NM
P/E Ratio: Low	27.6	27.8	25.3	27.8	40.6	33.9	35.4	39.1	32.4	32.4

Income Statement Analysis (Million U.S. $)	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Revenue	110,855	90,272	74,989	66,001	55,519	46,039	37,905	29,321	23,651	21,796
Operating Income	28,882	23,716	19,360	16,874	15,403	13,834	12,242	10,381	8,312	6,632
Depreciation + Amortization	6,899	6,100	5,024	4,601	3,939	2,962	1,851	1,396	1,524	1,500
Interest Expense	109	124	104	101	81	85	58	5	NA	NA
Pretax Income	27,193	24,150	19,651	17,259	15,899	14,469	12,326	10,796	8,381	5,853
Effective Tax Rate	53.4	19.3	16.8	21.1	17.2	20.2	21.0	21.2	22.2	27.8
Net Income	12,662	19,478	16,348	14,136	12,733	10,737	9,737	8,505	6,520	4,227
Net Income (Normalized)	18,827	15,266	12,491	10,779	9,869	8,749	7,926	6,632	5,178	4,284

Balance Sheet and Other Financial Data (Million U.S. $)	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Cash	101,871	86,333	71,926	62,633	57,447	47,159	43,366	33,364	24,485	15,846
Current Assets	124,308	105,408	90,114	78,656	72,886	60,454	52,758	41,562	29,167	20,178
Total Assets	197,295	167,497	147,461	129,187	110,920	93,798	72,574	57,851	40,497	31,768
Current Liabilities	24,183	16,756	19,310	16,779	15,908	14,337	8,913	9,996	2,747	2,302
Long Term Debt	3,943	3,935	1,995	2,992	1,990	2,988	2,986	NA	NA	NA
Total Capital	156,471	142,971	127,979	111,875	93,928	78,925	64,356	52,067	36,004	28,239
Capital Expenditures	13,184	10,212	9,950	11,014	7,358	3,273	3,438	4,018	810	2,359
Cash from Operations	37,091	36,036	26,572	23,024	18,659	16,619	14,565	11,081	9,316	7,853
Current Ratio	5.14	6.29	4.67	4.69	4.58	4.22	5.92	4.16	10.62	8.77
% Long Term Debt of Capitalization	2.52	2.75	1.56	2.67	2.12	3.79	4.64	NA	NA	NA
% Net Income of Revenue	11.4	21.6	21.8	21.4	22.9	23.3	25.7	29.0	27.6	19.4
% Return on Assets	9.90	9.41	8.75	8.78	9.40	10.39	11.73	13.19	14.38	14.52
% Return on Equity	8.7	15.0	14.6	14.2	16.6	17.8	18.7	20.7	20.3	16.6

Source: S&P Global Market Intelligence. Data may be preliminary or restated; before results of discontinued operations/special items. Per share data adjusted for stock dividends; EPS diluted. E-Estimated. NA-Not Available. NM-Not Meaningful. NR-Not Ranked. UR-Under Review.

Sub-Industry Outlook

Our fundamental outlook for the Internet Software & Services sub-industry for the next 12 months is positive, reflecting an increasing percentage of related budgets committed to the Internet (versus so-called traditional media) and pricing for associated online offerings, which has shown signs of improvement, offset somewhat by what we view as European uncertainties related to the June 2016 Brexit leave vote. We also have questions about pricing for mobile advertising and see great potential for video.

U.S. online advertising revenues rose 17% in 2013, 16% in 2014, 20% in 2015, and 22% in 2016, according to the IAB Internet Revenue Report, and CFRA estimates increases of 23% for 2017 and 20% for 2018. Corporations are committing larger percentages of advertising budgets to digital formats as people spend more time online and on mobile devices, especially as compared with consumption of other media. Moreover, Internet and mobile marketing offers notable targeting and data-focused return-on-investment capabilities. Mobile has also been driving volumes, accounting for more than half of U.S. digital advertising sales in 2016.

We also think the advent and growing adoption of technologies, such as powerful Internet-enabled smartphones and tablets, is a positive for interactive advertising, notably driving traffic and usage, for example. However, we think mobile advertising is generally priced at lower rates than online advertising, but have noted improving trends. Video is an emerging opportunity, especially involving social media and mobile, and we note the success of offerings like Facebook Live.

U.S. online retail sales increased 13% in 2013, 14% in 2014, 15% in 2015, 15% in 2016, and 18% in 2017, according to the Department of Commerce. We see growth around the mid-teens level for 2018 and 2019. We think users are attracted to Internet retail offerings in large part due to factors that include a generally substantial selection of products, 24/7/365 store access and associated convenience of home delivery, as well as a compelling value proposition. According to Forrester Research, an independent technology and market research company, improving initiatives across multiple channels, including physical and online stores, better merchandising, more customized offerings, and increasingly sophisticated marketing efforts, have helped drive considerable segment growth.

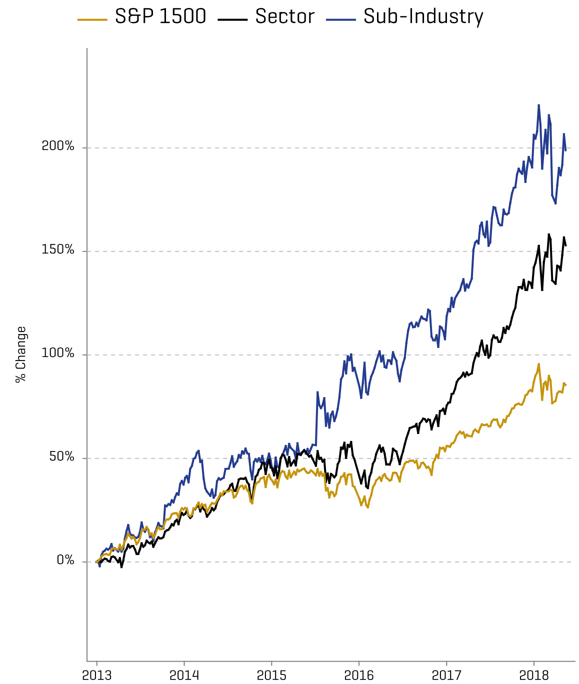
Year to date through March 31, 2018, the S&P 1500 Internet Software & Services index declined 3.9% versus a 1.2% decline in the S&P 1500. In 2017 and 2016, the index rose 40.0% and 5.2% compared with increases in the S&P 1500 of 18.8% and 10.6%.

/Scott Kessler

Industry Performance

GICS Sector: Information Technology
Sub-Industry: Internet Software & Services

Based on S&P 1500 Indexes
Five-Year market price performance through May 21, 2018



NOTE: All Sector & Sub-Industry information is based on the Global Industry Classification Standard (GICS).

Past performance is not an indication of future performance and should not be relied upon as such.
Source: S&P Global Market Intelligence

Sub-Industry: Internet Software & Services Peer Group*: Internet Software & Services

Peer Group	Stock Symbol	Exchange	Currency	Recent Stock Price ($)	Stk. Mkt. Cap. (M $)	30-Day Price Chg. (%)	1-Year Price Chg. (%)	P/E Ratio	Fair Value Calc. ($)	Yield (%)	Return on Equity (%)	LTD to Cap (%)
Alphabet Inc.	**GOOGL**	**NasdaqGS**	**USD**	**1,084.0**	**751,352**	**0.6**	**13.6**	**46**	**937.51**	**Nil**	**8.7**	**2.5**
Alibaba Group Holding Limited	BABA	NYSE	USD	197.64	507,832	10.3	60.4	53	184.83	Nil	16.2	21.3
Altaba Inc.	AABA	NasdaqGS	USD	77.02	62,378	8.4	53.5	3	NA	Nil	47.3	2.1
Baidu, Inc.	BIDU	NasdaqGS	USD	240.51	83,873	3.4	27.4	24	279.61	Nil	16.0	20.6
Facebook, Inc.	FB	NasdaqGS	USD	184.49	534,030	11.0	24.6	15	195.43	Nil	23.9	NA
NetEase, Inc.	NTES	NasdaqGS	USD	233.59	30,677	-12.3	-18.5	27	241.49	0.9	25.4	NA
Spotify Technology S.A.	SPOT	NYSE	USD	150.22	26,762	-5.2	NM	NM	NA	Nil	NM	79.8
Tencent Holdings Limited	TCEH.Y	OTCPK	USD	51.98	490,351	1.9	50.7	55	NA	0.2	26.9	31.7
Twitter, Inc.	TWTR	NYSE	USD	33.63	25,219	5.4	83.3	NM	18.51	Nil	-2.2	23.8
Yahoo Japan Corporation	YAHO.Y	OTCPK	USD	7.283	20,739	-12.7	-15.9	17	NA	2.2	13.9	5.7
eBay Inc.	EBAY	NasdaqGS	USD	38.29	38,059	-9.3	13.2	NM	NA	Nil	-10.9	51.1

*For Peer Groups with more than 10 companies or stocks, selection of issues is based on market capitalization.
NA-Not Available NM-Not Meaningful.
Note: Peers are selected based on Global Industry Classification Standards and market capitalization. The peer group list includes companies with similar characteristics, but may not include all the companies within the same industry and/or that engage in the same line of business.

Analyst Research Notes and other Company News

May 21, 2018
10:16 am ET... CFRA REITERATES STRONG BUY OPINION ON SHARES OF ALPHABET INC. (GOOGL 1069.64*****): Yesterday, in the U.S., the respected TV program 60 Minutes broadcast a segment called "How Did Google Get So Big?" We watched and read the related article on the the 60 Minutes website. 60 Minutes seemed to suggest Google (GOOGL's primary operating unit) not only wields considerable global power and influence, but is also largely unchecked by regulators and has run afoul of antitrust laws. The piece began with the notion that the Federal Trade Commission was asked to investigate the data collected by Google via its Android operating system and we have noted more scrutiny related to GOOGL in light of the Cambridge Analytica situation. However, we do not think the segment revealed or made news, highlighting only Google critics, including three interviewees (of the four featured in the piece) who have been well-known and mostly long-time antagonists of the business. We acknowledge legal and regulatory risks, but see a compelling valuation, and think a federal U.S. inquiry is unlikely. /Scott Kessler

May 10, 2018
01:34 pm ET... CFRA RAISES THE S&P 500 INFO. TECHNOLOGY SECTOR TO OVERWEIGHT FROM MARKETWEIGHT (GOOGL 1088.95*****): CFRA is raising the S&P 500 Information Technology sector to overweight from marketweight as we think sector earnings growth expectations for 2018 and 2019 are significantly underestimating the potential of the sector. Tech sector companies have consistently beat expectations in each of past seven quarters. Despite this, consensus 2019 earnings growth was recently reduced to 9.0%, below the 10.0% growth expected for the S&P 500. At a P/E of 19.0x, the sector garners a premium to its historic average but is below the 20.0x reached earlier this year. /Lindsey Bell

April 24, 2018
09:10 am ET... CFRA REITERATES STRONG BUY OPINION ON SHARES OF ALPHABET INC. (GOOGL 1073.81*****): We trim our 12-month target price to $1,235 from $1,285. Global peers have a median forward P/E of 32.8X and a P/E-to-growth of 1.2. Applying these multiples and averaging the outputs results in our target. We adjust our EPS estimates for '18 to $42.58 from $42.34, '19 to $47.05 from $49.46, and '20 to $54.36 from $57.61. GOOGL posts normalized Q1 EPS of $9.50 (not including a $3.0 billion gain on equity securities due to an accounting change, reflecting the company's stake in Uber) vs. $10.01, above the S&P Capital IQ consensus of $9.29. Revenues rose 26%, higher than we projected. Traffic acquisition costs (TAC) rose 37%, accounting for 24% of revenue (up from 22%), on shifts to mobile and programmatic advertising. We think TAC growth will start decelerating in Q2. Operating margins narrowed (to 26.5% from 22.5%) and the tax rate was much lower (11% vs. 20%). However, we still see a compelling valuation and point to $103 billion in cash/securities and only $5.3 billion in debt. /Scott Kessler

February 08, 2018
02:45 pm ET... CFRA UPGRADES OPINION ON CLASS 'A' SHARES OF ALPHABET TO STRONG BUY FROM BUY (GOOGL 1055.41*****): GOOGL has fallen some 13% over the past week, after Q4 EPS that were below our estimate. However, we raised our target, reflecting higher peer valuations, and we see around 25% upside to our 12-month target price of $1,285. We acknowledge competitive pressures and regulatory concerns, but Q4 revenue growth rose 24%, and note multiple emerging growth opportunities, including autonomous driving technology leader Waymo. We also point to a new $8.6 billion stock buyback, $98 billion in net cash/short-term investments, and the potential to repatriate $63 billion in foreign profits. /Scott Kessler

February 02, 2018
10:50 am ET... CFRA UPGRADES OPINION ON CLASS A SHARES OF ALPHABET INC. TO BUY FROM HOLD (GOOGL 1181.59****): We raise our 12-month target by $185 to $1,285. Peers have a median forward P/E of 27.7X and P/E-to-growth of 1.4. Applying these multiples and averaging the outputs results in our target. We trim our EPS estimates for '18 by $0.37 to $42.34 and '19's by $0.19 to $49. 46, setting '20's at $57.61. GOOGL posts adjusted Q4 EPS of $9.70 vs. $9.36, $0.37 below the S&P Capital IQ consensus, and we note traffic acquisition costs as a percentage of revenues were higher than we expected. However, 24% revenue growth was also higher than we expected. We see GOOGL as attractively valued. /Scott Kessler

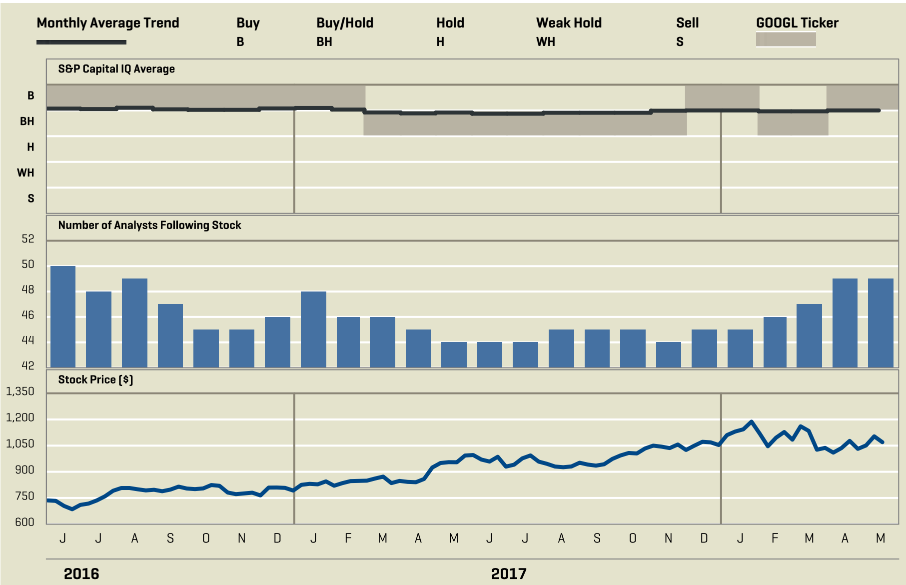
December 22, 2017
09:26 am ET... CFRA REITERATES HOLD OPINION ON CLASS A SHARES OF ALPHABET INC. (GOOGL 1070.85***): Alphabet announces long-time company leader Eric Schmidt will leave his Executive Chairman role next month, and become a technical advisor to the company. He will continue as a director. Schmidt joined Alphabet nearly 17 years ago, serving as Chairman and then also CEO of the company starting in 2001. He relinquished those roles in 2011, when he became Executive Chairman, concurrent with Larry Page re-assuming the CEO position. We think Schmidt's and GOOGL's influence in Washington, DC have declined with the transition to the Trump Administration from the Obama Administration. /Scott Kessler

October 27, 2017
10:33 am ET... CFRA DOWNGRADES OPINION ON SHARES OF ALPHABET INC. TO HOLD FROM BUY (GOOGL 1055.935***): We maintain our 12-month target of $1,100. Peers have an out-year P/E of 27.7X and a P/E-to-growth of 1.2. Applying these multiples and averaging the outputs results in our target. We raise our EPS estimates for '17 to $35.40 from $34.67 and '18's to $42.71 from $41.95, and set '19's at $49.65. GOOGL posts Q3 EPS of $9.57 vs. $7.25, above our estimate of $8.91 and S&P Capital IQ consensus of $8.40. Revenues rose 24%, driven by continuing progress with mobile search; we note search volume growth improved sequentially, while pricing also increased. We see GOOGL as fully valued. /Scott Kessler

September 22, 2017
09:26 am ET... CFRA REITERATES BUY OPINION ON CLASS A SHARES OF ALPHABET (GOOGL 947.55****): GOOGL announces that certain employees of HTC Corp., many of whom are already working with GOOGL to develop Pixel smartphones, would join GOOGL. Essentially, GOOGL would be acquiring talent from HTC for $1.1 billion. Separately, GOOGL would receive a non-exclusive license for HTC intellectual property. GOOGL has been working with HTC on smartphones for a decade or so, and we think as the company increasingly focuses on hardware more generally, greater related internal talent makes sense. We wonder how this will impact GOOGL's relationship with top Android partner Samsung. /Scott Kessler

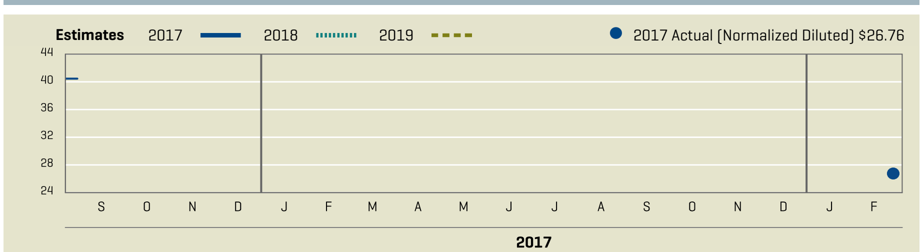
Note: Research notes reflect CFRA's published opinions and analysis on the stock at the time the note was published. The note reflects the views of the equity analyst as of the date and time indicated in the note, and may not reflect CFRA's current view on the company.

Analysts' Recommendations



	No. of Recommendations	% of Total	1 Mo.Prior	3 Mos.Prior
Buy	29	59	29	28
Buy/Hold	11	22	11	10
Hold	6	12	6	7
Weak Hold	0	0	0	0
Sell	0	0	0	0
No Opinion	3	6	3	1
Total	**49**	**100**	**49**	**46**

Wall Street Consensus Estimates



Fiscal Years	Avg Est.	High Est	Low Est.	# of Est.	Est. P/E
2019	47.97	57.76	42.96	20	22.6
2018	43.31	53.73	38.91	18	25.0
2019 vs. 2018	**▲11%**	**▲8%**	**▲10%**	**▲11%**	**▼-10%**
Q2'19	11.08	11.57	10.38	6	97.8
Q2'18	9.70	11.62	9.05	17	NM
Q2'19 vs. Q2'18	**▲14%**	**▼-0%**	**▲15%**	**▼-65%**	**NA**

Forecasts are not reliable indicator of future performance.
Note: A company's earnings outlook plays a major part in any investment decision. S&P Global Market Intelligence organizes the earnings estimates of over 2,300 Wall Street analysts, and provides their consensus of earnings over the next two years, as well as how those earnings estimates have changed over time. Note that the information provided in relation to consensus estimates is not intended to predict actual results and should not be taken as a reliable indicator of future performance.

Note: For all tables, graphs and charts in this report that do not cite any reference or source, the source is S&P Global Market Intelligence.

Wall Street Consensus Opinion

BUY

Wall Street Consensus vs. Performance

For fiscal year 2018, analysts estimate that GOOGL will earn USD $43.31. For the 1st quarter of fiscal year 2018, GOOGL announced earnings per share of USD $13.33, representing 30.8% of the total revenue estimate. For fiscal year 2019, analysts estimate that GOOGL's earnings per share will grow by 11% to USD $47.97.

Glossary

STARS

Since January 1, 1987, CFRA Equity and Fund Research Services, and its predecessor S&P Capital IQ Equity Research has ranked a universe of U.S. common stocks, ADRs (American Depositary Receipts), and ADSs (American Depositary Shares) based on a given equity's potential for future performance. Similarly, we have ranked Asian and European equities since June 30, 2002. Under proprietary STARS (Stock Appreciation Ranking System), equity analysts rank equities according to their individual forecast of an equity's future total return potential versus the expected total return of a relevant benchmark (e.g., a regional index (S&P Asia 50 Index, S&P Europe 350® Index or S&P 500® Index)), based on a 12-month time horizon. STARS was designed to meet the needs of investors looking to put their investment decisions in perspective. Data used to assist in determining the STARS ranking may be the result of the analyst's own models as well as internal proprietary models resulting from dynamic data inputs.

S&P Global Market Intelligence's Quality Ranking

(also known as **S&P Capital IQ Earnings & Dividend Rankings**) - Growth and stability of earnings and dividends are deemed key elements in establishing S&P Global Market Intelligence's earnings and dividend rankings for common stocks, which are designed to capsulize the nature of this record in a single symbol. It should be noted, however, that the process also takes into consideration certain adjustments and modifications deemed desirable in establishing such rankings. The final score for each stock is measured against a scoring matrix determined by analysis of the scores of a large and representative sample of stocks. The range of scores in the array of this sample has been aligned with the following ladder of rankings:

A+	Highest	B	Below Average
A	High	B-	Lower
A-	Above Average	C	Lowest
B+	Average	D	In Reorganization
NR	Not Ranked		

EPS Estimates

CFRA's earnings per share (EPS) estimates reflect analyst projections of future EPS from continuing operations, and generally exclude various items that are viewed as special, non-recurring, or extraordinary. Also, EPS estimates reflect either forecasts of equity analysts; or, the consensus (average) EPS estimate, which are independently compiled by S&P Global Market Intelligence, a data provider to CFRA. Among the items typically excluded from EPS estimates are asset sale gains; impairment, restructuring or merger-related charges; legal and insurance settlements; in process research and development expenses; gains or losses on the extinguishment of debt; the cumulative effect of accounting changes; and earnings related to operations that have been classified by the company as discontinued. The inclusion of some items, such as stock option expense and recurring types of other charges, may vary, and depend on such factors as industry practice, analyst judgment, and the extent to which some types of data is disclosed by companies.

12-Month Target Price

The equity analyst's projection of the market price a given security will command 12 months hence, based on a combination of intrinsic, relative, and private market valuation metrics, including Fair Value.

CFRA Equity Research

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Abbreviations Used in Equity Research Reports

CAGR - Compound Annual Growth Rate
CAPEX - Capital Expenditures
CY - Calendar Year
DCF - Discounted Cash Flow
DDM - Dividend Discount Model
EBIT - Earnings Before Interest and Taxes
EBITDA - Earnings Before Interest, Taxes, Depreciation & Amortization
EPS - Earnings Per Share
EV - Enterprise Value
FCF - Free Cash Flow
FFO - Funds From Operations
FY - Fiscal Year
P/E - Price/Earnings
P/NAV - Price to Net Asset Value PEG Ratio - P/E-to-Growth Ratio PV - Present Value
R&D - Research & Development ROCE - Return on Capital Employed ROE - Return on Equity
ROI - Return on Investment
ROIC - Return on Invested Capital
ROA - Return on Assets
SG&A - Selling, General & Administrative Expenses
SOTP - Sum-of-The-Parts
WACC - Weighted Average Cost of Capital

Dividends on American Depository Receipts (ADRs) and American Depository Shares (ADSs) are net of taxes (paid in the country of origin).

Qualitative Risk Assessment

Reflects an equity analyst's view of a given company's operational risk, or the risk of a firm's ability to continue as an ongoing concern. The Qualitative Risk Assessment is a relative ranking to the U.S. STARS universe, and should be reflective of risk factors related to a company's operations, as opposed to risk and volatility measures associated with share prices. For an ETF this reflects on a capitalization-weighted basis, the average qualitative risk assessment assigned to holdings of the fund.

STARS Ranking system and definition:

★★★★★ **5-STARS (Strong Buy):**
Total return is expected to outperform the total return of a relevant benchmark, by a notable margin over the coming 12 months, with shares rising in price on an absolute basis.

★★★★☆ **4-STARS (Buy):**
Total return is expected to outperform the total return of a relevant benchmark over the coming 12 months, with shares rising in price on an absolute basis.

★★★☆☆ **3-STARS (Hold):**
Total return is expected to closely approximate the total return of a relevant benchmark over the coming 12 months, with shares generally rising in price on an absolute basis.

★★☆☆☆ **2-STARS (Sell):**
Total return is expected to underperform the total return of a relevant benchmark over the coming 12 months, and the share price is not anticipated to show a gain.

★☆☆☆☆ **1-STAR (Strong Sell):**
Total return is expected to underperform the total return of a relevant benchmark by a notable margin over the coming 12 months, with shares falling in price on an absolute basis.

Relevant benchmarks:

In North America, the relevant benchmark is the S&P 500 Index, in Europe and in Asia, the relevant benchmarks are the S&P Europe 350 Index and the S&P Asia 50 Index, respectively.

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Quantitative Stock Reports:

Quantitative recommendations are determined by ranking a universe of common stocks based on 5 measures or model categories: Valuation, Quality, Growth, Street Sentiment, and Price Momentum. In the U.S., a sixth sub-category for Financial Health will also be displayed. Percentile scores are used to compare each company to all other companies in the same universe for each model category. The five (six) model category scores are then weighted and rolled up into a single percentile ranking for that company. For reports containing quantitative recommendations refer to the Glossary section of the report for detailed methodology and the definition of Quantitative rankings.

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STARS Stock Reports:

Global STARS Distribution as of March 31, 2018

Ranking	North America	Europe	Asia	Global
Buy	38.2%	31.0%	36.8%	36.9%
Hold	56.4%	55.2%	43.7%	54.8%
Sell	5.3%	13.7%	19.5%	8.4%
Total	100.0%	100.0%	100.0%	100.0%

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UPDATE

May 18, 2018 04:01 AM GMT

Alphabet Inc.

Why is YouTube Focused on Music Subscriptions?

Stock Rating	Industry View	Price Target
Overweight	In-Line	$1,200.00

YouTube's new Music and Premium products speak to a growing subscription focus, which could lead to ~13X higher user monetization. It's accretive to YouTube too – key to GOOGL sum of the parts – as every 1mn Music subs add ~1% to YouTube revenue.

What's New? First, YouTube announced it is launching a **revamped YouTube Music**, which is available for free (ad supported version) or for a $10/month subscription (without ads). The new YouTube Music includes custom playlists, the ability to download tracks, and it also incorporates Alphabet's data sets and personalization (adaptive home screen and suggestion engine based on listening history, location, etc). **Second,** YouTube also announced a new version of its paid streaming subscription service, **YouTube Premium** (previously YouTube Red) which includes ad-free YouTube Music, access to original YouTube programming, and an ad-free YouTube experience. This sells for $12/month, compared to the old YouTube Red product, which was $10/month. **We think YouTube's pricing strategy** (minimal incremental spend between $10 and $12 per month) **is notable as it** speaks to YouTube's continued efforts to drive users toward premium content and signals a further **pivot toward a subscription-based model.** As our math shows below, **this pivot could be highly accretive to YouTube's monetization per user.** To be clear, this is not the first YouTube music attempt and user adoption will be important to monitor...but as shown below, even modest success (growing paid users from 8mn to 25mn over the next 5 years) can lead to material incremental monetization.

3 Reasons YouTube is Focused on Music: 1) Music streaming is a large and growing penetration market (penetration expected to reach ~15% of global smartphone users by 2022 vs. ~6% in 2017; see Revival - The Investment Case for Music). **2)** YouTube has a 1.8bn global monthly active user base that it can cross promote the service to drive adoption. We also believe that music is the most common use case on YouTube as roughly 65% of people on YouTube in the US watch music videos on a weekly basis (see Exhibit 1). **3) A successful YouTube Music can move the needle on YouTube monetization...and GOOGL's sum of the parts value** (see 1 Trillion Reasons for GOOGL to Improve Disclosure).

The Bullish Math Behind a Subscription Transition...Potential To Monetize Users at ~$10 per Month Instead of $10 per Year: We estimate that YouTube

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Alphabet Inc. (GOOGL.O, GOOGL US)

Internet / **United States of America**

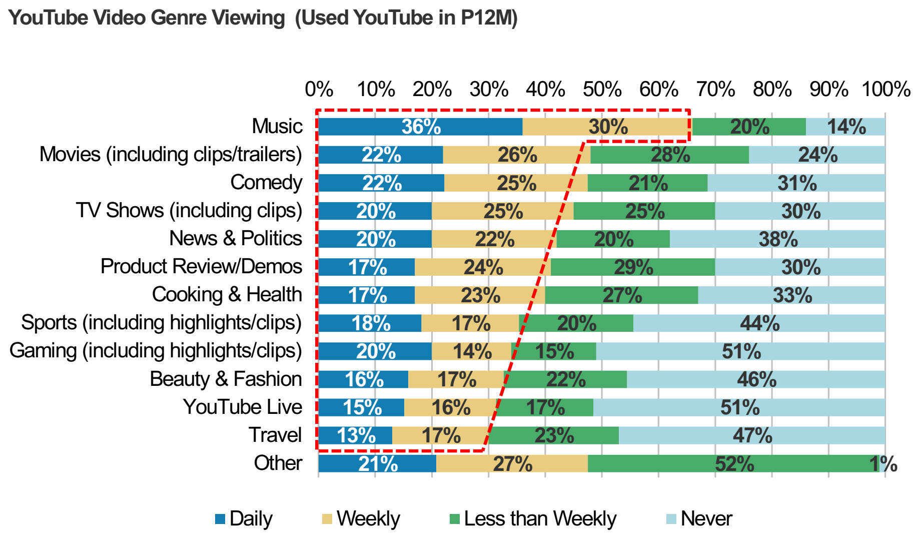
Stock Rating	**Overweight**
Industry View	**In-Line**
Price target	**$1,200.00**
Shr price, close (May 17, 2018)	$1,081.26
Mkt cap, curr (mm)	$780,869
52-Week Range	$1,198.00-915.31

will generate ~$18bn of gross revenue in 2018 (for an all-implied ARPU of $10 per monthly user). **As such, every 1mn non-paying YouTube users that are converted to YouTube Music would add 1% to YouTube revenue** (assuming 40% of existing ad ARPU is lost due to ad-free music; see Exhibit 2). As shown in our macro music model (in collaboration with Ben Swinburne) **we expect YouTube Music to reach 25mn paying users by 2022...essentially generating ~$3bn of revenue** (see Exhibit 3). We acknowledge this math isn't perfect as YouTube users in more developed markets monetize materially higher...that said, we still believe that they monetize music at a materially lower level than $120/user/year (YouTube Music). This matters given for GOOGL as an entity too given we value YouTube as a ~$160bn entity in our sum of the parts (implied 7X revenue) and our bottom up revenue analysis continues to show that YouTube ad revenue has been decelerating.

Implications for the Music Industry: Spotify (covered by Ben Swinburne) has been the market share leader in subscription streaming despite both Apple and Amazon's presence. However, in the case of its biggest competitor Apple Music, Spotify has likely held an advantage with consumers in the larger Android smartphone base, notably outside the US. **YouTube may have more success with premium music on its Android platforms than Apple and Amazon have historically, representing a risk to Spotify's expected success.** Fortunately, two factors keep us constructive on OW SPOT. **First**, we see the global subscription streaming market opportunity as large and are encouraged by the recent growth of 100 mm new paid users over the last two years globally and the growth in the US market where net adds doubled in '17 vs. '16. **Second**, while we certainly take YouTube seriously, it has had Google Play music in the market for years and has not aggressively pushed a subscription music service under prior incarnations. **Will this time be different?** The music labels, many of which share the industry's view that YouTube is a source of value leakage for artists (see IFPI global music report), hope so. Time will tell how much of this re-launch is aimed at building a business versus appeasing the music industry. For labels, publishers and artists, a new major player marketing paid subscription music is clearly bullish and supports our OW on **Vivendi** (covered by Omar Sheik).

Analysis

Exhibit 1: Music is the most common type of content consumed on YouTube



Source: AlphaWise, Morgan Stanley Research

Exhibit 2: Every 1mn non-paying YouTube users that are converted to YouTube Music would add 1% to YouTube revenue

in millions	
YouTube Gross Revenue (2018)	**$18,060**
Monthly Active Users	**1,800**
Implied APRU	$10
(-) ARPU Lost Related to Ad-Free Music	$4
(+) Incremental ARPU from YouTube Music	$120
New Implied ARPU	**$126**
X 1 million new customers (Incremental Revenue)	$126
Upside to YouTube Gross Revenue	**1%**

Source: Company data, Morgan Stanley Research
Note: We assume 40% of YouTube time spent is on music videos

Exhibit 3: We expect YouTube Music to reach 25mn paying users by 2022

Global YE Paid Users, mm	YE16E	YE17E	YE18E	YE19E	YE20E	YE21E	YE22E
Spotify	48.0	71.0	94.9	117.7	141.9	167.6	194.5
Apple Music	20.5	35.0	58.7	83.3	113.4	143.1	160.0
Amazon Unlimited	0.2	16.0	33.2	53.1	71.2	91.7	111.9
Pandora Premium	0.0	1.3	2.7	3.8	4.6	5.1	5.5
Pandora Plus	4.4	4.2	3.9	3.9	3.9	3.9	3.9
YouTube Music / Google Play / YT Red	4.5	7.5	10.5	13.9	17.6	21.6	25.2
Napster (former Rhapsody)	4.5	5.0	5.3	5.4	5.5	5.4	5.3
TIDAL	1.0	1.2	1.5	1.7	1.8	1.9	1.8
Other	28.9	34.9	35.0	39.1	46.8	55.1	65.7
Total YE, mm	**112.0**	**176.0**	**245.7**	**321.8**	**406.7**	**495.4**	**573.7**
Total Average, mm	**89.5**	**144.0**	**210.8**	**283.7**	**364.3**	**451.1**	**534.6**
Estimated users per subscription	1.15	1.19	1.23	1.26	1.30	1.34	1.38
Total subscriptions YE, mm	**97.0**	**148.0**	**200.5**	**255.0**	**312.9**	**370.0**	**416.0**

NET ADDITIONS, mm	YE16E	YE17E	YE18E	YE19E	YE20E	YE21E	YE22E
Spotify	20.0	23.0	23.9	22.7	24.2	25.8	26.9
Apple Music	10.5	14.5	23.7	24.6	30.1	29.7	16.9
Amazon Unlimited	0.2	15.8	17.2	19.9	18.1	20.5	20.2
Pandora Premium	0.0	1.3	1.4	1.1	0.8	0.5	0.4
Pandora Plus	0.5	-0.2	-0.3	0.0	0.0	0.0	0.0
YouTube Music / Google Play / YT Red	4.5	3.0	3.0	3.3	3.8	4.0	3.6
Napster (former Rhapsody)	1.0	0.5	0.3	0.1	0.1	-0.1	-0.1
TIDAL	0.2	0.2	0.3	0.3	0.1	0.1	-0.1
Other	8.2	5.9	0.2	4.0	7.7	8.3	10.6
TOTAL, mm	**45.0**	**64.0**	**69.6**	**76.2**	**84.8**	**88.8**	**78.2**

Global Market Share %	YE16E	YE17E	YE18E	YE19E	YE20E	YE21E	YE22E
Spotify	*42.8%*	*40.3%*	*38.6%*	*36.6%*	*34.9%*	*33.8%*	*33.9%*
Apple Music	*18.3%*	*19.9%*	*23.9%*	*25.9%*	*27.9%*	*28.9%*	*27.9%*
Amazon Unlimited	*0.2%*	*9.1%*	*13.5%*	*16.5%*	*17.5%*	*18.5%*	*19.5%*
Pandora Premium	*0.0%*	*0.7%*	*1.1%*	*1.2%*	*1.1%*	*1.0%*	*1.0%*
Pandora Plus	*3.9%*	*2.4%*	*1.6%*	*1.2%*	*1.0%*	*0.8%*	*0.7%*
YouTube Music / Google Play / YT Red	*4.0%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.4%*	*4.4%*
Napster	*4.0%*	*2.8%*	*2.2%*	*1.7%*	*1.4%*	*1.1%*	*0.9%*
TIDAL	*0.9%*	*0.7%*	*0.6%*	*0.5%*	*0.4%*	*0.4%*	*0.3%*
Other	*25.8%*	*19.8%*	*14.3%*	*12.1%*	*11.5%*	*11.1%*	*11.5%*
Total YE, mm	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*

Source: IFPI, RIAA, Morgan Stanley Research

Valuation Methodology and Risks

Alphabet Inc. (GOOGL), Overweight

Our $1,200 price target is based on our discounted cash flow valuation and implies ~13X 2019e adjusted EBITDA of ~$60bn. We deduct the present value of the "Other Bets" losses to arrive at our price target of $1,200. We use a ~7% WACC and a ~2% terminal growth rate (in line with other growth-oriented internet companies).

Risks to Achieving Price Target

•Search is a key component of GOOGL's advertising business. While we believe Search will continue to take share of global ad budgets and Google will retain its dominant share, growth in US and UK markets has slowed.

•Improved disclosure around the Google Inc. and Other Alphabet segments may not decrease the overall investment activity of the business.

•Deterioration in the advertising market, particularly as vast majority of revenue is driven by advertising.

•Negative resolution of EU antitrust probe.

Spotify Technology SA (SPOT), Overweight

Our $190 price target is based on a our DCF driven fair market value based on a ~9% WACC and a 2.5% long-term growth rate, and is supported by ~4x fwd. base Case revenue multiple.

Risks to Achieving Price Target

•Concentrated supplier group, where value of the catalog leaves Spotify dependent on label agreements.

•Apple Music, Amazon, perhaps YouTube and Facebook, all could view interactive music as a loss leader.

•Smart speakers: Amazon Echo accelerating adoption, Google Home, and Apple HomePod.

Vivendi (VIV.PA), Overweight

Our €27.00 price target is based on a sum of the parts valuation.

Risks to Achieving Price Target

•Slower than expected growth in streaming subscribers.

•Pressure from distributors/artists for a greater share of streaming revenues.

- Use of cash/value-destructive M&A.

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(as of April 30, 2018)
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Overweight/Buy	**1168**	**38%**	**305**	**40%**	**26%**	**550**	**39%**
Equal-weight/Hold	**1337**	**43%**	**371**	**49%**	**28%**	**641**	**46%**
Not-Rated/Hold	**53**	**2%**	**5**	**1%**	**9%**	**7**	**0%**
Underweight/Sell	**539**	**17%**	**83**	**11%**	**15%**	**207**	**15%**
TOTAL	**3,097**		**764**			**1405**	

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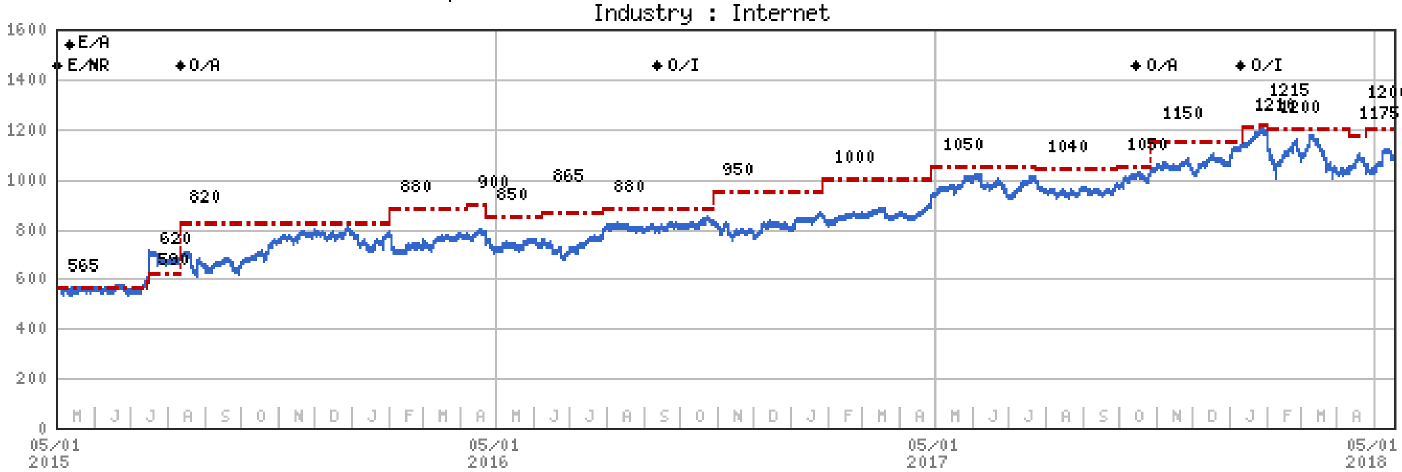
Stock Price, Price Target and Rating History (See Rating Definitions)

Alphabet Inc. (GOOGL.O) - As of 5/17/18 in USD
Industry : Internet



Stock Rating History: 5/1/15 : E/NR; 5/11/15 : E/A; 8/11/15 : O/A; 9/12/16 : O/I; 10/16/17 : O/A; 1/10/18 : O/I

Price Target History: 4/24/15 : 565; 7/15/15 : 590; 7/17/15 : 620; 8/11/15 : 820; 2/2/16 : 880; 4/7/16 : 900; 4/22/16 : 850; 6/8/16 : 865; 7/29/16 : 880; 10/28/16 : 950; 1/27/17 : 1000; 4/28/17 : 1050; 7/24/17 : 1040; 9/29/17 : 1050; 10/27/17 : 1150; 1/12/18 : 1210; 1/25/18 : 1215; 2/2/18 : 1200; 4/10/18 : 1175; 4/24/18 : 1200

Source: Morgan Stanley Research   Date Format : MM/DD/YY   Price Target --   No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) —   Stock Price (Covered by Current Analyst) ▬
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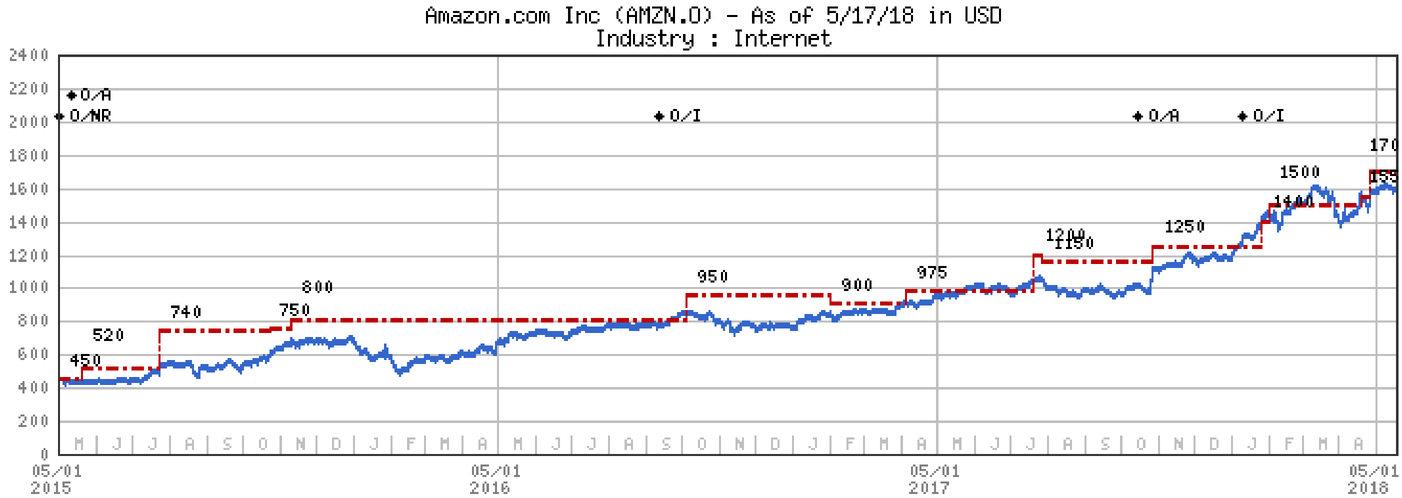

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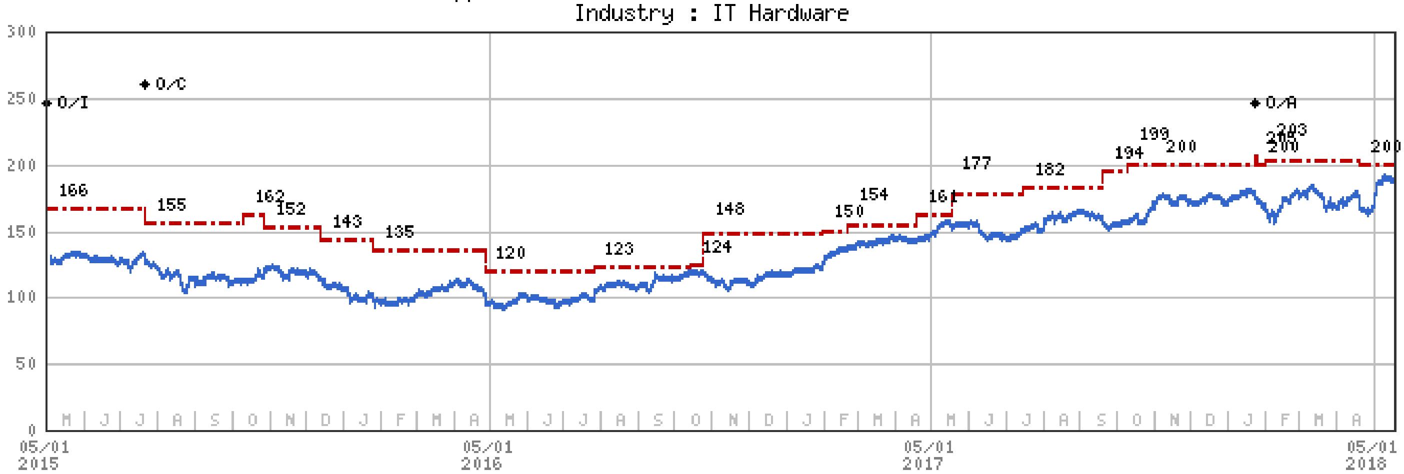
Price Target History: 4/24/15 : 450; 5/21/15 : 520; 7/24/15 : 740; 10/23/15 : 750; 11/11/15 : 800; 10/5/16 : 950; 2/2/17 : 900; 4/5/17 : 975; 7/20/17 : 1200; 7/27/17 : 1150; 10/27/17 : 1250; 1/26/18 : 1400; 2/1/18 : 1500; 4/19/18 : 1550; 4/27/18 : 1700

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Apple, Inc. (AAPL.O) - As of 5/17/18 in USD
Industry : IT Hardware



Stock Rating History: 5/1/15 : O/I; 7/22/15 : O/C; 1/23/18 : O/A

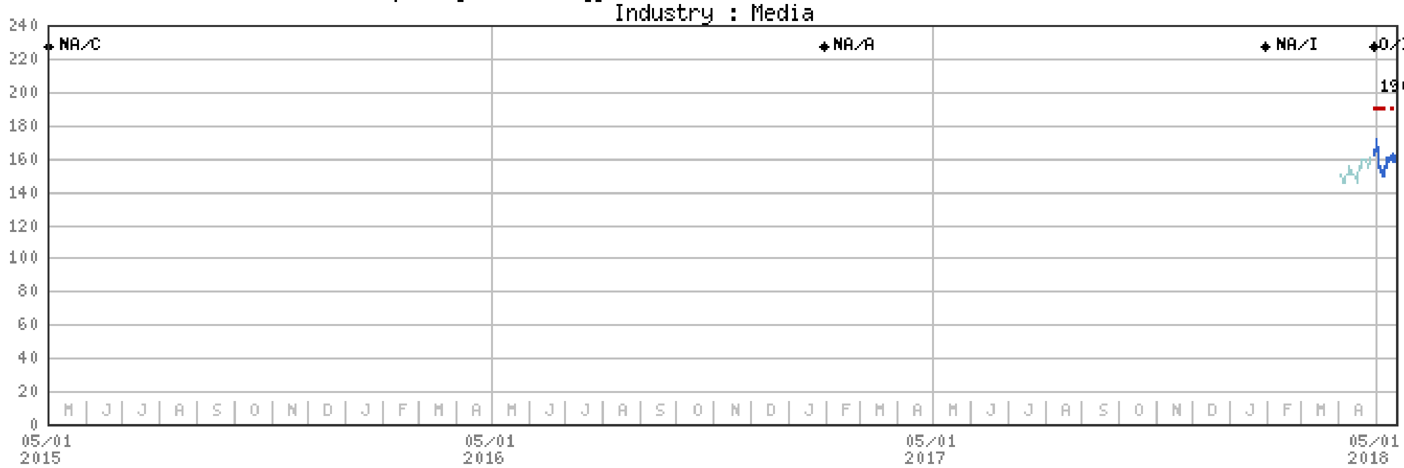
Price Target History: 4/28/15 : 166; 7/22/15 : 155; 10/11/15 : 162; 10/28/15 : 152; 12/13/15 : 143; 1/26/16 : 135; 4/27/16 : 120; 7/26/16 : 123; 10/14/16 : 124; 10/25/16 : 148; 1/31/17 : 150; 2/21/17 : 154; 4/19/17 : 161; 5/17/17 : 177; 7/16/17 : 182; 9/19/17 : 194; 10/10/17 : 199; 11/2/17 : 200; 1/23/18 : 205; 1/25/18 : 200; 2/1/18 : 203; 4/20/18 : 200

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Spotify Technology SA (SPOT.N) - As of 5/17/18 in USD
Industry : Media



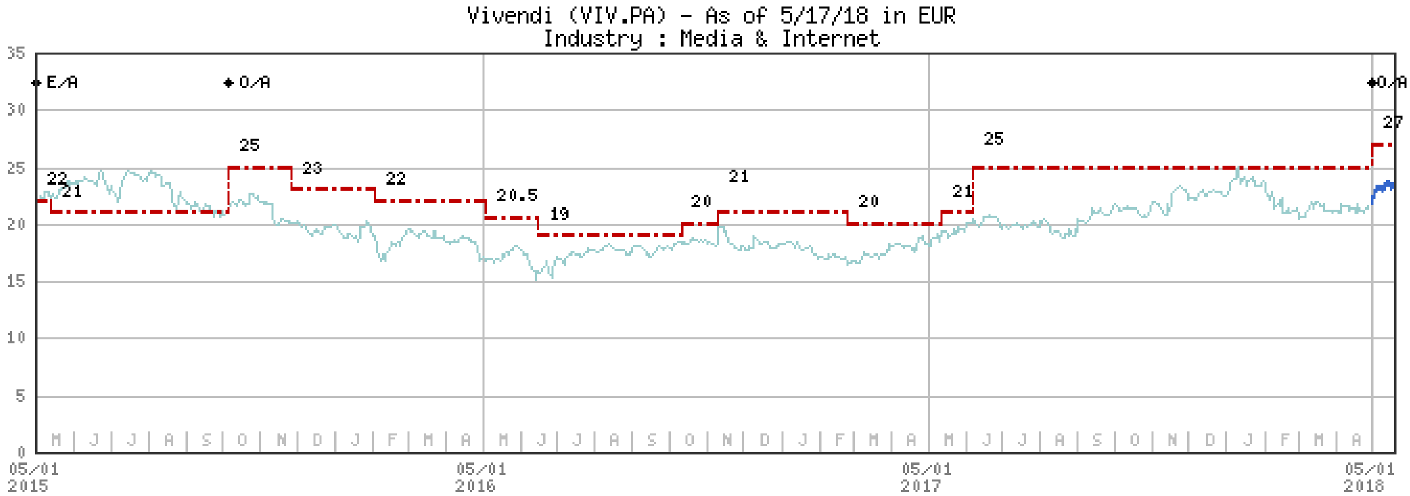
Stock Rating History: 5/1/15 : NA/C; 1/30/17 : NA/A; 1/30/18 : NA/I; 4/30/18 : O/I

Price Target History: 4/30/18 : 190

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.



Stock Rating History: 5/1/15 : E/A; 10/6/15 : O/A; 4/30/18 : O/A

Price Target History: 4/10/15 : 22; 5/13/15 : 21; 10/6/15 : 25; 11/26/15 : 23; 2/3/16 : 22; 5/4/16 : 20.5; 6/15/16 : 19; 10/11/16 : 20; 11/10/16 : 21; 2/24/17 : 20; 5/12/17 : 21; 6/7/17 : 25; 4/30/18 : 27

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

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INDUSTRY COVERAGE: Internet

COMPANY (TICKER)	RATING (AS OF)	PRICE* (05/17/2018)
Brian Nowak, CFA		
Activision Blizzard Inc (ATVI.O)	O (09/23/2016)	$71.66
Alphabet Inc. (GOOGL.O)	O (08/11/2015)	$1,081.26
Amazon.com Inc (AMZN.O)	O (04/24/2015)	$1,581.76
Blue Apron Holdings Inc (APRN.N)	E (07/24/2017)	$2.77
Booking Holdings Inc (BKNG.O)	O (06/30/2016)	$2,089.11
Criteo SA (CRTO.O)	E (01/26/2016)	$24.30
Despegar.com Corp (DESP.N)	E (10/16/2017)	$24.08
eBay Inc (EBAY.O)	O (04/18/2018)	$38.40
Electronic Arts Inc (EA.O)	E (01/12/2018)	$130.81
Etsy Inc (ETSY.O)	U (01/12/2018)	$29.47
Expedia Inc. (EXPE.O)	O (01/10/2018)	$115.67
Facebook Inc (FB.O)	O (04/27/2016)	$183.76
GrubHub Inc. (GRUB.N)	E (04/18/2018)	$103.38
Snap Inc. (SNAP.N)	U (11/09/2017)	$10.57
Take-Two Interactive Software (TTWO.O)	O (02/01/2018)	$113.88
TRIVAGO NV (TRVG.O)	E (09/28/2017)	$4.78
Twitter Inc (TWTR.N)	E (04/17/2018)	$32.58
Yelp Inc (YELP.N)	E (07/29/2015)	$45.23
Zynga Inc (ZNGA.O)	O (06/08/2017)	$4.08
Jonathan Lanterman, CFA		
Groupon, Inc. (GRPN.O)	E (03/05/2018)	$4.90
TrueCar Inc (TRUE.O)	E (01/12/2018)	$9.04
Zillow Group Inc (Z.O)	E (04/18/2018)	$52.12

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* Historical prices are not split adjusted.

Internet Media
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AEGIS CAPITAL CORP

Company Update / Price Target Change / Estimates Change

Alphabet Inc.

Rating: Buy

Adding Waymo into our LT Estimates

May 17, 2018

Key Metrics

GOOGL - NYSE	$1,084.09
Pricing Date	May 16 2018
Price Target	$1,360.00
52-Week Range	$1,198.00 - $915.31
Shares Outstanding (mm)	697.5
Market Capitalization (mm)	$756,152.8
3-Mo Average Daily Volume	2,210,030
Book Value/Share	$219.50
Price/Book	4.9x
LTM EBITDA Margin	47.58%

EPS FY: December

	2017A	Prior 2018E	Curr. 2018E	Prior 2019E	Curr. 2019E
1Q-Mar	7.73	9.21E	13.33A	--	11.30E
2Q-Jun	5.01	10.09E	9.69E	--	12.52E
3Q-Sep	9.57	11.60E	11.03E	--	14.16E
4Q-Dec	(4.35)	11.74E	11.31E	--	14.43E
FY	17.97	42.65E	45.36E	--	52.40E
P/E	60.33x		23.90x		20.69x

GAAP EPS

REVENUE

	2017A	Prior 2018E	Curr. 2018E	Prior 2019E	Curr. 2019E
1Q-Mar	20,121.0	23,914.0E	24,858.0A	--	29,638.2E
2Q-Jun	20,919.0	24,732.3E	24,770.5E	--	29,393.7E
3Q-Sep	22,270.0	26,092.7E	26,301.3E	--	31,089.0E
4Q-Dec	25,873.0	30,510.2E	30,498.6E	--	36,045.4E
FY	89,183.0	105,249.3E	106,428.4E	--	126,166.3E

Net Revenues

Company Description:

Alphabet is comprised of two segments: Google and Other Bets. Google is the largest search engine in the world by revenues and share of search queries. In addition to the Google Search engine, Google owns YouTube, DoubleClick, the Android operating system, the Nexus line of mobile phones and tablets, and Chrome laptops. Google generates revenues primarily through online advertising including search and display, which comprises the majority of total Company revenues, and enterprise and hardware products. Other Bets include businesses such as Waymo, Verily, Calico, X, Nest, GV, Google Capital and Access/Google Fiber. Alphabet was founded as Google in 1998 and is headquartered in Mountain View, California. The Company went public on August 19th, 2004 at $85 a share, pre-split. In August 2015 Google announced plans to create a new public holding company, called Alphabet.

Investment Highlights:

We layered Waymo into our longer-term estimates for Alphabet, added our valuation for Waymo into our SOTP, tweaked our '18/'19 revenue/operating income estimates, and increased our price target on the stock to $1,360 from $1,350. Waymo is on track to launch a fully autonomous ride-hailing service in Phoenix this year and should extend the service to multiple other cities in the coming years. Alphabet has called out other potential revenue models such as personal vehicles, logistics, deliveries, and public transportation, in which Waymo will be working with cities. Recently, Waymo and Jaguar Land Rover announced a partnership whereby the two will develop the Jaguar I-Pace all-electric fully self-driving vehicle for Waymo's transportation service. The two companies will add up to 20K I-PACEs to Waymo's fleet by 2020, enough to drive about a million trips in a typical day. Waymo also recently snagged a high-level Tesla engineer and executive, who, per the WSJ was the main technical contact with Tesla and U.S. safety investigators. Recent setbacks from other autonomous competitors have not derailed Waymo's efforts. However, Google has stressed that safety is paramount for Waymo and is the starting point. We see Waymo's revenue ramping to near $5B by 2025 through a combination of ride-hailing and licensing of their technology. We value Waymo at $60B based on a DCF. See our Dec 29th deep dive on Waymo (here).

Margins & Other Concerns Likely To Ease. Alphabet's shares are up 1.5% (vs. 2% for S&P500) since reporting 1Q18. The somewhat muted share price reaction, despite a topline beat, reflects continued concerns on margins (& regulatory/GDPR), which reflects TAC, content acquisitions for YouTube, hardware costs, and other business investments including for Cloud. We see the margin concerns easing over the next two years and would buy the stock ahead of that, given the tailwind from multiple growth levers, our view that regulatory measures are unlikely to significantly dent Google's growth, and a model that is well prepared for GDPR come 5/25. Google expects the pace of YoY sites TAC growth will moderate starting in the current quarter. Traffic to YouTube remains strong this quarter and advertisers have largely returned to the platform. We see the site generating a conservative $20B in revenues in 2019, and value the business at $100B. The Cloud business continues to be one of the fastest growth engines within Google. Lastly, the search business remains healthy and remains a primary point of spend for advertisers, per the SEMs.

Valuation Is Cheap vs. Peers And Relative To Growth. We tweaked our model, increasing '18/'19 revenue and slightly reducing operating income, tweaked our target multiples in our SOTP and incorporated our DCF-based valuation for Waymo. The changes increase our price target on the shares to $1,360 from $1,350. Alphabet's shares trade at 11x our 2019 EV/EBITDA estimate, 17x our '19 GAAP EPS (+20% EPS CAGR), and with a 5% FCF Yield. Our price target is based on a sum-of-the-parts valuation analysis, that applies a 12x multiple (down from 13x) to our Google segment 2019 Adj. EBITDA estimate (est. Adj. EBITDA CAGR 2017-2020 is ~19%), a 1x multiple to our Other Bets 2019 revenue estimate, and a $60B valuation for Waymo. See Risk Factors and Valuation Methodology on page 10.

Exhibit 1. Waymo Estimates

Period	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Ride-Hailing																		
Number of Trips (m)	0	10	51	130	200	360	612	1,040	1,561	2,185	2,950	3,834	4,793	5,752	6,787	7,805	8,585	9,272
x Avg. No. of Miles (m) - Trip Distance	2.6	2.7	2.9	3.0	3.2	3.3	3.5	3.7	3.8	4.0	4.2	4.4	4.7	4.9	5.1	5.4	5.7	6.0
= Total Miles Driven (m)	0	26	146	391	632	1,195	2,132	3,806	5,995	8,812	12,492	17,051	22,380	28,198	34,938	42,187	48,726	55,256
x Revenue per mile	$1.50	$1.45	$1.32	$1.26	$1.20	$1.14	$1.08	$1.00	$0.95	$0.90	$0.86	$0.81	$0.77	$0.74	$0.70	$0.66	$0.63	$0.60
= Ride Hailing Revenue	**$0**	**$38**	**$193**	**$493**	**$757**	**$1,358**	**$2,304**	**$3,806**	**$5,695**	**$7,953**	**$10,710**	**$13,888**	**$17,317**	**$20,728**	**$24,398**	**$27,988**	**$30,710**	**$33,084**
y/y revenue growth		*38470%*	*413%*	*155%*	*53%*	*80%*	*70%*	*65%*	*50%*	*40%*	*35%*	*30%*	*25%*	*20%*	*18%*	*15%*	*10%*	*8%*
Licensing Revenue																		
Total Miles Driven (m)		6	37	98	158	299	533	952	1,499	2,644	3,747	5,115	6,714	8,459	10,481	12,656	14,618	16,577
x Revenue per mile		$1.45	$1.32	$1.26	$1.20	$1.14	$1.08	$1.00	$0.95	$0.90	$0.86	$0.81	$0.77	$0.74	$0.70	$0.66	$0.63	$0.60
=Licensing Revenue		**$9**	**$48**	**$123**	**$189**	**$340**	**$576**	**$952**	**$1,424**	**$2,386**	**$3,213**	**$4,166**	**$5,195**	**$6,218**	**$7,319**	**$8,396**	**$9,213**	**$9,925**
y/y revenue growth			*413%*	*155%*	*80%*	*70%*	*60%*	*50%*	*40%*	*35%*	*30%*	*25%*	*20%*	*15%*	*10%*	*9%*	*8%*	*7%*
Total Revenue	**$0**	**$47**	**$241**	**$616**	**$946**	**$1,698**	**$2,879**	**$4,758**	**$7,119**	**$10,339**	**$13,923**	**$18,055**	**$22,512**	**$26,947**	**$31,718**	**$36,384**	**$39,923**	**$43,009**
y/y revenue growth		*48113%*	*413%*	*155%*	*53%*	*80%*	*70%*	*65%*	*50%*	*45%*	*35%*	*30%*	*25%*	*20%*	*18%*	*15%*	*10%*	*8%*
Operating Expenses																		
No. of Employees, +10%/yr	521	574	631	694	763	840	924	1,016	1,118	1,229	1,352	1,488	1,636	1,800	1,980	2,178	2,396	2,635
x Avg. Cost per employee; $125K, + 3% per year	$0.125	$0.129	$0.133	$0.137	$0.141	$0.145	$0.149	$0.154	$0.158	$0.163	$0.168	$0.173	$0.178	$0.184	$0.189	$0.195	$0.201	$0.207
= Fixed Employee Expenses	$65	$74	$84	$95	$107	$122	$138	$156	$177	$201	$227	$257	$292	$330	$374	$424	$481	$544
+D&A, 50% of Other Bets, +5% per year	$198	$208	$218	$229	$241	$253	$265	$279	$292	$307	$322	$339	$355	$373	$392	$411	$432	$454
+Advertising Expenses, 5% of revenue	$0	$2	$12	$31	$47	$85	$144	$238	$356	$517	$696	$903	$1,126	$1,347	$1,586	$1,819	$1,996	$2,150
+Other Variable Expenses, 65% Revs	$0	$31	$157	$401	$615	$1,104	$1,872	$3,093	$4,627	$6,720	$9,050	$11,736	$14,633	$17,515	$20,617	$23,650	$25,950	$27,956
=Total Operating Expenses	**$263**	**$315**	**$471**	**$755**	**$1,010**	**$1,563**	**$2,419**	**$3,765**	**$5,453**	**$7,745**	**$10,296**	**$13,234**	**$16,405**	**$19,566**	**$22,969**	**$26,305**	**$28,858**	**$31,104**
Operating Income ($m)	**($263)**	**($268)**	**($230)**	**($139)**	**($64)**	**$135**	**$461**	**$993**	**$1,666**	**$2,594**	**$3,627**	**$4,820**	**$6,107**	**$7,380**	**$8,749**	**$10,080**	**$11,064**	**$11,904**
Operating Margin				-23%	-7%	8%	16%	21%	23%	25%	26%	27%	27%	27%	28%	28%	28%	28%

Source: Aegis Capital Research

Exhibit 2. Waymo DCF

DCF Valuation ($mn)	2018	2019	2020	2021	2022	2023	2024	2025	2026
Operating Income (EBIT)	($263)	($268)	($230)	($139)	($64)	$135	$461	$993	$1,666
Less: Cash Taxes on Operating Income	$79	$80	$69	$42	$19	($41)	($138)	($298)	($500)
=Net Operating Profit Less Adjusted Taxes	**($184)**	**($187)**	**($161)**	**($97)**	**($45)**	**$95**	**$323**	**$695**	**$1,166**
Depreciation & Amortization	$198	$208	$218	$229	$241	$253	$265	$279	$292
Change in Working Capital	$0	$2	$12	$31	$47	$85	$144	$238	$356
Capital Expenditures, 50% of Other Bets, +5%/yr	($275)	($289)	($303)	($318)	($334)	($351)	($369)	($387)	($406)
=Unlevered Free Cash Flow	**($261)**	**($266)**	**($234)**	**($156)**	**($91)**	**$81**	**$363**	**$824**	**$1,408**
2018E PV of Unlevered FCF	$(261)	$(244)	$(196)	$(120)	$(65)	$53	$216	$449	$704
PV of Terminal Value	$42,403	$46,240	$50,425	$54,989	$59,965	$65,392	$71,310	$77,763	$84,801

DCF Valuation ($mn)	2027	2028	2029	2030	2031	2032	2033	2034	2035	TV
Operating Income (EBIT)	$2,594	$3,627	$4,820	$6,107	$7,380	$8,749	$10,080	$11,064	$11,904	$11,904
Less: Cash Taxes on Operating Income	($778)	($1,088)	($1,446)	($1,832)	($2,214)	($2,625)	($3,024)	($3,319)	($3,571)	(3,571)
=Net Operating Profit Less Adjusted Taxes	**$1,816**	**$2,539**	**$3,374**	**$4,275**	**$5,166**	**$6,124**	**$7,056**	**$7,745**	**$8,333**	**$8,333**
Depreciation & Amortization	$307	$322	$339	$355	$373	$392	$411	$432	$454	$454
Change in Working Capital	$517	$696	$903	$1,126	$1,347	$1,586	$1,819	$1,996	$2,150	2,150
Capital Expenditures, 50% of Other Bets, +5%/yr	($427)	($448)	($470)	($494)	($519)	($544)	($572)	($600)	($630)	(454)
=Unlevered Free Cash Flow	**$2,213**	**$3,110**	**$4,145**	**$5,262**	**$6,368**	**$7,558**	**$8,715**	**$9,573**	**$10,307**	**$10,484**
2018E PV of Unlevered FCF	$1,015	$1,308	$1,598	$1,860	$2,065	$2,247	$2,376	$2,393	$2,363	
PV of Terminal Value	$92,475	$100,844	$109,971	$119,923	$130,776	$142,612	$155,518	$169,592	$184,940	

Sum of the PV of Interim Unlevered FCF	$18,023
PV of Terminal Value	$42,403
Gross Asset Value	**$60,426**

DCF Assumptions	
Risk Free Rate (Rf)	3.1%
Estimated Equity Risk Premium (Rm-Rf)	9.4%
Beta (β)	1.1
Cost of Equity (Ke)	13.3%
Cost of Debt (Kd), target	7%
Target Debt/Capital Ratio	33.0%
Tax Rate	30.0%
Weighted Average Cost of Capital (WACC)	**9.1%**
G (Perpetual Growth Rate)	**3%**
Terminal Multiple =(1+G)/(WACC-G)	**18x**

Comparable WACCs/Betas

	WACCS	Betas
GM	4.8%	1.077
Tesla	9.9%	1.083
Ford	12.0%	1.039
Chrylser	8.2%	1.459
Median	9.1%	1.080

Source: Aegis Capital Research

Estimates

Exhibit 3. Aegis Estimates vs. Consensus

Item	Aegis Estimate	Consensus	Variance	% Variance	Prior Estimates	Variance	Variance %
2Q18E							
Gross Revenues	$31,166				$30,869	$297	1%
Net Revenues	$24,771	$25,632	($861)	-3.5%	$24,732	$39	0%
Adj. EBITDA	$12,467	$12,165	$302	2.4%	$12,858	($391)	-3%
GAAP EPS	$9.69	$9.60	$0.09		$10.09	($0.40)	-4%
3Q18E							
Gross Revenues	$32,957				$32,638	$319	1%
Net Revenues	$26,301	$26,933	($632)	-2.4%	$26,093	$208	1%
Adj. EBITDA	$13,330	$12,844	$486	3.6%	$13,657	($327)	-2%
GAAP EPS	$11.03	$10.49	$0.54		$11.60	($0.57)	-5%
4Q18E							
Gross Revenues	$38,054				$37,719	$335	1%
Net Revenues	$30,499	$31,132	($633)	-2.1%	$30,510	($11)	0%
Adj. EBITDA	$13,395	$13,625	($230)	-1.7%	$13,689	($294)	-2%
GAAP EPS	$11.31	$10.94	$0.37		$11.74	($0.43)	-4%
2018E							
Gross Revenues	$133,323				$131,159	$2,164	2%
Net Revenues	$106,428	$108,407	($1,979)	-1.9%	$105,249	$1,179	1%
Adj. EBITDA	$50,636	$50,607	$29	0.1%	$52,269	$50,064	-3%
GAAP EPS	$45.36	$43.88	$1.48		$42.65	$2.71	6%
2019E							
Gross Revenues	$157,169				$151,016	$6,153	4%
Net Revenues	$126,166	$128,494	($2,328)	-1.8%	$122,287	$3,879	3%
Adj. EBITDA	$59,465	$59,440	$25	0.0%	$62,019	$50,064	-4%
GAAP EPS	$52.40	$47.34	$5.06		$51.10	$1.30	3%

Source: Aegis Capital Research; FactSet

Valuation

Our estimate changes increase our price target to $1,360 from $1,350 previously. Our price target is based on a sum-of-the-parts valuation analysis, that applies a 12x (down from 13x) multiple to our Google 2019 Adjusted EBITDA estimate (est. EBITDA CAGR 2017-2020 is ~17%), 1x multiple to our Other Bets 2019 revenue estimate, and our $60B DCF based valuation for Waymo.

Exhibit 4. Price Target – Sum-of-the-Parts

	2019 Revenue	2019 EBITDA	Multiple	Adj. EBITDA CAGR (2017-2020)	Enterprise Value	% of Total EV	per Share
Google (Method: EBITDA)	$125,344	$63,046	13x	17%	$789,971	92.8%	$1,132.5
Other Bets (Method: Revenues)	$822	($3,111)	1x		$822	0.1%	$1.2
Waymo (DCF)					$60,426		
Total Alphabet Enterprise Value	**$126,166**				**$851,220**		
Add: Cash & Equivalents, Current					$102,885		$148
Less: Debt					($5,302)		($8)
Equity Value					**$948,803**		
Diluted Shares					697.5		
Fair Value per Share					**$1,360**		
Current Share price					$1,090		
Upside/(Downside)					**25%**		

Google: Search, Ads, Commerce, Maps, YouTube, Apps, Cloud, Android, Chrome, Google Play, Chromecast, Chromebooks, Nexus

Other Bets: Access/Google Fiber, Calico, Nest, Verily (Life Sciences), GV (Ventures), Google Capital, X and others

Source: Aegis Capital Research

Investment Thesis

Despite the business continuing to benefit from multiple secular tailwinds, including healthy growth in Search and video through YouTube, the shares are have been hindered due to margin concerns, regulatory concerns, and GDPR risks. We see the stock working through these concerns due to growth opportunities in Search as result of new and enhanced ad formats and AI, continued strength at YouTube, and growth of enterprise cloud computing.

Company Description

Alphabet is comprised of two segments: Google and Other Bets. Google is the largest search engine in the world by revenues and share of search queries. In addition to the Google Search engine, Google owns YouTube, DoubleClick, the Android operating system, the Nexus line of mobile phones and tablets, Chrome browser and laptops, and enterprise cloud computing. Google generates revenues primarily through online advertising including search and display, which comprises the majority of total Company revenues, and enterprise and hardware products. Other Bets include businesses such as Waymo, Verily, Calico, X, Nest, GV, Google Capital and Access/Google Fiber. Alphabet was founded as Google in 1998 and is headquartered in Mountain View, California. The Company went public on August 19th, 2004 at $85 a share, pre-split. In August 2015 Google announced plans to create a new public holding company, called Alphabet.

Google, Income Statement

Period	2012	2013	2014	2015	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18E	3Q18E	4Q18E	2018E	2019E	2020E
Advertising Revenues:																	
Google Web Sites	**$31,221**	**$37,453**	**$45,085**	**$52,357**	**$63,785**	**$17,403**	**$18,425**	**$19,723**	**$22,237**	**$77,788**	**$21,998**	**$21,926**	**$23,273**	**$26,017**	**$93,214**	**$108,328**	**$124,577**
q/q % change	---					(72.7%)	5.9%	7.0%	12.7%		(1.1%)	(0.3%)	6.1%	11.8%			
y/y % change	19.4%	20.0%	20.4%	16.1%	21.8%	21.5%	19.6%	22.6%	23.8%	22.0%	26.4%	19.0%	18.0%	17.0%	19.8%	16.2%	15.0%
% of Ad Revenues	71.5%	73.3%	75.6%	77.7%	80.4%	81.3%	81.3%	82.0%	81.7%	81.6%	82.6%	82.2%	82.8%	82.6%	82.5%	83.3%	84.1%
Google Network Web Sites	**$12,465**	**$13,650**	**$14,539**	**$15,033**	**$15,598**	**$4,008**	**$4,247**	**$4,342**	**$4,990**	**$17,587**	**$4,644**	**$4,757**	**$4,820**	**$5,489**	**$19,709**	**$21,681**	**$23,632**
q/q % change	---					(74.3%)	6.0%	2.2%	14.9%		(6.9%)	2.4%	1.3%	13.9%			
y/y % change	20.0%	9.5%	6.5%	3.4%	3.8%	8.6%	13.5%	16.3%	12.6%	12.8%	15.9%	12.0%	11.0%	10.0%	12.1%	10.0%	9.0%
% of Ad Revenues	28.5%	26.7%	24.4%	22.3%	19.6%	18.7%	18.7%	18.0%	18.3%	18.4%	17.4%	17.8%	17.2%	17.4%	17.5%	16.7%	15.9%
Total Advertising Revenues:	**$43,686**	**$51,103**	**$59,624**	**$67,390**	**$79,383**	**$21,411**	**$22,672**	**$24,065**	**$27,227**	**$95,375**	**$26,642**	**$26,682**	**$28,093**	**$31,506**	**$112,923**	**$130,009**	**$148,209**
q/q % change	---					(73.0%)	5.9%	6.1%	13.1%		(2.1%)	0.2%	5.3%	12.2%			
y/y % change	19.6%	17.0%	16.7%	13.0%	17.8%	18.8%	18.4%	21.4%	21.6%	20.1%	24.4%	17.7%	16.7%	15.7%	18.4%	15.1%	14.0%
% of Total Revenues	87.1%	85.4%	90.3%	89.9%	87.9%	86.5%	87.2%	86.7%	84.2%	86.0%	85.5%	85.6%	85.2%	82.8%	84.7%	82.7%	81.1%
Licensing & Other Revenues	**$2,354**	**$4,447**	**$6,050**	**$7,151**	**$10,079**	**$3,095**	**$3,090**	**$3,405**	**$4,687**	**$14,277**	**$4,354**	**$4,326**	**$4,699**	**$6,374**	**$19,753**	**$26,338**	**$33,369**
q/q % change	---					(69.3%)	(0.2%)	10.2%	37.7%		(7.1%)	(0.6%)	8.6%	35.7%			
y/y % change	71.3%	88.9%	36.0%	18.2%	40.9%	49.4%	42.3%	40.0%	37.7%	41.7%	40.7%	40.0%	38.0%	36.0%	38.4%	33.3%	26.7%
% of Total Revenues	4.7%	7.4%	9.2%	9.5%	11.2%	12.5%	11.9%	12.3%	14.5%	12.9%	14.0%	13.9%	14.3%	16.8%	14.8%	16.8%	18.3%
Motorola Revenues	**$4,306**	**$4,306**															
q/q % change	---	---															
y/y % change	4.1%	---															
% of Total Revenues	7.2%	---															
Other Bets Revenues	**$0**	**$0**	**$327**	**$448**	**$810**	**$132**	**$97**	**$117**	**$131**	**$477**	**$150**	**$158**	**$165**	**$174**	**$647**	**$822**	**$1,133**
q/q % change			---	---	---	(83.7%)	(26.5%)	20.6%	12.0%	---	14.5%	5.0%	5.0%	5.0%	---	---	---
y/y % change			---	---	80.8%	(20.5%)	(47.6%)	(40.6%)	(50.0%)	(41.1%)	13.6%	62.4%	41.3%	32.6%	35.5%	27.2%	37.9%
% of Google Revenues			0.5%	0.6%	0.9%	0.5%	0.4%	0.4%	0.4%	0.4%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.6%
Total Gross Revenues	**$50,175**	**$59,825**	**$66,001**	**$74,989**	**$90,272**	**$24,750**	**$26,010**	**$27,772**	**$32,323**	**$110,855**	**$31,146**	**$31,166**	**$32,957**	**$38,054**	**$133,323**	**$157,169**	**$182,712**
q/q % change	---					(72.6%)	5.1%	6.8%	16.4%		(71.9%)	0.1%	5.7%	15.5%			
y/y % change	32.4%	19.2%	10.3%	13.6%	20.4%	22.2%	21.0%	23.7%	24.0%	22.8%	25.8%	19.8%	18.7%	17.7%	20.3%	17.9%	16.3%
Total Net Revenues	**$39,230**	**$47,560**	**$52,502**	**$60,646**	**$73,479**	**$20,121**	**$20,919**	**$22,270**	**$25,873**	**$89,183**	**$24,858**	**$24,771**	**$26,301**	**$30,499**	**$106,428**	**$126,166**	**$147,321**
q/q % change	---					(5.2%)	4.0%	6.5%	16.2%		(3.9%)	(0.4%)	6.2%	16.0%			
y/y % change	34.8%	21.2%	10.4%	15.5%	21.2%	22.2%	19.4%	21.9%	22.0%	21.4%	23.5%	18.4%	18.1%	17.9%	19.3%	18.5%	16.8%
Total Traffic Acquisition Costs	$10,945	$12,265	$13,499	$14,343	$16,793	$4,629	$5,091	$5,502	$6,450	$21,672	$6,288	$6,395	$6,656	$7,556	$26,895	$31,003	$35,390
q/q % change	---					(4.5%)	10.0%	8.1%	17.2%		(2.5%)	1.7%	4.1%	13.5%			
y/y % change	24.3%	12.1%	10.1%	6.3%	17.1%	22.2%	28.1%	31.6%	33.0%	29.1%	35.8%	25.6%	21.0%	17.1%	24.1%	15.3%	14.2%
% of ad revenues	25.1%	24.0%	22.6%	21.3%	21.2%	21.6%	22.5%	22.9%	23.7%	22.7%	23.6%	24.0%	23.7%	24.0%	23.8%	23.8%	23.9%
Other Cost of Revenues	$5,871	$9,259	$11,657	$13,015	$17,684	$5,166	$5,282	$5,646	$7,817	$23,911	$6,229	$6,233	$6,591	$7,611	$26,665	$31,434	$36,542
Total Cost of Revenues	$21,192	$25,297	$25,156	$27,358	$34,477	$9,795	$10,373	$11,148	$14,267	$45,583	$13,467	$12,629	$13,247	$15,167	$53,559	$62,437	$71,933
Gross Profit	**$28,983**	**$34,528**	**$40,845**	**$47,631**	**$55,795**	**$14,955**	**$15,637**	**$16,624**	**$18,056**	**$65,272**	**$17,679**	**$18,537**	**$19,710**	**$22,888**	**$78,814**	**$94,732**	**$110,779**
Gross Profit Margin %	57.8%	57.7%	61.9%	63.5%	61.8%	60.4%	60.1%	59.9%	55.9%	58.9%	56.8%	59.5%	59.8%	60.1%	59.1%	60.3%	60.6%
Research and Development	$5,638	$6,198	$7,632	$9,604	$12,119	$3,942	$4,172	$4,205	$4,306	$16,625	$5,039	$3,798	$4,017	$4,638	$17,492	$19,156	$22,269
Sales and Marketing	$5,711	$6,680	$7,416	$8,156	$9,887	$2,644	$2,897	$3,042	$4,310	$12,893	$3,604	$3,315	$3,445	$4,884	$15,249	$17,189	$19,068
General and Administrative	$3,432	$4,286	$5,126	$5,308	$6,367	$1,801	$1,700	$1,595	$1,776	$6,872	$2,035	$961	$984	$2,100	$6,080	$8,095	$9,828
Stock-Based Compensation	$2,684	$3,398	$4,175	$5,203	$6,703	$2,009	$2,003	$1,820	$1,847	$7,549	$2,457	$2,334	$2,093	$2,117	$9,001	$10,583	$12,329
Total Operating Costs and Expenses	$38,657	$45,859	$49,505	$55,629	$66,556	$18,182	$21,878	$19,990	$24,659	$84,709	$24,145	$20,704	$21,693	$26,788	$93,330	$106,876	$123,098
y/y % change	47.8%	18.6%	8.0%	12.4%	19.6%	21.9%	40.9%	19.8%	26.9%	27.3%	32.8%	(5.4%)	8.5%	8.6%	10.2%	14.5%	15.2%
% of revenues	77.0%	76.7%	75.0%	74.2%	73.7%	73.5%	84.1%	72.0%	76.3%	76.4%	77.5%	66.4%	65.8%	70.4%	70.0%	68.0%	67.4%
Depreciation and Amortization	$2,962	$3,939	$4,979	$5,063	$6,144	$1,287	$1,625	$1,761	$2,026	$5,915	$1,986	$2,046	$2,107	$2,170	$8,309	$9,351	$10,525
Adj. EBITDA (+D&A & SBC)	**$17,725**	**$21,303**	**$26,028**	**$29,626**	**$36,563**	**$9,864**	**$10,496**	**$11,363**	**$10,501**	**$42,224**	**$11,444**	**$12,467**	**$13,330**	**$13,395**	**$50,636**	**$59,465**	**$70,851**
EBITDA Margin (Gross Revenues)	35.3%	35.6%	39.4%	39.5%	40.5%	39.9%	40.4%	40.9%	32.5%	38.1%	36.7%	40.0%	40.4%	35.2%	38.0%	37.8%	38.8%
EBITDA Margin (Net Revenues)	45.2%	44.8%	49.6%	48.9%	49.8%	49.0%	50.2%	51.0%	40.6%	47.3%	46.0%	50.3%	50.7%	43.9%	47.6%	47.1%	48.1%
Income (loss) from operations	**$11,518**	**$13,966**	**$16,496**	**$19,360**	**$23,716**	**$6,568**	**$4,132**	**$7,782**	**$7,664**	**$26,294**	**$7,001**	**$8,129**	**$9,171**	**$9,149**	**$33,491**	**$39,711**	**$46,557**
Operating Income Margin (Gross Revenues)	23.0%	23.3%	25.0%	25.8%	26.3%	26.5%	15.9%	28.0%	23.7%	23.7%	22.5%	26.1%	27.8%	24.0%	25.1%	25.3%	25.5%
Operating Income Margin (Net Revenues)	29.4%	29.4%	31.4%	31.9%	32.3%	32.6%	19.8%	34.9%	29.6%	29.5%	28.2%	32.8%	34.9%	30.0%	31.5%	31.5%	31.6%
Interest and other income, net	$625	$530	$763	$291	$434	$251	$245	$197	$354	$1,047	$3,542	$414	$558	$838	$5,352	$6,600	$12,775
Income before income taxes	$12,143	$14,496	$17,259	$19,651	$24,150	$6,819	$4,377	$7,979	$8,018	$27,341	$10,543	$8,543	$9,729	$9,988	$38,843	$46,311	$59,332
Provision (benefit) for income taxes	$2,589	$2,282	$3,331	$3,303	$4,672	$1,393	$853	$1,247	$11,038	$14,531	$1,142	$1,709	$1,946	$1,998	$6,794	$9,262	$11,291
Tax rate	21.3%	15.7%	19.3%	16.8%	19.3%	20.4%	19.5%	15.6%	137.7%	53.1%	10.8%	20.0%	20.0%	20.0%	17.5%	20.0%	19.0%
Net Income (loss)	**$9,533**	**$12,898**	**$14,444**	**$15,826**	**$19,478**	**$5,426**	**$3,524**	**$6,732**	**-$3,020**	**$12,662**	**$9,401**	**$6,834**	**$7,783**	**$7,990**	**$32,008**	**$37,049**	**$45,162**
q/q % change	---	---	---	---	---	1.7%	(35.1%)	91.0%	(144.9%)	---	(411.3%)	(27.3%)	13.9%	2.7%	---	---	---
y/y % change	(2.1%)	35.3%	12.0%	9.6%	23.1%	29.0%	(27.7%)	33.0%	(156.6%)	(35.0%)	73.3%	93.9%	15.6%	(364.6%)	152.8%	15.7%	21.9%
Net Income per Share - Basic	**$29.13**	**$38.82**	**$21.36**	**$23.01**	**$28.09**	**$7.85**	**$5.09**	**$9.71**	**-$4.35**	**$18.30**	**$13.53**	**$9.83**	**$11.19**	**$11.48**	**$46.04**	**$53.19**	**$64.72**
Net Income per share - diluted	**$28.69**	**$38.14**	**$20.57**	**$22.84**	**$27.82**	**$7.73**	**$5.01**	**$9.57**	**-$4.35**	**$17.97**	**$13.33**	**$9.69**	**$11.03**	**$11.31**	**$45.36**	**$52.40**	**$63.76**
q/q % change	---	---	---	---	---	2.2%	(35.2%)	91.1%	(145.4%)	---	(406.6%)	(27.3%)	13.8%	2.6%	---	---	---
y/y % change	(3.6%)	32.9%	(46.1%)	11.0%	21.8%	28.5%	(28.4%)	32.1%	(157.5%)	(35.4%)	72.4%	93.4%	15.2%	(360.2%)	152.5%	15.5%	21.7%
Basic Shares Outstanding	327	333	676	689	693	691	692	693	695	693	695	695	695	696	695	697	698
Diluted Shares Outstanding	332	339	682	693	699	702	704	703	695	701	705	706	706	706	706	707	708
Adjusted Net Income per share, Basic	**$36.82**	**$44.68**	**$26.01**	**$29.63**	**$34.66**	**$9.88**	**$7.12**	**$11.55**	**-$2.49**	**$26.06**	**$16.01**	**$12.18**	**$13.30**	**$13.61**	**$55.10**	**$63.82**	**$80.70**
Adjusted Net Income per share, diluted	**$36.25**	**$43.89**	**$25.59**	**$29.48**	**$34.34**	**$9.73**	**$7.00**	**$11.39**	**-$2.49**	**$25.63**	**$15.77**	**$12.00**	**$13.10**	**$13.41**	**$54.28**	**$62.88**	**$79.52**
q/q % change						4.0%	(28.1%)	62.6%	(121.8%)		(734.2%)	(23.9%)	9.2%	2.4%		---	---
y/y % change	0.5%	21.1%	(41.7%)	15.2%	16.5%	29.7%	(16.8%)	25.7%	(126.6%)	(25.3%)	62.0%	71.4%	15.1%	(639.4%)	111.8%	15.8%	26.5%

Source: Company Reports; Aegis Capital

Google, Inc., Balance Sheet

Balance Sheet ('mns)	2012	2013	2014	2015	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18E	3Q18E	4Q18E	2018E	2019E	2020E
Assets																	
Cash & Cash Equivalents	$14,778	$18,898	$18,347	$16,549	$12,918	$18,132	$15,711	$10,581	$10,715	$10,715	$12,658	$16,759	$24,768	$34,415	$34,415	$72,848	$119,630
Marketable Securities	$33,310	$39,819	$46,048	$56,517	$73,415	$74,307	$79,002	$89,562	$91,156	$91,156	$90,227	$90,227	$90,227	$90,227	$90,227	$90,227	$90,227
Accounts Receivable, net of allowance	$7,885	$8,882	$9,383	$11,556	$14,137	$12,913	$14,003	$15,295	$18,336	$18,336	$16,777	$16,779	$18,151	$21,587	$21,587	$25,448	$29,584
Receivable under repurchase agreements	$700	$100	$875	$450	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Deferred Income Taxes	$1,144	$1,526	$1,322	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Income Tax Receivable, net	$0	$408	$1,298	$1,903	$95	$56	$874	$282	$369	$369	$37	$37	$37	$37	$37	$37	$37
Prepaid revenue share, expenses and other asse	$2,132	$2,827	$3,412	$3,139	$4,575	$3,106	$2,398	$2,860	$2,983	$2,983	$3,426	$2,873	$3,394	$3,512	$3,512	$4,140	$4,813
Current Assets	**$60,454**	**$72,886**	**$80,685**	**$90,114**	**$105,408**	**$108,794**	**$112,386**	**$119,345**	**$124,308**	**$124,308**	**$123,761**	**$127,312**	**$137,212**	**$150,414**	**$150,414**	**$193,336**	**$244,927**
Prepaid revenue share, expenses and other asse	$2,011	$1,976	$3,280	$3,181	$1,819	$1,846	$2,004	$2,683	$2,672	$2,672	$2,004	$2,401	$3,184	$3,146	$3,146	$3,708	$4,311
Deferred income taxes, net	$0	$0	$0	$251	$383	$365	$376	$505	$680	$680	$678	$678	$678	$678	$678	$678	$678
Non-marketable equity securities	$1,469	$1,976	$3,079	$5,183	$5,878	$6,131	$6,642	$7,269	$7,813	$7,813	$10,976	$10,976	$10,976	$10,976	$10,976	$10,976	$10,976
Property Plant & Equipment	$11,854	$16,524	$23,883	$29,016	$34,234	$35,936	$37,676	$40,120	$42,383	$42,383	$48,845	$50,443	$52,089	$54,000	$54,000	$62,760	$73,521
Intangible Assets	$7,473	$6,066	$4,607	$3,847	$3,307	$3,137	$2,933	$2,883	$2,692	$2,692	$2,809	$2,809	$2,809	$2,809	$2,809	$2,809	$2,809
Goodwill	$10,537	$11,492	$15,599	$15,869	$16,468	$16,547	$16,604	$16,731	$16,747	$16,747	$17,862	$17,862	$17,862	$17,862	$17,862	$17,862	$17,862
Total Assets	**$93,798**	**$110,920**	**$131,133**	**$147,461**	**$167,497**	**$172,756**	**$178,621**	**$189,536**	**$197,295**	**$197,295**	**$206,935**	**$212,481**	**$224,810**	**$239,885**	**$239,885**	**$292,129**	**$355,084**
Liabilities																	
Accounts Payable	$2,012	$2,453	$1,715	$1,931	$2,041	$2,306	$2,488	$2,674	$3,137	$3,137	$3,526	$2,936	$3,122	$3,054	$3,054	$3,601	$4,186
Accrued Compensation and other benefits	$2,239	$2,502	$3,069	$3,539	$3,976	$2,673	$3,271	$4,022	$4,581	$4,581	$3,812	$3,012	$3,842	$5,123	$5,123	$5,865	$6,752
Short-term debt	$2,549	$3,009	$2,009	$3,225	$0	$0	$0	$0	$0	$0	$1,329	$0	$0	$0	$0	$0	$0
Accrued Expenses and other liabilities	$3,258	$3,755	$4,434	$4,768	$6,144	$5,438	$8,560	$9,307	$10,177	$10,177	$10,065	$7,883	$8,890	$11,381	$11,381	$13,029	$15,000
Securities lending payable	$1,673	$1,374	$2,778	$2,428	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Accrued revenue share	$1,471	$1,729	$1,952	$2,329	$2,942	$2,888	$3,007	$3,200	$3,975	$3,975	$3,723	$3,603	$3,797	$4,680	$4,680	$5,517	$6,413
Deferred revenue	$895	$1,062	$752	$788	$1,099	$1,148	$1,226	$1,269	$1,432	$1,432	$1,596	$1,469	$1,506	$1,686	$1,686	$1,741	$2,024
Income taxes payable	$240	$24	$96	$302	$554	$803	$133	$221	$881	$881	$1,343	$1,343	$1,343	$1,343	$1,343	$1,343	$1,343
Current portion of equipment leases	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Current Liabilities:	**$14,337**	**$15,908**	**$16,805**	**$19,310**	**$16,756**	**$15,256**	**$18,685**	**$20,693**	**$24,183**	**$24,183**	**$25,394**	**$20,246**	**$22,500**	**$27,267**	**$27,267**	**$31,094**	**$35,718**
Long term portion of equipment leases	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Long-term debt	$2,988	$2,236	$3,228	$1,995	$3,935	$3,937	$3,955	$3,964	$3,969	$3,969	$3,973	$3,973	$3,973	$3,973	$3,973	$3,973	$3,973
Deferred revenues	$100	$139	$104	$151	$202	$323	$345	$346	$340	$340	$315	$315	$315	$315	$315	$315	$315
Liability for early exercise of stock options	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Deferred income taxes	$2,046	$2,638	$3,407	$3,663	$4,677	$4,924	$369	$151	$12,812	$12,812	$12,885	$12,885	$12,885	$12,885	$12,885	$12,885	$12,885
Income taxes payable, long-term	$1,872	$1,947	$1,971	$189	$226	$604	$4,128	$4,358	$430	$430	$394	$394	$394	$394	$394	$394	$394
Other long term liabilities	$740	$743	$1,118	$1,822	$2,665	$2,763	$2,853	$2,924	$3,059	$3,059	$3,149	$3,149	$3,149	$3,149	$3,149	$3,149	$3,149
Total Liabilities	**$22,083**	**$23,611**	**$26,633**	**$27,130**	**$28,461**	**$27,807**	**$30,335**	**$32,436**	**$44,793**	**$44,793**	**$46,110**	**$40,962**	**$43,216**	**$47,983**	**$47,983**	**$51,810**	**$56,434**
Redeemable convertible preferred Stock Warrant	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Convertible Preferred Stock	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Common Stock	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Additional Paid in Capital	$22,835	$25,922	$28,767	$32,982	$36,307	$37,698	$38,509	$39,609	$40,247	$40,247	$41,487	$43,821	$45,914	$48,031	$48,031	$58,613	$70,942
Note Receivable from officer/stockholder	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Deferred Stock Based Compensation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Accumulated other comprehensive income	$538	$125	$27	($1,874)	($2,402)	($2,169)	($1,728)	($746)	($992)	($992)	($670)	($670)	($670)	($670)	($670)	($670)	($670)
Retained Earnings	$48,342	$61,262	$75,706	$89,223	$105,131	$109,420	$111,505	$118,237	$113,247	$113,247	$120,008	$127,039	$135,021	$143,212	$143,212	$181,076	$227,079
Shareholders' Equity	$71,715	$87,309	$104,500	$120,331	$139,036	$144,949	$148,286	$157,100	$152,502	$152,502	$160,825	$170,190	$180,265	$190,573	$190,573	$239,020	$297,351
Total Liabilities & Equity	**$93,798**	**$110,920**	**$131,133**	**$147,461**	**$167,497**	**$172,756**	**$178,621**	**$189,536**	**$197,295**	**$197,295**	**$206,935**	**$211,152**	**$223,481**	**$238,556**	**$238,556**	**$290,830**	**$353,785**

Source: Company Reports; Aegis Capital

Google, Inc., Statement of Cash Flows

Cash Flow Statement	2012	2013	2014	2015	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18E	3Q18E	4Q18E	2018E	2019E	2020E
Operating Activities																	
Net Income(Loss)	$10,737	$12,920	$14,444	$16,419	$19,478	$5,426	$3,524	$6,732	($3,020)	$12,662	$9,401	$6,834	$7,783	$7,990	$32,008	$37,049	$45,162
Depreciation and amortization of property and eq	$1,988	$2,781	$3,523	$4,132	$5,267	$1,287	$1,424	$1,561	$1,831	$6,103	$1,791	$1,849	$1,908	$1,969	$7,517	$8,536	$9,685
Amortization of intangibles and warrants	$974	$1,158	$1,456	$931	$877	$216	$201	$200	$195	$812	$195	$197	$199	$201	$792	$816	$840
In-process research and development	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Stock-Based Compensation	$2,692	$3,343	$4,279	$5,203	$6,703	$2,009	$2,003	$1,820	$1,847	$7,679	$2,457	$2,334	$2,093	$2,117	$9,001	$10,583	$12,329
Excess Tax Benefit from stock-based award acti	($188)	($481)	($648)	($548)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Deferred income taxes	($266)	($437)	($104)	($179)	($38)	$613	($75)	($296)	$16	$258	($18)	$0	$0	$0	($18)	$0	$0
Non-recurring portion of settlement of disputes w	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other	($28)	$95	$87	$228	$174	$8	$26	$65	$38	$137	($257)	$0	$0	$0	($257)	$0	$0
Accounts Receivable	($787)	($1,307)	($1,641)	($2,094)	($2,578)	$1,267	($836)	($1,150)	($3,049)	($3,768)	$1,700	($2)	($1,372)	($3,437)	($3,110)	($3,861)	($4,136)
Income taxes, net	$1,492	$401	$283	($250)	$3,125	$510	($2,289)	$914	$9,076	$8,211	$782	$0	$0	$0	$782	$0	$0
Prepaid revenue share, expenses and other asse	($865)	($696)	$413	($460)	$359	($128)	($326)	$0	($78)	($532)	($241)	$155	($1,303)	($80)	($1,469)	($1,191)	($1,276)
Accounts payable	($499)	$605	$436	$203	$110	$103	$16	($61)	$673	$731	$122	($590)	$186	($67)	($350)	$546	$585
Accrued expenses and other liabilities	$762	$713	$757	$1,597	$1,515	($1,868)	$3,555	$1,434	$1,770	$4,891	($1,142)	($2,982)	$1,837	$3,773	$1,485	$2,389	$2,860
Accrued revenue share	$299	$254	$245	$339	$593	($74)	$80	$176	$773	$955	($286)	($120)	$194	$882	$671	$837	$897
Deferred revenue	$163	$233	($175)	$43	$223	$111	$84	$33	$162	$390	$130	($127)	$37	$180	$220	$55	$283
Cash Flow from Operations	**$16,619**	**$18,659**	**$22,376**	**$26,024**	**$36,036**	**$9,548**	**$7,403**	**$9,872**	**$10,268**	**$37,091**	**$11,642**	**$7,548**	**$11,562**	**$13,528**	**$44,280**	**$55,758**	**$67,229**
Working Capital Change	$898	($31)	$364	($480)	$3,300	($79)	$284	($286)	$9,327	$9,246	$1,065	($3,666)	($421)	$1,251	($1,770)	($1,225)	($787)
Investing Activities																	
Purchases of property and equipment	($3,273)	($7,358)	($10,959)	($9,915)	($10,183)	($2,508)	($2,831)	($3,538)	($4,307)	($13,184)	($7,299)	($3,447)	($3,554)	($3,881)	($18,180)	($17,296)	($20,446)
Purchase of marketable securities	($33,410)	($45,444)	($56,310)	($74,368)	($84,509)	($20,119)	($19,557)	($39,033)	($13,486)	($92,195)	($8,849)	$0	$0	$0	($8,849)	$0	$0
Maturities and sales of marketable securities	$35,180	$38,314	$51,315	$62,905	$66,895	$19,362	$14,876	$28,350	$11,371	$73,959	$9,351	$0	$0	$0	$9,351	$0	$0
Purchases of intangible and other assets	($143)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Acquisitions, net of cash acquired	($10,621)	($1,410)	($4,888)	($134)	($734)	($101)	($42)	($130)	($14)	($287)	($1,250)	$0	$0	$0	($1,250)	$0	$0
Investments in non-marketable equity securities	($553)	($569)	($1,227)	($1,797)	$10	$0	$40	$97	$0	$137	$0	$0	$0	$0	$0	$0	$0
(Offerings) / Proc. from Funds in Escrow	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Investments in reverse repurchase agreements	($97)	$600	($825)	$375	$350	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Equity Investments	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Capitalized Merger Related Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Cash collateral received (returned) from securitie	($334)	($299)	$1,403	($350)	($2,428)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other	$0	$2,313	$0	$0	$197	$750	$0	$0	$0	$750	$0	$0	$0	$0	$0	$0	$0
Net Cash Used in Investing Activities	**($13,056)**	**($13,679)**	**($21,055)**	**($23,711)**	**($31,165)**	**($2,851)**	**($7,172)**	**($14,404)**	**($6,974)**	**($31,401)**	**($7,846)**	**($3,447)**	**($3,554)**	**($3,881)**	**($18,757)**	**($17,296)**	**($20,446)**
Financing Activities																	
Net payments related to stock-based award activ	($287)	($781)	($2,069)	($2,375)	($3,304)	($1,009)	($1,084)	($1,018)	($1,055)	($4,166)	($1,158)	$0	$0	$0	($1,158)	$0	$0
Excess tax benefits from stock-based award acti	$188	$481	$648	$548	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Proceeds from the exercise of warrants	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payments of notes receivable from stockholder	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payments of principal on capital leases and equi	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net proceeds from initial public offering/other offe	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Repurchase of common stock	$0	$0	$0	($1,780)	($3,693)	($1,127)	($1,618)	$0	($2,101)	($4,846)	($2,173)	$0	$0	$0	($2,173)	$0	$0
Preferred Stock	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Proceeds from the issuance of short-term debt	$16,109	$10,768	$11,625	$13,705	$8,729	$0	$0	$2,698	$1,593	$4,291	$4,691	$0	$0	$0	$4,691	$0	$0
Repayments of short-term debt	($14,781)	($11,325)	($11,643)	($13,728)	($10,064)	($18)	($38)	($2,706)	($1,615)	($4,377)	($3,378)	$0	$0	$0	($3,378)	$0	$0
Issuance of short-term debt, maturities of 3 mont	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Issuance of short-term debt, maturities longer tha	$0	$0	$0	$0	$0	$480	$0	$0	$0	$480	$0	$0	$0	$0	$0	$0	$0
Net Cash Provided by Financing Activities	**$1,229**	**($857)**	**($1,439)**	**($3,677)**	**($8,332)**	**($1,674)**	**($2,740)**	**($706)**	**($3,178)**	**($8,298)**	**($2,018)**	**$0**	**$0**	**$0**	**($2,018)**	**$0**	**$0**
Effect of exchange rate	$3	($3)	($433)	($434)	($170)	$191	$88	$108	$18	$405	$165	$0	$0	$0	$165	$0	$0
Increase (Decrease) in Cash and Cash Equivaler	$4,795	$4,120	($551)	($1,798)	($3,631)	$5,214	($2,421)	($5,130)	$134	($2,203)	$1,943	$4,101	$8,008	$9,647	$23,670	$38,462	$46,783
Beginning Cash and Cash Equivalents	$9,983	$14,778	$18,898	$18,347	$16,549	$12,918	$18,132	$15,711	$10,581	$12,918	$10,715	$12,658	$16,759	$24,768	$10,715	$34,385	$72,848
Ending Cash and Cash Equivalents	**$14,778**	**$18,898**	**$18,347**	**$16,549**	**$12,918**	**$18,132**	**$15,711**	**$10,581**	**$10,715**	**$10,715**	**$12,658**	**$16,759**	**$24,768**	**$34,415**	**$34,385**	**$72,848**	**$119,630**

Source: Company Reports; Aegis Capital

Google, Cash Flow

Free Cash Flow	2012	2013	2014	2015	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18E	3Q18E	4Q18E	2018E	2019E	2020E
Cash flow from operations	$16,619	$18,659	$22,376	$26,024	$36,036	$9,548	$7,403	$9,872	$10,268	$37,091	$11,642	$7,548	$11,562	$13,528	$44,280	$55,758	$67,229
-Capital expenditures	($3,273)	($7,358)	($10,959)	($9,915)	($10,183)	($2,508)	($2,831)	($3,538)	($4,307)	($13,184)	($7,299)	($3,447)	($3,554)	($3,881)	($18,180)	($17,296)	($20,446)
Free Cash Flow	**$13,346**	**$11,301**	**$11,417**	**$16,109**	**$25,853**	**$7,040**	**$4,572**	**$6,334**	**$5,961**	**$23,907**	**$4,343**	**$4,101**	**$8,008**	**$9,647**	**$26,100**	**$38,462**	**$46,783**
q/q % change						11.1%	(35.1%)	38.5%	(5.9%)		(27.1%)	(5.6%)	95.3%	20.5%			
y/y % change	19.9%	(15.3%)	1.0%	41.1%	60.5%	34.6%	(34.7%)	(13.1%)	(5.9%)	(7.5%)	(38.3%)	(10.3%)	26.4%	61.8%	9.2%	47.4%	21.6%
EBITDA-to-Free Cash Flow Conversion	75.3%	53.0%	43.9%	54.4%	70.7%	71.4%	43.6%	55.7%	56.8%	56.6%	38.0%	32.9%	60.1%	72.0%	51.5%	64.7%	66.0%
Free cash flow margin (gross revenues)	26.6%	18.9%	17.3%	21.5%	28.6%	28.4%	17.6%	22.8%	18.4%	21.6%	13.9%	13.2%	24.3%	25.4%	19.6%	24.5%	25.6%
Free cash flow margin (Net revenues)	34.0%	23.8%	21.7%	26.6%	35.2%	35.0%	21.9%	28.4%	23.0%	26.8%	17.5%	16.6%	30.4%	31.6%	24.5%	30.5%	31.8%
Free Cash Flow per Share	**$40.16**	**$33.36**	**$16.74**	**$23.25**	**$37.00**	**$10.03**	**$6.50**	**$9.01**	**$8.58**	**$34.11**	**$6.16**	**$5.81**	**$11.35**	**$13.66**	**$36.98**	**$54.41**	**$66.06**
q/q % change						10.8%	(35.2%)	38.6%	(4.7%)		(28.2%)	(5.6%)	95.2%	20.4%			
y/y % change	18.1%	(16.9%)	(49.8%)	38.9%	59.2%	34.1%	(35.3%)	(13.7%)	(5.1%)	(7.8%)	(38.6%)	(10.6%)	25.9%	59.2%	8.4%	47.1%	21.4%

Source: Company Reports; Aegis Capital

Required Disclosures

Price Target

We have a $1, 360 price target on Alphabet.

Valuation Methodology

Our price target is based on a sum-of-the parts analysis.

Risk Factors

European Antitrust Investigations Linger. The European Commission has filed three antitrust charges against Alphabet accusing Google of favoring its own shopping search results over that of its competitors, of hindering competition by limiting the ability of its competitors to place search advertisements on third-party websites, and of harming consumers and competition by requiring that mobile phone manufacturers pre-install Google Search and the Chrome browser in order to get access to other Google apps including the Google Play Store. Alphabet has disagreed with the findings of the European Commission. If the EU forced large scale business model changes on Google, then Alphabet's revenue and profits could be at risk.

Rising Competition For Online Video Ad Dollars And For Direct Response Advertising From Social Media. Alphabet is facing rising competition for the online advertising dollar from social media companies such as Facebook, Twitter, and Snap Inc. If these competitors are successful at building platforms that take material advertiser share from Google and YouTube, then Alphabet's revenues and profits could be at risk.

Secular Pressures From Vertical App Search. The consumer movement towards searching for content within an app rather than through Google could hurt Google's longer-term revenues and cashflow.

Potential Loss Of Search Partners. If Google losses search partners such as Apple, either to a competitor or because the search partner builds out its own search service, then Google's revenues and profits could suffer.

Rising Traffic Acquisitions Costs. Alphabet's operating margins could come under pressure if Google's search partners are successful at extracting higher revenue share economics from Google.

Return On Moonshots Investments Could Prove Elusive. Alphabet's moonshot investments such driverless cars, Fiber, life sciences and others could fail to contain losses, or fail to generate a return.

Broader Macroeconomic Weakness Globally Could Impact Advertising Growth. Alphabet generates the super majority of its revenues from advertising, which is sensitive to macroeconomic conditions.

Trump Effect. Impact from taxes and regulatory (net neutrality)

For important disclosures go to www.aegiscap.com.

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Rating	Percent	Investment Banking Services/Past 12 Mos. Percent
BUY [BUY]	88.64	30.77
HOLD [HOLD]	9.09	0.00
SELL [SELL]	2.27	0.00

Meaning of Ratings

A) A Buy rating is assigned when we do not believe the stock price adequately reflects a company's prospects over 12-18 months.

B) A Hold rating is assigned when we believe the stock price adequately reflects a company's prospects over 12-18 months.

C) A Sell rating is assigned when we believe the stock price more than adequately reflects a company's prospects over 12-18 months.

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