Alphabet Inc GOOGL (XNAS)

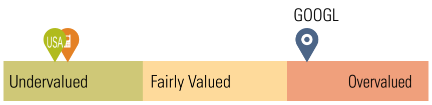
Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

Morningstar Pillars

	Analyst	Quantitative
Economic Moat	Wide	Wide
Valuation	★★★	Overvalued
Uncertainty	High	High
Financial Health	—	Strong

Source: Morningstar Equity Research

Quantitative Valuation



	Current	5-Yr Avg	Sector	Country
Price/Quant Fair Value	1.09	1.00	0.84	0.83
Price/Earnings	31.1	34.3	15.3	20.1
Forward P/E	36.6	—	14.6	13.9
Price/Cash Flow	19.8	18.2	6.0	13.1
Price/Free Cash Flow	36.9	30.9	15.6	19.5
Trailing Dividend Yield%	—	—	4.22	2.35

Source: Morningstar

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.

Important Disclosure:

The conduct of Morningstar's analysts is governed by Code of Ethics/Code of Conduct Policy, Personal Security Trading Policy (or an equivalent of), and Investment Research Policy. For information regarding conflicts of interest, please visit http://global.morningstar.com/equitydisclosures

Alphabet Continues to Dominate the Online Ad Space

Business Strategy and Outlook

Ali Mogharabi, Sr. Eq. Analyst, 09 April 2020

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 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 fast-growing public cloud market. 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.

Analyst Note

Ali Mogharabi, Sr. Eq. Analyst, 08 July 2020

We have increased our estimates for Alphabet, Facebook, Pinterest, Snap, and Twitter, as the coronavirus-related hit to digital advertising looks softer than we initially anticipated. We think advertisers will continue to allocate more of their ad dollars toward direct-response campaigns after the pandemic. The main beneficiary of what may become a lasting change is likely to be Facebook. Investments by Pinterest and Snap to enhance their direct-response offerings will probably partially offset the impact of lower spending on broad-based campaigns. The same could be true of Twitter, but to a lesser extent. At Google, we expect search to attract more advertisers, given the overall decline in ad prices. Plus, assuming no significant lockdowns by the second half of 2021, we expect Google and Snap to more effectively monetize their map apps. The adjustments to our projections lift our fair value estimates for Alphabet 9% to $1,520, Facebook 14% to $245, Pinterest 4% to $27, Snap 6% to $18, and Twitter 7% to $32.

Digital ad spending in the second half of this year is likely to be higher than the same period of 2019. According to a survey of advertisers conducted by the Interactive Advertising Bureau in mid-June, more ad buyers said they plan to increase ad spending on social media and paid search than to not change or decrease their spending during the next six months compared with last year. The survey also showed that the increase will likely come at the expense of cutting spending on traditional advertising. The survey also indicates that advertisers may increase their social media and paid search spending by at least 25% and 20%, respectively, from the second half of 2019. Earlier this month, eMarketer also published its latest estimates for 2020 digital ad spending, which it now believes will increase 2% year over year, well above our initial projection in March of a 5%-10% decline.

Economic Moat

Ali Mogharabi, Sr. Eq. Analyst, 31 July 2020

We assign Alphabet a wide moat rating, thanks to sustainable competitive advantages derived from the company's intangible assets, as well as the network

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

Close Competitors	Currency (Mil)	Market Cap	TTM Sales	Operating Margin	TTM/PE
Apple Inc AAPL	USD	1,667,679	267,981	24.48	30.12
Microsoft Corp MSFT	USD	1,543,727	138,699	37.46	35.46
Amazon.com Inc AMZN	USD	1,522,205	296,274	4.76	144.93
Facebook Inc FB	USD	669,033	73,357	36.21	32.15

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

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

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 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 IDC, Google's Android OS powers more than 85% of smartphones around the world, compared with Apple iOS' slightly below 15%. We think it is likely that the two smartphone operating systems will continue to 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

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

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 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.

Fair Value & Profit Drivers

Ali Mogharabi, Sr. Eq. Analyst, 31 July 2020

Our fair value estimate is $1,690 per share, equivalent to a 2020 enterprise value/EBITDA ratio of 19. We expect significant revenue growth pressure in 2020 due to the COVID-19 pandemic, followed by a return to double-digit revenue growth in 2021-24, helped by greater revenue contribution from YouTube and cloud. While there will be some pressure on gross margin, we look for operating leverage improvement beginning in 2022 mainly from continuing 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 21%.

We expect advertising revenue to represent over 70% of Alphabet's total revenue, driven by continuing growth in overall digital ad spending, more specifically in search, video, and mobile. We model no year-over-year change in 2020 ad revenue as the coronavirus pandemic will lower ad spending, cutting demand for Google ad inventory and further pressuring ad prices. We expect Google ad revenue to recover quickly in 2021 and grow nearly 25% year over year. We estimate total Google ad revenue of $136 billion and $169 billion in 2020 and 2021, respectively. We think YouTube will contribute about $15 billion and $21 billion to Google advertising revenue in 2020 and 2021, respectively. We believe Google will continue to gain traction in the cloud market (35% revenue CAGR through 2024), and when combined with non-ad YouTube, Google Play, and sales of Google's hardware products, we see Google's other revenue growing 34% to $35 billion in 2020. For 2021, we expect 30% 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 Fiber subscribers and Verily, as commercialization of Waymo is in its early stages. Our total other bets revenue estimates for 2020 and 2021 are $1.1 billion and $1.5 billion.

We model 52% gross margin for 2020 and 2021, compared with nearly 56% in 2019, due to the higher cost of YouTube content. Based on our projections, we expect the average

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

gross margin through 2024 to be around 300 basis points lower than 2019.

Combined with strong revenue growth, we expect slight deceleration of growth in other operating expenses to create operating leverage for Alphabet starting in 2021.

Risk & Uncertainty

Ali Mogharabi, Sr. Eq. Analyst, 31 July 2020

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 long-lasting downturn in online ad spending could have a negative impact on Alphabet's revenue and cash flow, resulting in a lower fair value estimate. While Alphabet is facing a decline in online ad spending due to the COVID-19 pandemic, we think the impact will be for only 12-18 months, after which the firm will again benefit from the growing online ad market. 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.

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. 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 antitrust pressure and various claims and investigations brought on by different companies and regulatory agencies regarding search bias and its overall market dominance in online advertising.

Stewardship

Ali Mogharabi, Sr. Eq. Analyst, 31 July 2020

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, Motorola Mobility, and more recently, Looker. In addition, Alphabet continues to invest in R&D and various high-risk and high-reward projects, which if successful could generate significant returns for the company. Investment in autonomous vehicle technology (Waymo), is just one example. Given the large amount of cash 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. This structure has provided slightly more transparency to shareholders, as the company's mature cash-generating business, Google, is managed separately. In our opinion, such a move may 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 and is a director, was the CEO of parent company Alphabet. Sergey Brin, the other cofounder of Google and a director of Alphabet, was the president of the firm. In December 2019, Page and Brin left their roles (but remained on the board) and Sundar Pichai, the CEO of Google, also became the CEO of Alphabet. 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. Thomas Kurian, former president of Oracle's product development group, became the CEO of Google Cloud in 2019, a position held by Diane Greene for the previous four years. 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. At the end of 2019, Page, Brin, and former CEO and former executive chairman Eric E. Schmidt had more than 55% voting power. In

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

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, who is now the company's technical advisor, make too many high-risk wagers on futuristic projects. However, we have not seen any indications of this.

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

Analyst Notes Archive

Although Alphabet Reported Mixed Q4 Results, Transparency Is Welcomed; Raising FVE to $1,400

Ali Mogharabi, Sr. Eq. Analyst, 03 February 2020

While Alphabet reported mixed fourth-quarter results, we welcome changes already implemented by the firm's new CEO, Sundar Pichai. Alphabet has finally begun to open the "black box" and is now providing more transparency regarding the revenue that its many products and services generate every quarter. Alphabet revenue breakdown showed continuing strong growth in YouTube advertising, cloud, YouTube subscription, and Google Play, partially offset by an expected slowdown in search ads and weakness in hardware sales. The firm's total revenue came in below our expectation and the FactSet consensus, while continuing stability in traffic acquisition costs and a decline in sales and marketing expenses as a percentage of revenue helped Alphabet beat the consensus on the bottom line. We have slightly lowered our revenue projections as we think strength in YouTube and cloud will be partially offset by further deceleration in search revenue. After taking into account the time value of money, our fair value estimate is now 8% higher, at $1,400 per share. While the stock is down 4% in after-hours, we recommend waiting for additional margin of safety before investing in this wide-moat name.

After the Recent Decline, Alphabet Has Become Attractive; Maintaining $1,400 FVE

Ali Mogharabi, Sr. Eq. Analyst, 30 March 2020

Wide-moat Alphabet has become attractive given the recent COVID-19-driven downturn. Google's ad revenue will take a hit from the coronavirus in 2020, but the firm will maintain its dominance in the online advertising market, which will recover quickly after the pandemic eases and companies look to quickly regain consumers' attention. In the short- to medium term, any indication of a slowdown in the spread of COVID-19 could initiate a recovery in the Alphabet stock and push it toward our $1,400 fair value estimate. Long-term catalysts include the return of strong subscription and ad revenue growth in YouTube, and further traction gained by the firm in the cloud market. The Waymo and Verily call options represent additional upside to our fair value estimate. Verily's recent efforts to work with government agencies and create sites for coronavirus testing and screening may create commercialization opportunities in the long-run.

As the pandemic continues to spread around the world, we believe it will further impact ad spending negatively. We expect total Alphabet revenue to increase by only 1% this year as decline in ad revenue is expected to be offset by further growth in cloud. We have assumed continuing growth in cloud and a recovery in advertising to push top-line growth to 27% in 2021.

Alphabet Beats Expectations and Provides Some Hope for Recovery in Ad Revenue; Maintaining FVE

Ali Mogharabi, Sr. Eq. Analyst, 29 April 2020

Alphabet's first-quarter results beat the FactSet consensus on revenue and EBIT, helped by strong ad spending in January and February, but followed by the pandemic-driven reversal in March. Revenue diversification is paying off as solid growth in YouTube and cloud lessened the coronavirus impact on overall revenue. We continue to expect the current downturn to strengthen Alphabet's network effect moat source as more users remain on Google's platforms, from which the firm will benefit once the economy turns around. We also applaud the various steps that Alphabet is taking to control costs and improve efficiency during this downturn. The firm mentioned that in April, it has also begun seeing slight changes in user behavior, possibly tilting slightly back to more consumption, which we think may help ad revenue. However, there's a lot of uncertainty about whether such change will continue throughout the second quarter and/or the rest of 2020. In addition, advertisers are likely to remain hesitant and reduce ad spending until they see indications of an economic turnaround. We have not made significant adjustments to our projections and are maintaining our $1,400 per share fair value estimate. Alphabet remains on our Best Idea list.

Alphabet reported total revenue of $41.2 billion, up 13% year over year, helped by growth in advertising (10%) and cloud (52%). While Google's search ad revenue increased 9% during the quarter, double-digit growth during the first two months came to a grinding halt and began to decline at midteens rate in March. The good news was that usage of Google search increased dramatically. However, monetization of traffic declined as user's intentions likely no longer included various types of consumption, especially travel, which has been the hardest hit vertical. While it is early, management did state that user intention may be very slowly changing back to consumption.

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

Removing the Outperforming and Wide-Moat Alphabet From the Best Idea List; Maintaining $1,400 FVE

Ali Mogharabi, Sr. Eq. Analyst, 28 May 2020

We are removing Alphabet from our Best Idea list as the stock is now trading slightly above our $1,400 fair value estimate. Alphabet's share price has increased 20% since it was added to the list in April, outperforming the Morningstar U.S. Market Index and the S&P 500, which were up 16% and 14%, respectively.

The firm's first-quarter results (released on April 28) demonstrated that revenue diversification is paying off as solid growth in YouTube and cloud lessened the COVID-19 impact on overall revenue. Also in April, management saw that user behavior was changing slightly, possibly tilting a bit back toward more consumption, which may help ad revenue. However, we think such potential upside is now priced in. There's a lot of uncertainty about whether the change in behavior will strengthen and continue throughout the second quarter and/or the rest of 2020. In addition, advertisers may remain hesitant and reduce ad spending until they see further indications of an economic turnaround. Long-term catalysts for the stock still include the return of strong subscription and ad revenue growth in YouTube, and further traction gained by the firm in the cloud market. Waymo and Verily are essentially call options that represent more upside to our fair value estimate.

Lastly, in terms of risks, in addition to COVID-19's impact on ad spending, Alphabet faces antitrust and regulatory pressures. As we looked at it in depth in our March 5 report ("Antitrust Flexing Its Anti-Big-Tech Muscle: Google and Facebook Do Not Face Significant Damage"), with the 2020 elections in sight, politicians, federal agencies, and international lawmakers have begun to investigate Alphabet, proposing more stringent enforcement of antitrust laws and calling for changes to or reinterpretation of existing statutes. President Trump's May 28 signing of an executive order, which may lead to less liability protection (provided by Section 230) for Google and some of its peers, is the latest example.

Advertising Walkout on Facebook and Other Social Media Gains Momentum; Pinterest May Benefit

Ali Mogharabi, Sr. Eq. Analyst, 29 June 2020

Over the weekend, more large brands and advertisers, including Coca-Cola, Starbucks, and Unilever, announced plans to pause or reduce ad spending on social media platforms (mainly Facebook and its Instagram platform) in protest against the lack of controls to limit hate speech and misinformation. The movement, which began on June 17, has gained momentum, increasing the risk for firms such as Facebook and Twitter, while possibly creating some opportunities for Pinterest and Alphabet. However, we anticipate that most of the advertisers will return to Facebook given its more than 2.6 billion users. In the meantime, Facebook can take steps to demonstrate it will reduce hate speech further on the platform; although more content oversight could bring more regulatory risks to the forefront. With the current advertiser walkout, we have not changed fair value estimates for the social media companies under our coverage. We value Facebook, Twitter, Snap, Pinterest, and Alphabet at $215, $30, $17, $26, and $1,400 per share, respectively. We continue to view Facebook, Twitter, and Alphabet as fairly valued, while Snap remains overvalued. The recent sell-off in the social media names has made Pinterest, which is approaching a 4-star rating, attractive.

Pandemic Not as Severe on Digital Ads; Raising Alphabet, Facebook, Pinterest, Snap, and Twitter FVEs

Ali Mogharabi, Sr. Eq. Analyst, 08 July 2020

We have increased our estimates for Alphabet, Facebook, Pinterest, Snap, and Twitter, as the coronavirus-related hit to digital advertising looks softer than we initially anticipated. We think advertisers will continue to allocate more of their ad dollars toward direct-response campaigns after the pandemic. The main beneficiary of what may become a lasting change is likely to be Facebook. Investments by Pinterest and Snap to enhance their direct-response offerings will probably partially offset the impact of lower spending on broad-based campaigns. The same could be true of Twitter, but to a lesser extent. At Google, we expect search to attract more advertisers, given the overall decline in ad prices. Plus, assuming no significant lockdowns by the second half of 2021, we expect Google and Snap to more effectively monetize their map apps. The adjustments to our projections lift our fair value estimates for Alphabet 9% to $1,520, Facebook 14% to $245, Pinterest 4% to $27, Snap 6% to $18, and Twitter 7% to $32.

Digital ad spending in the second half of this year is likely to be higher than the same period of 2019. According to a survey of advertisers conducted by the Interactive

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

Advertising Bureau in mid-June, more ad buyers said they plan to increase ad spending on social media and paid search than to not change or decrease their spending during the next six months compared with last year. The survey also showed that the increase will likely come at the expense of cutting spending on traditional advertising. The survey also indicates that advertisers may increase their social media and paid search spending by at least 25% and 20%, respectively, from the second half of 2019. Earlier this month, eMarketer also published its latest estimates for 2020 digital ad spending, which it now believes will increase 2% year over year, well above our initial projection in March of a 5%-10% decline.

Quantitative Equity Report | Release: 31 Jul 2020, 08:05 UTC | Reporting Currency: USD | Trading Currency: USD | Exchange:XNAS

Alphabet Inc A GOOGL ★★Q

31 Jul 2020 02:00 UTC

Last Close	Fair Value[Q]	Market Cap	Sector	Industry	Country of Domicile
30 Jul 2020 1,538.37	31 Jul 2020 02:00 UTC 1,409.69	30 Jul 2020 1,047.8 Bil	Communication Services	Internet Content & Information	USA United States

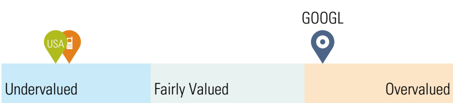
There is no one analyst in which a Quantitative Fair Value Estimate and Quantitative Star Rating are attributed to; however, Mr. Lee Davidson, Head of Quantitative Research for Morningstar, Inc., is responsible for overseeing the methodology that supports the quantitative fair value. As an employee of Morningstar, Inc., Mr. Davidson is guided by Morningstar, Inc.'s Code of Ethics and Personal Securities Trading Policy in carrying out his responsibilities. For information regarding Conflicts of Interests, visit http://global.morningstar.com/equitydisclosures

Company 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

Quantitative Scores

		Scores All	Rel Sector	Rel Country
Quantitative Moat	Wide	100	100	100
Valuation	Overvalued	9	10	12
Quantitative Uncertainty	High	98	98	96
Financial Health	Strong	98	90	98



Source: Morningstar Equity Research

Valuation

	Current	5-Yr Avg	Sector Median	Country Median
Price/Quant Fair Value	1.09	1.00	0.84	0.83
Price/Earnings	31.1	34.3	15.3	20.1
Forward P/E	36.6	—	14.6	13.9
Price/Cash Flow	19.8	18.2	6.0	13.1
Price/Free Cash Flow	36.9	30.9	15.6	19.5
Trailing Dividend Yield %	—	—	4.22	2.35
Price/Book	5.2	4.4	2.0	2.4
Price/Sales	6.4	6.4	1.3	2.4

Profitability

	Current	5-Yr Avg	Sector Median	Country Median
Return on Equity %	17.8	14.9	13.0	12.9
Return on Assets %	13.3	11.7	4.8	5.2
Revenue/Employee (Mil)	1.4	1.3	0.7	0.3

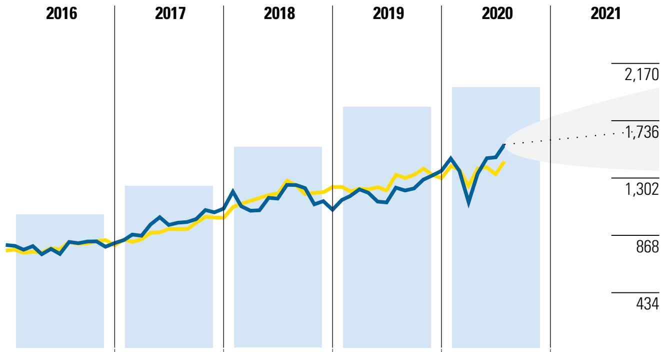
Financial Health

	Current	5-Yr Avg	Sector Median	Country Median
Distance to Default	0.8	0.8	0.5	0.5
Solvency Score	183.8	—	527.0	552.4
Assets/Equity	1.4	1.3	1.9	1.7
Long-Term Debt/Equity	0.0	0.0	0.3	0.4

Growth Per Share

	1-Year	3-Year	5-Year	10-Year
Revenue %	18.3	21.5	19.7	21.2
Operating Income %	10.2	14.9	16.9	15.8
Earnings %	12.5	20.9	19.9	17.0
Dividends %	—	—	—	—
Book Value %	14.6	13.3	13.9	17.8
Stock Total Return %	25.3	17.1	18.3	15.8

Price vs. Quantitative Fair Value

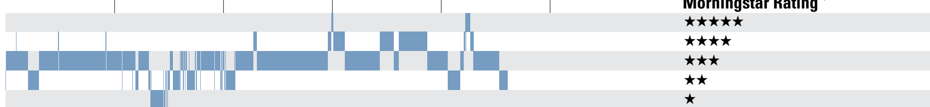


Momentum: Neutral
Standard Deviation: 21.92
Liquidity: High

1,008.87	52-Wk	1,587.05
593.09	5-Yr	1,587.05

2016	2017	2018	2019	2020	2021	
1.9	32.9	-0.8	28.2	14.9		Total Return %
-10.6	11.5	4.3	-3.0	13.0		+/– Market (Morningstar US Index)
—	—	—	—	—		Trailing Dividend Yield %
—	—	—	—	—		Forward Dividend Yield %
29.0	35.2	39.2	28.7	31.1		Price/Earnings
6.5	7.1	5.7	6.0	6.4		Price/Revenue

Morningstar Rating[Q]



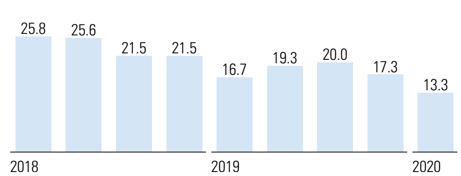
2015	2016	2017	2018	2019	TTM	Financials (Fiscal Year in Mil)
74,989	90,272	110,855	136,819	161,857	166,677	Revenue
13.6	20.4	22.8	23.4	18.3	3.0	% Change
19,360	23,716	28,882	31,392	35,928	35,600	Operating Income
17.4	22.5	21.8	8.7	14.4	-0.9	% Change
16,348	19,478	12,662	30,736	34,343	34,522	Net Income
26,024	36,036	37,091	47,971	54,520	53,971	Operating Cash Flow
-9,915	-10,212	-13,184	-25,139	-23,548	-24,915	Capital Spending
16,109	25,824	23,907	22,832	30,972	29,056	Free Cash Flow
21.5	28.6	21.6	16.7	19.1	17.4	% Sales
22.84	27.85	18.00	43.70	49.16	49.53	EPS
8.7	21.9	-35.4	142.8	12.5	0.8	% Change
21.15	33.65	34.57	32.50	40.74	41.73	Free Cash Flow/Share
—	—	—	—	—	—	Dividends/Share
169.12	193.99	226.11	244.18	283.25	298.35	Book Value/Share
687,348	691,293	694,783	695,556	688,335	682,620	Shares Outstanding (K)

2015	2016	2017	2018	2019	TTM	Profitability
14.1	15.0	8.7	18.6	18.1	17.8	Return on Equity %
11.4	12.4	6.9	14.3	13.5	13.3	Return on Assets %
21.1	21.6	11.4	22.5	21.2	20.7	Net Margin %
0.54	0.57	0.61	0.64	0.64	0.64	Asset Turnover
1.2	1.2	1.3	1.3	1.4	1.3	Financial Leverage
62.4	61.1	58.9	56.5	55.6	55.1	Gross Margin %
25.8	26.3	26.1	22.9	22.2	21.4	Operating Margin %
1,995	3,935	3,943	3,950	3,958	3,960	Long-Term Debt
120,331	139,036	152,502	177,628	201,442	203,659	Total Equity
2.8	2.9	2.9	2.7	2.2	2.1	Fixed Asset Turns

Quarterly Revenue & EPS

Revenue (Bil)	Mar	Jun	Sep	Dec	Total
2020	41.2	—	—	—	—
2019	36.3	38.9	40.5	46.1	161.9
2018	31.1	32.7	33.7	39.3	136.8
2017	24.8	26.0	27.8	32.3	110.9
Earnings Per Share ()					
2020	9.87	—	—	—	—
2019	9.50	14.21	10.12	15.35	49.16
2018	13.33	4.54	13.06	12.77	43.70
2017	7.73	5.01	9.57	-4.35	18.00

Revenue Growth Year On Year %



Research Methodology for Valuing Companies

Qualitative Equity Research 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. We believe this bottom-up, long-term, fundamentally based approach allows our analysts to focus on long-term business drivers, which have the greatest valuation impact, rather than short-term market noise.

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 an uncertainty-adjusted 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 excess 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.

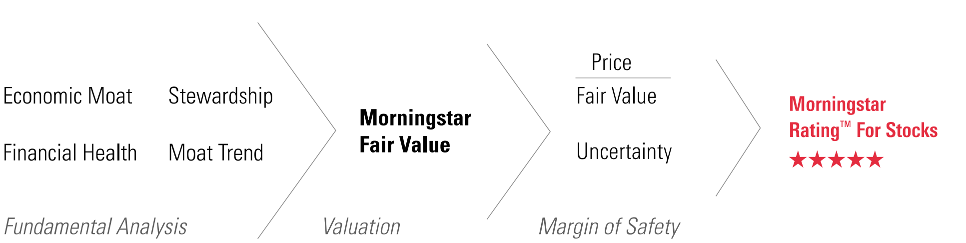
Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to 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 direction of the underlying competitive advantages, 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.

All the moat and moat trend ratings undergo periodic review and any changes must be approved by the Morningstar Economic Moat Committee, comprised of senior members of Morningstar's equity research department.

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



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, or EBI, and the net new investment, or 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, or RONIC, and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until the perpetuity stage is reached. 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 present 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.

Research Methodology for Valuing Companies

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.

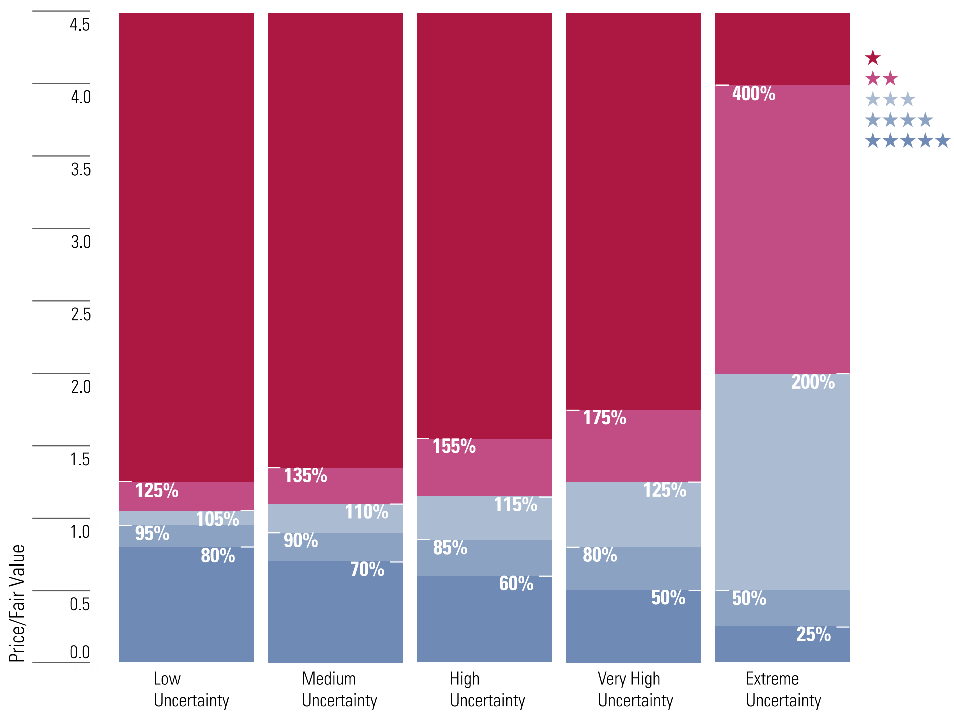
Our uncertainty ratings for our qualitative analysis are low, medium, high, very high, and extreme.

- 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–margin of safety for 5-star rating is a 75% discount and for 1-star rating is 300% premium.

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 details about our methodology, please go to https://shareholders.morningstar.com.

Morningstar Equity Research Star Rating Methodology



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.
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:

★★★★★ We believe appreciation beyond a fair risk-adjusted return is highly likely over a multiyear time frame. The current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

★★★★ We believe appreciation beyond a fair risk-adjusted return is likely.

★★★ Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

★★ We believe investors are likely to receive a less than fair risk-adjusted return.

★ Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multiyear time frame, based on our analysis. The market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

Research Methodology for Valuing Companies

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.
- Fairly 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.

Quantitative Equity Reports Overview

The quantitative report on equities consists of data, statistics and quantitative equity ratings on equity securities. Morningstar, Inc.'s quantitative equity ratings are forward looking and are generated by a statistical model that is based on Morningstar Inc.'s analyst-driven equity ratings and quantitative statistics. Given the nature of the quantitative report and the quantitative ratings, there is no one analyst in which a given report is attributed to; however, Mr. Lee Davidson, Head of Quantitative Research for Morningstar, Inc., is responsible for overseeing the methodology that supports the quantitative equity ratings used in this report. As an employee of Morningstar, Inc., Mr. Davidson is guided by Morningstar, Inc.'s Code of Ethics and Personal Securities Trading Policy in carrying out his responsibilities.

Quantitative Equity Ratings

Morningstar's quantitative equity ratings consist of:
(i) Quantitative Fair Value Estimate
(ii) Quantitative Star Rating
(iii) Quantitative Uncertainty
(iv) Quantitative Economic Moat
(v) Quantitative Financial Health
(collectively the "Quantitative Ratings").

The Quantitative Ratings are calculated daily and derived from the analyst-driven ratings of a company's peers as determined by statistical algorithms. Morningstar, Inc. ("“Morningstar," "we," "our") calculates Quantitative Ratings for companies whether it already provides analyst ratings and qualitative coverage. In some cases, the Quantitative Ratings may differ from the analyst ratings because a company's analyst-driven ratings can significantly differ from other companies in its peer group.

Quantitative Fair Value Estimate: Intended to represent Morningstar's estimate of the per share dollar amount that a company's equity is worth today. Morningstar calculates the quantitative fair value estimate using a statistical model derived from the fair value estimate Morningstar's equity analysts assign to companies. Please go to https://shareholders.morningstar.com for information about fair value estimates Morningstar's equity analysts assign to companies.

Quantitative Economic Moat: Intended to describe the strength of a firm's competitive position. It is calculated using an algorithm designed to predict the Economic Moat rating a Morningstar analyst would assign to the stock. The rating is expressed as Narrow, Wide, or None.

- Narrow: assigned when the probability of a stock receiving a "Wide Moat" rating by an analyst is greater than 70% but less than 99%.
- Wide: assigned when the probability of a stock receiving a "Wide Moat" rating by an analyst is greater than 99%.
- None: assigned when the probability of an analyst receiving a "Wide Moat" rating by an analyst is less than 70%.

Quantitative Star Rating: Intended to be the summary rating based on the combination of our Quantitative Fair Value Estimate, current market price, and the Quantitative Uncertainty Rating. The rating is expressed as 1-Star, 2-Star, 3-Star, 4-Star, and 5-Star.

★: the stock is overvalued with a reasonable margin of safety.
Log (Quant FVE/Price)<–1*Quantitative Uncertainty

★★: the stock is somewhat overvalued.
Log (Quant FVE/Price) between (–1*Quantitative Uncertainty, –0.5*Quantitative Uncertainty)

★★★: the stock is approximately fairly valued.
Log (Quant FVE/Price) between (–0.5*Quantitative Uncertainty, 0.5*Quantitative Uncertainty)

★★★★: the stock is somewhat undervalued.
Log (Quant FVE/Price) between (0.5*Quantitative Uncertainty, 1*Quantitative Uncertainty)

★★★★★: the stock is undervalued with a reasonable margin of safety. Log (Quant FVE/Price) >1*Quantitative Uncertainty

Quantitative Uncertainty: Intended to represent Morningstar's level of uncertainty about the accuracy of the quantitative fair value estimate. Generally, the lower the quantitative Uncertainty, the narrower the potential range of outcomes for that particular company. The rating is expressed as Low, Medium, High, Very High, and Extreme.

- Low: the interquartile range for possible fair values is less than 10%.
- Medium: the interquartile range for possible fair values is less than 15% but greater than 10%.
- High: the interquartile range for possible fair values is less than 35% but greater than 15%.
- Very High: the interquartile range for possible fair values is less than 80% but greater than 35%.
- Extreme: the interquartile range for possible fair values is greater than 80%.

Quantitative Financial Health: Intended to reflect the probability that a firm will face financial distress in the near future. The calculation uses a predictive model designed to anticipate when a company may default on its financial obligations. The rating is expressed as Weak, Moderate, and Strong.

- Weak: assigned when Quantitative Financial Health <0.2
- Moderate: assigned when Quantitative Financial Health is between 0.2 and 0.7
- Strong: assigned when Quantitative Financial Health >0.7

Research Methodology for Valuing Companies

Other Definitions

Last Close: Price of the stock as of the close of the market of the last trading day before date of the report.

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.
- ► Fairly Valued: Last Price is in line with Morningstar's quantitative fair value estimate.
- ► Overvalued: Last Price is above Morningstar's quantitative fair value estimate.

This Report has not been made available to the issuer of the security prior to publication.

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.

The quantitative equity ratings are not statements of fact. Morningstar does not guarantee the completeness or accuracy of the assumptions or models used in determining the quantitative equity ratings. In addition, there is the risk that the price target will not be met due to such things as unforeseen changes in demand for the company's products, changes in management, technology, economic development, interest rate development, operating and/or material costs, competitive pressure, supervisory law, exchange rate, and tax rate. For investments in foreign markets there are further risks, generally based on exchange rate changes or changes in political and social conditions.

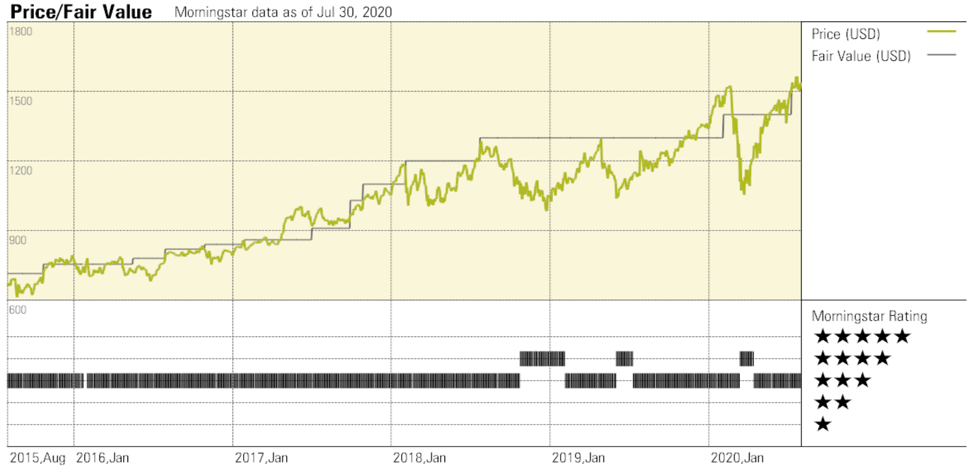
A change in the fundamental factors underlying the quantitative equity ratings can mean that the valuation is subsequently no longer accurate.

For more information about Morningstar's quantitative methodology, please visit http://global.morningstar.com/equitydisclosures.

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

Price/Fair Value Morningstar data as of Jul 30, 2020



General Disclosure

The analysis within this report is prepared by the person(s) noted in their capacity as an analyst for Morningstar's equity research group. The equity research group consists of various Morningstar, Inc. subsidiaries ("Equity Research Group)". In the United States, that subsidiary is Morningstar Research Services LLC, which is registered with and governed by the U.S. Securities and Exchange Commission.

The opinions expressed within the report are given in good faith, are as of the date of the report and are subject to change without notice. Neither the analyst nor Equity Research Group commits themselves in advance to whether and in which intervals updates to the report are expected to be made. The written analysis and Morningstar Star Rating for stocks are statements of opinions; they are not statements of fact.

The Equity Research Group believes its analysts make a reasonable effort to carefully research information contained in the analysis. The information on which the analysis is based has been obtained from sources believed to be reliable such as, for example, the company's financial statements filed with a regulator, company website, Bloomberg and any other the relevant press sources. Only the information obtained from such sources is made available to the issuer who is the subject of the analysis, which is necessary to properly reconcile with the facts. Should this sharing of information result in considerable changes, a statement of that fact will be noted within the report. While the Equity Research Group has obtained data, statistics and information from sources it believes to be reliable, neither the Equity Research Group nor Morningstar, Inc. performs an audit or seeks independent verification of any of the data, statistics, and information it receives.

General Quantitative Disclosure

The Quantitative Equity Report ("Report") is derived from data, statistics and information within Morningstar, Inc.'s database as of the date of the Report and is subject to change without notice. The Report is for informational purposes only, intended for financial professionals and/or sophisticated investors ("Users") and should not be the sole piece of information used by such Users or their clients in making an investment decision. The quantitative equity ratings noted the Report are provided in good faith, are as of the date of the Report and are subject to change. While Morningstar has obtained data, statistics and information from sources it believes to be reliable, Morningstar does not perform an audit or seeks independent verification of any of the data, statistics, and information it receives.

The quantitative equity ratings are not a market call, and do not replace the User or User's clients from conducting their own due-diligence on the security. The quantitative equity rating is not a suitability assessment; such assessments take into account may factors including a person's investment objective, personal and financial situation, and risk tolerance all of which are factors the quantitative equity rating statistical model does not and did not consider.

Prices noted with the Report are the closing prices on the last stock-market trading day before the publication date stated, unless another point in time is explicitly stated.

General Disclosure (applicable to both Quantitative and Qualitative Research)

Unless otherwise provided in a separate agreement, recipients accessing this report may only use it in the country in which the Morningstar distributor is based. Unless stated otherwise, the original distributor of the report is Morningstar Research Services LLC, a U.S.A. domiciled financial institution.

This report is for informational purposes only and has no regard to the specific investment objectives, financial situation or particular needs of any specific recipient. This publication is intended to provide information to assist institutional investors in making their own investment decisions, not to provide investment advice to any specific investor. Therefore, investments discussed and recommendations made herein may not be suitable for all investors: recipients must exercise their own independent judgment as to the suitability of such investments and recommendations in the light of their own investment objectives, experience, taxation status and financial position.

The information, data, analyses and opinions presented herein are not warranted to be accurate, correct, complete or timely. Unless otherwise provided in a separate agreement, neither Morningstar, Inc. or the Equity Research Group represents that the report contents meet all of the presentation and/or disclosure standards applicable in the jurisdiction the recipient is located.

Except as otherwise required by law or provided for in a separate agreement, the analyst, Morningstar, Inc. and the Equity Research Group and their officers, directors and employees shall not be responsible or liable for any trading decisions, damages or other losses resulting from, or related to, the information, data, analyses or opinions within the report. The Equity Research Group encourages recipients of this report to read all relevant issue documents (e.g., prospectus) pertaining to the security concerned, including without limitation, information relevant to its investment objectives, risks, and costs before making an

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

investment decision and when deemed necessary, to seek the advice of a legal, tax, and/or accounting professional.

The Report and its contents are not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Morningstar, Inc. or its affiliates to any registration or licensing requirements in such jurisdiction.

Where this report is made available in a language other than English and in the case of inconsistencies between the English and translated versions of the report, the English version will control and supersede any ambiguities associated with any part or section of a report that has been issued in a foreign language. Neither the analyst, Morningstar, Inc., or the Equity Research Group guarantees the accuracy of the translations.

This report may be distributed in certain localities, countries and/or jurisdictions ("Territories") by independent third parties or independent intermediaries and/or distributors ("Distributors"). Such Distributors are not acting as agents or representatives of the analyst, Morningstar, Inc. or the Equity Research Group. In Territories where a Distributor distributes our report, the Distributor is solely responsible for complying with all applicable regulations, laws, rules, circulars, codes and guidelines established by local and/or regional regulatory bodies, including laws in connection with the distribution third-party research reports.

Conflicts of Interest:

• No interests are held by the analyst with respect to the security subject of this investment research report.
– Morningstar, Inc. may hold a long position in the security subject of this investment research report that exceeds 0.5% of the total issued share capital of the security. To determine if such is the case, please click http://msi.morningstar.com and http://mdi.morningstar.com.

• Analysts' compensation is derived from Morningstar, Inc.'s overall earnings and consists of salary, bonus and in some cases restricted stock.

• Neither Morningstar, Inc. or the Equity Research Group receives commissions for providing research nor do they charge companies to be rated.

• Neither Morningstar, Inc. or the Equity Research Group is a market maker or a liquidity provider of the security noted within this report.

• Neither Morningstar, Inc. or the Equity Research Group has been a lead manager or co-lead manager over the previous 12-months of any publicly disclosed offer of financial instruments of the issuer.

• Morningstar, Inc.'s investment management group does have arrangements with financial institutions to provide portfolio management/investment advice some of which an analyst may issue investment research reports on. However, analysts do not have authority over Morningstar's investment management group's business arrangements nor allow employees from the investment management group to participate or influence the analysis or opinion prepared by them.

• Morningstar, Inc. is a publically traded company (Ticker Symbol: MORN) and thus a financial institution the security of which is the subject of this report may own more than 5% of Morningstar, Inc.'s total outstanding shares. Please access Morningstar, Inc.'s proxy statement, "Security Ownership of Certain Beneficial Owners and Management" section https://shareholders.morningstar.com/investor-relations/financials/sec-filings/default.aspx

• Morningstar, Inc. may provide the product issuer or its related entities with services or products for a fee and on an arms' length basis including software products and licenses, research and consulting services, data services, licenses to republish our ratings and research in their promotional material, event sponsorship and website advertising.

Further information on Morningstar, Inc.'s conflict of interest policies is available from http://global.morningstar.com/equitydisclosures. Also, please note analysts are subject to the CFA Institute's Code of Ethics and Standards of Professional Conduct.

For a list of securities which the Equity Research Group currently covers and provides written analysis on please contact your local Morningstar office. In addition, for historical analysis of securities covered, including their fair value estimate, please contact your local office.

For Recipients in Australia: This Report has been issued and distributed in Australia by Morningstar Australasia Pty Ltd (ABN: 95 090 665 544; ASFL: 240892). Morningstar Australasia Pty Ltd is the provider of the general advice ('the Service') and takes responsibility for the production of this report. The Service is provided through the research of investment products. To the extent the Report contains general advice it has been prepared without reference to an investor's objectives, financial situation or needs. Investors should consider the advice in light of these matters and, if applicable, the relevant Product Disclosure Statement before making any decision to invest. Refer to our Financial Services Guide (FSG) for more information at http://www.morningstar.com.au/fsg.pdf .

For Recipients in Canada: This research is not prepared subject to Canadian disclosure requirements.

For Recipients in Hong Kong: The Report is distributed by Morningstar Investment Management Asia Limited, which is regulated by the Hong Kong Securities and Futures Commission to provide services to professional investors only. Neither Morningstar Investment Management Asia Limited, nor its representatives, are acting or will be deemed to be acting as an investment advisor to any recipients of this information unless expressly agreed to by Morningstar Investment Management Asia Limited. For enquiries regarding this research, please contact a Morningstar Investment Management Asia Limited Licensed Representative at http://global.morningstar.com/equitydisclosures .

For Recipients in India: This Investment Research is issued by Morningstar Investment Adviser India Private Limited. Morningstar Investment Adviser India Private Limited is registered with the Securities and Exchange Board of India (Registration number INA000001357) and provides investment advice and research. Morningstar Investment Adviser India Private Limited has not been the subject of any disciplinary action by

Alphabet Inc GOOGL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	1,538.37 USD	1690.00 USD	0.91	—	0.00	1,047.80	Internet Content & Information	Standard
31 Jul 2020 13:03, UTC	31 Jul 2020	31 Jul 2020 12:59, UTC		30 Jul 2020	30 Jul 2020	30 Jul 2020		

SEBI or any other legal/regulatory body. Morningstar Investment Adviser India Private Limited is a wholly owned subsidiary of Morningstar Investment Management LLC. In India, Morningstar Investment Adviser India Private Limited has one associate, Morningstar India Private Limited, which provides data related services, financial data analysis and software development.

The Research Analyst has not served as an officer, director or employee of the fund company within the last 12 months, nor has it or its associates engaged in market making activity for the fund company.

*The Conflicts of Interest disclosure above also applies to relatives and associates of Manager Research Analysts in India # The Conflicts of Interest disclosure above also applies to associates of Manager Research Analysts in India. The terms and conditions on which Morningstar Investment Adviser India Private Limited offers Investment Research to clients, varies from client to client, and are detailed in the respective client agreement.

For recipients in Japan: The Report is distributed by Ibbotson Associates Japan, Inc., which is regulated by Financial Services Agency. Neither Ibbotson Associates Japan, Inc., nor its representatives, are acting or will be deemed to be acting as an investment advisor to any recipients of this information.

For recipients in Singapore: This Report is distributed by Morningstar Investment Adviser Singapore Pte Limited, which is licensed by the Monetary Authority of Singapore to provide financial advisory services in Singapore. Investors should consult a financial adviser regarding the suitability of any investment product, taking into account their specific investment objectives, financial situation or particular needs, before making any investment decisions.