



Technology

Facebook, Inc. (NSDQ: FB)

Recommendation: Hold

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Current Price \$178.46
Target Price \$185-195

Company Overview

Facebook, Inc. is a social media platform that supplies a medium for users to connect and interact with their family, friends, and associates via sharing photos, videos and sending messages. Facebook also provides other features such as outlets to news sources to help keep users up to date on current events, a marketplace to facilitate the sale of everyday items between users, and an event tab that grants users the ability to send invitations and track responses.

Stock Performance Highlights

52 week High	\$182.90
52 week Low	\$113.55
Beta Value	1.13
Average Daily Volume	15.06M

Share Highlights

Market Capitalization	\$518.571B
Shares Outstanding	2.86B
Price/Sales (ttm)	\$15.63
Price/Book (mrq)	\$7.78
EPS (2017)	\$4.11
P/E Ratio	40.3
Dividend Yield	0%

Company Performance Highlights

Profit Margin	36.97%
ROA	15.73%
ROE	17.26%

Financial Ratios

Current Ratio	11.97
Debt to Equity	10%

One Year Stock Performance



High Revenues Overshadowed by Increase in Spending

Investment Thesis

Despite being a leader in the social media industry with continuous record high revenues, Facebook is still a relatively new company with several risks and question marks. We recommend a Hold rating on Facebook due to their less than 10% upside from their single revenue stream and indication towards higher spending over the next year.

Investment Positives

Strong Revenues and Earnings

- Facebook is continually developing their platforms to provide outlets for meaningful interactions with over 2.1 billion active users, which attracts advertisers.

Monopolizing Social Media

- Facebook currently owns 4 of the top 7 global social networks in terms of active users. Facebook is the number one social network accompanied by WhatsApp, Messenger, and Instagram.

Growth of Video and AR/VR

- Facebook has invested heavily in video and augmented and virtual reality which will offer possible new opportunities for revenue growth through advertisements and selling Oculus VR products

Investment Negatives

Increase in Spending

- Q3 Conference call indicated a significant increase in spending to fund security, video, and AR/VR & AI. "Protecting our community is more important than maximizing our profits." – Mark Zuckerberg, CEO

Single Stream Revenue

- Advertising accounts for 97% of total revenue and is now being driven by price increases instead of increases in supply as seen in the past.

Executive Summary

Facebook has been one of the largest growing tech companies in the world since its inception in 2004 and IPO in 2012. Facebook's mission statement is to give consumers the power to share and make the world more open and connected⁶. Facebook pursues their mission statement by operating a social media website that enables people to connect, share, discover, and communicate with each other on personal computers and on mobile devices⁶.

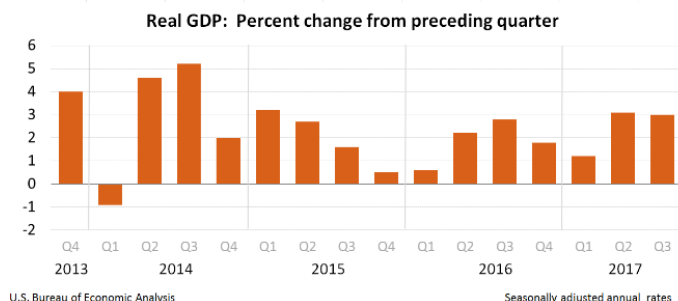
One of Facebook's primary business strategies is to allocate funding for mergers and acquisitions of other social media technology companies. This allows them to both eliminate a fraction of their competition as well as generate secondary revenue streams. Some major companies acquired by Facebook include Instagram, WhatsApp, and Oculus.

While the company may have strong growth in both desktop and mobile advertising, this revenue stream also raises a red flag for investors, accounting for roughly 97% of total revenues. Facebook faces major service-concentration risk from advertising revenue making up almost its entire income. Due to the dangers of single stream revenue along with an increase in expenses to fund security and R&D, we are issuing a HOLD rating for Facebook.

Economic Outlook

Gross Domestic Product (GDP)

Real GDP provides a good measure of the society's wealth and the rate at which the economy is growing. Real GDP has a strong correlation with consumer spending as well as corporate profits. In Q3, Real GDP entered into its historic average of 3% growth, as depicted in the graph below. In the same quarter, consumer spending came in at 2.4%.



1

With this quarter displaying 3% GDP growth as well as the S&P 500 and Dow Jones Industrial Average at all-time highs, we predict that consumer spending will grow to 3% next quarter. Progressing forward, we predict that GDP will reach an annualized margin of 2.7% by year end.

The condition of the overall economy, as measured by GDP, largely affects the performance of Internet media related industries. A rise in economic development is followed by a rise in communications traffic. This traffic triggers demand for network equipment as telephone, cable, and wireless companies raise the capacity of their networks. A very healthy economy will also generate demand for personal computers, internet access, wireless interlinking, as well as a variety of goods and services offered online⁷. This renders a promising outlook for Facebook as equity markets are at all-time highs and consumer sentiment is good.

GDP growth is also correlated with the amount spent by marketers. In the shorter term, the strength of GDP will benefit Facebook since advertisers will be willing to spend more in a healthy economy and 97% of Facebook's revenues come from advertising.

Inflation Rate (CPI & PPI)

Consumer Price Index (CPI) measures the changes in the prices paid for goods and services by consumers, on a monthly basis while the Producer Price Index (PPI) measures the average change in selling prices received by domestic producers of goods and services over time. Both indices are two of the top gauges used to measure inflation. PPI is a more fragile measure and is affected more harshly than that of CPI, as shown below. Nonetheless, both are highly tied to the inflationary movements produced by the Federal Reserve.

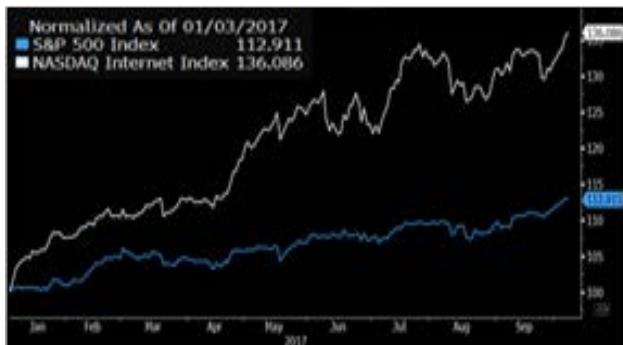
Janet Yellen did not place a high importance on inflation, but more on unemployment and interest rates being low to spur the economy and consumer spending. When Janet Yellen is replaced early next year, interest rates are expected to rise up after the Fed's extended quantitative easing.

In the near future, under the new hawk Federal Reserve President, we project the PPI will rise to 200+ and CPI will reach 250 due to a new increased importance placed on raising interest rates and, in turn, inflation. This forecast indicates a healthy increase in the CPI, which correlates with a healthy increase in the inflation rate. This increase will make way for a new investment era placing an emphasis on saving rather than borrowing. This will not only affect their own borrowing habits but it could affect their ad revenues if advertisers are not willing to borrow.

S&P 500

The Internet Media Industry posted strong sales followed by strong demand for advertising and e-commerce in 2017, leading to a positive industry outlook in 2018. New revenue streams in the form of messaging, virtual reality, and artificial intelligence has only just begun to make an impact on the industry.

In 2017, the Nasdaq Internet Index had a price return above 36%, topping the S&P 500 by 23%, as shown below. This is a major upsurge from last year's increase of just 5.2%, which trailed the S&P 500¹.



2

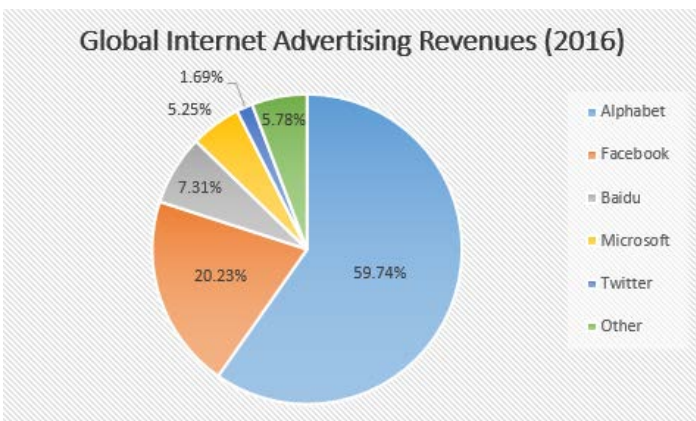
Industry Analysis

Overview

With the rapid growth of globalization and interconnectivity via the web, the internet media industry is constantly growing and changing every day. In 2017, 81% of individuals in the U.S. reported using social media⁹. The industry is composed of a number of internet companies that offer a wide variety of software and services including online database management and construction, interactive web services, and internet design. The market share is dominated by only a few key competitors that include Alphabet (Google), Facebook, Twitter, and Yahoo.

Industry Trends

The source of these massive returns are from positive macroeconomic sentiment and high demand for both digital ads and e-commerce. Retail e-commerce spending is projected to increase 23% to \$2.3 trillion and mobile ad spending by 31.4% to \$142.6 billion by 2017 year end¹.



2

Advertising is the largest driver of revenue for Facebook, totaling over 97% of their total revenue in 2016. This is the same case for competitors Google, Twitter, and Yahoo with advertising revenues comprising over 85% of total income. Marketers who advertise on these platforms program a series of user targeting approaches to ensure that consumers see advertisements that are most applicable to them.

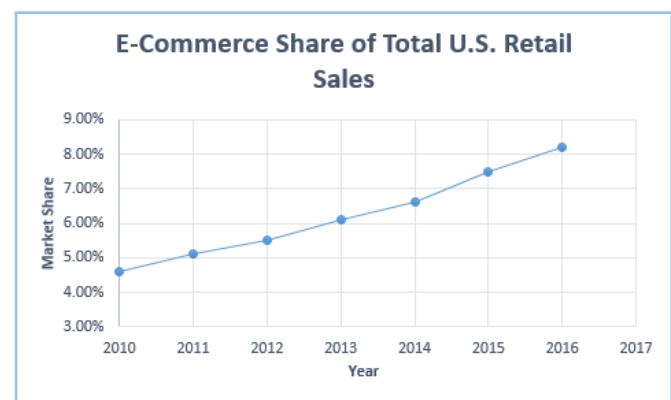
Targeting techniques include targeting based on geography, behavioral aspects, and historical searches. These targeting techniques have shown much success this past year given the level of growth for digital and mobile advertisements. The biggest revenue gainers from internet advertising are Google and Facebook, each making up a combined 80% of the advertising market share.

A big emphasis has been put on mobile advertising due to the increasing saturation of the smartphone market. Mobile applications offer a wide platform for marketers to display advertisements. In 2016 mobile advertising made up a third of the internet advertising revenues within the industry, replacing search as the largest category of online revenues⁷. We believe that this percentage will continue to grow as mobile application usage continues to rise due to increased smartphone saturation worldwide.

Internet companies have also been heavily investing in international operations due to the already highly saturated domestic market. Countries such as China, India, and Indonesia present big growth opportunities for internet companies due to large economic development and rollouts of 4G and LTE networks across Asia⁷. This will allow internet companies to grow their user base and revenues in a matter of years. According to our models, this expansion will boost Facebook's daily active users in Asia by 64% in and will increase their revenues by 132% by 2021.

E-Commerce

A developing trend across internet services is e-commerce, or, viewing and purchasing goods online. Consumers have been taking advantage of online shopping so they can avoid physically going into a retail store. As pictured below, e-commerce is slowly penetrating the outdated brick-and-mortar style retail chains.

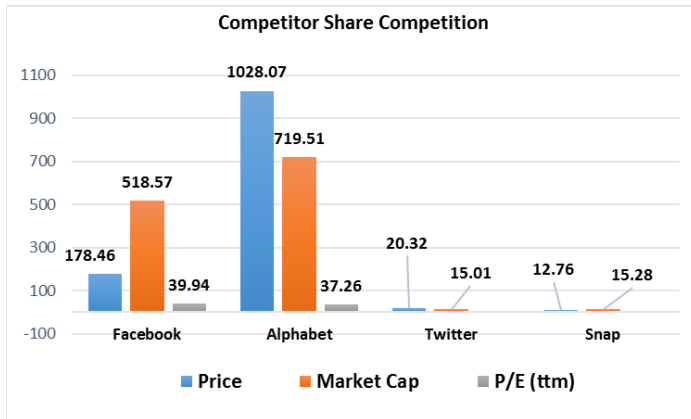


7

Facebook recently launched their Marketplace, a service that allows you to buy and sell goods with other users in your area. Since this is still a fairly new service it is difficult to value the Marketplace. Companies such as Amazon, eBay, and Craigslist are currently competing for this market share, with Facebook not so far behind.

Markets and Competition

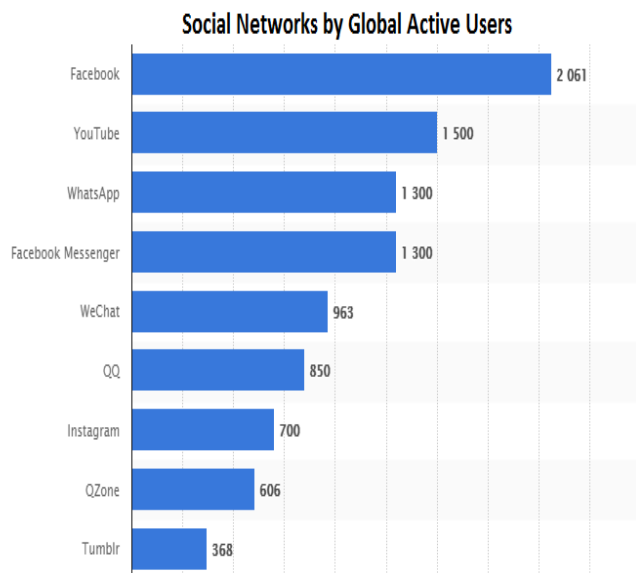
Google and Facebook are the two largest companies in the internet media industry by dominating key areas such as search (Google) and social media (Facebook)⁷. Facebook's biggest competitors in the social media market is Twitter and Snap Inc. The graph below compares key financial metrics between the four companies including price, market cap, and P/E. Although Alphabet has a higher price and market cap than Facebook, this is still a strong image for Facebook, given that it has only been 5 years since their IPO. They also substantially outperform their social media competitors in all three metrics.



Source: FactSet

Social Network

The chart below shows the top global social network sites in terms of active users. Facebook has the most active users among all social media platforms with the second closest competitor having 500 million less than Facebook. Furthermore, Facebook owns 3 other social networks in the top ten which includes WhatsApp, Messenger, and Instagram.



Company Analysis

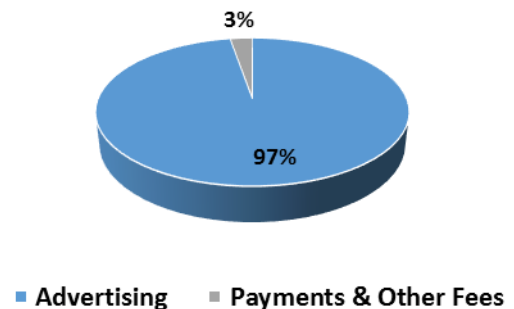
Company Description

Facebook's mission is to give its users the power to share information with each other in hopes of making the world more open and connected. Facebook does this by offering different useful and engaging platforms for people to connect and share through mobile devices, computers, and other surfaces. Their products also help people discover and stay up to date with news around the world and gives them the power to add their own opinions to audiences ranging from their close family and friends to the general public.

Revenues

Facebook generates a very large portion of its revenue from selling advertisements to marketers. The ads let marketers reach users based on demographics, interests, and behaviors. Marketers can purchase advertisements to appear on Facebook, Instagram, and other third party applications and websites.

2016 Revenue Distribution



Source: Model

Facebook just reported nine months ended September 30, 2017 total revenues of \$27.7 billion. However, Facebook has seen seasonally strong QoQ revenue from Q3 to Q4 in the past. In 2015, revenues grew 31% from Q3 to Q4 and 27% in 2016. Hence our expected 2017 total revenues of \$40.2 billion.

Product Lines

Facebook

Facebook enables users to connect, share, and communicate with their friends, family, and general public. They are a several different ways to engage with other users on Facebook, the main source is through the "News Feed" which displays algorithmically ranked series of posts, stories, and advertisements personalized for each user. Facebook has 2.07 billion monthly active users (MAUs) and 1.37 billion daily active users (DAUs) as of September

2017. This product generates the most advertising revenue in comparison to all of Facebook's products. Facebook currently has over 6 million active advertisers.

Facebook's main focus over the upcoming years is the development of video and their newly launched "Watch Tab". The Watch tab allows user to discover shows, follow creators, connect and interact with other people while watching an episode and join groups with similar interests. Facebook is trying bring people together through video and generating more interactive experiences.

Instagram

Instagram allows people to take photos or videos and share them with friends and followers with different filters and effects. Instagram was acquired by Facebook in 2012 for \$1 billion³. Instagram currently has 500 million daily active users and over 2 million advertisers. Instagram's "Stories" have rapidly grown in popularity and have been a problem for competitor, Snap Inc., who recently filed its IPO. Facebook recently gave advertisers the opportunity to creatively reach consumers through Stories.

Messenger

Messenger allows users an easy, expressive way to communicate with people and business across a variety of different platforms and devices. Messenger currently has 1.3 billion active users.⁶ Messenger currently has over 20 million businesses communicating with customers through its platform.

WhatsApp

WhatsApp Messenger is a fast, simple, and reliable messaging platform that is used by people worldwide, available through a variety of different mobile platforms. Facebook acquired WhatsApp in 2014 for \$22 billion³. WhatsApp currently has 1.3 billion active users and is tied with Messenger for the third largest global social network in terms of active users. Facebook is beginning to test features so that people can connect with business similar to Messenger.

Oculus

Oculus virtual reality technology and content platform powers products that allow people to enter an immersive and interactive environment to play games, consume content, and connect with others.

This past quarter Facebook held Oculus Connect where CEO Mark Zuckerberg showed off the new Santa Cruz prototype. This was the first time a company has shown the full experience of positional tracking in a standalone headset and controllers. This is a massive technical advancement that will be launched to developers next year.

Facebook also recently announced the launch of Oculus Go which will ship next year. Oculus Go is an all-in-one

headset that makes you feel like you are present with someone when you cannot physically be together. It is great for playing games, watching movies, and hanging out with friends. This will be a great way for Facebook to help bring virtual reality to more people for \$199.

Recent Developments (Q3 Earnings Call)

Security

One thing that was made very clear by CEO Mark Zuckerberg during Facebook's Q3 Earnings Conference Call was their commitment to investing heavily in security. Facebook has faced scrutiny from the way the Russians manipulated their platform during the previous election. Facebook executives have testified in Congress over the past month about activity they found on the website during the election last year. They are also working with congress on legislation to make advertising more transparent on their sites.

This movement towards higher security goes beyond transparency during elections, it is movement towards strengthening all of their platforms to prevent abuse and harmful content to ensure the safety of the community. Facebook is doing this by investing heavily in both people and technology. They already have around 10,000 employees working on safety and security and they plan on doubling that number to over 20,000 people by next year across Facebook and other partners. In addition to personnel, Facebook is engineering new artificial intelligence to detect bad content and actors.

Zuckerberg stressed how important these investments are long term for the company and society as a whole. However, he said that it will impact bottom line profitability going forward. This should leave investors cautious going forward in the short term outlook in terms of Facebook's share price and earnings.

Video

Over the next three years, Facebook will be focusing on the development of video across their products. Video gives Facebook the unique opportunity and outlet to create meaningful content for users to consume. The growth of video also gives Facebook the opportunity to grow their mobile video advertisements. In Q3 2017, Facebook gave advertisers the opportunity to run 15 second ads in videos alone. This endeavor saw positive results of greater than 70% of users watching the ad to completion. Facebook has also been hinting towards experimenting with licensing revenues through video and charging users to pay upfront for content.

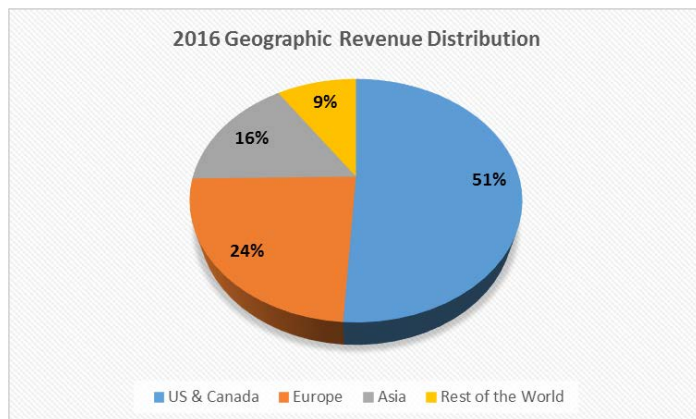
AR/VR, AI, Connectivity

In addition to increased spending in security and video, Facebook stressed their commitment to AR/VR, artificial intelligence, and connectivity. Augmented and virtual reality investments will be funding the Oculus platform and

products. Oculus will be an exciting product to look out for in 2018 and beyond.

Foreign Sales and Earnings

The majority of Facebook's revenues come from the US and Canada, adding up to 51% of their total revenue as of December 2016. Europe is the second highest at 23.7% followed by Asia at 15.9% and the remaining revenue streams coming from the rest of the world.



China presents a major growth opportunity for Facebook considering their massive population and their connection with the rest of the world. The Chinese government has been seeking global recognition and increased globalization in recent months. The recent approval of LinkedIn and Airbnb shows that China is more open to internet companies entering their country². This gives Facebook a good chance of getting China's approval.

Valuation Analysis

We are issuing a HOLD rating on Facebook Inc., with a target price range of \$185-\$195 Facebook's current price is \$178.46 that results in an upside of only 10%, hence our Hold rating.

Based on our Economic and Industry analysis we forecasted Facebook's revenues and expenses for the next five years. We believe that the DCF/EP valuation method provides with the most comprehensive valuation for the company. Facebook is one of the largest with in its industry and with the wide range of P/E multiples within the industry relative valuation method that uses comparable companies was not able to capture a reliable estimate for the value of Facebook. Furthermore, Facebook does not pay dividends, which resulted in a low DDM model valuation.

Revenue Decomposition

We forecasted Revenues based on different geographic regions, which include US & Canada, Europe, Asia and Rest of the world. For the year 2017 US & Canada estimated revenue came in as \$18.98 B, which accounts for

49% of the total revenue. Europe's revenue is estimated to be \$10.131 B, which is 26% of the totals revenue. Asia's revenue came in as \$5.36 B, which accounted for 14% of the total revenue. The remaining 10% was attributed to the rest of the world with estimate revenue of \$4 B.

Then it is broken down even further by source of revenue, which includes revenue from Advertisement and from Payments/Fees. With advertisement being the main source of revenue accounting 90% of the total revenue.

Advertisement revenue is driven by the amount of time each user uses the Facebook platform. Facebook has been adding new content and features to their platform, which helped them keep a constant increase in their users.

Payments and other fees include payments received by Facebook when customers purchase goods or services from developers. Fees come from developos when customers purchase their products or service on a platform provided by Facebook.

Advertisement is the biggest source of revenue for Facebook and we believe that in the next five years Mobile and online ad spending will increase hence the strong projected revenue growth for Facebook. However we do not believe that a 39% growth is sustainable that's why we declined it over the years to reach a steady state growth rate.

Cost of Goods Sold

We took out Depreciation and amortization out of COGS to be able to forecast them independently using Capital expenditures for depreciation and purchase of intangible assets for amortization. We forecasted COGS using the past 5 year historical average percentage of sales, which was 6%.

Cost of Debt

Facebook has repaid all of its debt in the year 2016. We have forecasted that Facebook will not issue debt in the future years. Since Facebook has no debt we used a company with a similar debt rating and used their cost of debt instead for the WACC calculation

Cost of Equity

We used the 30-year old Treasury note, which was 2.85% to determine the risk free rate. Beta was equal to 1.08, which was calculated using the data from Bloomberg. For the market risk premium we used 4.64% that we believe represents the risk associated with the market excluding the risk-free rate.

Summary of Valuation

The DCF/EP model resulted in a \$182.15, which translates to a 1% upside. The several sensitivity tables show a range of \$185-\$195 making the upside potential around 9%. With these estimates we concluded with the HOLD rating

Sensitivity Analysis

Conducting a sensitivity analysis allows for analysts to test different variables affecting the forecasts and models. By adjusting these variables we can observe how the stock price will fluctuate in relation to our assumptions.

Risk Free Rate against Beta

In this data table both the risk free rate and beta have the power to alter the price of Facebook stock drastically. Both of these measures are used to calculate Facebook's WACC. A higher beta and a higher risk free rate both result in a higher WACC, which is why the intrinsic value of the stock is at its lowest point when both variables are extremely high.

WACC against CV Growth of NOPLAT

Changes in both the WACC and CV growth will naturally change the stock price, but since both are so volatile the changes are very severe. When using the WACC as a discount rate and CV growth as the growth rate you can calculate an intrinsic value from the DCF or the EP method. When CV growth is at its high of 3.75% and the WACC is at its low at 2.45% the intrinsic value of Facebook will amount to a staggering \$406.

Risk Free Rate against Marginal Tax Rate

Both the risk free rate and the tax rate play a significant role in our valuation models when trying to find the intrinsic value of Facebook. Both variables are also subject to change greatly which is why this specific analysis was conducted. A higher marginal tax rate will result in a significantly lower intrinsic value and the same goes for a higher risk free rate.

Equity Risk Premium against CV ROIC

After analyzing this data table, the equity risk premium has a marginal effect on the stock price while the CV ROIC is even less severe. However, as the CV ROIC gets extremely low, to around 5%, the stock price plummets to a range from \$94-109. These two measures are also frequently used in our valuation models, and it was fascinating to see how even the biggest change in the equity risk premium had such a little effect on the stock price.

CV Advertising Growth Rate against Beta

The CV advertising growth rate of 16% was used to calculate revenue streams in the CV period, which is why we tested it against Beta, a systematic measure of total risk. As our data table shows, minimal fluctuations in the CV advertising growth rate does not affect our stock price that much, but a change in beta will measure around a \$7 change in our stock price.

R&D % of Sales against Pre-Tax Cost of Debt

We decided to measure R&D as a percentage of sales relative to the pre-tax cost of debt because Facebook has announced that it plans on increasing spending, a part of which will be spent on R&D expenses. Increases in R&D as a percentage of sales did not have a drastic effect on the stock price, and neither did changes in the pre-tax cost of debt. At its high point, this data table calculates the intrinsic value to be \$185.57, just \$3 higher than our current intrinsic value.

Investment Positives

Crushing Competition

Facebook currently dominates the social media industry in the U.S. and globally with over 2.1 billion active users. This does not even include some of the other people apps such as Messenger and Instagram. Thus, advertisers deem Facebook and its platforms an attractive place to advertise to consumer on their innovative platforms.

Monetizing Instagram and Other Services

Facebook holds several different unique assets that can start generate revenue and grow rapidly over the coming years. Instagram, Messenger, and WhatsApp all hold substantial market share among social media networks and Facebook executives have the opportunity to see healthy revenues from these platforms. In addition, Facebook will also be experimenting with different uses and licensing of video and are beginning to tap into the virtual reality market with their Oculus products.

Investment Negatives

Single Segment Revenue Stream

Not all content can be supported by ad revenues and 97% of Facebook's revenue is driven by advertising, going forward Facebook will have to eventually find another strong stream of revenue, hopefully sooner rather than later with the substantial increase in spending.

Shrinking Margins

Since Facebook is committed to investing in increased security and other product developments, revenue will have to grow substantially from current levels to keep profit margins consistent.

Keys to Watch

Facebook at Capitol Hill

Executives of Facebook has been testifying in front of congress over the past couple of weeks in response to Russian interference on their platform during last year's election. Although Facebook has addressed these issued and pledged to find a solution, it will be important to keep an eye out for any developments in the investigation that could negatively affect the company.

Video Evolution

It is evident that executives have placed a high priority on growing their video platform. One thing that has not been completely established is whether or not video growth will be monetized through advertising or licensing and pay upfront model. Over the next couple of years Facebook will experimenting with several different types and uses of video.

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Important Disclaimer

This report was created by students enrolled in the Applied Equity Valuation (FIN:4250) class at the University of Iowa. The report was originally created to offer an internal investment recommendation for the University of Iowa Krause Fund and its advisory board. The report also provides potential employers and other interested parties an example of the students' skills, knowledge and abilities. Members of the Krause Fund are not registered investment advisors, brokers or officially licensed financial professionals. The investment advice contained in this report does not represent an offer or solicitation to buy or sell any of the securities mentioned. Unless otherwise noted, facts and figures included in this report are from publicly available sources. This report is not a complete compilation of data, and its accuracy is not guaranteed. From time to time, the University of Iowa, its faculty, staff, students, or the Krause Fund may hold a financial interest in the companies mentioned in this report.

		Beta									
		\$ 182.15	0.93	0.98	1.03	1.08	1.13	1.18	1.23	1.28	1.33
Risk Free Rate	2.45%		244.11	230.48	218.26	207.25	197.29	188.22	179.93	172.34	165.34
	2.55%		238.05	225.05	213.38	202.84	193.27	184.56	176.58	169.25	162.50
	2.65%		232.27	219.87	208.71	198.60	189.42	181.03	173.35	166.27	159.75
	2.75%		226.76	214.92	204.23	194.54	185.71	177.64	170.23	163.40	157.09
	2.85%		221.50	210.18	199.94	190.64	182.15	174.37	167.22	160.62	154.51
	2.95%		216.48	205.64	195.82	186.88	178.71	171.21	164.31	157.93	152.02
	3.05%		211.67	201.29	191.87	183.27	175.40	168.17	161.50	155.33	149.61
	3.15%		207.07	197.12	188.07	179.80	172.21	165.23	158.78	152.81	147.27
	3.25%		202.67	193.12	184.41	176.45	169.13	162.39	156.15	150.37	145.00

		CV Growth of NOPLAT									
	\$ 182.15	1.75%	2.00%	2.25%	2.50%	2.75%	3.00%	3.25%	3.50%	3.75%	
WACC	6.06%	236.29	248.40	262.10	277.73	295.72	316.64	341.29	370.76	406.60	
	6.56%	211.02	220.44	230.96	242.77	256.13	271.37	288.91	309.31	333.35	
	7.06%	190.53	198.04	206.32	215.51	225.76	237.28	250.31	265.17	282.28	
	7.56%	173.60	179.69	186.35	193.66	201.74	210.70	220.71	231.94	244.65	
	8.06%	159.29	164.30	169.74	175.66	182.15	189.27	197.13	205.86	215.60	
	8.56%	147.27	151.46	155.98	160.87	166.18	171.97	178.30	185.26	192.94	
	9.06%	136.84	140.37	144.17	148.25	152.66	157.43	162.61	168.25	174.43	
	9.56%	127.76	130.77	133.99	137.44	141.14	145.12	149.42	154.07	159.13	
	10.06%	119.79	122.38	125.14	128.08	131.22	134.58	138.19	142.08	146.27	

		Marginal Tax Rate									
	\$ 182.15	11.20%	14.20%	17.20%	20.20%	23.20%	26.20%	29.20%	32.20%	35.20%	
Risk Free Rate	2.45%	217.28	212.29	207.29	202.29	197.29	192.28	187.28	182.27	177.27	
	2.55%	212.86	207.97	203.07	198.17	193.27	188.37	183.47	178.57	173.66	
	2.65%	208.62	203.82	199.02	194.22	189.42	184.62	179.81	175.01	170.20	
	2.75%	204.53	199.83	195.13	190.42	185.71	181.00	176.29	171.58	166.87	
	2.85%	200.61	195.99	191.38	186.76	182.15	177.53	172.91	168.29	163.67	
	2.95%	196.82	192.30	187.77	183.24	178.71	174.18	169.65	165.12	160.58	
	3.05%	193.18	188.73	184.29	179.85	175.40	170.95	166.51	162.06	157.61	
	3.15%	189.66	185.30	180.94	176.57	172.21	167.84	163.48	159.11	154.74	
	3.25%	186.27	181.98	177.70	173.42	169.13	164.84	160.56	156.27	151.98	

		CV ROIC									
	\$ 182.15	5.10%	25.10%	45.10%	65.10%	85.10%	105.10%	125.10%	145.10%	165.10%	
Equity Risk Premium	4.24%	109.69	185.76	194.36	197.68	199.44	200.53	201.27	201.80	202.21	
	4.34%	107.46	181.51	189.88	193.11	194.82	195.88	196.60	197.12	197.52	
	4.44%	105.33	177.44	185.60	188.74	190.41	191.44	192.14	192.65	193.03	
	4.54%	103.30	173.55	181.50	184.56	186.19	187.19	187.88	188.37	188.75	
	4.64%	101.35	169.83	177.58	180.56	182.15	183.13	183.79	184.28	184.64	
	4.74%	99.48	166.27	173.82	176.73	178.27	179.23	179.88	180.35	180.71	
	4.84%	97.68	162.84	170.21	173.05	174.56	175.49	176.13	176.59	176.94	
	4.94%	95.96	159.56	166.75	169.53	171.00	171.91	172.53	172.97	173.31	
	5.04%	94.30	156.41	163.43	166.14	167.57	168.46	169.07	169.50	169.83	

		Beta									
	\$ 182.15	0.93	0.98	1.03	1.08	1.13	1.18	1.23	1.28	1.33	
CV Advertising Growth Rate	14.00%	219.56	208.35	198.22	189.00	180.60	172.90	165.82	159.28	153.24	
	14.50%	220.05	208.81	198.65	189.41	180.98	173.26	166.17	159.62	153.56	
	15.00%	220.53	209.27	199.08	189.82	181.37	173.63	166.52	159.95	153.88	
	15.50%	221.02	209.72	199.51	190.23	181.76	174.00	166.87	160.28	154.20	
	16.00%	221.50	210.18	199.94	190.64	182.15	174.37	167.22	160.62	154.51	
	16.50%	221.99	210.64	200.37	191.04	182.53	174.74	167.57	160.95	154.83	
	17.00%	222.47	211.09	200.80	191.45	182.92	175.10	167.92	161.29	155.15	
	17.50%	222.96	211.55	201.23	191.86	183.31	175.47	168.27	161.62	155.47	
	18.00%	223.44	212.01	201.66	192.27	183.69	175.84	168.62	161.95	155.79	

		Pre-Tax Cost of Debt									
\$ 182.15		1.85%	2.35%	2.85%	3.35%	3.85%	4.35%	4.85%	5.35%	5.85%	
R&D % of Sales	15.43%	185.57	185.36	185.16	184.97	184.79	184.61	184.45	184.29	184.15	
	15.63%	184.91	184.70	184.50	184.31	184.13	183.95	183.79	183.63	183.49	
	15.83%	184.25	184.04	183.84	183.65	183.47	183.29	183.13	182.98	182.83	
	16.03%	183.59	183.38	183.18	182.99	182.81	182.63	182.47	182.32	182.17	
	16.23%	182.93	182.72	182.52	182.33	182.15	181.97	181.81	181.66	181.51	
	16.43%	182.27	182.06	181.86	181.67	181.49	181.32	181.15	181.00	180.85	
	16.63%	181.60	181.39	181.19	181.01	180.83	180.66	180.49	180.34	180.20	
	16.83%	180.94	180.73	180.53	180.35	180.17	180.00	179.84	179.68	179.54	
	17.03%	180.28	180.07	179.87	179.69	179.51	179.34	179.18	179.02	178.88	

Facebook Inc.*Revenue Decomposition**(in millions)**Fiscal Years Ending Dec. 31*

	2014	2015	2016	2017E	2018E	2019E	2020E	CV (2021)
Revenue								
Mobile Advertising	7,427	13,151	22,479	31,510	37,813	44,619	51,758	60,039
Growth %	136%	77%	71%	40%	20%	18%	16%	16%
Desktop Advertising	4,065	3,928	4,406	7,281	8,738	10,310	11,960	13,874
Growth %	6%	-3%	12%	65%	20%	18%	16%	16%
Advertising, net	11,492	17,079	26,885	38,792	46,550	54,929	63,718	73,913
Growth %	65%	49%	57%	44%	20%	18%	16%	16%
Payments and other fees	974	849	753	1,435	1,722	2,032	2,357	2,734
Growth %	10%	-13%	-11%	91%	20%	18%	16%	16%
Total Revenue	12,466	17,928	27,638	40,227	48,273	56,962	66,075	76,648
Growth %	58%	44%	54%	46%	20%	18%	16%	16%

Revenue per Geographic Region**US & Canada**

Advertising	5,285	8,385	13,588	18,779	22,535	26,591	30,845	35,781
Payment	580	566	510	1,950	2,340	2,761	3,203	3,716
Growth %	59%	53%	58%	47%	20%	18%	16%	16%

Europe

Advertising	3,131	4,296	6,403	9,286	11,144	13,149	15,253	17,694
Payment	265	190	159	844	1,013	1,196	1,387	1,609
Growth %	55%	32%	46%	54%	20%	18%	16%	16%

Asia

Advertising	1,741	2,655	4,332	5,030	6,036	7,123	8,262	9,584
Payment	90	66	58	327	392	462	536	622
Growth %	72%	49%	61%	22%	20%	18%	16%	16%

Rest of the World

Advertising	1,335	1,743	2,562	3,869	4,643	5,479	6,356	7,372
Payment	39	27	26	142	170	201	233	270
Growth %	49%	29%	46%	55%	20%	18%	16%	16%

Total Revenue	12,466	17,928	27,638	40,227	48,273	56,962	66,076	76,648
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Daily Active Users (In millions)

North America	157	169	180	259	298	338	377	412
Europe	217	240	262	351	405	459	512	560
Asia	253	309	396	408	470	533	594	650
Rest of the World	263	319	388	422	487	552	615	672
Total	890	1,037	1,226	1,439	1,661	1,883	2,097	2,294
Growth %	17%	17%	18%	17%	15%	13%	11%	9%

Average Revenue per user

World Wide (weighted average)	9.45	11.96	15.98	20.45	24.55	28.72	32.16	34.09
Growth %	39%	27%	34%	28%	20%	17%	12%	6%

Facebook Inc.*Income Statement*

(in millions)

Fiscal Years Ending Dec. 31

	2014	2015	2016	2017E	2018E	2019E	2020E	CV (2021)
Revenue	12,466	17,928	27,638	40,227	48,273	56,962	66,076	76,648
Costs and expenses:								
Cost of revenue (excl. D&A)	944	922	1,447	2,407	2,888	3,408	3,954	4,586
Depreciation	924	1,215	1,591	2,281	3,184	4,248	5,536	7,124
Amortizaion	319	730	751	608	593	551	496	437
Cost of revenue , net	2,187	2,867	3,789	5,296	6,665	8,207	9,986	12,147
Research and development	2,666	4,816	5,919	6,529	7,835	9,245	10,724	12,440
Marketing and sales	1,680	2,725	3,772	4,755	5,706	6,733	7,810	9,060
General and administrative	973	1,295	1,731	2,031	2,383	2,795	3,279	3,847
Total costs and expenses	7,472	11,703	15,211	23,906	29,254	35,188	41,786	49,642
Income from operations	4,994	6,225	12,427	16,321	19,019	21,774	24,290	27,006
Interest Income	27	52	176	542	792	893	1,008	1,139
Interest Expense	(23)	(23)	(10)	(17)	(25)	(27)	(32)	(38)
Foreign currency exchange losses, net	(87)	(66)	(76)	(76)	(73)	(75)	(75)	(74)
Other	(1)	6	1	2	3	2	2	2
Interest and other income/(expense), net	(84)	(31)	91	451	697	793	903	1,030
Income before provision for income taxes	4,910	6,194	12,518	16,773	19,716	22,567	25,193	28,036
Provision for income taxes	1,970	2,506	2,301	3,891	4,574	5,236	5,845	6,504
Net income	2,940	3,688	10,217	12,881	15,142	17,331	19,348	21,532
Less: Net income attributable to participating securities	15	19	29	19	18	20	21	21
Net income attributable to Class A and Class B common stockholders	2,925	3,669	10,188	12,863	15,124	17,311	19,327	21,511
Earnings Per Share	1.12	1.31	3.56	4.43	5.21	5.96	6.64	7.39
Shares Outstanding	2,614	2,803	2,863	2,905	2,905	2,907	2,910	2,910

Facebook Inc.
Balance Sheet

(in millions)

<i>Fiscal Years Ending Dec. 31</i>	2014	2015	2016	2017E	2018E	2019E	2020E	CV (2021)
Assets								
Current assets:								
Cash and cash equivalents	4,315	4,907	8,903	10,148	18,141	29,359	79,085	87,023
Marketable securities	6,884	13,527	20,546	31,230	35,702	40,815	46,659	53,341
Accounts receivable	1,678	2,559	3,993	5,812	6,974	8,230	9,546	11,074
Prepaid expenses and other current assets	513	659	959	1,787	2,144	2,530	2,935	3,404
Total current assets	13,390	21,652	34,401	48,976	62,961	80,933	138,225	154,841
Property and equipment, net	3,967	5,687	8,591	11,994	16,002	20,855	26,836	34,286
Intangibles, net	3,929	3,246	2,535	2,471	2,297	2,069	1,821	1,576
Goodwill, net	17,981	18,026	18,122	18,123	18,123	18,123	18,123	18,123
Other assets	699	796	1,312	1,506	1,808	2,133	2,474	2,870
Total assets	39,966	49,407	64,961	83,070	101,191	124,113	187,479	211,697
Liabilities and stockholders' equity								
Current liabilities:								
Accounts payable	176	196	302	481	577	681	790	917
Partners payable	202	217	280	419	457	539	625	725
Accrued expenses and other current liabilities	866	1,449	2,203	3,086	3,704	4,370	5,070	5,881
Deferred revenue and deposits	66	56	90	180	216	255	296	343
Current portion of capital lease obligations	114	7	-	-	-	-	-	-
Total current liabilities	1,424	1,925	2,875	4,166	4,954	5,846	6,781	7,866
Capital lease obligations, less current portion	119	107	-	-	-	-	-	-
Other liabilities	2,327	3,157	2,892	6,091	7,309	8,624	10,004	11,605
Total liabilities	3,870	5,189	5,767	10,257	12,263	14,470	16,785	19,471
Commitments and contingencies								
Stockholders' equity:								
Common Stock	30,225	34,886	38,227	38,460	39,433	42,817	84,520	84,520
Accumulated other comprehensive loss/income	(228)	(455)	(703)	(200)	(200)	(200)	(200)	(200)
Retained earnings	6,099	9,787	21,670	34,551	49,693	67,025	86,373	107,905
Total stockholders' equity	36,096	44,218	59,194	72,812	88,927	109,642	170,693	192,225
Total liabilities and stockholders' equity	39,966	49,407	64,961	83,070	101,191	124,113	187,479	211,697

Facebook Inc.*Common Size Income Statement**(% of revenue)*

<i>Fiscal Years Ending Dec. 31</i>	2014	2015	2016	2017E	2018E	2019E	2020E	CV (2021)
Revenue								
Costs and expenses:								
Cost of revenue (excl. D&A)	7.57%	5.14%	5.24%	8.71%	10.45%	12.33%	14.31%	16.59%
Depreciation	7.41%	6.78%	5.76%	5.67%	6.60%	7.46%	8.38%	9.29%
Amortization	2.56%	4.07%	2.72%	1.51%	1.23%	0.97%	0.75%	0.57%
Research and development	21.39%	26.86%	21.42%	23.62%	28.35%	33.45%	38.80%	45.01%
Marketing and sales	13.48%	15.20%	13.65%	17.20%	20.64%	24.36%	28.26%	32.78%
General and administrative	7.81%	7.22%	6.26%	7.35%	8.62%	10.11%	11.87%	13.92%
Total costs and expenses	59.94%	65.28%	55.04%	86.50%	105.85%	127.32%	151.19%	179.61%
Income from operations	40.06%	34.72%	44.96%	59.05%	68.82%	78.78%	87.89%	97.71%
Interest and other income/(expense), net	-0.67%	-0.17%	0.33%	1.63%	2.52%	2.87%	3.27%	3.73%
Income before provision for income taxes	39.39%	34.55%	45.29%	60.69%	71.34%	81.65%	91.15%	101.44%
Provision for income taxes	15.80%	13.98%	8.33%	14.08%	16.55%	18.94%	21.15%	23.53%
Net income	23.58%	20.57%	36.97%	46.61%	54.79%	62.71%	70.01%	77.91%

Facebook Inc.*Common Size Income Statement**(% of revenue)**Fiscal Years Ending Dec. 31*

	2014	2015	2016	2017E	2018E	2019E	2020E	CV (2021)
Revenue								
Costs and expenses:								
Cost of revenue (excl. D&A)	7.57%	5.14%	5.24%	8.71%	10.45%	12.33%	14.31%	16.59%
Depreciation	7.41%	6.78%	5.76%	5.67%	6.60%	7.46%	8.38%	9.29%
Amortization	2.56%	4.07%	2.72%	1.51%	1.23%	0.97%	0.75%	0.57%
Research and development	21.39%	26.86%	21.42%	23.62%	28.35%	33.45%	38.80%	45.01%
Marketing and sales	13.48%	15.20%	13.65%	17.20%	20.64%	24.36%	28.26%	32.78%
General and administrative	7.81%	7.22%	6.26%	7.35%	8.62%	10.11%	11.87%	13.92%
Total costs and expenses	59.94%	65.28%	55.04%	86.50%	105.85%	127.32%	151.19%	179.61%
Income from operations	40.06%	34.72%	44.96%	59.05%	68.82%	78.78%	87.89%	97.71%
Interest and other income/(expense), net	-0.67%	-0.17%	0.33%	1.63%	2.52%	2.87%	3.27%	3.73%
Income before provision for income taxes	39.39%	34.55%	45.29%	60.69%	71.34%	81.65%	91.15%	101.44%
Provision for income taxes	15.80%	13.98%	8.33%	14.08%	16.55%	18.94%	21.15%	23.53%
Net income	23.58%	20.57%	36.97%	46.61%	54.79%	62.71%	70.01%	77.91%

Facebook Inc.
Common Size Balance Sheet

(% of revenue)

<i>Fiscal Years Ending Dec. 31</i>	2014	2015	2016	2017E	2018E	2019E	2020E	CV (2021)
Assets								
Current assets:								
Cash and cash equivalents	34.61%	27.37%	32.21%	36.72%	65.64%	106.23%	286.15%	314.87%
Marketable securities	55.22%	75.45%	74.34%	113.00%	129.18%	147.68%	168.82%	193.00%
Accounts receivable	13.46%	14.27%	14.45%	21.03%	25.23%	29.78%	34.54%	40.07%
Prepaid expenses and other current assets	4.12%	3.68%	3.47%	6.46%	7.76%	9.15%	10.62%	12.32%
Total current assets	107.41%	120.77%	124.47%	177.21%	227.81%	292.83%	500.13%	560.25%
Property and equipment, net	31.82%	31.72%	31.08%	43.40%	57.90%	75.46%	97.10%	124.06%
Intangibles, net	77.21%	63.78%	49.81%	48.55%	45.14%	40.66%	35.79%	30.97%
Goodwill	144.24%	100.55%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%
Other assets	5.61%	4.44%	4.75%	5.45%	6.54%	7.72%	8.95%	10.38%
Total assets	320.60%	275.59%	235.04%	300.56%	366.13%	449.07%	678.34%	765.96%
Liabilities and stockholders' equity								
Current liabilities:								
Accounts payable	1.41%	1.09%	1.09%	1.20%	1.20%	1.20%	1.20%	1.20%
Partners payable	1.62%	1.21%	1.01%	1.04%	0.95%	0.95%	0.95%	0.95%
Accrued expenses and other current liabilities	6.95%	8.08%	7.97%	7.67%	7.67%	7.67%	7.67%	7.67%
Deferred revenue and deposits	0.53%	0.31%	0.33%	0.45%	0.45%	0.45%	0.45%	0.45%
Current portion of capital lease obligations	0.91%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total current liabilities	11.42%	10.74%	10.40%	10.36%	10.26%	10.26%	10.26%	10.26%
Capital lease obligations, less current portion	0.95%	0.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other liabilities	18.67%	17.61%	10.46%	15.14%	15.14%	15.14%	15.14%	15.14%
Total liabilities	31.04%	28.94%	20.87%	25.50%	25.40%	25.40%	25.40%	25.40%
Commitments and contingencies	73.51%	68.62%	52.13%	61.35%	61.07%	61.07%	61.07%	61.07%
Stockholders' equity:								
Common stock	242.46%	194.59%	138.31%	95.61%	81.69%	75.17%	127.91%	110.27%
Accumulated other comprehensive loss/income	-1.83%	-2.54%	-2.54%	-0.50%	-0.41%	-0.35%	-0.30%	-0.26%
Retained earnings	48.93%	54.59%	78.41%	85.89%	102.94%	117.67%	130.72%	140.78%
Total stockholders' equity	289.56%	246.64%	214.18%	181.00%	184.22%	192.48%	258.33%	250.79%
Total liabilities and stockholders' equity	320.60%	275.59%	235.04%	206.50%	209.62%	217.89%	283.73%	276.19%

Facebook Inc.
Value Driver Estimation
(in millions)

<i>Fiscal Years Ending Dec. 31</i>	2014	2015	2016	2017E	2018E	2019E	2020E	CV (2021)
NOPLAT Calculation								
Marginal tax rate	36.40%	37%	23.20%	23.20%	23.20%	23.20%	23.20%	23.20%
Effective tax rate	40.10%	40.40%	18.40%	13%	13%	13%	13%	13%
EBITA:								
Net Sales	12,466	17,928	27,638	40,227	48,273	56,962	66,076	76,648
COGS	(2,187)	(2,867)	(3,789)	(5,296)	(6,665)	(8,207)	(9,986)	(12,147)
SG&A	2,653	4,020	5,503	5,503	5,503	5,503	5,503	5,503
Research and Development	2,666	4,816	5,919	5,919	5,919	5,919	5,919	5,919
Total Operating Expenses	(5,319)	(8,836)	(11,422)	(13,315)	(15,923)	(18,773)	(21,814)	(25,347)
Implied Interest on Operating Leases	32	36	48	114	137	164	196	234
EBITA	4,992	6,261	12,475	21,731	25,821	30,145	34,472	39,388
Less: Adjusted Taxes:								
Provision for Income Taxes	1,970	2,506	2,301	3,891	4,574	5,236	5,845	6,504
Tax Shield on Other Income	9	21	41	126	184	208	234	265
Tax Shield on Interest Expense	(8)	(9)	(2)	(4)	(6)	(6)	(8)	(9)
Tax Shield on FX Currency Loss	(32)	(24)	(18)	(18)	(17)	(17)	(17)	(17)
Tax Shield on Implied Lease Interest	12	13	11	26	32	38	45	54
Adjusted Taxes	2,012	2,531	2,291	3,813	4,444	5,090	5,681	6,320
Plus: Change in Deferred Tax (DT):								
DT Liabilities	(1,291)	(1,219)	(1,598)	(1,369)	(1,369)	(1,369)	(1,369)	(1,369)
DT Assets	601	1,370	2,452	1,024	1,024	1,024	1,024	1,024
Net DT Liabilities	(690)	151	854	(346)	(346)	(346)	(346)	(346)
Net Change in DT Liab (Current year-Prior Year)	(843)	841	703	(1,200)	-	-	-	-
NOPLAT:	2,137	4,571	10,887	16,719	21,377	25,056	28,791	33,068
Invested Capital Calculation								
Operating Current Assets:								
Normal Cash (lesser of actual or %)	249	359	553	805	965	1,139	1,322	1,533
Accounts Receivable, Net	1,678	2,559	3,993	5,812	6,974	8,230	9,546	11,074
PPE Expenses & other current assets	513	659	959	1,787	2,144	2,530	2,935	3,404
Operating Current Assets	2,440	3,577	5,505	8,403	10,084	11,899	13,802	16,011
Operating Current Liabilities:								
Accounts Payable	378	413	582	900	1,034	1,220	1,416	1,642
Accrued Expenses	866	1,449	2,203	3,086	3,704	4,370	5,070	5,881
Deferred revenue and other deposits	66	56	90	180	216	255	296	343
Operating Current Liabilities	1,310	1,918	2,875	4,166	4,954	5,846	6,781	7,866
Net Operating Working Capital	1,130	1,659	2,630	4,237	5,129	6,053	7,021	8,145
Plus: Net PPE	3,967	5,687	8,591	11,994	16,002	20,855	26,836	34,286
Plus: PV of Operating Leases	942	1,249	2,965	2,277	2,726	3,263	3,906	-
Plus: Other Operating Assets	699	796	1,312	1,506	1,808	2,133	2,474	2,870
Less: Other Operating Liabilities	(346)	(1,365)	(1,262)	(3,199)	(1,218)	(1,316)	(1,380)	(1,601)
Invested Capital:	6,393	8,025	14,236	16,815	24,447	30,988	38,857	43,700
Value Drivers								
ROIC Calculation								
NOPLAT	2,137	4,571	10,887	16,719	21,377	25,056	28,791	33,068
Beg. IC	4,026	6,393	8,025	14,236	16,815	24,447	30,988	38,857
ROIC	53.07%	71.50%	135.65%	117.44%	127.13%	102.49%	92.91%	85.10%
EP Calculation								
Beg. IC	4,026	6,393	8,025	14,236	16,815	24,447	30,988	38,857
ROIC	53.07%	71.50%	135.65%	117.44%	127.13%	102.49%	92.91%	85.10%
WACC	10.00%	10.00%	10.00%	8.06%	8.06%	8.06%	8.06%	8.06%
EP	1,734	3,932	10,084	15,571	20,021	23,084	26,292	29,935
FCF Calculation								
NOPLAT	2,137	4,571	10,887	16,719	21,377	25,056	28,791	33,068
Beg. IC	4,026	6,393	8,025	14,236	16,815	24,447	30,988	38,857
End IC	6,393	8,025	14,236	16,815	24,447	30,988	38,857	43,700
FCF	(230)	2,938	4,676	14,139	13,746	18,514	20,922	28,225

Facebook Inc.*Weighted Average Cost of Capital (WACC) Estimation***Equity:**CAPM

Risk-Free Rate	2.85%
MRP	4.64%
Beta	1.13
Cost of Equity	8.09%

MV of Equity

Shares Outstanding	2,863
Share Price	\$178.46
Value of Equity	510,931

Debt:Cost of Debt

Pre-Tax Cost of Debt (AAPL similar company)	3.85%
Marginal Tax Rate	23.20%
Cost of Debt (After Tax)	2.96%

MV of Debt

PV Operating Leases	2,965
Value of Debt	2,965

Total Market Value **513,896**

WACC:

Weight of Debt	0.58%
Weight of Equity	99.42%
Cost of Equity	8.09%
Cost of Debt (After Tax)	2.96%
WACC	8.06%

Facebook Inc.*Discounted Cash Flow (DCF) and Economic Profit (EP) Valuation Models*

Key Inputs:

CV Growth	2.75%
CV ROIC	85.10%
WACC	8.06%
Cost of Equity	8.09%

<i>Fiscal Years Ending Dec. 31</i>	2017E	2018E	2019E	2020E	CV (2021)
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DCF Model

Discount Period	1	2	3	4	5
NOPLAT	16,719	21,377	25,056	28,791	33,068
CapEx	2,579	7,631	6,541	7,869	4,843
Free Cash Flow	14,139	13,746	18,514	20,922	28,225
CV					602,226
CF to Discount	14,139	13,746	18,514	20,922	602,226
Periods to Discount	1	2	3	4	4
Discount Factor	1.08	1.17	1.26	1.36	1.36
PV of CF	13,084	11,771	14,671	15,342	441,614

Value of Operating Assets **496,482**

Non Operating Assets

Marketable Securities	20,546
Excess Cash	8,350

Non Operating Liabilities

PV of Operating Leases	(2,965)
ESOP	(930)

Value of Non Operating Assets & Liab. **25,001**

Value of Equity **521,483**

Shares Outstanding 2,863

Intrinsic Value (per share) **\$ 182.15**

EP Model

NOPLAT	16,719	21,377	25,056	28,791	33,068
Beg IC.	14,236	16,815	24,447	30,988	38,857
ROIC	117.44%	127.13%	102.49%	92.91%	85.10%
WACC	8.06%	8.06%	8.06%	8.06%	8.06%
Economic Profit	15,571	20,021	23,084	26,292	29,935
CV					563,369
EP to Discount	15,571	20,021	23,084	26,292	563,369
Periods to Discount	1	2	3	4	4
Discount Factor	1.08	1.17	1.26	1.36	1.36
PV of EP	14,409	17,145	18,293	19,280	413,120

Total PV Economic Profit 482,246

Beg IC. 14,236

Value of Operating Assets **496,482**

Non Operating Assets

Marketable Securities	20,546
Excess Cash	8,350

Non Operating Liabilities

PV of Operating Leases	(2,965)
ESOP	(930)

Value of Non Operating Assets & Liab. **25,001**

Value of Equity **521,483**

Shares Outstanding 2,863

Intrinsic Value (per share) **\$ 182.15**

Intrinsic Value Today **\$ 196.89**

Current Share Price \$178.46

Upside Potential 10.33%

Facebook Inc.*Dividend Discount Model (DDM) or Fundamental P/E Valuation Model*

<i>Fiscal Years Ending Dec. 31</i>	2017E	2018E	2019E	2020E	CV (2021)
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EPS	\$ 4.43	\$ 5.21	\$ 5.96	\$ 6.64	\$ 7.39
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Key Assumptions

CV growth	2.75%
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CV ROE	11.20%
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Cost of Equity	8.09%
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Future Cash Flows

P/E Multiple (CV Year)	31.16
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EPS (CV Year)	\$ 7.39
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Future Stock Price	\$ 230.36
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Dividends Per Share	-	-	-
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Future Cash Flows	-	-	-	\$ 230.36
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Discounted Cash Flows	-	-	-	\$ 150.65
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Intrinsic Value**\$ 150.65****Current share price**

\$178.46

Facebook Inc.*Relative Valuation Models*

Ticker	Company	Price	EPS		P/E 17	P/E 18
			2017E	2018E		
GOOGL	Alphabet	\$1,033.67	\$30.63	\$40.09	33.75	25.78
MSFT	Microsoft	\$83.81	\$3.19	\$3.61	26.27	23.22
TWTR	Twitter	\$21.68	\$0.34	\$0.39	63.76	55.59
ADBE	Adobe	\$177.33	\$4.22	\$5.49	42.02	32.30
SNAP	Snap Inc.	\$15.44	(\$0.65)	(\$0.53)		
AAPL	Apple Inc.	\$163.05	\$9.00	\$11.16	18.12	14.61
Average					36.78	30.30

FB	Facebook Inc.	\$178.46	\$	4.43	\$	5.21	40.3	34.3
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Implied Relative Value:**P/E (EPS17)****\$ 162.88****P/E (EPS18)****\$ 157.72**

Facebook Inc.*Key Management Ratios*

<i>Fiscal Years Ending Dec. 31</i>		2014	2015	2016	2017E	2018E	2019E	2020E	CV (2021)
Liquidity Ratios									
Current Ratio	<i>Current Assets/Current Liabilities</i>	9.40	11.25	11.97	11.75	12.71	13.84	20.38	19.68
Quick Ratio	<i>(Cash+ ST Marketable securities+AR)/Current liab.</i>	9.04	10.91	11.63	11.33	12.28	13.41	19.95	19.25
Cash ratio	<i>(Cash+ ST Marketable securities)/Current liab.</i>	7.86	9.58	10.24	9.93	10.87	12.00	18.54	17.84
Activity or Asset-Management Ratios									
Total asset turnover	<i>Sales/Total Assets</i>	31.19%	36.29%	42.55%	48.43%	47.70%	45.90%	35.24%	36.21%
Receivable Turnover	<i>Sales/AR</i>	7.43	7.01	6.92	6.92	6.92	6.92	6.92	6.92
Fixed asset turnover	<i>Sales/PPE</i>	3.14	3.15	3.22	3.35	3.02	2.73	2.46	2.24
Financial Leverage Ratios									
Debt Ratio	<i>Total Liab./Total Assets</i>	0.10	0.11	0.09	0.12	0.12	0.12	0.09	0.09
Debt to Equity Ratio	<i>Total Liab./Total Equity</i>	0.11	0.12	0.10	0.14	0.14	0.13	0.10	0.10
Equity Ratio	<i>Total Equity/Total Assets</i>	0.90	0.89	0.91	0.88	0.88	0.88	0.91	0.91
Profitability Ratios									
ROA	<i>Net Income/Total Assets</i>	7.36%	7.46%	15.73%	15.51%	14.96%	13.96%	10.32%	10.17%
ROE	<i>Net Income/Total Equity</i>	8.14%	8.34%	17.26%	17.69%	17.03%	15.81%	11.33%	11.20%
Profit margin ratio	<i>Net Income/Net Sales</i>	23.58%	20.57%	36.97%	32.02%	31.37%	30.43%	29.28%	28.09%
Payout Policy Ratios									
Dividend Payout Ratio	<i>Dividend per Share/Earnings per Share</i>	0%	0%	0%	0%	0%	0%	0%	0%

Present Value of Operating Lease Obligations (2016)

Fiscal Years Ending Dec. 31	Operating Leases
2017	277
2018	284
2019	265
2020	221
2021	184
Thereafter	733
Total Minimum Payments	1964
Less: Interest	-1001
PV of Minimum Payments	2965

Capitalization of Operating Leases

Pre-Tax Cost of Debt	3.85%
Number Years Implied by Year 6 Payment	3.3

Year	Lease Commitment	PV Lease Payment
1	277	266.7
2	284	263.3
3	265	236.6
4	221	190.0
5	184	152.3
6 & beyond	733	1856.2
PV of Minimum Payments		2965.2

Present Value of Operating Lease Obligations (2013)

Fiscal Years Ending	Operating Leases
2014	142
2015	142
2016	139
2017	131
2018	112
Thereafter	312
Total Minimum Payments	978
Less: Interest	140
PV of Minimum Payments	838

Capitalization of Operating Leases

Pre-Tax Cost of Debt	3.85%
Number Years Implied by Year 6 Payment	2.8

Year	Lease Commitment	PV Lease Payment
1	142	136.7
2	142	131.7
3	139	124.1
4	131	112.6
5	112	92.7
6 & beyond	112	240.6
PV of Minimum Payments		838.4

Present Value of Operating Lease Obligations (2015)

Fiscal Years Ending	Operating Leases
2016	209
2017	230
2018	216
2019	200
2020	159
Thereafter	438
Total Minimum Payments	1452
Less: Interest	203
PV of Minimum Payments	1249

Capitalization of Operating Leases

Pre-Tax Cost of Debt	3.85%
Number Years Implied by Year 6 Payment	2.8

Year	Lease Commitment	PV Lease Payment
1	209	201.3
2	230	213.3
3	216	192.9
4	200	172.0
5	159	131.6
6 & beyond	159	337.9
PV of Minimum Payments		1248.9

Present Value of Operating Lease Obligations (2012)

Fiscal Years Ending Beta	Operating Leases
2013	142
2014	128
2015	117
2016	110
2017	102
Thereafter	252
Total Minimum Payments	851
Less: Interest	117
PV of Minimum Payments	734

Capitalization of Operating Leases

Pre-Tax Cost of Debt	3.85%
Number Years Implied by Year 6 Payment	2.5

Year	Lease Commitment	PV Lease Payment
1	142	136.7
2	128	118.7
3	117	104.5
4	110	94.6
5	102	84.4
6 & beyond	102	195.4
PV of Minimum Payments		734.3

Present Value of Operating Lease Obligations (2014)

Fiscal Years Ending	Operating Leases
2015	155
2016	161
2017	158
2018	143
2019	125
Thereafter	359
Total Minimum Payments	1101
Less: Interest	159
PV of Minimum Payments	942

Capitalization of Operating Leases

Pre-Tax Cost of Debt	3.85%
Number Years Implied by Year 6 Payment	2.9

Year	Lease Commitment	PV Lease Payment
1	155	149.3
2	161	149.3
3	158	141.1
4	143	122.9
5	125	103.5
6 & beyond	125	276.4
PV of Minimum Payments		942.4

VALUATION OF OPTIONS GRANTED IN ESOP

Ticker Symbol FB
 Current Stock Price \$177.88
 Risk Free Rate 2.85%
 Current Dividend Yield 0.00%
 Annualized St. Dev. of Stock Returns 26.43%

Range of Outstanding Options	Number of Shares	Average Exercise Price	Average Remaining Life (yrs)	B-S Option Price	Value of Options Granted
0.29-0.33	729000	0.32	0.4	\$ 177.56	\$ 129,443,884
1.85	526000	1.85	2	\$ 176.13	\$ 92,645,696
2.95	1147000	2.95	2.6	\$ 175.14	\$ 200,886,374
10.39	2085000	10.39	3.6	\$ 168.50	\$ 351,329,069
15	1200000	15	3.8	\$ 164.42	\$ 197,303,551
Total	5,687,000	\$ 7.78	2.88	\$ 170.71	\$ 971,608,575
				\$	930

Effects of ESOP Exercise and Share Repurchases on Common Stock Balance Sheet Account and Number of Shares Outstanding

Number of Options Outstanding (shares): 5,687,000
Average Time to Maturity (years): 2.88
Expected Annual Number of Options Exercised: 1,973,058

Current Average Strike Price: \$ 7.78
Cost of Equity: 9.00%
Current Stock Price: \$177.88

	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E
Increase in Shares Outstanding:	729,000	526,000	1,147,000	3,285,000	0	0	0	0	0	0
Average Strike Price:	\$ 0.32	\$ 1.85	\$ 2.95	\$ 12.70	\$ 12.70	\$ 12.70	\$ 12.70	\$ 12.70	\$ 12.70	\$ 12.70
Increase in Common Stock Account:	233,280	973,100	3,383,650	41,703,075	-	-	-	-	-	-
Change in Treasury Stock	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Expected Price of Repurchased Shares:	\$177.88	\$ 193.89	\$ 211.34	\$ 230.36	\$ 251.09	\$ 273.69	\$ 298.32	\$ 325.17	\$ 354.44	\$ 386.34
Number of Shares Repurchased:	6,746	6,189	5,678	5,209	4,779	10,961	10,056	9,226	8,464	7,765
Shares Outstanding (beginning of the year)	2904196584	2,904,918,838	2,905,438,649	2,906,579,971	2,909,859,761	2,909,854,982	2,909,844,021	2,909,833,965	2,909,824,739	2,909,816,275
Plus: Shares Issued Through ESOP	729,000	526,000	1,147,000	3,285,000	0	0	0	0	0	0
Less: Shares Repurchased in Treasury	6,746	6,189	5,678	5,209	4,779	10,961	10,056	9,226	8,464	7,765
Shares Outstanding (end of the year)	2,904,918,838	2905438649	2,906,579,971	2,909,859,761	2,909,854,982	2,909,844,021	2,909,833,965	2,909,824,739	2,909,816,275	2,909,808,510