THE FINANCIAL VALUE OF FACEBOOK

by

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INTRODUCTION

Facebook began in February 2004 at Harvard. Mark Zuckerberg programmed this website. Within 24 hours, “The facebook”, as it was called back then, had more than 1200 people sign up at Harvard University. At first, only members of educational institutions around the United States could sign up for a profile on the site, but that policy changed in 2006 to allow anyone with an email address to sign up. By 2007, the company had reached 30 million profiles.[1] Since then the number has grown over a billion unique users.[2] The website has become an integral facet of society in the United States and abroad.

Facebook is a social media website. Social media connects people to their friends, family and acquaintances. It allows for the user to stay updated on whatever happens within their social circle. This type of connections has never been available before the 21st century. Facebook created a convenient and enriching way to stay in touch with people. Facebook, however, didn’t replace these other mediums of communication. This means that the appeal to Facebook isn’t just for young people who grew up using the internet and websites like Facebook, but also middle aged and even the elderly. This allowed the website to explode in popularity. This widespread appeal allowed for Facebook to turn social networking into a business model.

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[1] Phillips, Sarah. “A Brief History of Facebook”

[2] "Number of Active Users at Facebook Over the Years”

Facebook is a new and unique enterprise in this world. It is a business type that no one has ever seen before. This is a social network. The ultimate goal of a social network is to connect people. The goal isn't to sell a product. The mission statement provided on the website states that, "Facebook's mission is to give people the power to share and make the world more open and connected."[3] This is what the company aims to provide to its customers, connection. Users receive no charge for this service. Instead, the company sells advertisement space to other companies. The majority of revenue of Facebook comes from selling these advertisements. The company has spent its time and resources finding ways to monetize its users in other ways. It has done a well enough job to earn itself a place on the publicly traded markets.

On May 18th 2012, Facebook had its Initial Public Offering (IPO). Facebook became a public company after more than eight years of existence. Initial Public Offerings occur when a company raises capital from outside the company in exchange for a portion of ownership in that company. Selling stock to the public gives affirmation that a company's model can possibly work. The value of the IPO should give an indication to what the value of the company should be. Facebook did not have a great IPO for a couple of reasons. The main problem was, and still is, that no one has a concrete idea as to the value of Facebook.

The public markets face a few large problems in assessing the value of Facebook. The company has no comparables. It is a unique company and the first of its kind. There will be others, but investors have no precedent on what to look at to gauge the health of Facebook. There are companies that look similar, such as Google and LinkedIn, but their

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[3] "About Facebook"

models differ in fundamental ways from Facebook. Second, while the company has a very large user base, Facebook has yet to find ways to effectively monetize that base. Facebook is making revenue off its users, but investors worry that the company does not make enough money off of its users. The company may find more and better ways to monetize its base tomorrow, or the company may never find better ways. That uncertainty doesn't make investors confident in the company. Finally, the company has a competitive advantage over others right now. In the future, this competitive advantage may erode or disappear. Investors feel that Facebook may lack a tenable position in its advantage over other companies.

The object of this paper is to give a better idea of the actual value of Facebook to investors. It will attempt to answer the question of whether Facebook is a good investment. This paper will look at the Initial Public Offering of Facebook to see if insights can be gathered from a closer look. This paper will also discuss the ad revenue model of Facebook and its viability as a business strategy. Finally, there will be a financial analysis to look at the most up to date numbers in an attempt to put a range of values on the market price of Facebook stock. Through discussing these four topics, a better understanding of Facebook and its value will become clearer.

INITIAL PUBLIC OFFERING

The Initial Public Offering is when a company first allows for the sale of a part of ownership in that company in exchange for money. After an IPO, a company then becomes a public entity with its stock being sold publicly. The most common form of stock is called common stock which gives a right to receive dividends paid out and have the ability to vote on decisions faced by the stockholders. It is a big step for companies going from private to public with drawbacks and benefits. The shares sold dilute the ownership of original owners. It brings along many new requirements of that company. There are regulations and laws such as the Sarbanes-Oxley Act that a public company must now follow. The Securities and Exchange Commission requires that financial reporting be materially correct. Companies do have one very big incentive to go public.

Initial Public Offerings provide companies with greater access to a source of funds that private companies do not have. In Richard Kleeburg's book *Initial Public Offerings*, the benefits of going public are discussed. There are two ways to raise capital for a company. The first is through debt. The second is through equity, or ownership in the company. It allows for companies to raise capital through equity much more easily on the open market than soliciting investments from third parties. Investors value liquidity and a defined price. Liquidity is the ease of exchanging an asset for cash. Stock markets such as the NASDAQ and New York Stock Exchange provide stated prices and increased liquidity. Investors know the value of their investment, and they have the ability to offload that investment for any reason. Those that invest in private companies lack liquidity and knowledge. Therefore, an investment on the open market becomes much more attractive which allows for public companies to raise higher amounts of capital and increase the value of the firm.[4] Facebook certainly increased its value by taking advantage of the excitement surrounding the company.

The Initial Public Offering of Facebook became the hottest topic during the first few months of 2012. Everyone wanted to see how the social media giant would perform

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[4] Kleeburg, Richard F. *Initial Public Offerings*

on the stock market. Some thought it would do poorly, while others thought it was a gold mine. Many people simply wanted the opportunity to invest in this company that had become a big part of their lives. Facebook could not have picked a better time to go public. The higher the interest in an IPO leads to a higher valuation of the company. A higher valuation means that more capital per share that will be raised by the IPO. Facebook had many things going for it, except many investors wondered how the stock would perform at its IPO.

10 Criteria for Great IPOs

The book *IPOs for Everyone: The 12 Secrets of Investing in IPOs* written by Linda Killian and Kathleen and William Smith gives a strong insight into how IPOs should be looked at as an investment. These three authors have built an investment business around the buying and selling of IPOs. They have been looking at IPOs as an investment for decades and certainly have credibility in the field. The book gives 10 factors with which to examine companies going public in order to determine the success of a company after it goes public. This framework will be used to look at Facebook before the IPO. It should be noted here that all information used in this framework came from before the IPO went public to give a better idea of investor thinking before the company went public.

The first success factor "is that winning IPOs address a significant market opportunity."[5] The innovation that Facebook provides is obviously profound. It has improved the communication and connection of people around the world. People can

[5] Killian, Linda. *IPOs for Everyone* 112

share both written and visual experiences with anyone they want to. Facebook has significantly changed how people stay in touch. One has to only look at the massive growth that Facebook still enjoys today. The problem that exists with Facebook is a social network may not address a commercially significant need. This has yet to be seen, but Facebook has such a large user base that it should find a way to make profits off of advertisements and its user base. Facebook meets the first criteria.

The second factor is that an IPO "should be a first mover or category killer."[6] Facebook wasn't the first social media website. MySpace and Xanga both became popular before Facebook, but the social media giant crushed its competition. Since then Facebook has dominated the market. A name like category killer aptly describes Facebook in the social media market.

The third factor is that the "product or service must be superior".[7] This relates closely to the last factor. Facebook could not have become a category killer in its market by offering a second rate service. People choose Facebook because of the superior service. People can get a good glimpse into others by looking them up. It is easy and fun to connect with others. Facebook scores highly in this factor as well.

The fourth factor states that an IPO "needs to have a reasonable size, given its market and competitors."[8] Facebook is a giant. It is by far the largest with active users over 1 billion. There is no social media site that competes with Facebook in terms of users in the western world. No one even comes close. Facebook meets this requirement.

[6] IBID 118
[7] IBID 119
[8] Killian 120

The fifth factor affecting success deals with the management of the company. Facebook has a management team that has both experience and previous successes. The CEO is, of course, Mark Zuckerberg. He has been working on Facebook since its inception in 2004. CNN asked an expert consultant, Gary Singer, to rate his executive "dream team." He picked Mark Zuckerberg as his top CEO and compared Zuckerberg to Steve Jobs citing Zuckerberg's market vision.[9] Secondly, Facebook has Sheryl Sandberg at COO. This woman has an impressive resume. She worked as the Chief of Staff for the United States Treasury and then as the "vice president of Global Online Sales and Operations at Google, where she built and managed the online sales channels for advertising and publishing and operations for consumer products worldwide."[10] She is a great asset to Facebook. Finally, David Ebersman serves as the company's CFO. Prior to Facebook, he ran the financials for Genentech for eight years. He began as the CFO there at age 34. Ebersman has intelligence and drive. Overall, Facebook has a very strong executive group headed by these three. They bring an excellent mix of operational experience and strategic vision to keep Facebook moving in the right way. Facebook passes this requirement.

The sixth factor is that barriers to entry must be high. Facebook has done a fantastic job creating barriers to entry. It is difficult to create a social network because Facebook has such a large portion of it. The nature of a social networking website is to create connection with others. That connection is hard to make if no one else joins that particular website. Facebook's sheer size lends to this because people's friends and family are not on other websites so there is no point in joining those websites. An

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[9] Singer, Gary. "A Facebook-powered Executive Dream Team?"
[10] Facebook. "Management"

example would be Google+. It is a social networking site run by Google. It is not poorly made, but it has not been successful because people see no point in switching over. There is no reason to. This shows that Facebook has made the barriers of entry high and meets this factor.

The seventh factor is success follows focus. A company needs to know what it does best and focus on that thing. Facebook doesn't seem to have that focus. The company has tried several different initiatives over the years to increase its base with some being very unsuccessful. The best example is Facebook's partnership with Zynga Inc for. Zynga is a video game company that uses Facebook as a platform to create social media games. Facebook is not in the video game industry, but the company went outside its core competencies. The video game industry does have an aspect to connecting to others, but its focus lies on entertainment. Entertainment is not the pure focus of social media. Zynga accounted for more than 12% of Facebook's total revenues, but that number has been falling.[11] Facebook needs to focus more on its industry rather than expanding into new ones. It does not meet this factor.

The eighth success factor says that "To reach a high valuation, a growth company must have sustainable growth."[12] Facebook has had massive growth in its eight year existence. There are no signs that Facebook will not continue to grow as it continues to enter into the Asian markets. The company is adapting well to the different cultures in the Orient. Facebook has grown popular with the Middle East as well. As more people gain access to the internet, Facebook will continue to grow globally. Facebook also has great

[11] Facebook. "Prospectus" 18
[12] Killian. 123

growth possibilities with respect to revenues. These added revenues are a big uncertainty, but the upside is certainly there with a user base as large as Facebook's. Facebook should continue to have sustainable growth, and the company meets this factor.

The ninth requirement is that an IPO needs to have a strong brand name with both consumers and business markets. Facebook became an integral part of society in the United States. Almost everyone in the country has heard of Facebook, and the majority of the country uses it as well. Facebook is the best social media site for consumers. One only has to look at the fact that over 160 million people use Facebook in the United States today to see that Facebook has great brand presence with consumers.[13] Companies also recognize the potential of Facebook as well. It is a way to connect to consumers like no other. Tens of thousands of companies have created Facebook pages which allow for individuals to stay up to date with a company's products and offers. Facebook has a strong brand with both consumers and businesses.

The final requirement is that an IPO needs to have a low cost structure to survive expected pricing increases as the market develops. This is fairly difficult to determine because the industry is so young and Facebook has so few comparables that no benchmarks have been created to determine a cost structure. LinkedIn resembles Facebook the most so a comparison in profit margin can be applied here. Profit margin can provide a quick look into the cost structure. Profit margin measures how much profit is created for every dollar earned. It can give a quick snapshot at how high the costs are to run a business. For the year ended in 2011, LinkedIn has a profit margin of 4.3%[14], and

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[13] "Facebook Statistics by Country"
[14] LinkedIn. "Financial Statements"

Facebook has a profit margin of 18%.[15] This profit margin is exceptional considering the massive size of revenues that exceed $3.5 billion. There is no set benchmark yet, but this looks very promising. Facebook meets this requirement.

With all the factors added up, Facebook has scored 9 out of 10 for the criteria of successful IPOs. Facebook is a company that has many aspects of a successful company. The one criteria not met does not crush the IPO either. Focus is a factor that can be changed by adopting a philosophy focusing more on core competencies. It may be a difficult transition, but that move is very possible. By the standards of the framework used, Facebook appeared to be a great IPO. Facebook has grown fast and has large revenues. The company is a market dominator and addresses a need within society. The management has experience and focus. The cost structure allows for a large profit margin. Facebook's IPO looked like a real winner. However, the IPO was a complete flop.

The IPO Disaster

When the market opened on May 18th 2012, Facebook sold for over $40. Large brokerages had never seen such a high volume of traders wanting to purchase the stock. By almost everyone's account, the day would mark the beginning of a fantastic IPO. The day ended on a high even though the stock looked shaky, and the price had not risen over 100% like LinkedIn's IPO debut. Everyone who bought the stock looked like a winner, but everyone cannot be a winner on the market. By the end of the week, the stock had begun to go south very quickly.

[15] Facebook. "Form S-1"

Investors began losing a lot of money. Over the next 90 days, Facebook saw its market value drop more than $50 billion.[16] No one could have guessed the company would lose more than $50 billion. During this time, very few people had any idea what was happening. Something must have gone seriously wrong for a company that looked so promising to nose dive like that. It turns out that a group of Facebook employees led by David Ebersman along with some large institutional investors played a huge part in misleading the smaller investors.

Ebersman and the large institutional investors schemed to keep analysts cuts from reaching public knowledge. Before every IPO, companies go on a trip to market their shares to large investors in order to stir up excitement. While traveling on the roadshow, Ebersman dropped a bomb on Morgan Stanley's head banker Michael Grimes. Ebersman told him that performance had deteriorated over the past months, and that Facebook would not likely meet analyst predictions. They decided that the analysts needed to be told, but in a way that wouldn't scare the smaller investors.[17] Four banks involved in the deal quietly lowered their estimates for Facebook during the roadshow.[18] This unprecedented event is certainly material news, but the smaller and less powerful investor never received this information. The only change made available to the public was an addendum to the IPO prospectus saying that "the trend we saw in the first quarter of [Daily Active Users] increasing more rapidly than the increase in number of ads delivered has continued."[19] Meanwhile, the massive levels of demand kept the price moving even higher. When the stock debuted, many large investors decreased the amount

[16] Sorkin, Andrew. "The Man Behind Facebook's IPO Debacle"
[17] Blodget, Henry. "Revealed: The Full Story of How Facebook IPO Buyers Got Screwed
[18] Blodget, Henry. "Bombshell: Facebook Bankers Secretly Cut Forecasts for Company in Middle of IPO Roadshow"
[19] Blodget, Henry. "Exclusive: Here's the Inside Story of What Happened on the Facebook IPO"

of stock they bought. The small investor was left to dry and footed the losses when the updated forecasts came out.

This is certainly worrying moving forward for anyone willing to invest in Facebook. The company proved that it will benefit at the expense of its investors. The company and large investors did nothing wrong legally. They acted well within the boundaries, but they certainly took advantage of the system. This really puts the company's integrity in question, especially considering that Ebersman has not received a public reprimand for his actions. Not putting any blame on Ebersman shows an implicit agreement with what happened. One has to wonder if Facebook would act against the interest of investors again if they were given the chance. This doesn't mean that investors should avoid the stock on the conclusion Facebook lacking integrity alone. The company certainly has smart people in place, and Facebook continues to grow and to figure out ways to monetize that growth. Investors just have to be very wary and assume an arm's length detachment from the company.

FACEBOOK'S REVENUE SYSTEM

As it has been said before, Facebook is a company in the brand new market of social media. The service is not based around anything tangible. Instead the company facilitates connections between people. The market has enjoyed massive growth. Over 160 million people use Facebook in the United States alone. The customer base is huge, but Facebook doesn't charge for its service. They do not make money directly off each user. Instead, the company sells advertisements for its revenue. The difficulty of finding how well this system can generate revenues makes valuation difficult. Advertising does not lie in Facebook's core competency. It is a social media website, not an advertising company. Many researchers have tried to find if Facebook can succeed with its model, and there are mixed findings.

Potential and Problems

Social Marketing has the potential to develop into a very large market. Experts estimate that by 2015 "social media will become a mainstream mass media platform that… will engage one third of the world's population" which means that social media will become a "potential $29 trillion [market]."[20] The sheer size of this market is staggering to comprehend. There has been no single market that huge. Companies like Coca-Cola could reach customers around the globe with a couple clicks of a button. The potential money in social media makes it a market that cannot be overlooked. Next, there is data to suggest that Facebook advertising does have influence for users of Facebook. Rudaina Othman Yousif's study "The extent of Facebook Users' Interest in the Advertising Messages" has found that the "main conclusion of present study is that the interest of Facebook users in advertising messages is very high."[21]This study shows that advertising can be effective on Facebook. Users do want to see advertisements that pertain to their interests. Facebook has realized this and began to develop its plan to reach customers.

Facebook has the potential to be a huge marketing vehicle, and the company has started taking advantage of it. Facebook allows for customers to do a marketers' job for them. The user that see a friend has shared an ad "are twice as likely to remember [that]

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[20] Nuttney, A. "The social marketing Opportunity."
[21] Rousif, Rudaina Othman. "The Extent of Facebook Users' Interest In the Advertising Messages." 122

ad," and that user is more likely "to click on it or share it with friends… than plain vanilla display ads."[22] Social marketing can be very effective when used in conjunction with users rather than displayed at them. Second, Facebook has an advantage over TV and Radio because it has a very large amount of data on its users.[23] A company with this sort of information is highly valuable to marketers looking to target segmented markets. In this way, marketers can get into touch with the individual people that are most likely to buy their products. Facebook has even began an "algorithm for its Promoted Posts ad product" to help identify and deliver ads to users who would most likely react to them.[24] This is one of many initiatives that Facebook has used to generate higher revenues. Even though Facebook is moving in the right direction, there are still flaws.

Marketers are not convinced that Facebook can be the best medium for advertisement. A recent survey by the advertisement technology firm Nielson Co. revealed that only "12% of marketers and agencies… thought that social media such as Facebook works as an ad campaign."[25] The outside advertisers remain unconvinced of Facebook's potential. Especially because marketers can accomplish social marketing by not paying any money and spreading the word of the brand by users. Companies will not spend money on something they can do for free. Finally, Facebook looks to face "stiff competition from other social networking sites such as MySpace and Twitter."[26] Marketers will look for the best value of their money. Facebook has to create the best value for marketers to get their business, but the company has not added the most value in the past.

[22] Hof, Robert D. "Facebook's New Ad Model: You" 108
[23] Ibid 109
[24] Geren, Tomio. "Facebook Clears the Air on Newsfeed, Promoted Posts" 2
[25] Hof, Robert. 108
[26] Yousif, Rudaina Othman. 124

Facebook has trouble connecting businesses with a wide consumer base. A study done by researchers has found a limitation in Facebook's model. In marketing today, companies try to reach the customers who would not normally purchase that product. Marketers call these potential customers as light buyers. There are people who have a high loyalty to the brand and will purchase the good regardless of advertising. Marketers call these people heavy buyers. The people that lie in between these two are gathered together in a moderate group. This paper asserts that marketers try to reach the light buyers the most because the marketing plan will bring in the most customers. Marketers do not attempt to target the heavy buyers because they will purchase the product regardless. Facebook, however, tends to reach the heavy buyers the most. According to this study, over 50% of Facebook users that identify with and share a brand reside in the category of heavy buyers.[27] Facebook does not effectively reach the customers that marketers want to advertise to which is the light buyer. The company is looking for solutions to this problem.

Facebook's response to the issue raised in the preceding paragraph could very well solve the problem. Facebook calls the new system Facebook Ad Exchange. The company accumulates target markets of its users based on the huge amount of data available. It then lets the "marketers bid in real time for their ad to appear on a web page while an internet user is visiting it."[28] Essentially, Facebook creates its own market for advertisements. This can fix one big problem that has plagued the company since going public. Marketers can make sure that advertisements go to the people that would make the advertisement more valuable, and Facebook creates competition as well. Thiswill not

[27] Nelson-FIed, Karen, Erica Riebe, and Byron Sharp. "What's not to 'Like.'

[28] Knowledge at Wharton. "Money from Friends: Finding the Right Revenue Model for Social Media"

only increase the demand of Facebook's advertising space, but also the revenue generated per ad will increase. Facebook is well on its way to solving this marketing issue. There is no reason to suggest the company will not figure it out, because the company has fixed an issue before quite successfully.

One of the biggest complaints about Facebook was the lack of revenue from mobile advertising. The company released their application to smart phones before thinking through a process of generating revenue from users. Many investors were wary of that problem. This was a huge aspect of the company's business that was not utilized. Facebook became hugely aggressive in creating advertising products like "sponsored stories."[29] Ever since then, revenues from mobile devices have increased dramatically. Facebook now makes revenues upwards of 23% of total revenues which in an increase from 14% last year.[30] Facebook proved that it can address problems successfully. This gives great promise to solving future problems.

Facebook looks to be on the right track. The website wasn't created as a business back in 2004, and any company has "to think through how to make money from the start."[31] Facebook does have vast potential. The market is huge and will only continue to grow. Facebook has the first move on this market which is a very useful advantage. Social media is a unique market. The company has an incredible amount of data on its customers. It does have its share of problems with misaimed marketing, but Facebook has some great ideas to fix these problems and already has a track record of turning a weakness into a growing strength. The upside is just too large to ignore when considering

[29] Knowledge at Wharton
[30] Sengupta, Somini. "Facebook's Solid Results Are Greeted Cautiously"
[31] Knowledge at Wharton

investing in this company. As Facebook finds better ways of advertising, the company will control and monetize a large portion of a very large market.

FINANCIAL ANALYSIS

The third part of this paper will discuss financial analysis performed on Facebook by various methods available. This analysis will be relatively simple for reasons of spatial restrictions and ease of understandability. The first part of this analysis is accomplished by looking at previous performance to try and forecast future performance which will help to establish an idea of what the company is worth at the moment. This process is difficult for many reasons. The first is that Facebook is so young and only recently went public. A few extra assumptions had to be made because of this issue that will be discussed later in the section. The second issue is the fact that previous performance is not indicative of future performance, but there are no ways to assess future performance perfectly. This way at least points to a general direction. Predicting future performance, however, is more of an art than a science. The second way to determine performance that will be used in this paper involves comparing financial ratios to a company's industry averages and competing companies. This is based on the premise that companies who perform better than competitors in a certain market will create more profits.

Discussion of Financial Model

Valuing a company based on predicting future performance can be complicated. There are many ways to create the value of a stock given a certain level of performance. All numbers have been pulled from the most up to date information available on the Bloomberg Terminals. The method used for this analysis will be a discounted cash flow model. This method takes the predicted free cash flow to equity that will be generated by a company and discounts that cash flow back in present day value. The idea of discounting is based off the assumption that a dollar earned today is worth more than a dollar earned tomorrow because a dollar earned today can be invested today and earn money in addition to the dollar. This assumption allows us to determine the present value of money earned in the future. Free cash flow to equity is defined as net income plus depreciation, minus the change in net working capital, minus capital expenditures, plus net borrowings and minus dividends paid. Essentially, this gives the amount of cash that will end up in equity after every year. This cash belongs to the shareholders, so it is a measure of total value of the company. The free cash flow to equity is then divided by the total number of shares in order to get the total value added to each share in the future. This value is then added to the present value of a share to get the final predictive value. Before that value can be calculated, net income in future years must be determined.

Net income is the amount of company profits after all expenses are subtracted from all revenues. These numbers have to be projected in the future. This is accomplished by establishing a trend of how each revenue and expense have been growing and using that trend to forecast changes. Facebook is a young company that has grown at an incredible rate, so predicting these numbers off a trend has a lot of uncertainty involved. The average annual growth of total revenues over the past 5 years is 116%. This is massive growth that cannot be expected to continue in the next few years, but large growth is still expected and an average of about 30% growth was chosen for the next couple of years. Over the years, companies are expected to develop more efficient methods of running a company. This means that costs should be expected to go down as a percentage of total revenues in the next few years. Overall, a very healthy growth in revenues will lead to higher and higher net incomes in the few years which will be divided by the number of shares to get earnings per share (EPS). The projected EPS of Facebook looks to be around $.44, $.65 and $.90 for year's end of 2013, 2014 and 2015 respectively (see Appendix 1 for more information). It should be noted the further away in the future, the less accurate predictions will be. These estimates are combined with a few other estimates to create the present value of a share.

Another estimate used in this model is the company's Beta. Beta is a measurement of how a company's returns vary with the market returns. The market is assumed to have a beta of 1. Anything above 1 is more volatile than the market. Below 1 is less volatile than the market. To help illustrate, assume the market earns $1 today. A company with a beta of 1.5 is assumed to earn $1.5 today while a company with a beta of .8 will only earn $.80 today. However, if the market loses a dollar, the company with a beta of 1.5 will lose $1.5 today while the company with a beta of .8 will only lose $.80 today. Beta is a measurement of volatility compared to the market. Facebook is tough because the stock has only been out for a year. Generally, a stock needs around 60 months of historical returns to give an accurate beta. To overcome this, a weighted average beta has been used from companies for the individual company's first five years after going public. The average beta of the industry taken with the beta of many of Facebook's competitors as well as estimates from Yahoo Finance and Bloomberg have all been averaged to create a beta of 2.00. The Yahoo Finance and Bloomberg estimates of beta have been weighted three times more than the other companies' betas (See Appendix 4 for more information)

Price to earnings ratio (P/E) is the next estimate used in this model, and is the price of the company divided by the earnings. This can be a measure of how under or overpriced a company is. Facebook has an incredibly high P/E right now because of its young age, growth prospects and low earnings last year. In the future, the P/E will look to drop in the 50x to 40x range in the next three years. There is one final estimate before the company can be valued (see Appendix 4 for more information).

The next estimate is Facebook's cost of equity. This is how much it costs the company to raise capital through investors. The method chosen for this estimate is the capital asset pricing model (CAPM). This takes a riskless rate of return, generally the rate of return on a United States Treasury Bond, and adds that to the multiplication of the expected return on the market and the company's individual beta. This gets the rate of return required by investors of a company at a level of risk. The CAPM of Facebook is 13.11% (see Appendix 5 for more information).

The final estimate to be made is called the Horizon Value. This value takes into account all the cash flows in the future beyond 2015. It takes the cash flow in 2015 and projects it into 2016 assuming a growth rate. This rate is considered the constant growth into perpetuity. The predicted cash flow in 2016 is then divided by the cost of capital minus the growth rate. This gives cash flows into perpetuity of around $14 billion (See Appendix 4 for more information).

All the estimates have been made. Now the company can be valued. Since Facebook is a growth company, no dividends will be paid out because all profits should be reinvested back into growing the company. The EPS of 2015 is multiplied by the expected P/E of 2015 which is estimated to be 40x. This gives the stock a present value of $25.56. The present value of the stock with the added free cash flow to equity gives the stock a value at this point of 29.95, which is 13.93% higher than the actual stock price at the time of analysis which is 25.86. This suggests the stock is undervalued (see Appendix 5 and 6 for more information). A ratio analysis can provide a little more insight.

Ratio Analysis

A quick look at the ratios suggests that Facebook performs around the industry norm with the exception of last year. Facebook is in the Internet Media industry. The competitors chosen have been Groupon, LinkedIn, Yahoo and Google. Groupon and LinkedIn have been chosen because their business models most closely resemble Facebook's model. Yahoo and Google have been chosen because they can provide further insight in the analysis as they are industry leaders. Last year appears to be an anomaly looking back into Facebook's financials. In order to give a better picture of Facebook's financials, the ratios will be a three year average instead of one year. The profit and gross margins of Facebook are both above the industry average and Groupon and LinkedIn, but Yahoo and Google both have stronger margins. Facebook really needs to improve its return on assets and return on equity. These show how well a company is creating for its assets or shareholders. Facebook has average below the industry norm and Yahoo and Google. It will need to improve these numbers if the company wants to be an industry leader.

The next ratios of interest are liquidity ratios. These ratios measure how much money a company can raise in a short amount of time to meet debt troubles. Facebook has very high liquidity ratios compared to both the industry and its individual competitors. This means that Facebook will be able to raise debt from lenders much easier than almost anyone else in the industry. Lenders like Facebook.

The final ratios of keen interest are the DuPont Analysis ratios. This is a formula that DuPont created to show the health of their company. Essentially, profit margin multiplied by asset turnover multiplied by leverage ratio gives the return on equity of a company. Return on equity is a how much the company earns in relation to the amount of equity in the company. For the final year, Facebook has not performed well in this area. Historically, Facebook has been below the average for the industry. Facebook will have to rebound from a poor year. If the company can, it will have a bright future. (See Appendix 7)

There are many assumptions taken through this analysis. Therefore, the price given suggests that the stock is fairly underpriced priced right now. There is a lot of upside to this stock. A look at the sensitivity analysis shows how a difference in EPS can make. If Facebook can beat estimates, the stock price will soar. The market is massive and growth could easily outpace the rate assumed in this model. After the release of the first quarter earnings, the future will be much less hazy with respect to how Facebook will bounce back after a forgettable year in 2012. A small position in the stock could be taken before the earnings release in April, and then a final decision on whether to take a long position can be made after the first quarter.

CONCLUSION

The IPO looked like it should be successful. There were 10 criteria discussed, and the company met nine of them. The company could have had a good opening, but the IPO crashed. Facebook manipulated and took advantage of small time investors to maximize the company's return. This shows that Facebook may have some trouble with integrity high up. Investors need to be aware if they are willing to invest in Facebook.

The revenue system has brought mixed feelings as well. The potential is there for the company to make massive profits. The market could be as big as $29 trillion by 2015. Some people remained unconvinced that it can work. Specifically, the social media site has a tendency to connect a company's heavy buyers with the company. Marketing campaigns need to connect with the light buyers to maximize value. Facebook is coming up with creative ways of addressing this problem. The company has shown the ability to solve problems effectively before.

Finally, a financial analysis was performed. It used the model of free cash flow to equity. A financial anaylsis is not the end all to deciding whether to invest or not. It certainly is much more an art than a science, but a model can provide important insight into the value of a company. The model found that Facebook is undervalued, and a purchase should be made.

Overall, Facebook looks like a good company to invest in. The company has its share of problems, but it has shown the ingenuity and ability to overcome them. Valuing such a new company is difficult because there are so many unknowns involved. No one quite knows the true value of this company, and that fact has shown over the past year. The future of Facebook remains uncertain. However, there is too much upside to simply ignore this investment.

APPENDIX 1
(Income Statement Projections)

Income Statement	FY 2013E	FY 2014E	FY 2015E
Advertising	5670	7371	9213
% growth	*32.5%*	*30.0%*	*25.0%*
% Revenue	*83.8%*	*83.8%*	*83.8%*
Payments and other fees	1094	1422	1777
% growth	*35.0%*	*30.0%*	*25.0%*
% Revenue	*16.2%*	*16.2%*	*16.2%*
Revenue	**6763**	**8792**	**10990**
% growth	*32.9%*	*30.0%*	*25.0%*
Cost of Revenue	2019	2418	2748
% Revenue	*29.8%*	*27.5%*	*25.0%*
Gross Profit	4744	6374	8243
% margin	*70.2%*	*72.5%*	*75.0%*
Operating Expenses	2874	3517	4176
% Revenue	*42.5%*	*40.0%*	*38.0%*
Operating Income	**1870**	**2857**	**4066**
% margin	*27.7%*	*32.5%*	*37.0%*
Interest Expense	61	80	100
% Revenue	*0.9%*	*0.9%*	*0.9%*
Non Operating Expense (Income)	20	25	31
% Revenue	*0.3%*	*0.3%*	*0.3%*
Pretax Income	**1789**	**2753**	**3936**
% margin	*26.4%*	*31.3%*	*35.8%*
Income Tax Expense	716	1101	1574
% Tax rate	*40.0%*	*40.0%*	*40.0%*
Minority Interests	0	0	0
Net Income	**1073.280921**	**1651.613657**	**2361.401374**
% margin	*15.9%*	*18.8%*	*21.5%*
Basic EPS	0.44	0.65	0.90
Basic Weighted Avg Shares	2437	2537	2637

APPENDIX 2

(Balance Sheet)

Balance Sheet	FY 2010	FY 2011	FY 2012	MRQ
Assets				
Current Asset				
Cash & Near Cash Items	1785	1512	2384	2384
Short-Term Investments	0	2396	7242	7242
Accounts & Notes Receivable	373	547	719	719
Inventories	0	0	0	0
Other Current Assets	88	149	922	922
Total Current Assets	2246	4604	11267	11267
				0
Net Fixed Assets	574	1475	2391	2391
Other Long-Term Assets	170	252	1445	1445
Total Long-Term Assets	744	1727	3836	3836
				0
Total Assets	**2990**	**6331**	**15103**	15103
				0
Liabilities				0
Accounts Payable	29	63	65	65
Short-Term Borrowings	106	279	365	365
Other Short-Term Liabilities	254	557	622	622
Total Current Liabilities	389	899	1052	1052
				0
Long-Term Borrowings	367	398	1991	1991
Other Long-Term Liabilities	72	135	305	305
Total Long-Term Liabilities	439	533	2296	2296
				0
Total Liabilities	**828**	**1432**	**3348**	3348
				0
Prefered Equity	615	615	0	0
Minority Interest	0	0	0	0
Share Capital & APIC	947	2684	10094	10094
Retained Earnings & Other Equity	600	1600	1661	1661
				0
Total Equity	2162	4899	11755	11755
				0
Total Liabilities & Equity	**2990**	**6331**	**15103**	15103
				0
Shares Outstanding	1112	1330	2372	2372

APPENDIX 3
(Cash Flow Statement)

Cash Flow Statement	FY1 2009	FY1 2010	FY1 2011	FY1 2012	FY 2013E	FY 2014E	FY 2015E
Cash Flows from Operating Activites							
Net Income	122	372	668	32			
Depreciation & Amortization	78	139	323	649	676.3175	879.2128	1099.016
	10.0%	7.0%	8.7%	12.8%	10.0%	10.0%	10.0%
Other Non-Cash Adjustments	135	294	568	1467			
	17.4%	14.9%	15.3%	28.8%			
Changes in Non-Cash Capital	-180	-107	-10	-536	-135.264	-219.803	-329.705
	-23.2%	-5.4%	-0.3%	-10.5%	-2.0%	-2.5%	-3.0%
Cash From Operations	155	698	1549	1612			
Capital Expenditures	-33	-293	-606	-1235			
Increase in Investments	0	0	-3	-2			
Other Investing Activities	-29	-31	-2414	-5787			
Cash From Investing Activities	-62	-324	-3023	-7024			
Change in Short-Term Borrowing	0	0	0	1496			
Increase in Long-Term Borrowings	0	250	0	0	0	0	0
Decrease in Long-term Borrowings	0	0	-250	0	0	0	0
Increase in Capital Stocks	260	621	1459	7810			
Other Financing Activities	-17	-93	-8	-3022			
Cash from Financing Activities	243	778	1201	6284			
Net Changes in Cash	336	1152	-273	872			

APPENDIX 4
(Estimates)

Beta	
Google	1.13
Industry Avg	1.17
LinkedIn	1.89
Yahoo	3.685
Groupon	1.89
Zynga	3.785
Yelp	3.56
Pandora	0.91
Bloomberg Est.	1.41
Yahoo Est.	1.92
Will Bickford	2.000714

Earnings Per Share Estimates			
	2013	2014	2015
Yahoo	0.57	0.78	
Bloomberg	0.37	0.56	
Value Line	0.4		
CNBC	0.57		
NASDAQ	0.38	0.48	0.6
Reuters	0.57	0.78	
Average	**0.48**	**0.65**	**0.60**
Will Bickford	**0.44**	**0.65**	**0.90**

Historical Price to Earnings	
2011	67.0x
2012	1331.0x
TTM	1363.0x
Average	920.3x
High	1363.0x
Low	67.0x

Price to Earnings Forecast	
2013	50.0x
2014	45.0x
2015	40.0x

Horizon Value	14310
FCF 2015	1254.10
FCF 2016	1304.264
Growth Rate	4.00%
Discount Rate	13.11%

APPENDIX 5
(Dividend Growth, Estimates and Assumptions)

Company Information	
Company Name	Facebook
Ticker	FB
Recent Price	26.52
FY End	12/31/2013
Current Date	5/1/2013

Assumptions	
Risk Free rate	1.71%
Market Risk Premium	5.7%
Beta	2.00
Cost of Equity (CAPM)	13.11%
P/E TTM	45
Estimated 2015 EPS	0.90
Estimated 2015 P/e	40.0x
Overvalued	2.78%

Dividend Growth Model					
Year	Dividends Paid	Dividends Remaining	N	Present Value Factor	Present Value of Dividends
2013	0	0.00	0.66849	0.9209	0.00
2014		0.00	1.66849	0.8142	0.00
2015		0.00	2.66849	0.7198	0.00
Total					0.00

APPENDIX 6
(Model)

Free Cash Flow Projection	2013	2014	2015 and Horizon Value
Net income	1073	1652	2361
Depreciation and Amortization	676.3	879.2	1099.0
Changes in Net Working Capital	- 135.264	-219.803	- 329.7047813
Capital Expenditure	- 1613.11	-1739.88	- 1876.612515
Net Borrowings (Repayments)	0.00	0.00	0.00
Dividends Paid	0	0	0
Total Free Cash Flow to Equity	1.22	571.14	1254.10
Horizon Value			14310
Total			15565
Shares	2437	2537	2637
FCFE/share	0.001	0.225	5.902

Free Cash Flow to Equity Model				
Year	FCF	N	PV Factor	PV of FCF
2012	0.001	0.66849	0.920925495	0.000463
2013	0.225	1.66849	0.814156438	0.183287
2014	5.902	2.66849	0.719765833	4.248322
		Total		4.432073
		PV of share		25.78
		Equity Value		30.21
		Stock Price		26.52
		Undervalued		13.93%

APPENDIX 7

(Ratios)

Ratio Analysis	Facebook	Industry	Groupon	LinkedIn	Yahoo	Google
Profitability Ratios						
Profit Margin	12.5%	11.50%	-48.07%	3.61%	39.88%	25.36%
Gross Margin	75.0%	66.86%	80.91%	84.35%	64.71%	62.85%
ROA	7.7%	9.76%	-75.11%	4.00%	13.35%	15.04%
ROE	10.4%	15.44%	-57.22%	3.26%	15.77%	18.62%
Liquidity Ratios						
Current	7.20	3.44	1.02	2.43	3.30	4.76
Quick	6.78	3.04	0.93	2.26	3.00	4.48
Debt Utilization						
Leverage Ratio	1.32	1.57	-4.15	3.57	1.18	1.24
Interest Coverage	33.09	46.88	NA	NA	NA	177.18
Debt/Equity	0.19	0.11	0.00	3.04	0.30	7.48
Asset Utilization						
Asset Turnover	0.64	0.82	1.43	1.02	0.36	0.59
Valuation Ratios						
Price/Sales	10.09	5.29	1.84	10.87	4.15	5.52
P/E	699.00	288.51	NA	43.27	1.33	1.55
Price/Book	7.32	5.88	6.85	12.05	1.60	3.66
DuPont Analysis						
Profit Margin	12.5%	11.50%	-9.85%	3.61%	39.88%	25.36%
Asset Turnover	0.53	0.82	1.43	1.02	0.36	0.59
Leverage Ratio	1.32	1.57	-4.15	3.57	1.18	1.24
ROE	10.4%	14.8%	58.55%	13.15%	16.87%	18.70%

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ABSTRACT

The public markets face a few large problems in assessing the value of Facebook. The company has no comparables. It is a unique company and the first of its kind. There will be others, but investors have no precedent on what to look at to gauge the health of Facebook. There are companies that look similar, such as Google and LinkedIn, but their models differ in fundamental ways from Facebook. Second, while the company has a very large user base, Facebook has yet to find ways to effectively monetize that base. Facebook is making revenue off its users, but investors worry that the company does not make enough money off of its users. The company may find more and better ways to monetize its base tomorrow, or the company may never find better ways. That uncertainty doesn't make investors confident in the company. Finally, the company has a competitive advantage over others right now. In the future, this competitive advantage may erode or disappear. Investors feel that Facebook may lack a tenable position in its advantage over other companies.