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Valuation of Facebook Inc. 25 July 2013

$30.54

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1 Contents

2 Abstract

This paper answers the research question: "What is the fundamental value of one share of *Facebook Inc*. as of 25 July 2013?" and finds it to be $30.54.

To answer the research question, the paper follows a structure laid out through sub-questions:

- What are *Facebook*'s [*FB*] sustainable competitive advantages?
- How are factors, at micro and macro level expected to impact *FB*'s performance going forward?
- How is *FB* expected to perform in the future?

Strategic analyses of *FB*'s resources and capabilities are performed, finding that it is in *lock-in* and *ability to imitate* that *FB* has sources of sustainable competitive advantages. *FB*'s eco-system is analyzed with a focus on other social networks, advertisers, and users. A framework for understanding social networks is developed; distinguishing networks on content ranking mechanism, network type, and device focus. The paper also provides an analysis of the advertising eco-system with a criticism of current pricing models. Macro factors are analyzed using the PEST framework, and *FB* is found to be robust towards often-considered risks, such as privacy concerns and global shift towards smaller screens. Based in the strategic analyses, the most significant markets for *FB*, going forward, are analyzed, for growth and potential market share.

Following strategic analyses, the financial statements of *FB* are analyzed and reformulated to distinguish operating from financing activities; to create a basis for forecasting future performance. Adjustments are made, including IPO expenses, and Research and Developments costs through acquisitions.

Based in the forecast for future performance, an adjusted present value model is used to estimate the share value. The result is tested with comparative multiples against other social networks and internet firms. Lastly, a best case scenario is estimated, and sensibility analyses made, to put the share value in context.

3 Introduction

ICQ[1] was out-competed by *MSN Messenger*[2], which along with *MySpace*[3] and *Friendster*[4] were out-competed by *Facebook [FB]*. Many people believe that *FB* is prone to suffer a similar fate as their predecessors, and be wiped away when the next revolutionary social media is invented. *FB* has, however, proven multiple times that it can respond with imitation and innovation towards new competitors, and disruptive innovation, which its predecessors could not.

FB operates in a world of innovative competition, global political focus, shifts towards smaller screen devices, growth in global markets for online advertising, virtual goods, social commerce, and a wealth of opportunities.

Can *FB* stand the test of time? Can a new competitor arise to wipe out *FB*? How much revenue and profit can *FB* generate from their popular platform? Are *FB*'s acquisitions revenue generators, or a hidden cost of operations? What direction might *FB* go? What does it matter that *FB* is controlled by *Mark Zuckerberg*?

With the lenses of contemporary strategic analysis theory and frameworks I believe it is possible to come a bit closer to answering all these questions, to understanding the social media market, and with

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[1] ICQ was the first major instant messenger service, launching in 1996. *ICQ* was acquired by *AOL* in 1998, and outcompeted by *MSN Messenger* gradually after 1999.

[2] *MSN Messenger*: from 2006 called *Windows Live Messenger*, was the leading computer program for chatting with friends, owned by *Microsoft*. In 2012, it was discontinued, and all profiles moved to *Skype* following the *Microsoft* acquisition of *Skype*.

[3] *MySpace*, was a social network where users had a profile, shared pictures, music and more with each other, similar to *FB*. User profiles were often not based on real identity. In 2005, *MySpace* was acquired by *News Corporation*, and pop-up ads and other annoyances to users were introduced. *MySpace* was largely outcompeted by *FB*, and today it is no longer a social network, but a website about music.

[4] *Friendster* was almost identical to *FB*, but launched two years earlier in 2002. There are many, widely differing explanations to why *Friendster* failed, and *FB* succeeded. My own theory is that *FB* succeeded compared to *Friendster* through better design, choice of features, and better seeding; e.g. *FB* launching at Harvard, and expanding to the Ivy League first, versus *Friendster*'s early adopters among bloggers, Burning Man attendees, and gays (Boyd & Ellison 2007). Furthermore *FB* understood the key to social networking; meaning more "social" – as in sharing with people you already know, and less "networking" as in getting to know new people. *Friendster* also experienced technical problems, due to poor technical skills, and bad management. Kirkpatrick (2012), sums it up as: *Friendster* was made by social, party people; *FB* was made by Harvard students.

the valuation approaches of Koller, Goedhart, and Wessels (2010), to estimate the fundamental stock value of *Facebook*.

4 Problem Statement

This thesis has one overarching aim: to answer the research question:

What is the fundamental value of one share of *Facebook* Inc. as of 25 July 2013?

To answer this, it is necessary to get a holistic view of *FB*, its market, and the wider internet economy. I therefore ask the following sub questions:

- What are *FB*'s sustainable competitive advantages?
- How are factors, at micro and macro level expected to impact *FB*'s performance going forward?
- How is *FB* expected to perform in the future?

I chose 25 July 2013 as the date for the valuation, in order to let it be based on new data, as Q2'13 earnings were released on 24 July. By one share, I specifically mean one Class A common share.

I consider this research relevant to small, as well as large, equity investors who consider buying or shorting *FB* shares. Secondarily, the question is relevant for investors and managers in internet business as *FB* is a common benchmark for performance.

The research question and sub questions guide this thesis, and while other analyses, would also contribute to estimating *FB*'s value, I consider these the most important. In the following section, I explain the structure of this thesis, and argue why this content is the most relevant for estimating the value.

4.1 Structure

Firstly, in the method section, I clarify to what extent various theories and models work, and consider which are the best theories and models to provide an understanding of the firm's potential, and thereby valuation. I consider the discussion of theories and models central to understanding the outcome of the analyses.

Following method, a brief company description is provided, as it is impossible to understand the value of the company, without understanding its basics.

I then make strategic analyses of *FB*'s resources and capabilities, to determine which ones can be the sources of sustainable competitive advantages. I analyze *FB*'s eco-system, macro factors that impact it, and the most significant markets, to determine how these factors will impact *FB* going forward.

I then proceed to analyze the financial statements of *FB* since 2011, and reformulate them to separate operating items from financing, leading to reformulated financial statements.

Based in the strategic analysis and reformulated financial statements, I create a financial model, using the adjusted present value approach of Koller, Goedhart, and Wessels (2010) for estimating the future performance of *FB*.

Based on the analyses I conclude upon the thesis' findings, and give the final answers to the research question, and sub-questions.

4.2 Delimitations

I analyze financial statements going back only to 2011, as earlier data is less indicative of the future for a high-growth firm such as *FB*. I forecast on aggregated items in the financial statements, as many items individually are non-recurring, whereas their aggregate, on average is recurring.

I forecast on all major items, only to 2020, and from thereon estimate only FCFF for the second stage, and terminal. While some items are covered extensively in the strategic analysis before forecasting, other items are analyzed only in brief, and estimated as current, or weighted historical average percentages of revenue, going forward.

I compare several methods for calculating unlevered beta, to estimate costs of capital. Slight changes in costs of capital have significant impact on share value. Overall, estimate of beta requires a larger study, and would be a good starting-point for further equity research.

It is easier to value a company in relative terms, than absolute; but at some stage it requires that the value of the firms used for comparison, have been valued in absolute terms. FB is widely used as a benchmark for performance of internet firms, and so I want to focus on the absolute valuation, and use relative valuation only to put the results into perspective.

There are multiple methods for valuing the FB share, but as the approaches in Koller, Goedhart, & Wessels (2010) all give the same value, provided the same reformulated financial statements and

assumptions are made, I limit the valuation model to the three stage, adjusted present value – discounted cash flows approach [APV-DCF].

DCF methods in general have the disadvantage that they are time consuming to create, especially when there are multiple markets, options and future uncertainties to consider. Given uncertainty, flexibility becomes valuable, and the real options approach is designed to value flexibility, which tends to be ignored by DCF approaches. To properly create a decision tree with options for FB, it is necessary to have valued those options with DFC first, and thus the APV-DCF financial model is a necessary tool for valuing FB through real options. *Real Options* is a strong supplement to a DCF analysis, but not a replacement for it, and will not be used in this thesis, given constraints of time and page space.

5 Method

In the following section, I explain the models I use and the theories they are built on. I focus on what advantages and disadvantages they have, what their main criticisms are, and how the original authors, and others have responded to and modified the models in the last two years. I intend for this chapter to be an analysis and up-to-date discussion of the models, rather than an introduction to them.

Koller, Goedhart & Wessels (2010), Grant (2010), and Barney & Hesterly (2012) present extensive frameworks for analyzing companies and markets for strategy and/or valuation purposes. All three extensive frameworks use the internal / external divide, which I do as well. For the internal divide I use the VRIO framework of Barney & Hesterly (2012).

I evaluate resources and capabilities with the VRIO framework, present dynamics with other groups of actors through the eco-system framework of Cool (2013), and present my findings of the macro environmental impacts using the PEST framework.

For the valuation I use the framework of Koller, Goedhart & Wessels (2010), and the Adjusted Present Value Excel model for valuation, using best Excel practices and the current investment banking standards as taught by Gültekin (2012).

5.1 Strategic Analysis Method

In the broad strategic frameworks of Grant (2010), and Barney & Hesterly (2012) there is consensus that analysis must be segmented firstly between what is external, and internal to the company. For external analysis there is consensus that both relevant groups of actors (e.g. competitors), and concepts (e.g. technology) must be covered.

5.1.1 Internal Analysis

Have we reached the end of the era of sustainable competitive advantage?

In her 2013 book with the provocative title: The End of Sustainable Competitive Advantage, McGrath writes that: “superior profitability will tend to be transitory, and the only route to sustained superior performance is through continually recreating and renewing competitive advantages" (McGrath 2013). In McGrath’s view: “The next successful companies are those that become superior in making change the norm, rather than the exception; which embrace innovation, and are skilled at exits and de-investing in a current competitive advantage at the right time; and flexibly move their firms towards new markets and competences” (McGrath 2013).

McGrath’s basis, for claiming this, is a study of growth outliers; specifically companies with market capitalization of one billion dollars or more that have had 5% or higher revenue, or income growth, consistently over the last 5 or 10 years. A major conclusion from this study is that this group of firms had identified and implemented ways of combining tremendous internal stability while motivating tremendous external agility – stable dynamism.

Rather than being the end of competitive advantage, I think that McGrath is striking at the word sustainable, and is sparking debate on how sustainable any advantage can be today. But in the definitions of Hamel (2012), sustainability is not meant to mean forever, but just for long enough to make it sensible to pursue, defend, and organize business around.

I consider that the pace of change has increased, and that the advantages that can be sustained are no longer the same as they used to be, instead of defining a new concept to replace sustainable competitive advantage. Some advantages can still be sustained for some companies, so it is not the end of the word sustainable, and we cannot be sure yet, that companies in the most rapidly changing sectors will not find sustainable competitive advantages such as flexibility and routinization of exit and de-investment, or lock-in and imitating.

Within the VRIO framework, for a high-growth technology company, the capabilities that fulfill the VRIO criteria tend to belong to the subset of capabilities that are considered dynamic. Teece, Pisano, and Shuen (1997) define dynamic capability as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments". McGrath (2013) takes a step further, finding that the key dynamic capability of the most successful companies in the past decade is to abandon current sustainable competitive advantages, to exploit fleeting opportunities, and make room for new and better transient competitive advantages, even though they may not be sustainable.

According to McGrath (2013), Hamel (2012), and I dare say almost everyone in 2013, innovativeness is the foremost dynamic capability to aspire for. McGrath (2013) finds that companies must focus less on sustainable competitive advantage and become better at innovation. Hamel (2012) argues that innovation is the only sustainable competitive advantage. The theoretical framing differs, but the message to managers is the same.

Koller, Goedhart & Wessels (2010), show that incremental innovation does not lead to profits; predicting that, for instance, hybrid cars will not change car industry profitability much unless it forces small players out. Incremental innovation leads to capture of a little extra market share, competitors imitate, and the market share is supposedly lost again. The low return on invested capital for incremental innovation does, however, not include a focused analysis of network-effect dependent industries. While incremental innovations might be imitated, the advantage gained in the gap period, until the imitation is complete, can lead to network effects that are hard to reverse. This would indicate that incremental innovation is more important in network-effect dependent industries, though this has not been empirically tested.

Christensen (2011), and others, have shifted from the term *disruptive technology* to *disruptive innovation*, to account for the fact that often it is not the technology itself that leads the disruption, but rather an innovation in the application of the technology.

Cool & Luis & Dierickx (2009), define sustainable competitive advantage as a competitive advantage lasting until faced with a disruptive innovation. This definition is problematic in the case of dynamic markets. When disruptive innovation is an increasingly important force, it is not viable to have a strategy to achieve competitive advantage that is only sustainable until a disruptive innovation arrives.

For the internal analysis, I use the definition of sustainable competitive advantage from Hamel (2012), and focus on concepts within innovation, to find resources and capabilities that can be sources of sustainable advantages, considering a dynamic environment prone to disruptive innovation.

5.1.2 Eco-system Analysis method

In this subsection I explain my method for identifying, segmenting, and analyzing the different groups of actors, most important to *FB*.

The most common method for this is to analyze the focal firm's industry, at different value chain stages with Porter's five forces. I will briefly discus Porters Five Forces to explain why it is not the best model for making this type of analysis, and why the eco-system framework of Cool (2013) is better capable of capturing the dynamic interactions between *FB* and groups of actors they engage with regularly.

Traditionally, external analysis of groups of actors has focused on a certain type of eco-system – the "Industry", and analysis of it through Porter's five forces.

Porter's five forces as a model has eroded as studies proved industry was not the primary determinant for profitability, and as the fiercest competition in dynamic markets has started coming from peripheral companies, substitutes, and start-ups rather than from existing industry competitors (Nell 2011).

In six different studies aggregated by Nell (2011), the variance in firms' returns on assets was on average explained 11% by industry effects, 35% from firm effects, with 51% remaining unexplained.

Porter's five forces analysis is often applied to an industry at large, rather than to a stage in a value chain. For each stage in a value chain there are different forces, and thus it rarely makes sense to make only a single analysis for a company that spans, or is impacted strategically by multiple chains, and/or industries.

An eco-system is composed of actors that engage with each other for the collective interest of value creation, while at the same time engaging in rivalry over value appropriation.

For understanding the position of a company, the most important actors are the other actors in its eco-system, and actors in other competing eco-systems.

Cool (2013) argues that for industries where network effects are the key value drivers, complementors are the most important group of actors together with the customers. It is the critical mass of

complementary goods that creates value for customers; and complementors prefer to create goods for the platform that delivers critical mass in number of customers (Cool 2013).

- When analyzing *FB*'s eco system it is clear that suppliers are not a distinct, relevant actor, but developers are. Most people would consider the users as the customers, but similar to the wider media business, one might as well consider advertisers as the customers. To answer the sub-question: "How are factors, at micro level expected to impact *FB*'s performance going forward?" I therefore apply Cool (2013)'s eco-system framework.

5.1.3 PEST Model (Political, Economic, Social, Technological)

The theory that underlies the PEST framework is that the company's success and/or strategy is shaped, to a significant extent, by external macro factors. The PEST framework serves two purposes. The first is to make sure the researcher covers relevant topics, and the second is to convey the research to others - who may immediately understand what each section of the framework includes.

For the PEST framework, there has been much discussion as to whether more categories should be added. Especially PEST(EL) - *environmental* and *legal*. For some companies environmental subjects fall clearly into another section, such as *political*, while for others it is pervasive or not important at all. As political subjects are most often concerned with the economy, and as the economy depends on our technology to serve social people - it is clear that most issues do not fall clearly into one category. The PEST framework is thus collectively exhaustive, but the categories are not mutually exclusive.

For most, *legal* is a subcomponent of politics, even for matters of judicial activism, and constitutional law, which controls politics. The law is made by politicians, a legal offence may receive political attention - and for large and multinational firms, law and politics go hand in hand.

Barney & Hesterly (2006) adds demographic trends, cultural trends, and specific international events, instead of letting them be grouped under social.

Overall the PEST framework is already awash with overlaps. I find that any additions to make it PESTEL, PESTLIED, STEEPLE, SLEPT, LONGPESTLE[5] etc. will only worsen this, and add nothing to make it more

[5] Local, National, Global, Political, Economic, Social, Technological, Ethical, Legal [LONGPESTEL]

exhaustive in the case of *FB*. To answer the research sub-question: "How are factors, at macro level expected to impact *FB*'s performance going forward?" I therefore use the classical PEST framework.

5.2 Valuation method

5.2.1 Fundamental value

According to the efficient market hypothesis, over time and with volatility, prices regress towards their fundamental, intrinsic value. Market inefficiencies and behavioral economics can cause markets to stay irrational, longer than investors may stay solvent. The logical conclusion of these two arguments is that, to make an optimal investment, investors must understand the market, from the technical to the legal. They must consider the fundamental value of the stock, and the behavior of investors and concerned parties. Investors must in addition understand how the investment's risk relates to other risks.

While all of these aspects of the stock are important, this thesis is aimed at determining the fundamental value, under the theory that fundamental value is a function of future profitability, and time-value of capital.

5.2.2 Financial Model

Damodaran (2013) argues a 3 stage growth model, forecasting at least 10 years, is best for valuing high growth firms. As basis for my financial model, I use Gültekin (2012)'s Adjusted Present Value model, based on Koller, Goedhart & Wessels (2010)'s framework, adjusted to have 3 stages of growth.

For high-growth tech stocks, Koller, Goedhart & Wessels (2010) argue that instead of analyzing historical performance, one should examine expected long-term development of the company's markets and then work backwards, using the method of scenario-based discounted cash flows. Koller, Goedhart & Wessels (2010) further write that alternatives, such as price-earnings multiples, generate imprecise results when earnings are highly volatile, and provide little insight into what drives the company's valuation. Many analyst' reports use price-earnings multiples to estimate the terminal value, and find results up to almost 3 times what would be estimated with discounted cash flow method. As Koller, Goedhart & Wessels (2010) clearly states that this approach is wrong – there is a research gap: theory is different from practice.

Overall, as long as the same reformulated financial statements are used, and the same assumptions made, however, the results are similar. The adjusted present value method makes clear distinction of income from operations, and financing – which I consider easier to use, when the capital structure is not constant. To supplement APV-DFC, real options analysis can be used to value flexibility, but as explained in section 3.2: Delimitations, this is outside the scope for this thesis.

5.3 Data quality

The data for internet advertising provided by *eMarketer*, *Interactive Advertising Bureau [IAB], PWC*, and others is incomplete and sometimes has major miscalculations which indicate the data quality is low.

IAB has an organizational goal to promote internet advertising. *IAB* therefore has an incentive to make internet advertising look more attractive; For instance by focusing reports on positive trends, rather than risks.

FB does not disclose the most central metrics such as user minutes to measure user engagement[6]. Advertising intelligence firms, as the ones mentioned above, make surveys of users to estimate these numbers which is a waste of resources as *FB* could just reveal the real data.

FB releases data for revenue by regions, and by mobile / desktop, but not combined. This means analysts do not have the data to calculate the much needed revenue per user per minute by region and device, and have to rely on proxies.

As many advertising and news corporations make surveys, it increases the threshold for trusting them. If 10 similar studies are made of user behavior on *FB*, the outlier will get attention, though misleading.

I use *Datamonitor* for several market, and macro-economic forecasts. I have previously experienced severe flaws with data from *Datamonitor*, and thus it must be acknowledged, that *Datamonitor* can be wrong, and their forecasts subpar. For all their data and forecasts, I have checked with at least one other database, and determined that the differences are insignificant. *Datamonitor's* forecasts are generally

[6] "User engagement" is how much, how often, or just how actively users use a site or app. It is often measured by Daily Average Users / Monthly Average Users, or by minutes / month / monthly average user.

per 1 January, which means they directly fit into my model using mid-year convention, as I use June 30 last twelve months as a basis for forecasting.

6 Company Descriptions

FB is foremost a *social network service*[7] that enables its individual and organizational users to store and share personal information and creative content to other individuals; organized in groups based on friendship and shared interests.

Social networking is one of the first applications of the World Wide Web. What began as *user groups* evolved to *chat rooms*, then *message boards*, *forums*, to *communities*, and finally, *social networks*.

FB was founded in 2004 by *Mark Zuckerberg* and friends at *Harvard University*. Today *Mark Zuckerberg* is CEO, *Sheryl Sandberg* COO, and David Ebersman CFO.

FB's official mission is to make the world more open and connected; it employs 5299 people, and is headquartered in Menlo Park, California (*FB* Q2'13; 10-q). *FB* has since 2011 acquired *Instagram*[8] and several internet tech start-ups, and advertising intelligence companies including *Atlas*. *FB* is integrated across the web and on most devices (desktop computers, tablets, mobile phones, and more). *FB* is used as the login-mechanism or a link, so other sites and apps can learn about their customers and offer a social experience. *FB* offers its platform for developers to create apps. This has given rise to companies such as *Zynga* and their app: *FarmVille*. Transactions in the apps, that are almost exclusively games, go through *FB Credits* and *FB* gets a 26% transaction fee. Advertisers use *Facebook Exchange [FBX]*[9] and other services to advertise on *FB*, leveraging their existing *FB* pages and the users that have liked them.

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[7] ***Social Network Platform****:* Boyd & Ellison (2007) define social network sites as web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system.

[8] ***Instagram*** is a mobile app for quickly editing and sharing pictures and, since 20 June 2013, videos. *Instagram* was acquired by *FB* on 6 Sept 2012.

[9] ***Facebook Exchange [FBX]*** is an ad exchange that allows advertisers to serve ads to users on *FB* based on past actions they have taken online, like shopping for an airline ticket.

The core of *FB* remains the extensive profiles and sharing of content by its users. As the largest and most comprehensive social network; *FB* can be considered to have reached critical mass and leverages network effects.

Beyond making the world more open and connected, *Mark Zuckerberg* explains that there are currently three main parts to *FB*'s strategy: 1) Build the best mobile product 2) build a platform with new services that leverage the *social graph*[10], and 3) build a strong monetization engine (*FB* Q1'13; Earnings Call).

Within advertising, the focus is on mobile, measurement and product innovation[11].

Zuckerberg has also said he wants *FB* to be "the best personalized newspaper in the world."[12]

6.1 Culture

FB is famous for its 'hacker culture'. A hacker, to most people, means someone who uses code to breach security. At *FB*, and in the tech environment, a hacker is someone who modifies and makes adjustments to everything he comes by. *FB*'s office is covered in graffiti and written in large letters is a slogan: "this journey is 1% finished" (Kirkpatrick 2012). All *FB* employees are encouraged to learn coding, and there is a saying in *FB* that "code wins arguments". While other tech companies sees it as their finest capability to plan properly and avoid crunch time, *FB* encourages hacking, fast-failing, and use lockdowns in which no one is allowed to leave an office room until a feature is finished and released[13]. This culture is more reminiscent of a start-up, than an established tech firm.

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[10] The social graph is a term to describe the entire network of everyone on *FB*. When mapped visually, the social graph looks like a spider web, with people, and pages as nodes, and their connections as lines between the nodes.

[11] (*Facebook*, Q2'13 Earnings Call, *Sheryl Sandberg*.)

[12] Wall Street Journal (2013): *Facebook*, With a Focus on Mobile, Works on Project for News Via Users, by Evelyn Rusli, 24 June 2013

[13] *Copenhagen Business School, CBP Network*, study trip to Silicon Valley, April 2011, *Facebook* company visit.

At *Google*, the people I talked with in 2011[14] said that the culture at *Google* was similar to *FB* prior to 2009, but that since then – it had become more like established companies (e.g. *Microsoft*). The story of *Google* indicates that as start-ups grow larger, some dynamism and drive, especially in the less innovative and disruptive departments, may disappear. Many people are amazed that *Google* allow workers to spend 20% of their time on projects of their own choosing, and that there are table football, table tennis, video game consoles, and other recreational activities available on their campus. When I visited, I asked if they actually spent 20% of their time on side projects. The answer was that it was very few employees who used it, as most were too busy with their prime projects. Similarly, *Google* said that the table tennis was rarely used. To sound more innovative, some companies may pretend that their work culture is more different than is actually the case. As *FB* has rounded 5299 employees, I find it hard to believe they can sustain a significantly more entrepreneurial working culture, than other Silicon Valley companies. *FB* may be an inspiration for many companies outside Silicon Valley for creating a culture of innovativeness, and getting things done, but inside the valley, the hacker culture is not rare or inimitable. I therefore do not consider *FB* to be more valuable due to culture than competitive start-ups.

6.2 Most important people

Roughly speaking, *FB* is managed by a duo of *Mark Zuckerberg* and *Sheryl Sandberg*. *Zuckerberg* is in charge of user experience and *Sandberg* of monetization, mainly through advertising.

6.2.1 *Mark Zuckerberg*, CEO

Founder and CEO *Mark Zuckerberg* dropped out of his computer science studies at *Harvard University* to move *FB* to Silicon Valley in 2004.

At early stages it was crucial to have *Mark Zuckerberg's* ability to see further than users and understand user's true desires even against their initial complaints. This was especially the case during the launch of *News Feed*. When most users expressed their dislike for the *news feed*[15], and many protest groups grew large. Everyone else in the company except *Zuckerberg* wanted to abandon it, but he pushed through

[14] *Copenhagen Business School*, *CBP Network*, study trip to Silicon Valley, April 2011, *Google* company visit.

[15] ***News Feed***, is the space in the middle of the *FB* website and app that is continuously updated with status updates from friends, pages you have liked, sponsored stories, and other content.

(Kirkpatrick 2012). Though people write they do not like it, it turns out the news feed increases user engagement, so there appears to be a difference between what people say they like, and what they actually like. *Zuckerberg* has joined the exclusive club of CEO's who get paid only $1, and no bonuses, following examples of among others, *Larry Page* and *Sergey Brin*, *Google*; Larry *Ellison, Oracle; Elon Musk, Tesla; Mark Pincus, Zynga;* and *Steve Jobs,* formerly *Apple* (Quartz 2013).

It is unclear how necessary *Zuckerberg* is now that it is possible for *FB* to test-launch any new feature, and see response before launching to everyone.

6.2.2 *Sheryl Sandberg*, COO

Prior to joining *FB*, *Sandberg* was Vice President of Global Online Sales and Operations at *Google*, has served as chief of staff for the *US Department of the Treasury*, and worked five years at *McKinsey & Company*. She has an MBA from *Harvard Business School*. *Sheryl Sandberg*'s expertise is in marketing and advertising, and she oversees *FB*'s expansion into these areas. Advertising and *Sandberg* go hand in hand for *FB*, and as long as she is in power, this will cause other business opportunities to be less in focus.

6.2.3 *David Ebersman*, CFO

Ebersman joined *FB* as CFO in 2009. Prior to joining *FB*, Ebersman was CFO of *Genentech*. *Ebersman* holds an A.B. in Economics and International Relations from *Brown University* (Businessweek 2013; Executive Profile).

6.3 Ownership & Control

With dual class shares, 50%+ voting rights for *Mark Zuckerberg*, staggered terms for board members, and no independent directors; *FB* is a controlled company and violates the concept of shareholder democracy. According to Chemmanur & Jiao (2011), dual class shares are favorable when the company faces projects that have high near-term uncertainty. The theory is that institutional investors that only think short term, demand quarterly results, and may use voting power to cancel projects that are long term profitable, but not currently observable in the stock price. With dual shares, the founders may maintain control of the company and can choose to ignore shareholder demands for short term earnings, and focus on the pursuit of long-term shareholder value. Small investors may prefer long-term focus to voting rights, as they invest for longer terms, and do not have the size to use their voting power productively (Chemmanur & Jiao 2011).

Institutional investors cite concerns with investing in controlled companies, but generally do not have formal policies concerning such firms (IRRC Institute 2012).

Detractors argue that control mechanisms misalign interest between affiliated and external shareholders and allow insiders to operate without the normal accountability mechanisms. The IRRC Institute (2012) study attempts to contribute to that debate by examining prevalence, characteristics, and relative performance of controlled companies listed on exchanges in the US (IRRC Institute 2012).

Over the ten year period, ended 31 Aug 2012: Controlled firms in *S&P Composite 1500*[16] earned on average 9.28% total shareholder return [TSR] vs. 9.76% for non-controlled companies. For controlled companies with multiclass capital structures: the return was only 7.52%, vs. 14.26% for control companies with a single share class. Over all periods, (3, 5, and 10 years) non-controlled companies outperformed controlled.

Controlled companies also exhibited higher share price volatility over the 10 year period with standard deviation of 12.69% vs. 11.34% for non-controlled.

4.92% Control Penalty

For my cash flow forecast, I ignore the potential negative consequences that may result from *FB*'s status as a controlled company, and instead deduct 4.92% from the total value as a penalty; reflecting that over the past ten years, controlled stocks have delivered 4.92% lower TSR. For this calculation, I ignore the fact that controlled companies also exhibited higher volatility, as the higher volatility may already be factored into the lower returns by the market. [17]

[16] *Standard & Poor's [S&P] Composite 1500*, is a stock index composed of the S*&P 500, MidCap 400, and SmallCap 600. S&P Composite 1500* includes 90% of the US market capitalization (S&P 2013)

[17] TSR for controlled companies = RC; TSR for non-controlled companies = RN
Control Penalty = (RN-RC) / RN

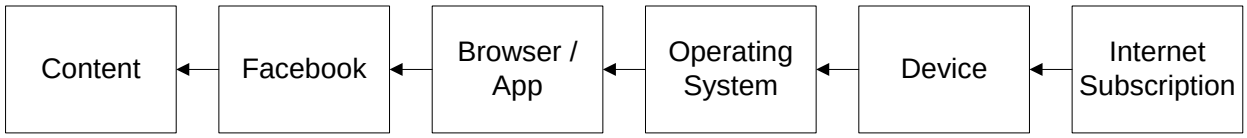
6.4 Offering

Almost any feature on the internet, is available in one way or another on *FB,* so it is more important to understand how much features are used, rather than whether they are used. In this section I review *FB's* most important and/or promising features towards users, complementors, and advertisers.

FB Platform

The *FB* platform is available on many devices such as mobile, tablets, and computers; in different formats such as *FB Messenger, FB lite, FB.com, FB home on Android*; and through web-wide integration: available from many platforms, sites, and apps. When *FB* launched in 2004 users could just upload a single profile picture, fill in basic info, and invite friends to join. Since then features have come and gone, and today the most popular are browsing the news feed, photo-sharing, commenting, liking, and tagging, messages, creating pages, groups, and events, and managing your timeline, and looking at others'. (See Appendix 2: Use of Social Media, for exact breakdown of time use). *FB* is used as a directory for remembering friends, birthdays, phone numbers, base of relation, location, and more information. Friends' changes, uploads, activities and statuses are presented in the news feed.

Figure 1: *FB* Value Chain, figure created by author.



I categorize the most important features of *FB* under profile & directory, communication & content sharing, and tools & apps.

Profile & Directory

Profile includes all features that have to do with establishing the user's identity, incl. name, profile picture, personal data, and likes. With *log-in with FB*[18], and *check-in*[19]; *FB* functions as the online

[18] ***Log-in with FB***, previously known as *FB Connect*, is a service offered to all site and app owners to ease the process of registering for their service and grants access to data about their customers. This free offering serves to further lock in *FB* users and increase quitting costs. *FB Connect* is sometimes described as making *FB* the passport of the internet.

[19] ***Check-in:*** When at certain locations, users can use their smartphones to check-in via *FB*, proving where they are. This can be used to prove that you are actually at Times Square in New York, or to broadcast that you are at a certain bar. Some bars, for

passport. To use the music service *Spotify*, it is mandatory to log-in via *FB* and thus mandatory to have a *FB* account.

Over time, the amount of data users have uploaded, the amount of pages they have liked, and the number of friends they have added becomes a useful directory. To find a person's phone number, to contact them, to see the list of other members in a group, etc.

Communication & Content Sharing

People can use any means to communicate, which means that likes, sharing content, who your friends are, how your profile looks, etc. all constitutes communication. When I refer to communication in *this* segment I refer to instant messages, e-mails, chat, comments, status updates, voice chat, picture chat, and video chat. *FB* communication and content sharing features are integrated in external websites and apps, such as the ability to comment, like, and share.

FB has developed the algorithm *EdgeRank* to govern what is displayed – and how high – on the *News Feed* (WhatIs*EdgeRank*.com 2013). An overview of the algorithm is provided by *WhatIsEdgeRank.com*, and it can roughly be said that closer friendships, more likes, and richer content leads to more visibility.

Tools & Apps

Apps and tools are developed by *FB* or externally to serve users, often drawing upon other features of *FB*. Tools include: Reminding users when other's birthdays are, (using *FB* as a directory), *Marketplace*, games such as *FarmVille 2*, and the ability to add layers to make photos more beautiful with *Instagram*. There are more than 9 million apps on *FB* (inside*Facebook*.com 2012).

Users can use *FB* to pay for virtual goods and services in apps, and real-world gifts, with *FB credits*.

Transactions

On 12 Sept 2013, all *FB Credit*[20] users will get their credits converted back into their local currency. In my opinion, this means the end of hypotheses that *FB Credits* would grow to become a global currency

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instance, offer discounts to customers willing to check-in via *FB*, as the update on *FB* to the customers' friends is a type of advertising.

[20] *FB Credit* was *FB*'s own currency, bought for real world money, and spent mainly in game apps, to buy virtual items.

competing with *Bitcoin*[21] and even the US dollar. People buy virtual goods either because they get an advantage in, for instance, a game or because it makes their character or profile look better and/or cooler (Kim 2011). People compete for status on *FB* by posting, or not posting and optimizing their profiles, and it seems unlikely that a large economy can be built for adding virtual goods to the site; the so-called *Hat Economy*[22]. For virtual goods sold through games played on *FB*, *FB* charge 26% commission, which amounted to $859m in '13 LTM, and $214m in Q2'13 (up 11.5% from $192m in Q1'12). This charge only applies when the good is purchased while the game is played on *FB*, and therefore not on mobile, where *Apple* or *Google* receive the commission.

Gifts

Currently *FB* is promoting *Starbucks* gift cards, *ITunes* songs, and other gifts as birthday presents, paid for through *FB Credit*. As of Q2'13, *FB* writes that no significant revenue has been earned from *Gifts* (*FB* Q2'13: 10-q)

Newest features

Most recently, *FB* has launched *Home, Graph Search, Gifts*, social context, hashtags[23], video for *Instagram*, and an ad network for selected mobile game publishers.

Cancelled features

FB has the advantage that they are able to roll out features to limited test markets first, before launching globally. This means that even if *FB* launches a terrible feature, they will get feedback fast, and

[21] ***Bitcoin*** is an internet currency, used to pay for goods online; sometimes illegal such as drugs and credit card numbers. Bitcoin is based on encryption mathematics, and the price of Bitcoin has fluctuated widely versus real world currencies.

[22] ***Hat Economy*****,** is the term to describe the virtual goods market in general. It stems from the highly successful, $50m market for virtual hats in the computer game *Team Fortress 2.* When users play, they see what hats other users wear, and having a cool, rare, new hat grants social status (Destructoid.com 2012).

[23] ***Hashtags [#]*** is the feature from *Twitter*, now imitated by *FB* that enables users to write the hashtag symbol: #, followed by a conversation theme, to add the status, picture, or other type of content to a wider conversation about that theme, e.g. #Valuation.

a single failed feature will never be seen by the majority of users. Examples of failed features are *Beacon*[24], and *Deals*[25].

Towards Advertisers

"Advertising is the lifeblood of the internet", quote: Susan Wojcicki, Senior VP, Advertising, *Google*. (Forbes 2013A)

Companies, products, celebrities, organizations, and many other entities create pages, groups, and profiles as well, and can advertise in the sidebar, or in the *News Feed* through sponsored stories – to people who like them and their friends. Advertisers use *Facebook Exchange [FBX]*, and/or other services to bid for ad space.

Facebook is moving steadily into the world of data-enriched, real-time digital ad sales. The unique value proposition of any social element to advertising from *FB* is to make a part of the viral marketing effect available for sale.

FB offers eight types of ads and regularly restructures their offering. These are: brand pages, display ads, sponsored stories, promoted posts; page post ads, mobile app install ads, log-out screen ads, and search bar ads. Each type of ad is described briefly in Appendix 1: *FB* Advertising Offering.

When a sponsored story appears in the sidebar, or in the *News Feed*, it informs the user that his friend likes a certain product.

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[24] ***Beacon***: *Facebook*'s largest failure to date is *Beacon*. *Beacon* connected *FB* to several online retailers, and automatically posted to *FB* what people purchased. Users could opt out, but the default setting was that purchases were posted. This resulted in one woman finding out her boyfriend had purchased a wedding ring, and many users had all the Christmas gifts they had purchased revealed to the recipients. *FB* responded slowly, but decided after two weeks to terminate Beacon. Home on Android is the latest failure.

[25] ***Deals***; the *FB* equivalent of *Groupon,* has been discontinued as well. In my opinion this does not mean that a deals offering is a bad idea, or impossible, it just means *FB* has better opportunities currently. Even beacon can be remade in a better way, and be a successful feature. Because *FB* has tried something once, and decided against it, it does not mean they will not try again another time. Some features require a population of users with more willingness to spend online, and/or less concerns for privacy. As users online behavior changes over time, some features that do not work today, become valuable.

Overall, *FB* stands as a nexus with a great offering towards employees, users, and advertisers, with skilled management. *FB* is a controlled company, and as controlled companies have historically performed 4.92% worse than non-controlled, I apply a 4.92% control penalty to *FB*'s share price.

7 Strategic analysis of sustainable competitive advantages

In this section the answer is provided to the thesis' first sub-question: what are *FB*'s sustainable competitive advantages? by going through resources and capabilities that have potential, with the VRIO framework.

For internal analysis, all the activities performed by *FB* and actors in its eco-system, to understand where resources and capabilities may reside, are analyzed. A list is created of all resources and capabilities that have been mentioned by other analysts, scholars, commentators, etc. Going through the list, I have subjectively rated each resource and capability with a score from 1-5 on V, R, I, and O. It is determined the most important are *ability to imitate* and *lock-in*. I have then worked through the list again and subjectively rated each; by how much they contributed to *ability to imitate*, and *lock-in*. Using Grant (2010)'s framework for categorizing resources and capabilities, specific resources and capabilities are combined into broader categories. In the following, the results of this analytical approach are presented:

7.1 Activities

To find where resources and capabilities that may be sources of sustainable competitive advantages reside, the Internet value chain developed by AT Kearney (2010) is further developed, to create the following map (Table 1), focusing on social media, rather than the internet as a whole.

Users, *FB*, advertisers, and developers each perform a different range of activities to make the *FB* user experience and revenue generation possible. The resources and capabilities that can be the source of sustainable competitive advantages for *FB* will mainly be found in their own activities, but it is necessary to include the external activities as well, as *FB* is following a strategy to move into some of the activities that are currently external.

Most user data, for instance, is currently entered in, manually by users. *FB* intends to increase the amount of information that is uploaded automatically, thus switching some activities from users to *FB*.

Table 1: Main activities performed by actors in *FB*'s eco-system

User	***FB* Core**	***FB* Support**	**Advertisers**	**Developers**
Create profile Log-in Create content Share content Communication Update profile and directory Use utilities Browse content Interact with content Switch and/or Quit	Maintain platforms. (Includes making *FB* available for new devices) Innovate platforms Add, remove, and/or change features Improve ease of use Improve aesthetics Receive data Store data Analyze data Innovate data analytics Use analytics to serve right content and right advertisements Manage marketplace for advertisements Manage relations to advertisers Manage relations to developers Test innovations locally Globally implement Innovations and imitations	Acquire, retain and motivate talent Scout eco-system and start-ups Public and Political relations	Analyze data Set campaign Manage Budgets Negotiate / take price Create ad campaigns Bid for ad space Manage ad campaigns	Choose platforms for apps & sites Develop apps & sites Market apps & sites Update apps & sites

7.2 Resources & Capabilities

7.2.1 Tangible resources

Financial resources

The $10.3b in cash and marketable securities that *FB* retains from the IPO, is a unique war chest that no other internet firm can readily match. This means *FB* can buy competitors, start-ups, and firms in one or the other end of the internet value chain, launch radically new products, make long-term investments, and more. Other companies in Silicon Valley, however, are also able to quickly raise financing for investments, and possibly acquisitions – so it is unlikely *FB* will be able to make better acquisition deals than competitors, simply because the cash is readily available. If a company or opportunity is attractive, competitors can bid as well.

Physical resources

Server economies of scale

Burleson Consulting (2012) provides an overview of technology speed and cost, and a more detailed history and forecast of *Moore's law*[26]. They forecast that by 2020 server and hardware costs for IT departments will be negligible. This means that the economies of scale currently held by *FB* in servers disappears.

Process economies of scale

Scale itself is a growing advantage for *Facebook*. Sophisticated social networking features cost money to develop. But every line of software code on *Facebook* can be used by far more people than a comparable line of code on any other service. On a per user basis, *FB* costs less to run and less to improve.

[26] *Moore's Law:* Gordon Moore, co-founder of Intel forecasted in 1965 that computing power would double every two years for at least a decade. The trend has continued until present, and is still used to forecast computing power in the future. Burleson Consulting (2012) provide a more detailed historical overview, and forecast for how internet technology speeds and costs develop.

7.2.2 Intangible resources

Lock-in

With strong user and developer lock-in, it is possible *FB* can continue to profitably grow, even without innovating, or maintaining other unique resources and capabilities. There are two components of lock-in: Network effects, and Switching costs.

Network Effect

Users are content as each user of *FB* makes the network more valuable to other users. *Google Plus [G+]* is not useful, because few other people use *G+*, while *FB* has high utility because many other people use it. This effect is referred to as network externalities, demand-side economies of scale, or network effect.

Network effects often do, as in the case of *FB*, cause a positive, reinforcing feedback loop (also called, positive spiral or bandwagon effect) in which more and more users are joining, because more and more users are joining, and user engagement for one user is increasing, because the user engagement of other users are increasing.

According to Metcalfe's Law, once a critical mass is reached: the bandwagon effect kicks in, and the network expands rapidly (Burleson Consulting 2012). For *FB*, critical mass has been reached both in breadth (number of users), and in depth (engagement of users). For some networks, another critical point is reached when the externalities of adding an additional user or hour of user engagement is no longer positive, due most often to technical bottlenecks, or market saturation.

Network effects are highly local. Only 10-15% of user's friends are from another location, than where the person is based (Ghemawat 2012). This is especially important in regards to *FB*'s potential to expand in China, where locally focused social networks have reached critical mass while FB continues to be blocked due to government censorship.

For another network to dethrone *FB*, there must first be an inherent value on which to generate network value. For *FB* to defeat *MySpace* and *MSN Messenger*, this was the creation of a real identity profile, which had inherent value even if only seen by a handful of friends. *FarmVille* also had inherent value, causing some users to use *FB* just for that and then reaping network value in addition.

Switching Costs

Each single user has a disincentive to switch as he/she will have few contacts in his network on the new platform, and its utility will be low as a result.

Disregarding network effects, there are still costs to an individual of switching to another social network. Firstly, a user can easily start to use, or simply create a profile on another social network while still using *FB*. Many users initially created *G+* profiles, and today they have a user base of 359m, though on average these users don't use their *G+* in practice (just 7 minutes per month). Entering your name, address, e-mail, creating new password etc. to create a profile on a new page is routine for almost all internet users and thus a minimal barrier. Over years, a given *FB* user has typed in a lot of useable info, chief of them: the list of friends and their groupings. Furthermore, a user may have typed in a long list of interests, such as favorite bands and films, places he/she has visited, sorted pictures in albums, etc. A user could switch to another network and still log on *FB* a couple of times per year to look at the old memories, while logging new ones in a new network.

High switching costs is a competitively defensive resource, rather than an offensive resource. As *FB* has market dominance, it is valuable to *FB*, and it is not important whether competitors imitate it, as they cannot use it offensively.

It may be considered unique historical conditions that users were able to import all their friends from *MSN Messenger* when creating a *FB* profile, along with other mistakes made by early competitors.

When *Twitter*[27] launched *Vine*[28], it went viral and many people were installing the app, and inviting all their *FB* friends to join as well. *FB* reacted within hours (24 Jan 2013) by shutting off *Vine's* integration with *FB*. Similarly, *Twitter* shut off contact import from *Instagram* in July 2012 (Mashable 2013).If *MSN Messenger*, owned by *Microsoft*, had acted similarly when *FB* started out, *FB* may never have taken off.

[27] *Twitter:* A close competitor of *FB*. Users write short statements of 140 characters or less, and broadcast them to other users who "follow" them. *Twitter* is especially popular with celebrities and politicians.

[28] *Vine*: is a mobile app to make creative, 6 second videos and share with friends.

For a person to successfully switch to a competitor – he must do so, not alone, but with a group. The important switching barriers in social media are: informing friends of new info, learning new interface, cognitive effort, and social risk. Other barriers that are often considered such as exit fees, equipment costs, financial risk, etc. are not important for *FB*.

Quitting costs

Switching, in social network terms usually means starting to use a competing offering instead, but it does not usually mean quitting. Some users seize to use *FB* actively, drastically reducing the number of times per month they log in, and the minutes they stay per log-in. Quitting entirely by deleting your profile is another matter. If you delete your profile you will no longer have access to all the data entered over possibly years, and furthermore you can no longer use *FB* to access any sites that you may have signed up for through *login-via-FB*. *Login-via-FB*, in this way serves to increase quitting costs dramatically, which is one of the reasons it is being offered for free to sites and apps.

Brands

Facebook, *Instagram*, and the *Like button* are strong, recognizable trademarks and brands towards users and advertisers. It is valuable that users instantly recognize the like button across the web to press it. Strong brands are not rare online, and many people know of competitive offerings, though they may not be using them. Thus the brand of *FB*, while valuable, is not rare, nor inimitable.

In May 2012, in the AP-CNBC poll (AP-CNBC 2012) 51% of Americans have a favorable impression of *FB*, while 23% have an unfavorable impression. *FB* lags behind perceptions of *Google*, *Apple*, and *Microsoft*, all at 71% favorable. Competitor, *Twitter* has only 27% favorable. Unsurprisingly, *FB* is significantly more popular with users, than with people who do not use it. 43% believe *FB* will be successful in the long term, whereas 46% believe it will fade away. Unsurprisingly, the belief in *FB*'s long term success is significantly higher among investors.

59% say they have little or no faith in *FB* to protect their privacy. Since PRISM revelations, I assume this percentage has increased.

Relationships

FB is opening offices around the world, just like *Google* has done, in order to build up relationships to advertisers. Advertisers must learn to advertise on *FB*, and make it part of their routine. This is a resource *Google* has built up, and which is rare. It is, however, not disproportionately costly to imitable,

which is what *FB* is working to do. As *Twitter*, *LinkedIn*, and other smaller social networks do not have the capacity to build up relationships to the same extent, it could be a source of economies of scale that both *Google* and *FB* will benefit from, but not others. It is, however, also likely that advertisers who have built up good relations to *Google*, will have an easier time to use *FB* as well, and similarly advertisers who come to trust *FB*, will easily migrate to other networks to advertise as well. *FB* is investing seriously in this resource, which lays the foundation for building up a contextual advertising network to compete with *Google*.

User information database

Big data relies on users and constantly feeding new services that make it worthwhile for users to give up more information.

FB's initial competitive advantage was that users used their real identities, making room for a whole new internet. *MySpace*, e-mail, *Friendster*, and all existing then, did not require or manage to make users use real identities. For websites and apps, this is also the reason why *login-via-FB* is useful, as *FB* is a trusted source of personal information and true identity.

Users trust *FB* and their network to deliver valuable content in return for their information, so that it is overall a good deal for them. In addition this grants *FB* the opportunity to create intelligence from big data better than any company in history, except *Google*.

Advertising Intelligence companies such as *Aggregated Knowledge* help the world's largest brands to aggregate big data from various sources to improve ad targeting. Big data comes from credit card data, site visits, publishers, and more.

The information *FB* has about its users is valuable, rare, in-imitable, and already put to use. This resource is also key to all the opportunities *FB* have going forward.

Culture

It is clear that the college style of working with lock-downs, crunch time, lots of red bull drinking, trying and failing etc. is working for many start-ups, and *FB* may be proving that it is a corporate culture that can scale. Whereas *Google*, *Microsoft* and many more conservative technology companies have proven that the more adult approach of avoiding all-nighters if possible, does work. The cultural resources of *FB* spill into their capability to acquire and hire good employees, and retaining and motivating them.

When *Google* lost several key employees to *FB* in 2010 they responded by increasing salaries across the board by 10% (Business Insider 2010). Retaining the start-up culture is a strategic key to attracting the best talent, along with acquisitions of other start-ups. Acquiring start-ups may in turn help retain the start-up culture, attracting more talent.

Human

Only a handful of firms effectively compete for the top engineers and visionaries, and *FB* is among them. *FB* has a strong position by hosting hackathons[29]. *FB* gained several skilled employees through non-traditional channels, early on, by for instance launching a tough puzzle online, and hiring all the people who could solve it (Kirkpatrick 2012). *FB* managed in 2010 to attract many of the most acknowledged employees from *Google* and McKinsey (Kirkpatrick 2012). The sustainability of *FB* must, however, come from organizational capabilities rather than individual, as any key person might leave, incl. *Zuckerberg*.

7.2.3 Capabilities

Testing features

FB can test potential changes on a small segment of their overall user population to learn about user preferences, before expanding new features and changes to all users. New ventures can be launched from *FB* beneficially because it has access to eyeballs and big data. For a feature to become popular it requires consistent focus and front page space. Few firms can code, test, and launch new quality features faster than *FB* during lockdown. With their resource, the large user base, *FB* is capable of testing new features on a large audience that is still only a small percentage of their entire audience, to optimize code, design, and overall determine if the new feature is a step in the right direction.

Customization and tailoring

Similar to testing features by using a small segment, *FB* can tailor more and more content and possibly even design in the future, to users individual tastes. Currently this is what happens in the news feed. In the short term, *FB* hopes for a trend for advertisers to tailor ads better, and finally in the long run, users may be able to customize or simply receive the individualized *FB* design they want.

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[29] ***Hackathon*** is a case competition for programmers, where participants typically work in small teams for 48 hours straight, to create and launch a feature, app, or other piece of software.

Market Scouting

FB can scout markets for new ideas, especially through sponsoring start-up competitions, to make sure that nothing strikes at their core business from out of the blue.

Hosting start-up competitions, hackathons, and participating in the venture community, along with being able to see what people are writing about on *FB* gives *FB* a strong insight into what trends and business ideas are emerging, which enables *FB* to meet new challenges and opportunities early on and acquire the right people.

Coding

Developing new algorithms, languages, file formats, and writing code that executes faster than others'. Making sure the API is capable of handling demands from developers, and that integration between features and external sites and apps runs smoothly. *FB*'s coding, and fast-failing culture means they can quickly imitate, integrate, and improve new features.

Data analytics

FB is capable of showing the right commercial and non-commercial content to the right person, at the right time, and location. *Moore's second law* predicts that in this decade the amount of information sent will increase by a factor 1000 (Kirkpatrick 2012); most automatically. It is more important towards advertisers than towards users, as community sites with democratic, rather than algorithmic content filtering have proven. Crowd wisdom is better or equal to any algorithm created to date in social media content, though not in search. The value of social context in ads shows that crowd wisdom may become more important than algorithmic tailoring for advertisers as well. *FB* is capable of adapting to the content distribution method that suits users and advertisers best. The data analytics capabilities held by *FB* now are rare, and as they grow they become harder to imitate. Data analytics are put to use, but much of the opportunity for *FB* lies in improving data analytics – to for instance offer better metrics to advertisers, and continuously improve content filtering.

Design

Zuckerberg has said that *FB* is not meant to be cool, but to be a useful utility, and that his goal was not for users to spend a lot of time on his site, but that instead people's lives would be more efficient (Kirkpatrick 2012). Today user engagement is a key metric for *FB* revenue, and *Zuckerberg*'s official opinion on the matter has changed (*FB* Q1'13; Earnings Call). *FB* efficiency is important in terms of loading speed, high quality user interfaces, and intuitiveness of new features.

Leading companies have already implemented the technological and graphic best practices (e.g. responsive design), so while many companies fail at this – the good ones that *FB* compete against can perform just as well and imitate anything *FB* may innovate. There is a certain lock-in effect to *FB*'s long efforts to teach users to use all their features, though the intuitions taught, can easily be imitated. Especially competitors chipping away at only one or two of *FB*'s features can create superior simplicity. *FB*'s simplicity is not translated to mobile well and they struggle to determine which features to remove. *FB* may consider making multiple apps, which they are in a sense, doing, by keeping *Instagram* separate and keeping the browser version a heavy complement to users that only use *FB Messenger* on mobile.

Whereas *Apple* has a design capability strong enough to be a source of sustainable competitive advantage, proven yet again with the presentation of *iOS7*; *FB* does not.

Imitate & integrate features

FB has proven multiple times it is capable of imitating innovations and integrating them well with *FB*. The most important examples are updating the status bar to resemble that of *Twitter*, the implementation of check-in to imitate Foursquare, video for *Instagram* to imitate *Vine*, and *Camera* – a near-copy of *Instagram* for *iOS* released just three months before acquiring *Instagram*.

Through market scouting, *FB* is able to notice early on, when a start-up or competitor has come up with a great idea. With coding, design, and data analytics *FB* is capable of launching new as well as imitated features, and test them on a large audience, before releasing to all users.

Furthermore *FB* is able to reach out to promising developers to help them integrate with *FB*, rather than attempt to build a new social network around their feature.

Product Innovation

FB's platform can over the next decade be improved in many ways: Better, more relevant advertisements, better privacy settings, new features, improvements to current features, further Integration of features (E.g. when sending a message, easily add location on a map, calendar invite), further cross-web integration, improved *EdgeRank* algorithm, the ability to switch between being public and anonymous (it is not likely they will do this, unless forced to by competition), split *FB* into multiple apps: e.g. one for feed and one for messages on mobile, use data analytics to predict user behavior and tailor user interface and suggestions, and implement easy voice call function like *Skype*. Many of these

innovations already exist from external developers, so rather than building these features themselves, *FB* can also choose to cooperate with the eco-system and help promote strong external features.

Process Innovation

It remains a question whether big data analytics, and the years of being the incumbent, will provide *FB* with difficult to imitate know-how. Every year *FB* finds new ways to optimize systems, tailor data to improve user engagement, test features and learn why they succeeded or failed etc. *FB* also develops skills in understanding how to tackle user complaints and even deal with political issues, etc.

Process innovation for *FB*, however, occurs mostly outside the black box, which means that it is visible to users and thus competitors, and potential entrants. Inside the black box is the optimizing of the *social graph*, the creation of shadow profiles, data management, etc. Which new start-ups, in particular, will find difficult to imitate.

7.3 Sustainable Competitive Advantages

Based on the preceding analyses, I consider *FB*'s sustainable competitive advantages to be from *lock-in* and *ability to imitate*. This means that *FB* can maintain dominance through users being locked-in through network effects and switching costs, as long as competitors cannot provide a strong enough offering for users to switch. For all other capabilities, *FB* can maintain complete dominance given competitive parity. Through strong abilities to imitate, *FB* is able to integrate the best innovations competitors make that could potentially cause users to want to switch.

8 Strategic analysis of Eco-system

In this section I analyze groups of actors in *FB*'s eco-system to gain an understanding of how *FB* sustains their competitive advantage through cooperation and competition with these actors, using their resources and capabilities, and to determine how much value *FB* can appropriate in their interaction. This section answers the sub-question: How are factors, at micro level expected to impact *FB*'s performance going forward?

FB's eco-system encompasses users, advertisers, other social networks, developers, suppliers, and operating systems. Together these actors create value and bargain over the appropriation of that value, with users appropriating the most. I analyze the eco-system in its entirety, but focus clearly on the first three actors.

The eco-system is in a sense a value chain, as users watch advertisements for e-commerce, while using features from external developers on a social network, in a browser or app-store on an operating system on their device.

8.1 Social Networks

While *Google* is moving further downstream in the internet value chain and researching more advanced technologies for devices and in artificial intelligence, *FB* is seeking to dominate the worlds of communication and advertising. Both are aiming to integrate their products broadly across and deeply into the fabric of the internet, becoming the hub of all advertising online and in the real world, and offering services – leveraging the new oil: Big data.

FB has attempted to integrate upstream into operating systems and into advertising intelligence. The attempt into operating systems has been by cooperating with *Android* for *Home*, and with *Samsung* and *AT&T* for a device with *Home* pre-installed. In advertising intelligence, *FB* has acquired *Atlas* and developed *FB*X.

FB's mobile twin: *WhatsApp*[30] is rising. And Reuters are suggesting *Facebook* could die the death by a 1000 *SnapChat*s[31] (Reuters 2013).

Internet residents (the people who use the internet a lot, defined in opposition to digital visitors) are turning to *Reddit*[32], *Pinterest*[33], and *Tumblr*[34] for a better community and content sharing experience.

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[30] ***WhatsApp*** is an instant message service for smartphones. It is free for one year, and thereafter costs $1 per year to use. Users can send any number of text messages to other users across the globe for free, and there are no advertisements.

[31] ***SnapChat*** is an instant photo sharing app for smartphones that enables users to take and send pictures to each other. A sent picture is automatically deleted 7 seconds after the receiver views it. This enables users to communicate via pictures that are fun for a moment, but not good enough and/or too embarrassing to be stored forever online. *SnapChat* does not have a revenue model.

[32] ***Reddit*** is a forum platform where users, mostly anonymous, post links, updates, pictures, and more, in different forums (known as sub-*reddit*s) such as *Funny*, *Politics*, or *Sports*. Users can up-vote or down-vote any post, and the posts that get most up-votes are displayed on the front page. Extraordinary users and celebrities, such as Barack Obama, host sessions called Ask Me Anything on *Reddit*, where users ask questions and the celebrity answers. If the celebrity gives great answers, the post is likely get many up-votes, and go viral. *Reddit* make stringent requirements to advertisers, and offer premium subscriptions to users for revenue.

In China, users are well endowed with offerings from local social networks and with further protection from the government against US social media – *FB* is missing out on a growth opportunity.

Except for China, *FB* is the dominant social network, and for anyone else to take over, it is not enough, to deliver something similar, or slightly better as lock-in is too strong. If a start-up, competitor or other, however, made something great to complement a social network, they could topple *FB*. For example, if users would gain access to a better group management tool, streaming services, illegal downloads, free internet, zero advertising, superior privacy protection, a chance to win prizes, a great game, or other strong value offering, a critical mass of users could switch to the new network; setting in motion a mass migration from *FB*. It is, however, not easy to imagine any such offering.

Alternatively, *FB* may become unpopular for a bad political move, a hacker-attack, change in privacy settings, launch of failed features, or similar, causing the lock-in to disappear temporarily. A new similar social network launching at the very peak of anger with *Facebook*, could reach critical mass.

The competitor that most resembles *FB*, is *Google Plus* [*G+*], and while largely considered unsuccessful, it is the network I expect would benefit the most, if *FB* were to disappear overnight.

Other successful social networks have distinct, different offerings than *FB* – giving them each a less broad appeal, such as *Twitter* for broad-casting statuses and *WhatsApp* for mobile only – instant messaging. As network effects are a key value driver in social media, the broad appeal of *FB* – gives them an advantage compared to niche competitors. *G+* has the same broad appeal as *FB*, but *G+* lacks the network effects from user base and engagement to compete with *FB*.

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[33] ***Pinterest*** is a platform focused on content sharing, and organizing, with approximately 75% female users. Users upload pictures of, for instance, fashion, cakes, handicrafts, and holiday destinations. Users scroll through a never ending feed of pictures and can comment and share them. Users enjoy getting inspiration from watching other's posts and being able to post a picture of, for instance, a cake to a community of people interested in cakes, rather than to all *FB* friends, out of which only a few people will find a cake picture interesting. *Pinterest* serves ads for revenue and limited social commerce.

[34] ***Tumblr*** is a micro-blogging site; acquired by Yahoo 20 June 2013. Users post content such as videos, pictures, and text to their blog, and see new updates of other blogs they follow. Blogs often have a topic or theme and can be completely customized by the blogger.

There are many social networks available and more may come given low barriers to entry. Many will, however, be unsuccessful given high barriers to success from network effects, imitation, and the winner-takes-all characteristic. To understand the social network landscape I have created a framework composed of 3 categories to describe a social network.

Table 2: Social Network Types

Content Ranking Mechanism	Network Type	Device focus
Algorithm	Public	Mobile
Crowd Wisdom	Interest Community	Computer
Specialists	Professional Network	
Private	Friends and/or acquaintances	

Content Ranking Mechanism

FB uses the algorithm *EdgeRank* to determine what is displayed as content for each user. Alternatively, *Reddit* is based on crowd wisdom, where users can either up-vote or down-vote content, and the more votes a piece of content receive, the more users it is shown to. Instead of an algorithm or crowd wisdom: Specialists, such as journalists, can decide what content is displayed. *LinkedIn* used to depend on specialists to determine which articles to distribute, but has in 2013 switched to an algorithm. Instant message services, such as *WhatsApp*, *Skype*, and *SnapChat* do not sort, and rank content. Users simply view everything that is sent to them by their friends, privately.

Network Type

The questions of whose content users view and whom they share with, is currently distinct, though *G+,* for instance, has attempted to unite all network types into one. On *FB*, *WhatsApp*, and *SnapChat,* the dominant network type is friends and acquaintances; on *LinkedIn* it is professional networks; on *Twitter* it is the general public; and on *Reddit*, *Pinterest*, and *Tumblr* it is interest communities such as *WorldNews*, *Fashion*, etc. where users do not know each other in real life, but share content because they have a common interest.

Device Focus

At present *FB* is 50/50 between being a computer vs. mobile phenomenon (Nielsen 2013). *Tumblr* is great for creating larger compilations of pictures and text that requires a larger screen and is therefore mostly used on larger screens. *WhatsApp* and *SnapChat* are exclusively mobile, though they could easily add computer functionality as well. Within a few years, I believe all good apps and sites will be available on all screen sizes, though the ones that focus more on creation and heavy text will be more prevalent on larger screens.

Communication Speed

It was previously an important distinction to consider speed, such as instant messaging vs. e-mail. Today this distinction has disappeared and speed is decided by users, not the program they use.

Content Type

Content type was also traditionally an important distinction, where *Skype* for instance was for video and voice, *FB* for pictures, and e-mail for text. Today; pictures, videos, and texts are mixed and shared across any platform, so it is not a good point for segmentation.

Table 3: Global Competitors

Company	Monthly Average Users [MAU]	Unique Value Proposition [UVP]	Content Ranking Mechanism	Network Type	Device Focus (Mobile / PC)
Facebook	1.155m in Q2'13. 1.080 as avg. for 13' LTM (13'Q2 10-q)	Size, true identities, interests and group directory	Algorithm	Friends	50%
Instagram	100m (Mashable 2013)	Easily take, edit and share pictures. Cool.	Algorithm	Friends	99%
Twitter	200m active users (techcrunch.com 2013)	Broadcast 140 char. Short messages. Popular with celebrities and for live-commentary for events	Algorithm	Public	70%
LinkedIn	178m (Quantcast.com 2013)	Professional network directory, online business card.	Algorithm	Professional network	19%
Google+	359m (Business Insider 2013)	Mix friends, coworkers, and larger communities. Integrated with the rest of *Google*'s offerings	Algorithm	All types in one	Not available (<1% judging from poor user reviews of app)
WhatsApp	200m (Business Insider 2013)	Simple and mobile, no advertising, 1 year free, and then 1 USD / year.	Personal only	Friends	100%
Reddit	40m (quantcast.com 2013)	Anonymous. The heart of the internet. Democratic. Communities.	Crowd Wisdom	Interest Communities	Not available
Pinterest	49m users (quantcast.com 2013)	Cute. Democratic, communities, approx. 75% users are female	Algorithm	Interest Communities	48%
Tumblr	216m MAU (quantcast.com 2013)	Blogs, celebrities, music.	Mix of all	Interest Communities	87%
SnapChat	5m users (quantcast.com 2013)	Send pictures that are automatically deleted after 7 seconds	Private	Friends	100%
Vine	<14m (quantcast.com 2013)	Creative compilations of 6 second videos.	Mix	Public	100%
Path	<10m (quantcast.com 2013)	Mobile only. Social network. Send IM's to any other social network.	Algorithm	Friends	100%
Skype	280m users (quantcast.com 2013)	VOIP and instant messenger	Private	Friends & Professional	Not available

Mobile/PC data from ComScore (2012) in BI Intelligence (2013).

Table 4: Major social media in China

Company	Users & Monthly Average Users [MAU]	Unique Value Proposition [UVP]	Content Ranking Mechanism	Network Type	Device Focus (Mobile / PC)
QQ (Tencent)	825m users (Tech in Asia 2013)	instant messenger, *QZone blogs*, and *WeChat*	All	All	Mobile focus
WeChat (Tencent)	400m users (Tech in Asia 2013)	equivalent to *WhatsApp*	Private	Friends	Mobile focus
Sina Weibo	503m users (Tech in Asia 2013)	A mix of *Twitter* and *FB*.	Algorithm	Public	Mobile focus
RenRen	178m users (Tech in Asia 2013)	*Facebook* equivalent	Algorithm	Friends	Mobile focus

Google Plus [G+]

G+ launched 28 June 2011 and is described by *Google* itself as different from other social networks, in that it is present web-wide and not just from a single site. This wording covers the fact that few people use their main site. *FB* is also available web-wide and you can press *Like*, anywhere you can press *+1*[35]. *G+* is the current attempt into social networking from *Google*; following *Orkut*, *Google Friend Connect*, and *Google Buzz*.

It is mainly the network effects that are missing for *G+* to be superior to *FB*. Most people have not edited their profile well, uploaded any pictures or posts, and do not use it altogether. *G+* is at least as simple and aesthetically appealing as FB, and it is easier to manage privacy. *G+* blends the community feature of *Reddit* and *Pinterest* with the communications and group management tools of FB. This indicates *Google* is capable of imitating and competing with *FB* on resources and capabilities such as coding and design, but do not have the network effects, and thus no use for defensive capabilities as switching costs, and no gains from being able to imitate.

Google have made many mistakes with *G+*. Firstly, *G+* failed to gain even ground with *FB* as it launched at the peak of *FB*'s popularity, rather than at an interface upgrade, when people are confused by a new *FB* design. Secondly, their prime focus was, and still is hangouts, which is group video chat already

[35] ***"+1"*** is *Google Plus*' equivalent of *Facebook*'s *Like button*

known from *Skype*. To most users, *Hangouts* is a fun feature to use once in a while, but not on a regular basis and thus not a strong focal point to build the network around. *G+* could have also used an old *Microsoft* strategy called *Embrace, Extend, and extinguish*; and allowed people to login with *FB* to a few *Google* services integrating with *FB*, sharing data with *FB*, and taking them on in all out competition. I believe *Google*, at the time, was not willing to risk their overall business model and dominance in search, to win the, currently, less attractive market of social media.

Twitter

Twitter has gained prominence as a broadcast and live-commentary platform. While most social media residents wait till after an event to post about it on *FB*, a more active minority tweet during the event.

A core function of *Twitter* is the hashtag that enables users to link content to multiple ongoing conversations. *FB* has now implemented hashtags.

In February 2013, *Twitter* launched the 6 second video app *Vine*, and in April 2013 has launched *Twitter* Music for iOS. It is rumored that *Twitter* will reach $1b in total revenue in 2014, all from ads (The Telegraph 2013). *Twitter* is seen by many as *FB*'s biggest competitor, and if *FB* had not imitated the status bar, it could have been a closer race. Overall, I consider *Twitter* more of a broadcast forum, than a strong social network, and *FB* has proven three times that it can successfully imitate an innovation from *Twitter*.

Substitutes / other competition

According to McGrath (2013) competition today is likely to come from outside the industry. Competing for time spent across devices, are activities that do not run on, or simultaneously to *FB*. While *FB* is visual, music is audio and runs well in the background. Voice conversations, however, replace a feature of *FB*: communication, which makes *Skype* a dangerous substitute, albeit also a cooperative ally, owned by *Microsoft*. *FB* can move into the realms of, integrate with, or risk competition from games, apps, *Skype, YouTube* (owned by *Google*), *Google Calendar,* and *Google Maps*. With the acquisition of *Waze*, *Google* is dominant in maps and if it becomes a necessity for social networking, it could pave the way for *G+* to take over. Overall *FB* always has the opportunity to embrace substitutes, by letting them use *FB* for the social context, and letting the substitute provide their service; sacrificing user minutes for lock-in. With Maps, *FB* is meeting *Google* head-on, having linked *Graph Search* to a map that may develop to a competitive offering, if small businesses and organizations begin to use it.

Sub-conclusion

FB is the dominant social network and can maintain this position against the current level of competition. I estimate the relative market shares will remain similar to what they are in 2013 and all will share in the general growth of social networks and online advertising. All the social networks are changing with technology and so past distinctions, such as social media focused on text vs. pictures, slowly disappear. If crowd-wisdom or another content ranking mechanism proves to be superior; *FB* can imitate and avoid losing market share.

8.2 Advertisers

Advertising is another eco-system composed of large and small companies, brands, advertising agencies, online ad exchanges, data analytics firms, etc. Advertising revenue accrues to *FB*, mainly from these firms. There are currently more than one million active advertisers on *FB*, including all of the AdAge 100. Half of US small businesses have a *FB* page and 16% buy ads (Nielsen 2013).

Advertising on *FB* is valuable both for the direct sales, the brand effects, and for data creation. About 45% of consumers reached by advertisers online saw ads exclusively on *FB*. *FB* drove 24% more sales to new customers than other online ads (CNBC – Big Data 2013). It costs advertisers 68% less to acquire a new customer with ads on *FB* vs. average online ads. *FB* is a critical component among finance, telecom, retail, and auto brand ads. The largest advertisers in social media are financial services, travel & leisure, consumer packaged goods, information, computing, electronics, and retail (eMarketer 2013B).

Mobile and social media ads are less popular than any other type of ads except non-opt-in e-mails. 49% of US internet users have a favorable attitude towards TV ads, while only 9% and 13% respectively have a favorable attitude towards mobile and social media ads (eMarketer 2013B).

The current trends in online advertising are big data, real time, content marketing, native advertising, tablet video advertising, social-mobile shift, and a multitasking audience (eMarketer 2013B). Real time data analysis has enabled real-time buying, to automatically buy and sell ad impressions. Multiple ads can be launched and automatically switch to only use the one that is most efficient according to metrics. With social media, marketers respond to customers' comments and complaints quickly. Social analytics are used to quickly develop content. Content, posts, and other marketing material are themed to trends such as news events and topics. Campaigns are balanced on-the-fly based on online conversations. According to eMarketer (2013B), real time is not really new, it is just faster than ever before.

There is a so-called “click-through conundrum” and resulting “metrics morass” Nielsen (2013). This means that most agencies and media sellers believe click-through rate is an important brand impact metric, whereas the majority of advertisers believe it is an irrelevant metric.

FB might be good at branding and generating word of mouth (positive and negative) but the true cost or benefit of this to advertisers is still unknown.

In 2013, 63% of marketers state they will increase their online brand advertising budgets, with 20% reporting that those budgets will grow by 20% or more (Nielsen 2013).

Chief Marketing Officers [CMO’s] plan to increase mobile, social media, and video advertising, while maintaining or reducing rich media, standard display, and Connected TV / IPTV[36] (Nielsen 2013, p6). *FB* focuses their ad offering improvements in mobile and video as well, in line with CMO demands.

Advertising on *FB* is not just valuable for the advertising itself, but also for the data it creates for the advertiser. Advertisers can clearly see how different groups react on *FB*, and then use that knowledge to focus their broader advertising efforts.

According to Nielsen (2013), the biggest challenge facing the continued growth of brand advertising in the digital medium is a perceived lack of ability for brand marketers to measure the effectiveness of their efforts, in a consistent manner across platforms, using metrics they understand. When asked about the most appropriate metrics needed to measure return on investments, top answers among marketers were sales, and brand lift (Nielsen 2013).

Given the metrics-morass, the best practice to measure performance of online advertising is with split-testing. Advertisers split their audience into two groups (for instance by region), and advertise only to half of them, then wait to see the sales and brand impact by traditional metrics, such as surveys. The problem with this approach is time consumption. Most brand marketers furthermore believe that post-campaign reports do not suffice. Only 36% of brand marketers feel they have the right amount of campaign effectiveness data, 45% of marketers feel they don’t have the data they need to effectively

[36] ***Internet Protocol Television [IPTV]***, IPTV means TV connected to the internet, such as *Apple* TV, and *Google* TV.

evaluate the performance of their campaign. 19% feel they are drowning in irrelevant data. Less than 37% of agencies and 47% of media sellers report having the right types of data to evaluate brand campaign effectiveness.

According to Sashittal, H.C. & Sriramachandramurthy, R. & Hodis, M. (2012), it will take eight years before sufficient data on social media advertising is created to understand brand effects. Given big data and analytics capabilities I estimate *FB* will be able to provide the metrics requested by advertisers, within 2-4 years.

8.2.1 Bargaining power of the advertisers

The advertising industry, in most countries, is dominated by Omnicom, Publicis, Interpublic, and WPP Group (Marketline 2013; Advertising)[37]. The largest advertising companies, agencies, ad intelligence firms, and ad campaign software firms command significant bargaining power over online advertising, which they translate directly into volume discounts, or an angry walk-away in the case of General Motors [GM], just prior to the IPO (As of April 2013, GM has recommenced advertising on *FB* (Mashable 2013B). For the wide majority of advertisers, advertising on *FB* represents 1%-10% of their ad budget. The US ad agency market is not concentrated (Ad Age 2012). The largest US agencies are owned by fewer large holding companies that are owned by the large international holding companies. Towards clients they act uncoordinated with intra holding company rivalry, but towards suppliers such as TV, radio, outside display groups, *FB*, and *Google* – they bargain at group level (Shedd 2011). On the other hand, *FB* and *Google* command significant share of the online advertising space, and if the large advertisers push for very low prices, there is perfect competition among smaller firms and advertisers to fill in gaps. Advertisers have complained that *Google* held too much bargaining power, controlling 70%+ of online ad real estate and cooperating with Yahoo. Overall I therefore think the relative bargaining power of advertisers compared to *Google* and *FB* is low, and *FB* and *Google* can capture 80% of the value from better metrics and ad richness through higher prices towards advertisers.

[37] Omnicom and Publicis have announced they intend to merge (Bloomberg 2013B).

8.2.2 Online Ad Pricing

FB is capable of increasing ad pricing significantly over the entire forecasted period given bargaining power position towards advertisers, better ads, better metrics, and by improving the pricing model.

FB earns $0.20 per thousand impressions [CPM] on global average. Consumer electronics and personal finance in the US pay most at $1.09 and $1.03 respectively. Recently *FB* introduced Cost per Action [CPA], to allow further metrics options for pay-for-performance.

Pay-for-performance in advertising is a misleading term. Pay-for-performance means the advertiser pays depending on the results of his marketing campaign. The results are a function of how well the website displays the ad, and how well the advertiser chooses his audience and the quality of his ad campaign.

Risk-averse advertisers prefer to pay-for-performance, to shift away risk and incentive from themselves to the website. This was especially the case when online advertising was new and advertisers needed to see results before paying anything.

Today, *FB* and *Google* are well established, and they are incentivized to maximize revenue from all their campaigns. Paying-for-performance creates a perverse incentive structure for the advertiser, however, as they for instance choose to pay per click (CPC), and then create an ad that is meant to be seen, but not clicked. When advertisers pay for performance, it also means that they are not punished for making bad ads, and their reward for making a great ad is reduced, as it also increases the number of clicks and thereby the cost.

Despite pay-for-performance being a curse upon online advertising, it has grown at 7% CAGR from 2005-2012, at the expense of CPM, and hybrids.

Google and *FB* will likely continue to allow advertisers to choose the pricing plan they prefer, and they will continue to choose the lower risk – lower incentive options. A world without pay-for-performance advertising would benefit *Google* and *FB*, the good advertisers, and the users. It is not clear if *FB* and *Google* will drive the change though. As long as major ad revenue is still allocated to traditional media, it is more important for *FB* and *Google* to attract risk-averse advertisers into the online space, before incentivizing them to improve ads. Better ads, however, will turn into better returns, which will attract more advertisers.

Displayers and advertisers are generally, and over the long run, incentivized to both maximize performance and create quality ads that are displayed to the right users. Different pricing structures do not remove this underlying incentive, but it does skew it significantly in one direction or the other - to higher vs. lower quality ads, more vs. less revenue for all parts involved, and risk of advertiser vs. risk of displayer. I have created the following model to provide an overview of the incentive structures created by different pricing models:

Table 5: Pricing Model – Incentive Overview

	Incentive for Advertiser	**Incentive for Displayer**	**Measurability for displayer**
Per Impression	High-powered as Good ad = same cost, but higher revenue Bad ad = same cost, low revenue	Low-powered	Easy (but hard for advertiser to measure how much attention was actually paid to the ad by non-clicking users)
Per Click (pay-for-performance)	Make ads that are not meant for clicking, but just to be seen Low-powered as Good ad = higher costs, higher revenue Bad ad = lower costs, lower revenue	Trick users into clicking High-powered	Easy
Per Sale (pay-for-performance)	Very low-powered Advertise just for branding, not for traceable sales	Very high-powered	Hard (as transaction occurs outside of ad displayer's site)

Overall, while a better pricing structure would create value for all actors, I believe the trend will not reverse for the next years and thus provide no additional revenue to *FB*.

Misrepresentations of data affected by ad-blocking software, tricking users to click etc. cause impressions and click rates to increase, but lowers conversion rates and brand value metrics. The skilled

advertiser will quickly spot a drop in conversion rate, trace the source, and consider this in his valuation of his ad campaign's success and adjust his bids accordingly.

Sub-Conclusion

Advertisers compete for ad real estate on the internet; provided mainly by a few large companies such as *Google* and *FB*. This means *FB* is capable of capturing most of the value. *FB* allows advertisers to choose their own pricing model and they tend to choose low-powered incentive structures under the misleading name: pay-for-performance, which overall hampers value creation for users, advertisers, and *FB*.

8.3 Users

There are as many addressable users as there is internet penetration. Social media is free for users, except for the price of investing time, giving data, and seeing ads, in these terms, however, social media can be considered “expensive”. Consumers get a large share of the value created by social media and are not squeezed economically, though possibly with respect to time, privacy, and ads. With respect to backward vertical integration, we may in some years see users developing their own democratic, crowd-sourced social networks, rather than relying on the business-run social networks.

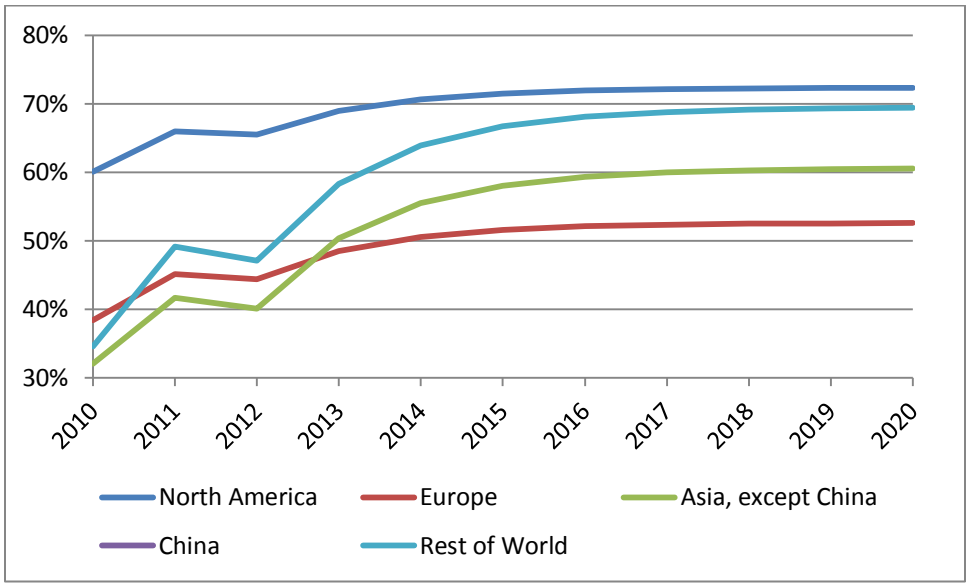
A declining, but still existing rule of the internet is that the first dollar is the hardest to get customers to pay. *FB* offers, and has promised to always offer, their platform for free. Switching costs mean that users are willing to accept advertising and transaction fees to a large extent, unless a competitor is able to offer a significantly better product or feature in an arena than *FB*. As transactions on *FB* is a marginal amount of app-user’s total expenditure, and even just online expenditure, there is similarly to *Apple*’s and *Google*’s app stores, bargaining power enough to charge a fee as high as 26% on transactions for *FB* currently.

Facebook is in the minds of people and checking for new notifications and messages causes a release of addictive pleasure chemicals in the brain, causing users to check the site more often than they would like to (Kirkpatrick 2012).

Sashittal, Sriramachandramurthy, & Hodis (2012)’s study of 18- to 25-year-old college students suggests that, in addition to staying in touch with friends and relatives, *FB* users are primarily motivated by three underlying desires: 1) to voyeuristically peak into others’ lives, 2) to create a distinctive identity for themselves, and 3) to act on their inner narcissistic tendencies. "Public displays of connection" serve as

important identity signals that help people navigate the networked social world, in that an extended network may serve to validate identity information presented in profiles (Boyd & Ellison 2007). Overall, users mainly talk about and engage with brands on *FB* that are part of their image (Sashittal, Sriramachandramurthy, & Hodis 2012). User engagement and *FB* penetration rates have continued to grow through all years, through all demographics, through all regions, except, for US teens, which have had steady user engagement in 2013 LTM (*FB* Q2'13; Earnings Call).

Figure 2: *FB* users as a percentage of internet users [*FB* Penetration]



I estimate *FB* will be able to continue to increase *FB* penetration in all regions. For North America where *FB* penetration is already at 73%, I expect they will only be able to grow penetration at below the rate of aging, as new teenagers sign up and old people die[38]. For other regions, I expect penetration growth to follow the US historic trend, so that a region with X% penetration will grow at the rate as the US at X%

[38] Global internet penetration statistics from Datamonitor (2013) and KPCB (2013) are out of the total population, including children. Children under 13 are not allowed per user agreement to have *FB* accounts, but still: 34% of UK 11-13 year olds have *FB* accounts (Guardian, the 2013A). I use this number as a global proxy. 17% of global population are thus outside the scope of *FB* because of their age.

I expect growth at stability below rate of aging, as I assume seniors are less likely to be internet users, than new teenagers.

penetration. The overall number of users grows by the *FB* penetration multiplied by the growth in the number of internet users in the region. Using this method, I forecast a more conservative user base of 1.6b MAU in 2020, compared to consensus estimates of 2b.

9 Macro level strategic analysis

In this section I analyze the macro trends that impact *FB* and can be the sources of their growth or decline. The section is split into four subsections: Political, Economic, Social, and Technological. The purpose is to show how *FB*'s resources and capabilities are used to navigate macro trends. The section aims to answer the research sub-question: "How are factors, at macro level expected to impact *FB*'s performance going forward?"

9.1 Political

In this subsection I analyze the political macro trends that impact, or may impact, *FB*. I consider the most important trends: PRISM, the blockade of *FB* in China, the data protection directive in the EU, and the creation of FWD.US. While *FB*'s role the two previous US elections is also an interesting topic, I considered it less significant and thus outside this thesis' scope.

9.1.1 PRISM

With Edward Snowden's leak about the NSA's secret surveillance of all online activity including *FB*, public sentiment may shift to favor more privacy legislation, and users may start to think more carefully about what is posted online, which would cause the amount of personal content put on *FB* to decrease.

On 14 June 2013, *FB* became the first internet company to release aggregate numbers of government info requests. *FB* received between 9,000 and 10,000 U.S. requests for user data in the second half of 2012, covering 18,000 to 19,000 of its users' accounts (Reuters 2013). While there has been widespread outrage over PRISM, it has not had significant effects yet, which indicates *FB* has once again survived through public outcry and proven their robustness.

9.1.2 China blockade

Considering PRISM, it is easy to understand why leaders in Beijing prefer to let their population use only Chinese services that they can monitor and influence, and that the US government cannot. Schmidt (2013) considers US and China in a cyber-war. One consequence of this is that the largest American

online players are refused access to the Chinese market, directly. *Google* and *FB* are only available in China through the Hong Kong site.

China has the world's most active environment for social media; from social-networking sites, to micro-blogs, and other online communities. China's online users spend more than 40 percent of their time online on social media, compared to 18% for the rest of the world. Because many Chinese are somewhat skeptical of formal institutions and authority, users disproportionately value the advice of opinion leaders in social networks. Many Chinese use social media as an alternative to regular news channels as traditional media are more heavily biased and censored. Sina Weibo has been the news source for many recent scandals which were otherwise held back by the media (e.g. 2011 train accident.) China's social-media sector is very fragmented and local (McKinsey Quarterly 2012).

Wolf (2011) offers a strategy for *FB* to enter China that would work in my opinion. It includes accepting government snooping, being open and up front about this, *Mark Zuckerberg* moving to China, and building *FB* distinctively Chinese.

I expect *FB* will not make it into China for at least another four years. If *FB* does, it faces very tough competition from social networks that are functionally as good as *FB* and have network effects in China. As VK[39] has been able to withstand *FB* in Russia, I find it plausible that *Tencent* and others will be able to resist *FB* in China for at least six years. Overall, success in China requires large investments; first in global policy changes and secondly to compete with the large Chinese incumbents. *FB* can grow in China through acquisition, but Chinese incumbents can likewise grow outside of China through acquisition, and overall – this path cannot be expected to yield positive NPV for the acquirer. I include organic success in China in the best case scenario, in section 11.4: Scenarios and Sensitivity Analyses, but not in the base case.

[39] VK, originally named VKontakte, is a Russian social network with 43m DAU in 2012. VK is extensively used to share pirated material.

9.1.3 Data Protection Directive

On 25 January 2012, the European Commission unveiled a draft European General Data Protection Regulation that will supersede the Data Protection Directive. There has been a struggle over the changes where the EU on one side has wished to limit the length of time that database holders may keep data, implement rights to inquire over databases, rights to require changes and deletions in databases, and implement rules to enforce privacy settings. *Google* has spearheaded the opposition and has been successful. It remains to be seen whether the struggle is over, or there will be more political will to protect privacy and personal data online, especially since PRISM. I expect *FB* will continue to rely on the high level of lobbying by *Google*, to protect firms' capability to use and store user data. Any process set in motion in the EU Commission, or Congress is likely to take several years to implement which means the effects can be negated by derailing the process, or using the years to create technological workarounds.

9.1.4 FWD.US

Officially, *FWD.us* is a political lobbying organization started by leaders in the tech community, incl. *Zuckerberg*. *FWD.us* first aims are to promote comprehensive immigration and education reform (FWD.us 2013). Comprehensive immigration reform means making it easier to hire immigrants. Education reform means reform to produce more graduates in the science, technology, and math fields. Furthermore FWD.us will lobby for scientific research support for Silicon Valley. The tech leaders have public support in this matter, though it remains to be seen whether it can be harnessed for lobbying power. With immigration and educational reform, the Silicon Valley companies are trying to expand their recruitment base, which gives access to a greater pool of talent at more competitive salaries. Results from this initiative are likely to occur for all of Silicon Valley rather than *FB* in particular, and also the effects are likely to be in the long run; at least more than five years away and likely closer to fifteen. I consider these lobbying efforts as regular expenses, rather than investments.

9.2 Economic

Datamonitor (2013) forecast GDP, the number of internet users, and other useful data for understanding the economic environment *FB* will operate in. In the valuation, GDP / capita is used as a component for estimating ARPU in the different regions. Internet users multiplied by *FB* penetration gives MAU. Beyond 2025, I estimate free cash flows will continue to grow at global GDP growth estimate: 6% (Datamonitor 2013).

Figure 3: GDP (Millions USD) [40]

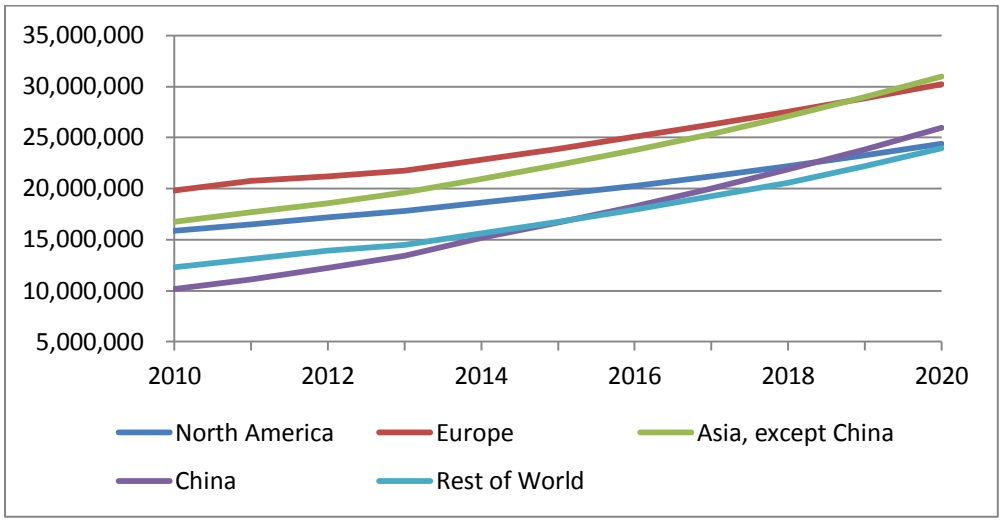
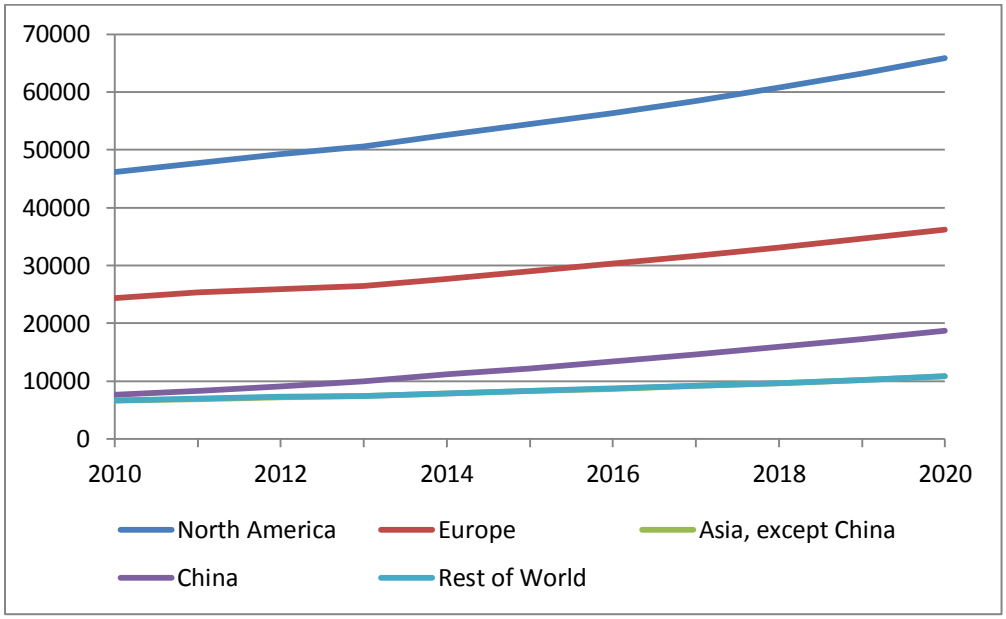


Figure 4: GDP per Capita (USD) [41]



[40] GDP, current, nominal, year-over-year exchange rate measured in Millions USD. Source: Datamonitor (2013)

[41] *Asia, except China* and *Rest of World* are almost identical, why they are impossible to distinguish on this graph. Source: Datamonitor 2013.

Figure 5: Internet Penetration (percent of population) [42]

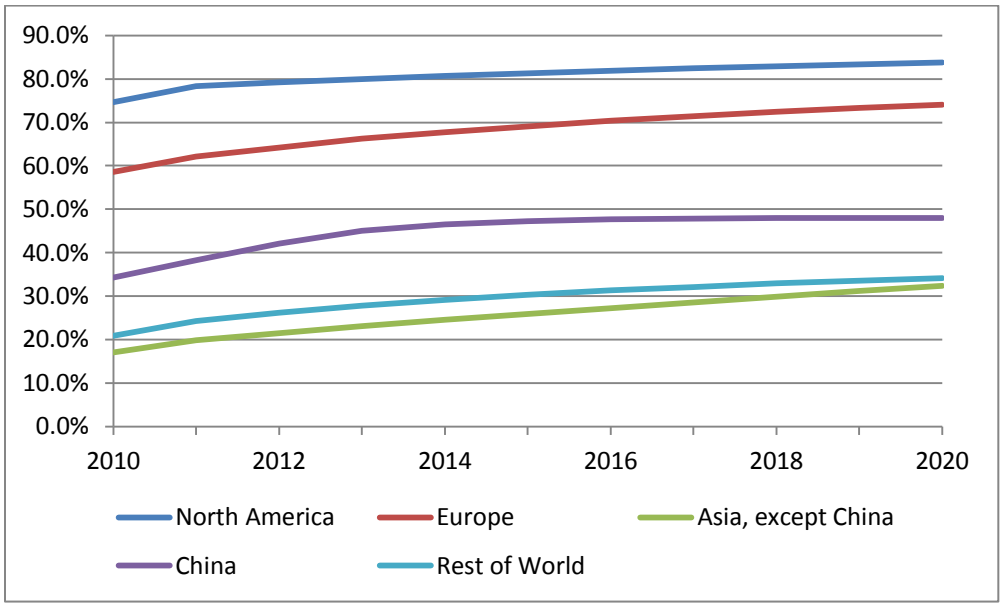
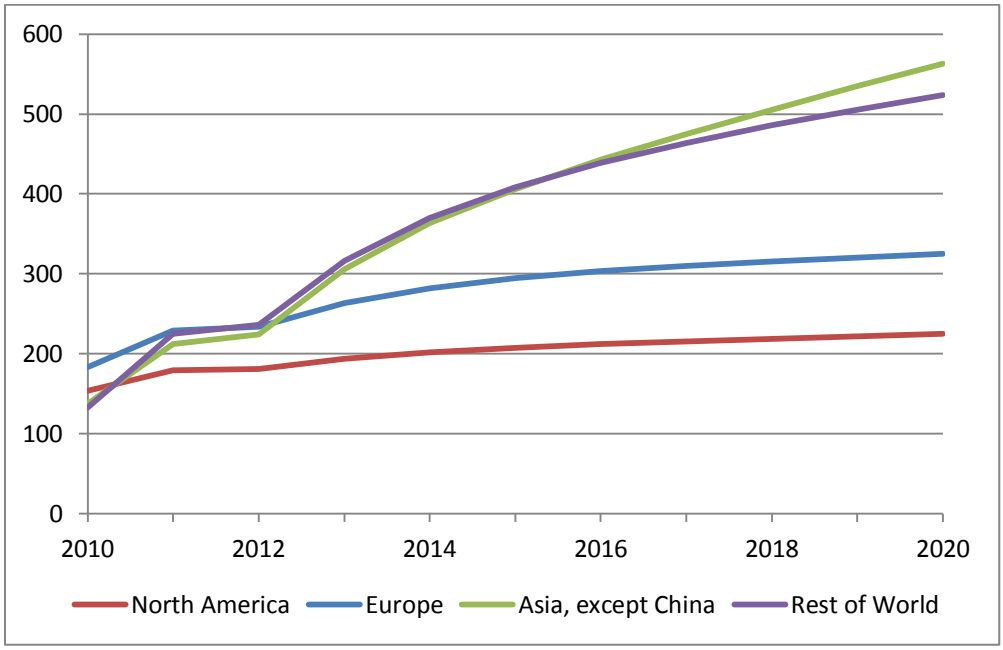


Figure 6: Facebook, Monthly Average Users [MAU]



[42] Source: Datamonitor (2013)

More and more people are learning to code, which increases *FB*'s source of talent. Data warehousing, internet connection, cloud storage, etc. becomes cheaper and more readily available. At first this should mean lower costs for *FB*, but it also means their scale and complexity advantages are eroded. If everyone is capable of programming their own social network, *FB*'s platform may seem less impressive, and competition could become rampant. These trends affect *FB* negatively, as the savings are eroded by increased competition.

9.3 Social

For the analysis of social trends for most other companies – the focus is on the rise of *FB*. The social trends with largest impact for *FB* are how traditional social values adjust to the internet: Parent-children relations, the spectrum from friend to acquaintance, and networking as a core competence in business life. Most issues in these regards have over the past decade been tested and discussed in one way or another, and so I expect most issues that would arise from the coming of social media have already happened. The ones that are new – have mainly been covered in the political analysis, except for the following.

FB has multiple times received criticism when changing privacy settings with the intent of getting users to share more data and be more transparent. As of 2013, *FB*'s privacy settings have become much more user friendly, proving *FB* has taken the new stance that when users know exactly what they share with who – they are more inclined to share. Advertisers can use people's data to advertise to their friends, which most users to not notice and can cause future outrage. *FB* has consistently been able to change privacy settings and revoke changes, if they prove too unpopular. If the current issues prove detrimental, I expect *FB*'s approach will be no different than in the past.

As the world gets flatter, *FB* likely benefits compared to competitors with regional strongholds that rely on government protection from competition.

As the majority of people get better at using technology, it is likely more will be aware of services such as ad blocking software that are detrimental to *FB*'s ad based revenue model.

FB fatigue is the concept of users getting tired of using *FB*. A small decline from peak interest levels was visible among teens in the US, in Q1'13, but in Q2 *FB* states that there has been no decline, only steady user engagement. A majority of *FB*'s revenue is from advertising, and advertising is traditionally cyclical, with very high income in Q4, and very low income in Q1, as well as an unlevered industry beta of 1.7. I

expect *FB* will continue to see a decline from Q4 to Q1 in income, due to advertising's cyclicality, and that news media will continue to report this, as if it was indicative of a general sign of decline.

Successful migration from *FB* will have to be a mass migration, which at *FB*'s size now would be considered a huge, global, social movement. Online mass migrations have previously happened away from *MySpace* to *FB*, and from ICQ to MSN Messenger. What took one year to unravel a decade ago, might only take a quarter today. *FB* has better resources and capabilities than these predecessors and thus is at lower risk, but it must be noted that if things start to turn bad, it can happen very fast.

9.4 Technological

9.4.1 Ad Blocking Software[43]

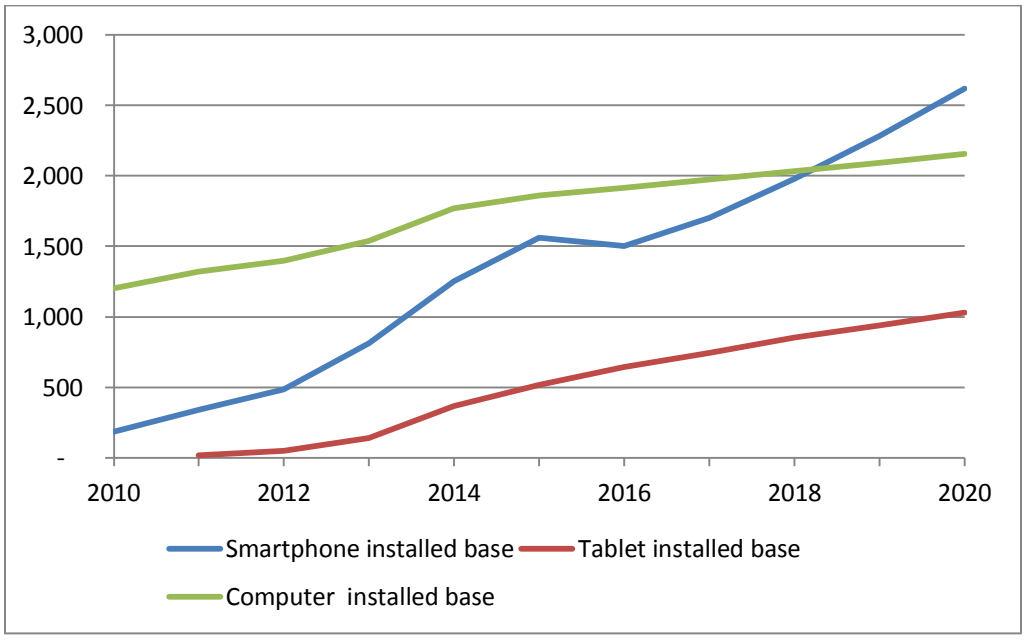
The *AdBlock* extension for *Chrome* currently has 15m out of the 1b users and *AdBlock Plus* has 10m. *AdBlock plus* has been downloaded more than 200 million times, across browsers, but it is not publicly listed how many currently use it. *AdBlock Plus* extension for *Firefox* has 15m users out of 480m users. According to ClarityRay (2012), 9.26% of online ads in the EU and US are blocked. Ad blocking varies largely from country to country, site to site, and browser to browser: 22.5% block in Austria, but only 6.92% in Denmark; *Internet Explorer* at 3.86%, 10.06% for *Chrome*, to 17.81% for *Firefox*. There appears to be no correlation except browser use per country that accounts for the variance between countries. This is a severely under-researched topic, as rapid increase in use of ad blocking undermines many internet firms' current revenue model, including *FB's*. ClarityRay's 2012 study is the only public research into the topic, but as they provide services to change ad types to circumvent ad blocking, they are biased to exaggerate how many use ad blocking. Given that only 25m use AdBlock or AdBlock Plus on *Chrome*, which is 39% of all browsers, and that the use for *Firefox* was 17.81% in the ClarityRay Study, and *Firefox* makes up only 18% of global browser use, I calculate that no more than 4%, globally, block ads. Ad blocking is accounted for in CPC rates, as it directly impacts the conversion rates. For CPM: rational, informed companies compete the price to the level justified by metrics such as conversion rates, thus taking ad blocking into account.

[43] Ad blocking software is a program that runs in a person's browser and makes ads disappear. The most popular Ad blocking software is AdBlock for the Chrome browser.

9.4.2 Devices

People today pay a lot of attention to mobile, as there is mass market growth. There is excitement about how on-the-go time can be made productive or at least entertaining. To scout for the biggest revolutions, however, I do not consider mobile the place to look. The biggest digital revolutions are initiated on small, but growing sites all over the web, by digital residents who are in front of their computers 8 hours+ per day, and are rarely on the go.

Figure 7: Global Installed Base by device[44]



eMarketer (2013) finds that ads on tablets are more attractive to both audiences and advertisers. "Video consumption occurs when people are relaxing, say in the evening". For social media overall, use in 2013 is 60% computer, 10% is tablet, and 30% smartphone, which is similar to installed base, except for significantly more tablet use. Though no data is available for *FB*, by assuming the smartphone/tablet ratio is similar for *FB* use as for other social media, I estimate 13% of *FB* use is through tablet. I expect use of *FB* through smartphone, tablet, and computer to follow the forecasts for installed base.

[44] Trefis (2013B).

Revenue decline from smartphone shift

An additional smartphone hour of use adds revenue, but for each person who increases smartphone use of *FB* at the expense of *FB* use from a larger screen device, *FB* loses revenue. I estimate one US user is worth 3.6x less when using a small-screen device such as a smartphone, compared to a larger screen device such as a tablet or computer, adjusted for income effects for owning different devices based on FB Q2'13; 10-q, and Nielsen (2012). I have estimated this difference to be cut in half by 2020, as small screens become slightly bigger, and live-location is used for better ad targeting. Using 2013 as a base year, I have estimated *FB*'s revenue as if this device composition would continue, and deduct on average 1.24% from ARPU growth for the trend towards smaller screens.

After 2025, I estimate the multiple will be 1, as wearables or another technology has made the screen size distinction history.

With *Glass*, *Google* is attempting to change the way we use computing power and internet while on the go. Currently, it seems to be an inconsequential innovation, as most reviewers find it annoying to have voice control as the only control option. The power *Google* can exercise against *FB* if *Glass* is successful does not appear to be significantly different from what they can exercise with *Android*.

Mass market voice recognition software still has a long way to go, as proven by the general dissatisfaction with *Apple*'s *Siri*. With total sound focus, the ability to show ads visually is reduced, but if *FB* must implement voice and other sound features, they should if necessary also be able to introduce sound advertisements just like on radio. This would be another disruptive innovation *FB* can imitate and remain dominant.

9.4.3 Encrypted communication

Currently methods for communicating, without the National Security Agency [NSA] snooping, is not sought after by mass-markets. It seems that if the public should become interested enough to make a mass switch to a new encrypted communication tool, there would be enough public sentiment to make law changes instead. I therefore do not think it matters for *FB* whether there is significant technological progress in communication encryption or not. Also, if encrypted communication becomes significantly sought after; FB can imitate.

9.4.4 Malicious hacking & technical risk

All major sites face the threat of a hacker attack. Security is more important when credit card numbers and bank accounts are involved, which is the case for *FB* with *FB Credits*. The coding capabilities of *FB* makes it uniquely positioned to withstand and quickly respond to any hacker attack, but its large user base and 9 million apps, makes it vulnerable and difficult to keep problem free. Furthermore, hacking *FB* would be an impressive accomplishment – which means many white hat hackers[45] attempt it to show their skills to the world, and possibly even get a job at *FB*. When Sony PlayStation was hacked, and 77m customers' credit card numbers stolen in 2011, they were forced to shut down the PlayStation network for 24 days. Sony estimates its total losses from the affair at $171m (Schreier 2011). *Facebook* Payments Inc. is a ring-fenced subsidiary of *FB*, so that losses can be minimized from a hacker attack. As only 27m people used *FB* Credits in 2012, I expect a hacker attack to *FB*'s credit card number database, would result in losses equal to or less than that of Sony PlayStation.

Another risk is that a hacker manages to make some or all users' private data publicly available. Any hacker attack that maliciously targets users' private data could mean a breach of trust and people reducing their *FB* use. If *FB* servers are shut down for a longer period of time, it would also open up the space for *G+* and other competitors, or potential new entrants to gain market share.

The same risks that I have mentioned here, caused on purpose by a hacker, are also technical risks. Servers, *FB* employees, and many other things might fail, and accidentally cause one of these risks to materialize, though the risk is more likely to materialize from hacking than any of the others.

9.4.5 Open standards

If a site data warehouse / database management site, app, or tool becomes easy to use, and popular, there is a great risk to *FB*, that users will be able to download and upload all their *FB* data, easily re-structure it, and use it on another social network. It is, for instance, possible that hashtags become an open standard used to aggregate content from many more platforms.

[45] A White hat hacker is a person who illegally hacks computers and sites; mainly for fun, to test his own skills, and to highlight security flaws, rather than to steal money or simply cause damage.

If cross-platform coding keeps getting easier and open source social standards are innovated and popularized, it may eventually make network effects imitable.

10 Markets

FB has opportunities in many markets, out of which I will analyze the most important. The following, is a chain of activities from a company selling a good online to a *FB* user. *FB* can potentially participate in any of these activities, but given the profitability in each activity and the match towards *FB*'s resources and capabilities, I have narrowed down *FB*'s opportunities to online advertising (incl. advertising intelligence, and a contextual ad network), virtual goods from games, and social commerce (incl. transaction fees).

Table 6: E-commerce value chain

	Examples of Actors	**Required resources and capabilities to succeed**	**Strong potential for *FB*?**
Good / service	*Amazon* (2012 TR = $61b, EBIT = $636m) *Netflix* (2012 TR = $3.6b; EBIT = $51m) *Spotify* (2012 TR = $1b) *Zynga* (2012 TR=$1.3b, EBIT= -$160m)	Producer relations Customer trust	No
Physical Distribution	*Amazon* (2012 TR = $61b, EBIT = $636m)	Warehousing Shipping	No
Transaction	PayPal (2012 TR: $5.4b)	Order processing Security	Yes
Recommendation	*Yelp* (2012 TR = $138m) *TripAdvisor* (2012 TR = $763m, EBIT= $282m)	Network effects	No
Ad creation	*G2* *Coca Cola*	Creativity	No
Ad intelligence	*Nielsen* (2012 TR = $1.46b; EBIT = $155m) *Gartner* (2012 TR = $0.47b; EBIT =$81m) *eMarketer* *adRoll*	Data Data analytics Advertising	Yes
Data gathering	*FB* *Amazon*	Users Data gathering technology	Yes
Ad displaying	*FB* (2012 TR = $5.1b , adj. EBIT = $2.3b) *Google* (2012 TR = $50.2b, EBIT = $13.4b) *ValueClick* (FY2012: TR = $200m, EBIT = $62m) *RightMedia* (owned by *Yahoo*), serving display ads in 2012 for $1.9b TR on Yahoo owned sites and through network.	Users User engagement User data	Yes
Social network platform	*FB* *G+*	Network Effects Imitability	Yes
Browser / app store	*Chrome* *Safari*	Programming Patents	No

Operating system	*Android* *iOS*	Programming Patents Relations to / ownership of device production	No
Device	*Apple* *Samsung*	Manufacturing Patents Distribution	No
Internet	*AT&T* *Google* Fiber	Government licenses Physical Infrastructure	No

Table 7: Most significant markets for *FB*

Market	**Size (2013)**	**Key Value Drivers**	***FB* revenue in market (2013)**
Online Advertising	$78b (world excl. China) Datamonitor (2013); Online Adspend	User data User engagement	4,861m
Virtual Goods	$11b (DFC Intelligence 2012)	User Data Social ingredient Easy transactions	883m
Social commerce	e-commerce: $457b (world excl. China). (Datamonitor 2013; Internet Retailing). Serviceable Available Market: $14b.	User data Easy transactions Distribution Customer trust	0 (Gifts, incl. in virtual goods currently, but insignificant)
Other potential markets	(*Expedia* 2012 TR = $4b) (*Groupon* 2012 TR = $2b) (Skype, 2012 TR = $2b) (*Spotify*, 2012 TR = $1b). Yahoo Finance (2013); Income Statements	Agreements / relations to local businesses	0

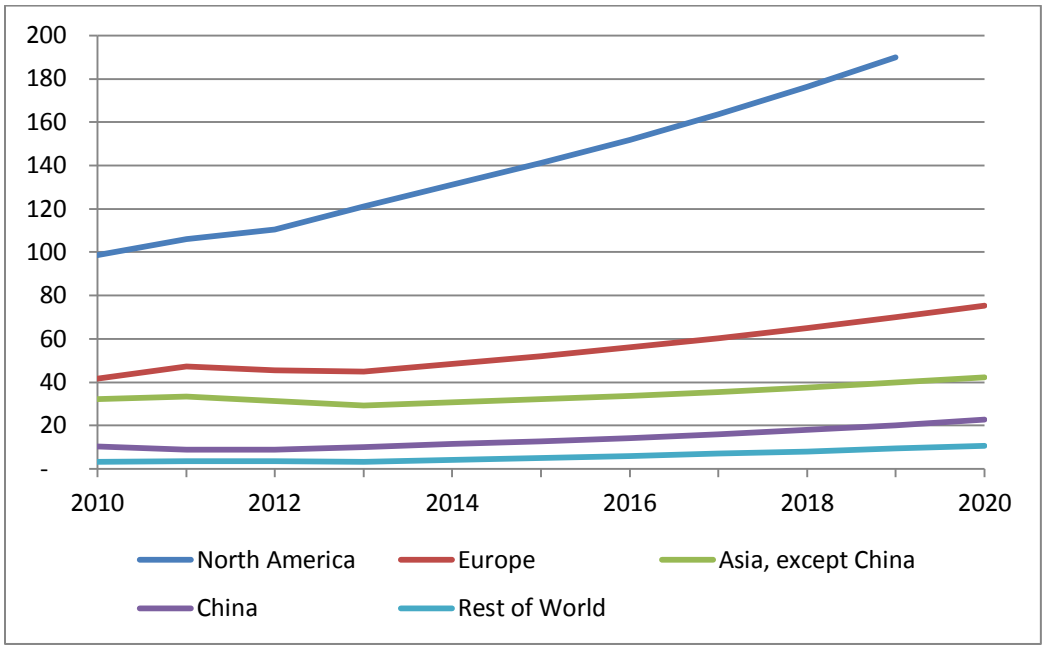
10.1 Online Advertising

I think *FB* can receive revenue from advertisers, mainly through three channels:

- Displaying Advertisements on *FB*
- Contextual network advertising across internet
- Providing Ad intelligence (analytics) services to advertisers

I have estimated *FB* will maintain their market share vis-à-vis other social networks going forward. Given political problems as well as the strength of local competitors, I do not expect *FB* to capture market shares in China for at least the next four years. Online advertising globally, excl. China is estimated by Datamonitor (2013) to grow from $96b in 2013 at 10.5% CAGR until 2020.

Figure 8: Online Adspend per Internet user (in USD)[46]

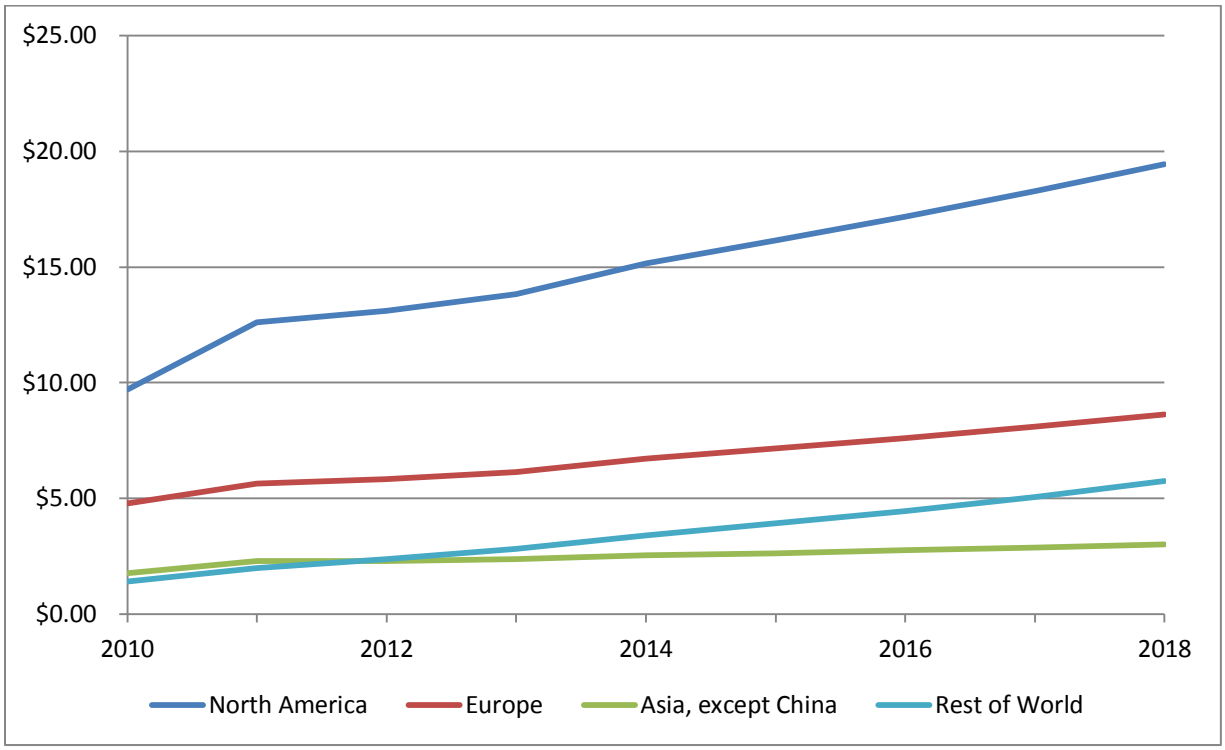


It is important to note that *FB*'s growth in numbers of users are relatively more in the regions where online advertising per user are low, and expected to increase slowly. *FB* is thus capable of increasing ARPU in each region by much more, than they are capable of increasing overall ARPU. Multiplying average increase in users with average increase in revenue per user therefore does not provide a good estimate for future revenue.

The services *FB* can offer in terms of data analytics to the firms with the largest ad budgets and advertising intelligence firms – will gradually be integrated into a more standard platform. This means *FB* will offer ad analytics software in addition to a place to advertise. This is a main reason for why I consider *FB* can continue to increase ad prices, as ad intelligence brings the metrics advertisers need. I do not include ad intelligence in the forecast, as I expect *FB*'s organic growth in this business will mainly translate into better metrics and thus price increases, which I include in the forecast for display advertising. I expect further growth in ad intelligence will be through acquisitions, which I assume will have 0 NPV.

[46] Datamonitor (2013)

Figure 9: Advertising Average Revenue per User [ARPU]



Google AdSense serves ads on over 75% of the world's largest one million sites outside China, charging a commission of 25 - 30% (*Google* Q2'13; 10-q). The second largest contextual ad network is *DoubleClick* with 15% market share, which is a subsidiary of *Google*.

The total revenue from *AdSense* for *Google* in 2013 is $5.0b. Given *FB*'s improving capabilities in ad metrics and investments in building up units for advertiser client relations globally, I forecast *FB* can capture 2% per year of this market towards 2020, starting with a mobile network in 2014. 70-75% of *Google*'s ad network revenue is passed on to the network and accounted as Cost of Revenue. This means that the potential from an *FB* ad network is worth much less than indicated by total revenue alone. While ad network for content and search combined make up half of *Google*'s total revenue, it only explains 4.6% of *Google*'s enterprise value (Trefis 2013B).

Table 8: Contextual advertising network revenue

	2013	2020	CAGR
Google AdSense Total Gross Profit (for content & search)	2,120	4,570	11.60%
Google AdSense Total Gross Profit for Content only %	45.7%	19.3%	
Google AdSense Total Gross Profit for Content	969	882	-1.33%
FB market share	0.0%	14.0%	
Total Contextual Ad Network Gross Margin	-	123	

Google estimates are based on Trefis (2013B).

Concluding upon this analysis, I find contextual advertising network to be an insignificant opportunity for the base case.

10.2 Virtual Goods (Payments commission from Games)

27m users bought virtual goods through *FB* in 2012 (*FB* 2012; 10-K). Users pay for the virtual goods through *FB Credit* and *FB* receives 26% and the game maker 74%; comparable with the 30% commission charged by *Android* and *iOS* app store. All payments revenue comes from virtual goods and $805m out of $810m (99.4%) of virtual goods revenue came through games. Commission on games from Zynga[47] accounted for $429m (53%) (*FB* 2012; 10-K). Mobile and online games make their revenue through purchase, advertising, or in-app-purchases [IAP], and there is a wide trend in games, particularly in games on mobile and social games towards IAP.

Overall I estimate *FB* can maintain, but not increase their market share in virtual goods, as *FB* does not get revenue from virtual goods bought by users playing mobile games through apps (revenue goes to operating system). I do not think *FB* is capable of breaking into purchases, or IAP revenue from mobile games, as the competition from *Google* and *Apple* with app stores is too great. Any opportunities from

[47] ***Zynga*** creates games for *FB* and mobiles, and is most famous for *FarmVille*, which reached 10m daily average users [DAU] within 6 weeks of launch in 2009. *Zynga* currently pursues a strategy of becoming less dependent on *FB* by encouraging play on its own website and on mobile, instead of *FB*. If users choose to play on *Zynga's* site or on mobile that means *FB* will not receive any commission, and the trend in this direction is harmful. As of July 2013, most popular games are *CityVille*, *FarmVille2*, and *Texas HoldEm Poker*.

HTML 5 to bypass the app stores would likely be used directly by game makers, rather than go through *FB*. *FB* may offer advertising in mobile games, which is included in the Contextual ad network revenue.

To maintain market share in the wider online gaming market, *FB* will not have to increase the focus towards games on *FB*, but will have to continue to improve the *API* towards game developers.

Overall, the gaming market is forecasted (DFC Intelligence 2012) to grow at 4.1% CAGR to 2017. PC games is forecasted to grow by CAGR 4.6%, and online games by 10.7%, from $19b in 2011, to $35b in 2017.

Virtual goods ARPU in North America grew from 2012-2013 Q2 LTM by 15%, while ARPU declined for all other regions. I have used Datamonitor (2013) video games expenditure per internet user as a proxy for the growth in virtual goods spending in the regions. This leads to a forecast in line with the ARPU growth of the past year for *FB* in the different regions, but slightly more optimistic. Overall, I expect virtual goods to decline as a percent of revenue, because the increases in ARPU from virtual goods are unlikely to match the growth from advertising.

Figure 10: Video Games Expenditure per Internet User by region[48]

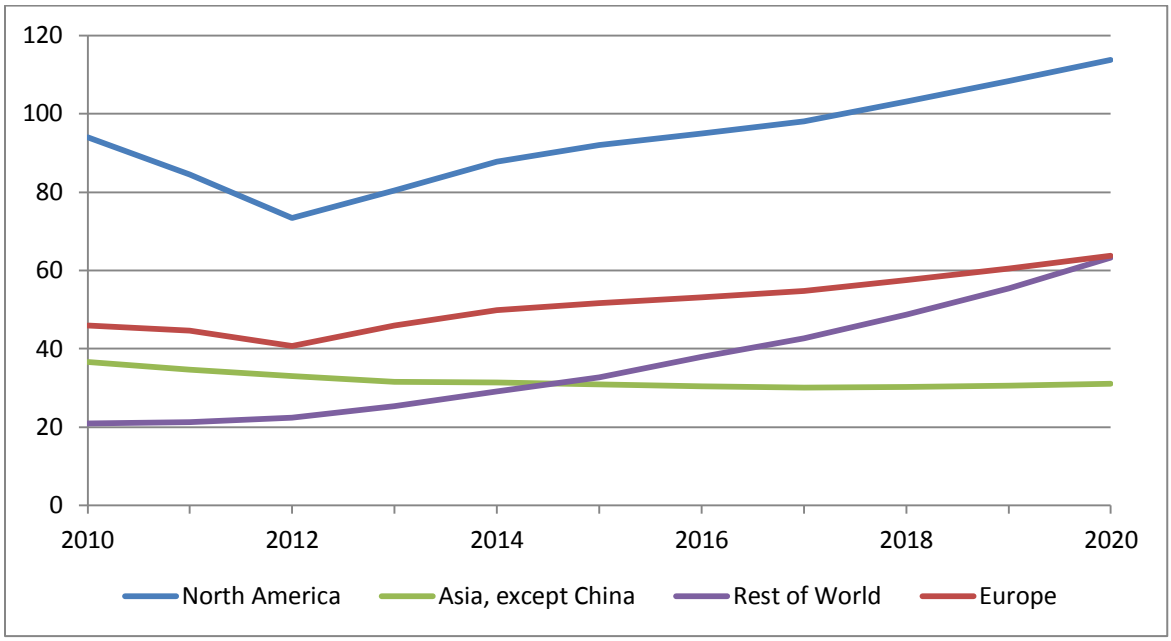
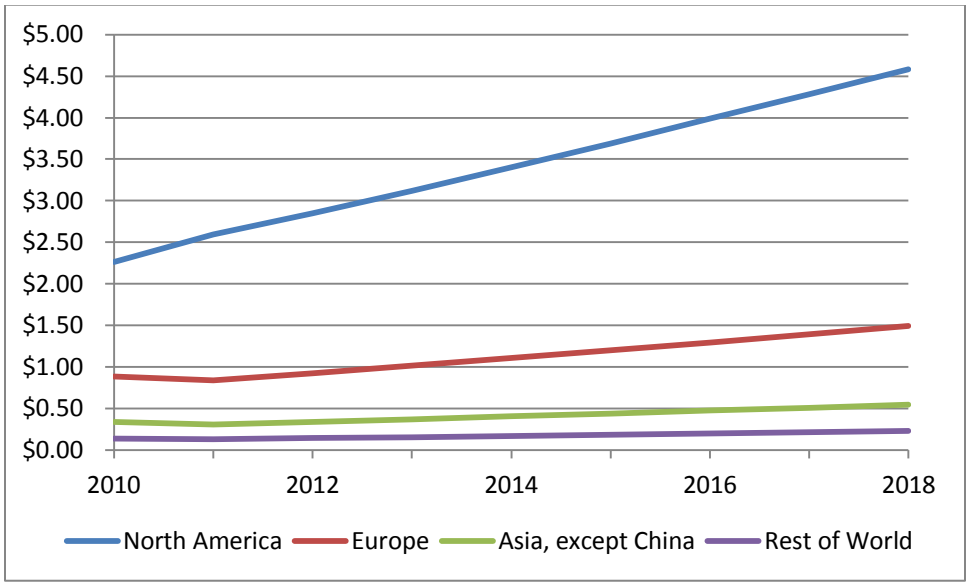


Figure 11: Virtual Goods Average Revenue Per user by region



[48] Source: Video Games Expenditure, Year 2010-2017, from (Datamonitor 2013)

10.3 Social Commerce

Digital Innovation Today (2011) present 24 different definitions of social commerce, with the following as their chosen: A subset of electronic commerce that involves using social media and online media that supports social interaction and user contributions, to assist in the online buying and selling of products and services.

Social commerce includes selling via social media, recommendations, referrals, reviews, ratings, forums, and more. *FB* is already an integral part of social commerce, as users debate on firms' pages, ask each other for product recommendations etc. The next step is for *FB* to take a more active role in social commerce to gain revenue.

FB is capable of showcasing wares, of branding products, of adding social ingredients, creating online user experiences, and more. *FB* does not have any resources and capabilities in producing, pricing, or distributing physical goods, which it is not well-positioned to overtake that aspect of social commerce.

The main opportunities within social commerce are in transactions, deals, recommendations, direct sales, and Marketplace. For some of these opportunities, *FB* has already made attempts on their own, or by working together with external developers.

Marketplace on *FB*, has been *FB*'s attempt at an equivalent to *eBay*, and *Craigslist* [49]. Deals was *FB*'s attempt at an equivalent to Groupon[50]. *FB* is well suited as a site for recommendations, but as *Yelp* (2012 TR = $138m) and *TripAdvisor* (TR: $763m; EBIT: $282m) combined have less than $1b in total annual revenue; it is not a significant opportunity for *FB*. *PayPal*, owned by *eBay* has $5.4 TR in 2012 from transactions. *FB Credits* can be expanded to offer similar services for payments for goods and services on and off *FB*. According to Trefis (2013); valuation of *eBay*: *PayPal* accounts for 40% of NPV, though it is not possible to distinguish the businesses entirely, as *eBay* drives transactions to *PayPal*.

[49] ***Craigslist*** is a non-profit online forum and portal for classified ads, with categories such as jobs, housing, and catch-a-ride.

[50] ***Groupon****:* is a site and app that enables local businesses, such as restaurants, to offer special discounts to a large base of customers. When the customer arrives at the local business he can show the app as a coupon, and receive the discount. 2012 revenue was $2.3b with EBIT of $95m.

Socialware offers full websites integrated into *FB*. Combine this with *FB Credits* at a lower commission, and it's a strong sales platform. Furthermore, *FB* is developing a project, internally called *Reader*, which can enable it as a transaction service for digital news and magazine subscription sales. Along with gifts, these are the first steps in a journey towards finding the right model to sell goods and services with *FB*.

From large internet firms such as *Spotify*, *Netflix*, *Experian*, and *Groupon*, to small, local e-commerce sites – other companies rely on *FB* for access to, and information about users.

Individually these companies' effect on *FB*'s business is negligible, but combined they serve to increase user lock-in on *FB*, as detailed in the analysis of sustainable competitive advantages.

While *Deals* has been discontinued, *Marketplace* has been moved to the back, and is run by the company *Oogle*, rather than *FB* itself. If *FB*, however, was to make significant investments and dedicate front page and notification space to compete for a single online service, it is likely they could be successful and dethrone the incumbent.

While the $2.3b revenue of *Groupon* is impressive, the high costs of connecting to local businesses, has caused consistent losses. If *FB* were to re-launch *Deals*, to compete with *Groupon*, I do not believe they could reduce the costs significantly.

Another attempt to launch *Deals,* or an equivalent, can let *FB* compete with *eBay*. A *Buy button* on *FB* and across the web at similar visibility as the *Like button* can make *FB* compete in online retail with *Amazon*. *TripAdvisor*, *Hotels.com, Spotify, Netflix*, and many other businesses that primarily offer information and trading platforms are opportune targets.

If a *buy button* is introduced, or more initiatives like *Gifts*, *FB* can charge sellers a fixed fee, make it part of the advertising portfolio, or take commission on transactions. In all cases, the profit sharing will be determined by bargaining power and the amount will depend on how well *FB* can integrate the platform with commerce.

Market Share

FB is well positioned to be able to take 26% commission from *Zynga*, but I expect they can only take 15% from social commerce, given more homogenous products. This means *FB* would make 3.3% margin on sales through *FB*. Sales through *eBay* with *PayPal* for low volumes are at 3.4% plus fixed fee.

Table 9: Social Commerce

	2013	2020	CAGR
Internet Retailing market size (World, excl. China)	520,094	1,091,296	11.7%
Serviceable Addressable Market	13,991	29,356	
Internet Retailing EBITDA	7.8%	7.8%	
FB influence share	0.0%	7.0%	
FB commission	15.0%	15.0%	
FB share of EBITDA	43.0%	43.0%	
Total social commerce gross margin	-	$68m	

Based on this analysis, I do not expect *FB* to gain significant revenue from social commerce. *FB* has already made attempts in some of the opportunities in social commerce, largely without success. While *FB* is well positioned to compete in more social commerce markets, these are currently not significant. *FB* would have to allocate significant focus on the platform to one or more of these initiatives to make it successful and this would cost in terms of advertising and virtual goods revenue. To make significant profits in social commerce, *FB* would have to integrate deeper into the value chain than they have resources and capabilities for, and it is currently not named as a strategic focus area.

10.4 Other Markets

Operating Systems

FB is available through browsers and app stores in operating systems. For computers *Apple* and *Microsoft* have a near-duopoly, while *Apple* and *Google* have a duopoly on mobile.

If *Apple* decides to launch a social media they can leverage their control of the *Safari browser*, and *iOS*. *Apple's* standard apps can be set up to bypass *FB* and force users to re-build friend networks. It seems unlikely that *Apple* will create a whole network like *FB*, but it is not unlikely that they could launch apps that bypass *FB* for some services.

If *Apple* and *Google* jointly attempt to oust *FB* they are almost guaranteed to be successful, as they can leverage their combined mobile platform and browser power. This opportunity puts a limit to the dream scenario of *FB*, as such a response can be triggered, if profits for *FB* are high enough.

Offer internet subscriptions

As faster internet connections become available, text messages and traditional phone calls may be completely replaced with instant messages and VOIP[51] (Strand 2012). This means customers will solely be paying for internet subscriptions and not the bundles we see today. TV via cable and satellite is also being replaced by streaming services. According to John Strand (2012), *FB* is uniquely positioned to be a point of sale for internet subscriptions, while the physical infrastructure continues to be provided by telecoms suppliers. There will be no role for telecoms as we know them. *Google* has diversified downstream in the internet value chain by creating *Google Fiber*. According to Grant (2010), *Google* has mainly taken strategic actions in providing internet, to force US telecoms to increase their internet speeds, which impacts the rest of *Google's* business. While *Google* may make drastic investments in this direction, I find it very unlikely *FB* will. *FB* may be an excellent platform from which to sell internet subscriptions, but only because it is a platform excellent to sell anything, provided it is given priority. As management is not publically considering this opportunity I do not include it in the valuation.

Venture Funding

With the cash generated in the IPO, *FB* has potential to invest in projects, acquisitions, or in start-ups. This is valuable, but not rare, easily imitated, but well-embedded in the organization. Other resources and capabilities available at *FB* such as coding skills make it an attractive launch point. Overall, I do not consider *FB* a better venture fund, than Silicon Valley standards, and I value their cash as one to one, minus control penalty.

Radical Innovation

When a high level employee has a great idea, it does not necessarily follow that the mother company will benefit. For *Oracle* this was the case when *Marc Benioff* quit and founded the competitor *Salesforce*. If *Mark Zuckerberg* gets tired of *FB* and wishes to start a new project, it is not guaranteed that this will benefit *FB* shareholders, though he is more co-identified with *FB* than most founder-CEO's are with theirs. I do therefore not include a provision for any such wild innovations in the valuation.

[51] Voice over Internet Protocol [**VOIP**]. Also known as Internet Telephony, e.g. *Skype*.

Premium fee

FB has repeatedly, explicitly stated it will always be free. I do not believe *FB* can go back on this promise. To charge a fee from users it would have to be for a premium service, such as freedom from advertising. Alternatively *FB* can let users use it for free, while charging businesses for keeping profiles or for premium profiles. I do not believe *FB* will do this either, as their strategic focus is on getting firms to integrate with and use *FB* extensively, naturally leading to increased ad spending for firms on *FB*.

10.5 Sub-Conclusion

FB's sources of sustainable competitive advantages are in *lock-in, and the ability to imitate.* Micro factors such as cooperation between advertising agencies, new mobile competitors, and trends in content ranking mechanisms, do not change FB's ability to defend its market share. To attract advertising revenue towards online from other channels, a sub-optimal pricing model: pay-for-performance remains. *FB* is capable of providing metrics that can increase value to advertisers, and thereby higher ad prices. *FB* is robust against macro factors such as trend towards smaller screens, and public opinions on privacy. While FB has potential in several markets, it is in online advertising there is the most potential, and this is the current strategic focus. Having performed a strategic analysis of *FB*, I now relate these findings for revenue streams and more back to the financial statements of *FB*, and forward in a forecast.

11 Financial Statement Analysis

In this section I reformulate *FB*'s historical financial statements, and combine them with the findings from the strategic analyses to create a basis for a financial model to estimate future performance. I explain the items I have made changes to and use the adjusted financial statements as basis for forecasting.

Table 10: Pro forma Income Statement

Facebook Inc, ($ in millions)	'10	'11	'12 HY LTM	'13 HY LTM	'14 e	'15e	'16e	'17e	'18e	'19e	'20e
Fiscal year ended on	31-Dec	31-Dec	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun
Revenue											
Advertising revenue	1,868	3,154	3,605	5,259	6,033	6,827	7,925	8,856	9,818	10,867	12,014
Payments and other fees revenue	106	557	722	859	999	1,095	1,179	1,261	1,369	1,485	1,611
Total Revenue	1,974	3,711	4,327	6,118	7,032	7,923	9,104	10,117	11,187	12,352	13,625
Operating expense											
Cost of revenue	493	860	1,018	1,598	1,765	1,978	2,258	2,527	2,803	3,099	3,421
Marketing and sales	167	393	492	809	894	1,001	1,143	1,279	1,419	1,569	1,732
Research and development	144	388	512	1,178	1,301	1,458	1,664	1,863	2,067	2,285	2,522
General and administrative	138	314	387	698	722	794	901	1,008	1,117	1,235	1,363
Non-recurring IPO related expenses	-	-	1,317	-	-	-	-	-	-	-	-
Total operating expense	942	1,955	3,727	4,283	4,682	5,231	5,967	6,677	7,407	8,189	9,038
EBIT, net of IPO related expenses	1,032	1,756	1,917	1,835	2,350	2,691	3,137	3,440	3,780	4,163	4,587
Financial expense											
Interest expense (income), net	22	42	49	56	119	119	119	119	119	119	119
Foreign Currency Translation	1	29			-	-	-	-	-	-	-
Other expense (income), net	1	(10)	35	4	-	-	-	-	-	-	-
Total financial expense	24	61	84	60	119	119	119	119	119	119	119
Net Income Before Taxes	1,008	1,695	516	1,775	2,231	2,572	3,017	3,321	3,661	4,044	4,468
Income Taxes	402	695	(61)	1,218	848	926	1,026	1,063	1,098	1,132	1,162
Net Income After Taxes	606	1,000	577	557	1,383	1,646	1,992	2,258	2,563	2,912	3,306

See appendix 3, for pro-forma historical, reformulated, quarterly income statements.

11.1.1 Operating Costs

I have estimated *FB* overall will continue with 70% of costs being similar as percentages of revenue in 2013, and 30% of costs to be fixed at current levels. *FB*'s Operating costs have increased as a percent of revenue through all periods, and are now similar to *Google's*. *Google's* operating costs have increased from 24% in 2010 to 35% of revenue in 13'Q2. *FB* has made several acquisitions which could as well have been considered R&D costs. I expect *FB* must continue to imitate new innovations from competitors, and improve the platform at the same rates as previously.

FB marketing and sales expenditure is not to gain users, but to gain advertisers.

Setting up regional B2B unit, and interacting with large advertisers is not very scalable, which means it can be forecasted as a percent of revenue. Investments to improve advertising intelligence, such as

metrics, platforms, and pricing options, etc. are scalable with high fixed costs. These investments will be measured under R&D, rather than Sales & Marketing, and Cost of Revenue.

General and administrative is often considered a fixed cost that does not scale with revenue. For *FB*, G&A has increased as a percent of revenue since 2010. It is not possible to see whether this has been the case for *Google*, as they report SG&A, rather than just G&A, and sales costs may be a large component, and be tied directly to revenue.

11.1.2 IPO

FB went public on May 18, at $38 per share, with a peak market capitalization of $104b. The IPO was subject to technical failures, and NASDAQ, has paid a penalty of $10m therefor (NBC News (2013). By analyzing costs in the following, and preceding year, I have estimated *FB*'s operating costs in 2012 are $3.727m excluding the IPO. Non-recurring expenses related to the IPO amounted to $1.317m. *FB* report Non-GAAP measures that exclude all share-based compensation. For Q2'12, *FB* had share-based compensation expenses of $1.106m due to IPO. Excluding IPO, share-based compensation has steadily grown each quarter and should thus be considered a recurring expense, included in the pro-forma income statement. Going forward, I have calculated as if *FB* continues to pay these expenses, but with cash rather than shares as a simplification with no impact on present share value except for that already accounted for in the effective tax rate.

Table 11: Pro forma Balance Sheet

Facebook Inc, ($ in millions)	'10	'11	'12 HY LTM	'13 HY LTM	'14 e	'15e	'16e	'17e	'18e	'19e	'20e
Fiscal year ended on	31-Dec	31-Dec	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun
Current Assets											
Cash and cash equivalents	1,785	1,512	2,098	3,001	4,183	5,384	6,761	8,414	10,322	12,520	15,045
Marketable securities	-	2,396	8,090	7,251	7,251	7,251	7,251	7,251	7,251	7,251	7,251
Income tax refundable	-	-	567	7	-	-	-	-	-	-	-
Accounts receivable, net of allowances for doubtful accounts	373	547	578	775	891	1,004	1,153	1,282	1,417	1,565	1,726
Prepaid expenses and other current asset	88	149	634	387	423	473	539	603	669	740	817
Total Current Assets	2,246	4,604	11,967	11,421	12,747	14,111	15,704	17,550	19,660	22,075	24,838
Non-current Assets											
Net PP&E	574	1,475	2,105	2,577	2,712	2,931	3,247	3,602	3,991	4,415	4,878
Goodwill and intangible assets, net	96	162	809	1,631	1,595	1,797	2,064	2,294	2,537	2,801	3,090
Other assets	74	1	47	95	93	105	120	133	148	163	180
Total non-current assets	744	1,638	2,961	4,303	4,399	4,832	5,432	6,030	6,675	7,379	8,148
Total Assets	2,990	6,242	14,928	15,724	17,147	18,943	21,135	23,579	26,335	29,454	32,986
Current liabilities											
Accounts, incl. platform partners, payable	104	234	196	227	248	277	316	354	393	434	479
Accrued expenses and other current liabilities	137	296	441	505	552	617	704	787	873	966	1,066
Deferred revenue and deposits	42	90	85	32	37	41	48	53	59	65	71
Current portion of capital lease obligations	106	279	312	316	-	-	-	-	-	-	-
Current portion of LTD & LOC					-	-	-	-	-	-	-
Total Current Liabilities	389	899	1,034	1,080	837	936	1,067	1,194	1,324	1,464	1,616
Non-current liabilities											
Long Term Debt	250	-	-	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Capital Lease Obligations	117	398	394	351	667	667	667	667	667	667	667
Total Long Term Debt	367	398	394	1,851	2,167	2,167	2,167	2,167	2,167	2,167	2,167
Other liabilities	72	135	191	444	410	462	531	590	653	721	795
Total non-current liabilities	439	533	585	2,295	2,577	2,629	2,698	2,757	2,820	2,888	2,962
Total Liabilities	828	1,432	1,619	3,375	3,414	3,565	3,766	3,951	4,144	4,352	4,578
Equity											
Convertible preferred stock	615	615	-	-	-	-	-	-	-	-	-
Common stock	-	-	-	-	-	-	-	-	-	-	-
Additional paid-in capital	947	2,684	11,684	10,167	10,167	10,167	10,167	10,167	10,167	10,167	10,167
Accumulated other comprehensive loss	(6)	(6)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)
Retained earnings	606	1,606	1,654	2,211	3,594	5,240	7,232	9,490	12,052	14,964	18,270
Total Equity	2,162	4,899	13,309	12,349	13,732	15,378	17,370	19,628	22,190	25,102	28,408
Total Liabilities & Shareholders' Equity	2,990	6,331	14,928	15,724	17,147	18,943	21,135	23,579	26,335	29,454	32,986

11.1.3 Capital Structure

Facebook's D/V[52] ratio is 15%. *FB* has cash and marketable securities of $10.25b. It is typical, that firms with high operational risk choose relatively lower financial gearing to offset the total risk, but it also means lower tax shields. I expect *FB* will invest its cash holdings from the IPO up until 2020 in marketable securities. For the terminal rate, *FB* has only 9% D/V. Debt ratio is often raised to reduce taxation, but I assume *FB* can make similar tax optimizations as *Google* have made, so as to reduce taxation by other means than increased debt.

FB's $10.25b cash, cash equivalents, and marketable securities can be used to make an acquisition, invest in R&D, be kept as such, buy back shares, pay back loans, pay dividend, or other. As explained, I expect *FB* to have recurring operating acquisitions, included in the forecasted balance sheet and cash flow statements. Aside from those, I assume acquisitions are NPV neutral, and will not impact share value. The potential to mismanage this cash is included in the control penalty.

11.1.4 Working Capital

I have extended *FB*'s performance in working capital into the future, estimating all items to the 2013 percentages of revenue, modified by the overall variable/total cost rate of 0.7. *FB* does not have inventory, and there are no plans mentioned to reduce or increase other items, why I consider this a fair assumption (See appendix 10; Working Capital Schedule).

11.1.5 Net PP&E, Capital Expenditure, Depreciation, and Amortization

I have estimated new equipment will become required to operate, in the face of competition, making capital expenditure necessary beyond maintenance. I have estimated depreciation and amortization will be 35.7% of Net PP&E of the previous year. Given scalability, and cost decreases for network equipment, I have estimated Net PP&E to decline from 42% of total revenue in 2013, to 36% in 2020 (See Appendix 11: Depreciation & Amortization Schedule).

[52] Debt / Enterprise Value

Table 12: Pro forma Cash Flow Statement

Facebook Inc, ($ in millions)	'10	'11	'12 HY LTM	'13 HY LTM	'14 e	'15e	'16e	'17e	'18e	'19e	'20e
Fiscal year ended on	31-Dec	31-Dec	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun
Net Income After Taxes	**606**	**1,000**	**577**	**557**	**1,383**	**1,646**	**1,992**	**2,258**	**2,563**	**2,912**	**3,306**
Adjustments to reconcile net earnings to net cash provided by operating activities:											
Depreciation & Amortization	139	323	449	863							
Loss on write-off of equipment	3	4	2	31							
Depreciation & Amortization	142	327	451	894	920	969	1,047	1,160	1,287	1,425	1,577
Net change in Other Long Term Assets & Liabilities					5	(162)	(214)	(184)	(194)	(212)	(231)
(Increase)/Decrease in Working Capital					(72)	(64)	(84)	(66)	(71)	(79)	(86)
Cash from Operating Activities		1,549	1,758	2,970	2,237	2,389	2,740	3,168	3,584	4,047	4,566
Cash flows from investing activities:											
Capital Expenditures	(293)	(606)	(1,187)	(964)	(1,055)	(1,187)	(1,363)	(1,515)	(1,675)	(1,850)	(2,040)
Purchases of marketable securities	-	(3,025)	(8,090)	(6,810)							
Maturities of marketable securities	-	516	1,622	4,401							
Sales of marketable securities	-	113	241	3,247							
Acquisitions of business, net of cash acquired	(22)	(24)	(595)	(557)	-	-	-	-	-	-	-
Investments in non-marketable equity sec	-	(3)	(5)	-							
Change in restricted cash and deposits	(9)	6	6	5							
Net change in marketable securities	-	(2,396)	(6,227)	838	-	-	-	-	-	-	-
Change in restricted cash deposits and non-marketable equity sec	(9)	3	1	5	-	-	-	-	-	-	-
Cash from Investing Activities	(324)	(3,023)	(8,008)	(678)	(1,055)	(1,187)	(1,363)	(1,515)	(1,675)	(1,850)	(2,040)
Cash flows from financing activities:											
Taxes paid related to net share settlement of equity awards	-	-	-	(3,420)	-	-	-	-	-	-	-
Net proceeds from issuance of common stock	500	998	6,761	(1)							
Proceeds from exercise of stock options	6	28	13	18	-	-	-	-	-	-	-
Proceeds from issuance of debt, net of i	250	-	-	1,496							
Proceeds from (repayments of) long-term	-	(250)	(250)	-							
Proceeds from sale and lease-back transa	-	170	244	123							
Principal payments on capital lease obli	(90)	(181)	(242)	(423)							
Repayment of long-term debt			250	-							
Net proceeds from issuance (repayment) of debt	160	(261)	2	1,196	-	-	-	-	-	-	-
Excess tax benefit from share-based awar	115	433	459	807	-	-	-	-	-	-	-
Cash from Financing Activities	781	1,198	7,235	(1,400)	-	-	-	-	-	-	-
Foreign Exchange Effects	(3)	3	(18)	11	-	-	-	-	-	-	-
Net Change in Cash	454	(273)	967	903	1,182	1,202	1,376	1,653	1,909	2,197	2,525
Net Cash - Beginning Balance	633	1,785	1,131	2,098	3,001	4,183	5,384	6,761	8,414	10,322	12,520
Net Cash - Ending Balance	1,087	1,512	2,098	3,001	4,183	5,384	6,761	8,414	10,322	12,520	15,045

See appendix 4, for pro-forma historical, reformulated, half yearly cash flow statements.

11.1.6 Acquisitions

FB has in the past three years acquired 25 companies, most with very low revenue. *Zuckerberg* has said that *FB* has made no acquisitions for the companies, but only to acquire the talent (*Zuckerberg* 2010). The acquisitions have amounted to above $500m per year in 2012 and 2013 and I consider them

recurring. An alternative to continue making these acquisitions would be for *FB* to increase R&D expenditure significantly. It is furthermore possible *FB* is paying lower salaries to employees that have instead been paid with an acquisition premium. I estimate *FB* will have recurring, operating costs in the form of acquisitions, and continue to have 23% of revenue tied up in goodwill and intangible assets. This means that on average *FB* lose $208m in free cash flows per year from operating acquisitions (See Appendix 8: Other Long Term Assets & Liabilities Schedule).

11.1.7 Taxation

I have estimated *FB* will be able to reduce their effective tax rate significantly over the next decade, to 26%. *Google* has in the past three years had 21% effective tax rate. By transfer-pricing through various tax havens, *Google* has been able to let Ireland and Bermuda account for 88% of their non-US profits (Bloomberg 2010).

FB's effective tax rate for 2012 has exceeded the U.S. statutory rate primarily due to the impact of non-deductible share-based compensation and losses arising outside the United States in jurisdictions where *FB* does not receive a tax benefit (*FB* 2012; 10-K, p36).

In 2012, *FB*'s tax rate was 89%, up from 41% in 2011 primarily due to significant amounts of share-based compensation expense being allocated to international subsidiaries in low tax jurisdictions, leading to non-deductible losses in those subsidiaries. (*FB* 2012; 10-K, p42).

Another way for *FB* to reduce taxation would be to increase their amount of debt. I have forecasted for *FB* to reduce their overall effective tax rate, but all long term debt to remain constant, leading to interest expenses declining as a percent of revenue, at $119m per year.

12 Valuation

In this section, the forecasts in the pro forma financial statements are used to analyze the share value with the adjusted present value method. The found value is then checked against scenarios, with comparative multiples, and for sensitivity towards changes in costs of capital, and terminal growth rate.

12.1 Costs of Capital

As *FB*'s debt is not traded and recently issued I have used *FB*'s current weighted average interest rate of 2.58% as the required cost of debt. For return on equity I have used CAPM, using US 10y Treasury Bonds at 1.75% as risk free rate and 5% as market risk premium as Koller, Goedhart & Wessels (2010). For *FB*'s unlevered beta I use 1.41, as this is the average between Advertising and Internet industry, according to Damodaran (2013). When the unique risks of *FB* are diversified away, what remains is exposure towards advertising in general and how the internet fares. The adjusted Beta from *Bloomberg Terminal* towards *MSCI World Index* is 0.788, but as *Bloomberg Terminal* says it: "Number of points may be insufficient for an accurate beta". *Macroaxis* finds unlevered beta to be 1.333 based on industry betas and *Yahoo Finance* finds beta = 0.88, which with my assumptions give unlevered beta of 0.774 – in line with *Bloomberg*.

Table 13: Unlevered beta, for relevant industries

Industry Name	No. of firms	Unlevered Beta	ROC[53]	Effective Tax Rate	After-tax Operating Margin	EV/Sales	D/E
Advertising	31	1.75	10.54%	10.73%	7.44%	1.14	43.26%
E-Commerce	57	1.08	13.08%	12.33%	10.87%	4.55	6.40%
Internet	186	1.24	32.75%	6.87%	14.58%	3.91	2.71%
Total Market	5891	0.92	12.21%	15.48%	12.62%	1.67	46.64%

Data from Damodaran (2013)

[53] Return on Capital [ROC] = After Tax Cost of Debt * D/V + Cost of Equity * E/V

12.2 Adjusted Present Value Calculation

Using the estimated costs of capital, I discount unlevered free cash flows to firm by return on equity, and tax shield by return on debt, for each of the three stages; first stage, second stage, and terminal. I deduct market value of debt[54] and add non-operating cash, cash equivalents, and marketable securities to get total equity value and divide by *total diluted outstanding shares*. This gives an estimate for the value of one share of *Facebook* Inc. as of 25 July 2013; of $30.54. The share opened on 25 July, following the Q2 earnings release at $33.54.[55]

Table 14: Shares

Class A Common Stock	1,772
Class B Common Stock converted	635
Employee Stock Options	73
RSU's	19
Shares subject to repurchase	3
Diluted Shares Outstanding	2,502

[54] Book value used as proxy for market value, given debt is recently issued and not traded.

[55] Note, Yahoo Finance, CapitalIQ, and others use 2407 Basic Shares Outstanding, rather than Diluted Shares Outstanding, thus not taking Employee Stock Options, RSU's or Shares subject to repurchase into account.

Table 15: Valuation with Adjusted Present Value model

Facebook Inc, ($ in millions)	'12 HY LTM	'13 HY LTM	'14 e	'15e	'16e	'17e	'18e	'19e	'20e	'21 to '25 e	T
Fiscal year ended on	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun	30-Jun
Unlevered free cash flows (UFCF)											
EBIT, net of IPO related expenses	1,917	1,835	2,350	2,691	3,137	3,440	3,780	4,163	4,587		
EBIT*T	(227)	1,259	893	969	1,066	1,101	1,134	1,166	1,193		
EBIAT	2,144	576	1,457	1,722	2,070	2,339	2,646	2,998	3,394		
Adjustments for non-cash expenses:											
Depreciation & Amortization	449	863	920	969	1,047	1,160	1,287	1,425	1,577		
Share-based payment expense											
Gross unlevered free cash flow from operations	2,593	1,439	2,378	2,691	3,117	3,499	3,933	4,423	4,971		
Change in Working Capital	(981)	652	(72)	(64)	(84)	(66)	(71)	(79)	(86)		
CAPEX	(1,079)	(1,335)	(1,055)	(1,187)	(1,363)	(1,515)	(1,675)	(1,850)	(2,040)		
UFCF [Unlevered Free Cash Flow]	533	756	1,251	1,440	1,670	1,918	2,186	2,495	2,845	3,129	5,039
UFCF growth rate			65%	15%	16%	15%	14%	14%	14%		

Assumptions		
Risk free rate	1.75%	
Market risk premium	5.00%	
Required return on debt	2.58%	
Terminal Effective Tax Rate	26.00%	
D/V at target capital structure	8.98%	
D/E (current)	18.58%	18.58%
D/E at target capital structure	10.43%	10.43%
Required return on debt at target capital structure		2.58%
Beta		1.600
Unlevered Beta		1.407
Beta at target capital structure	1.600	

Discount Rates	
Required return on assets [ROA]	8.78%
Required return on equity [ROE]	9.75%
Weighted Average Cost of Capital [WACC]	9.05%

Second stage growth rate	10.0%	
Second stage length (years)	5	
Second stage Growing Annuity Factor (Levered)	5	
Second stage growing annuity factor (Unlevered)	5	
Terminal growth rate	6.0%	

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Table 15: Valuation with adjusted present value model

Terminal Values									
Unlevered Terminal Value 2025									181,090
Levered Terminal Value 2025									165,433
Terminal PVTS 2025									(15,657)
Second Stage Values									
Unlevered Second Stage Value 2020									14,708
Levered Second Stage Value 2020									14,601
Second Stage PVTS 2020									(107)
Total Interest Expense	49	56	119	119	119	119	119	119	119
Interest Tax Savings			45	43	41	38	36	33	31

Adjusted present value	Discount Rate	
Unlevered Terminal Value	8.78%	65,943
Unlevered Second Stage Value	8.78%	8,159
Unlevered Free Cash Flows	8.78%	9,552
PVTS - Terminal value	2.58%	(11,528)
PVTS - Second Stage Value	2.58%	(90)
PVTS - First Stage Value	2.58%	243
Excess cash and market securities		10,252
Value of levered firm		82,531

Value of equity	
Value of levered firm	82,531
- Market value of debt	2,167
Value of equity	80,364

Share price calculation	
Value of equity	80,364
Shares outstanding (millions)	2,502
Share price before Control Penalt	$32.12
Control Penalty	4.92%
Share Value	**$30.54**

12.3 Comparative multiples as sanity check

EV/TR, EV/EBITDA, and EV/EBIT can be used to compare *FB* with other firms. Given similar growth expectations and requirements for invested capital; a relatively high multiple indicates the firm is overvalued.

Table 16: Comparative multiples, and implied share value

Name	EV/TR	EV/EBITDA	EV/EBIT
FACEBOOK, INC.	15.9	36.2	53.2
FB Implied	13.5	30.6	45.0
GOOGLE INC.	4.4	14.3	18.3
LINKEDIN CORPORATION	20.0	138.1	318.7
RenRen	1.8	Neg.[56]	Neg.
…	…	…	...
Mean	6.2	26.0	64.8

Implied Value

Mean

Implied Enterprise Value	38,048	70,066	118,865
Implied Share Value	$14.3	$27.1	$46.6

Google

Implied Enterprise Value	27,109	38,678	33,564
Implied Share Value	$10.0	$14.6	$12.5

LinkedIn

Implied Enterprise Value	122,430	372,477	584,759
Implied Share Value	$48.1	$148.0	$232.9

Input

Total Revenue	6118	
EBITDA	2698	
EBIT	1835	
D&A	863	
- Market value of debt	2167	
Diluted Shares outstanding (millions)		2502

Implied Multiples from this valuation

EV /TR	13.4898825
EV / EBITDA	30.58973355
EV / EBIT	44.97607691

[56] No multiple, due to negative earnings.

Google, Yahoo, LinkedIn, and *RenRen* are all publicly traded internet companies with online advertising as their primary source of revenue. All these companies have server costs and marketing towards advertisers as costs. *RenRen* has lower salary costs because it is operating in China. The rest are predominantly based in Silicon Valley, except for marketing functions. The companies all employ top level employees and compete for the same engineers. In the short term *Google* has a scale advantage with respect to marketing costs, but marketing and sales for *FB* is only 19% of costs.

Google have in 2011 and 2010 grown revenue at 32% and 29%, where *FB* had 37%, and 88%, indicating higher growth for *FB*. *Google's* ad network revenue is counted at the collective payment received through *AdWords* and payments to the network are accounted as Cost of Revenue. Comparing *Google* and *FB* on TR growth therefore makes *Google* look better, as it is not taken into account that half of *Google's* growth is in a lower-margin segment. Adjusting *Google's* revenue for this, gives a EV/TR of 6.8, which gives *FB* an implied share value of $15.8, significantly below my valuation.

12.4 Scenarios and Sensitivity Analyses

Table 17: Return on Assets, sensitivity to unlevered beta, and risk free rate

Market Premium	5%
Risk free rate	1.75%
Unlevered Beta	1.4065621
Return on Assets	8.7828%

		Unlevered Beta						
	8.78%	1.11	1.21	1.31	1.41	1.51	1.61	1.71
Risk free rate	1.45%	6.98%	7.48%	7.98%	8.48%	8.98%	9.48%	9.98%
	1.55%	7.08%	7.58%	8.08%	8.58%	9.08%	9.58%	10.08%
	1.65%	7.18%	7.68%	8.18%	8.68%	9.18%	9.68%	10.18%
	1.75%	7.28%	7.78%	8.28%	8.78%	9.28%	9.78%	10.28%
	1.85%	7.38%	7.88%	8.38%	8.88%	9.38%	9.88%	10.38%
	1.95%	7.48%	7.98%	8.48%	8.98%	9.48%	9.98%	10.48%
	2.05%	7.58%	8.08%	8.58%	9.08%	9.58%	10.08%	10.58%

Given low debt ratio without changing capital structure, *FB* share value is not very sensitive to risk free rate, but very sensitive to unlevered beta.

Table 18: Share Value, sensitivity to terminal growth rate, and levered beta

Share Value

Terminal growth rate	6%							
Levered Beta	1.6							
Share Value	$30.5							
					Terminal growth rate			
	30.539643	0.03	0.04	0.05	0.06	0.07	0.08	0.09
Levered Beta	1.3	27.08211	31.36808	38.59576	53.17971	87.68963	-318.905	-57.1842
	1.4	24.62827	$27.9	$33.1	$42.6	$63.4	$1,713.1	-94.4395
	1.5	22.58456	$25.2	$29.0	$35.5	$48.2	$51.1	-231.54
	1.6	20.85798	$22.9	$25.9	$30.5	$38.8	$53.6	3390.455
	1.7	19.38157	$21.0	$23.3	$26.8	$32.5	$42.6	-44.3488
	1.8	18.10591	$19.4	$21.3	$23.9	$28.0	$34.8	39.56379
	1.9	16.99374	18.09962	19.57241	21.62411	24.65275	29.41744	35.99822

Value is highly sensitive to second stage, as well as terminal growth rate; e.g. a 1% increase in terminal growth rate, leads to a 29% increase in share value.

Best Case

If all goes well for *FB*, I estimate the share to have a value of $52.2. This means *FB* must be capable of achieving all the following:

If *FB* in 2016 is able to take over entire contextual ad market from *Google*, *FB* share value increases by $8.4. If *FB* starts, in 2015, to increase *FB* penetration in China by 5% per year until 2020, the share value increases by $1.53. If *FB* is capable of reducing effective tax rate by 4% from next year, another $1.57 is added. If the small screen / larges screen revenue difference decreases by 20% per year instead of the assumed 10%, the share value increases by $0.6. If variable costs / total costs is decreased from 0.7 to 0.5, share value increases by $3.4. If *FB* is capable of instantly adding 1% penetration, share value increases by $0.73. Finally if *FB*, in addition to all these, is capable of instantly increasing advertising ARPU in each region by 5%, $1.3 is added. If *FB* is capable of achieving a similar position in social commerce as *PayPal* in 2020, *FB*'s share value increases by $4.2.

Worst Case

The worst case for *FB* is that it becomes abandoned by its user base; another *MySpace*. As *MySpace* lives on as a music website, and *Friendster* as a social network for games, *FB* may live on as a deserted memory land, an advertising data analytics firm, or something completely different. For predecessors,

the decline has meant close to total decline, and thus there is no scenario where *FB* declines just a little. It is a winner-take-all market for revenue and there are no significant assets to be sold off.

13 Conclusion

In this section I conclude upon my findings in this thesis and give the final answer to my research question: "What is the fundamental value of one share of *Facebook* Inc. as of 25 July 2013?"

Through strategic analysis, financial statement analysis, forecast – and calculations in the adjusted present value model, I estimate the answer to be $30.54.

In the base case scenario, I expect *FB* can grow free cash flows to the firm towards 2020 at 20.9% CAGR, from 2021 to 2025 at 10%, and 6% at terminal. The main driver will be advertising, while virtual goods grow modestly and social commerce slowly.

FB can achieve incredible growth in terms of both monthly average users, and average revenue per user in each region. The growth in terms of monthly average users arises mainly in Asia, except China and "the rest of the world", where total average revenue per year per user starts out at only $2.6, and $2.12, vs. $15.19 in North America.

FB's users are locked in through network effects and switching costs – which leads *FB* to sustain their position as the winner-take-all social network outside China, with strong offerings towards users, as well as advertisers. With strong capabilities in imitating innovations from others, *FB* is capable of defending their position against much stronger competition, and other influences, than they currently face, and against many technologies, and trends that many look forward to seeing disrupt social networking as we know it; including shift to smaller screens, privacy protection concerns, and new internet regulation.

FB has performed well financially, but there are items in the financial statements that obscure the true profitability. *FB* makes recurring acquisitions to get talent, of which I consider $208m per year to be R&D expenses paid for through the balance sheet. I estimate *FB* has had IPO expenses of $1.317m; the rest of share-based compensation seems to be recurring every year and cannot be considered a one-time expense.

Many opportunities are considered, and/or have been attempted by *FB*, but upon closer analysis – it is clear many do not have strong potential profit-wise, or do not fit with *FB*'s strategy, based in their

resources and capabilities, or are better cooperated with, than recreated in *FB* version. This includes opportunities in operating systems, devices, and telecommunications.

A 4.92% control penalty is applied in the valuation, to account for controlled companies, and companies with dual class share structures, underperforming in the past decade.

In the best case; If *FB* is able to penetrate China successfully, take over the social commerce transaction market, make mobile advertising as profitable per user-hour as larger screens, and more, I estimate share value at $52.2, in the worst case, *FB* shares end up with no significant value.

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