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Financial Analysis of the Cloud Computing Market

The War of the Internet Giants



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Lyon 2013

Declaration

I declare that I have written the diploma thesis of “Financial Analysis of the Cloud Computing Market” by myself under the supervision of Mary Bouchelet, MBA, CPA. I have listed and mentioned all quotations and resources I have used in this thesis. I have no positions in any stocks mentioned.

In Lyon, 29 October 2013

Bc. Lukáš Formánek

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I Goals

The main goal of this thesis is to evaluate and analyse the cloud computing market with a focus on five key companies within this market (Google Inc., Apple Inc., Microsoft Corporation, Facebook Inc., and Amazon Inc.). The companies are compared and evaluated from a financial perspective (financial strength and other financial indicators) by performance in the stock market and analysis opinions. The result of this thesis will be investment recommendations for the five companies and the cloud computing market as a whole.

The goal of the first part of the literature review is to familiarise the reader with basic principles of cloud computing. The goal of the second part is to introduce the companies; describe their history and relation to cloud computing; activity in the stock market (IPO, stock splits and dividends) and their acquisitions.

The empirical section will analyse the economic, financial and investment potential of each company and compare them according to their performance and annual reports.

The discussion will analyse future trends and opportunities for the reviewed companies and the cloud computing sector.

II Introduction

The recent boom in cloud computing has meant many new opportunities for companies; they can outsource their software applications, network, storage, database and other services. This causes lower costs of hardware, software and maintenance, due to a virtual desktop provided over the internet. Industries which can benefit from cloud are in particular education, healthcare and information technology. Also companies with enough resources, especially cash, technology and know-how, have a huge potential in this market. Over time, companies are becoming more interested in cloud computing owing to the possibility of higher sales. The key company that widely began the development of cloud computing is Amazon Inc., followed by many other companies.

This thesis will evaluate and analyse the cloud computing market and so-called “Tech wars” from a financial point of view. Included will be the analysis of five key companies with strong influence and high potential within this market (Google Inc., Apple Inc., Microsoft Corporation, Facebook, Inc., and Amazon Inc.). All companies are included in NASDAQ-100 stock market index and four of them are also included in S&P 500 stock market index, with possible entry of Facebook in late 2013.

Amazon Inc. should be included notably for its history, research and development and number one position in cloud computing. Google Inc. and Microsoft Corporation maintain huge cash reserves, technologies, customer base and position among the top 5 companies in cloud computing. Apple Inc. is selected for its technology research, excessive cash, strong customer base and high potential. And finally Facebook, Inc. is chosen for its huge customer base and potential in future sales through social networking.

These companies will be compared by factors that determine success: cash and overall financial stability, technology R&D, customer base, risks, limiting factors and corporate culture (in order to secure employee loyalty). The result will help to evaluate future possibilities and scenarios, which will lead to investment recommendations.

Due to various research assignments I have obtained certain knowledge and interest in the technology sector, particularly for Google, Facebook, and Apple. Cloud computing is an interesting market which includes all mentioned companies. This evokes in me a

desire to analyse the cloud computing market with Google, Facebook, Apple and their competitors Amazon and Microsoft.

This thesis as a financial analysis, which may be beneficial for potential investors willing to invest to either one of the selected companies or the whole cloud computing market. Furthermore, current investors, custodies and different kind of funds can use this thesis as a supportive material to re-evaluate their investments. And last, financial students can profit from the theoretical part concerning companies and from selected methods of analysis.

III Literature Review

1) Cloud computing

The use of cloud computing has become an integral part of daily living for the developed world. People are using cloud servers every day whether they write a Facebook status, buy an e-book on Amazon, listen to music bought on iTunes, call through Skype (owned by Microsoft) or use any Google internet application (including Gmail); it is all done via cloud computing. Users are able to connect their personal files from across the globe through the internet, using various devices such as PCs, laptops, smartphones, televisions and PDAs (Furht & Escakabte, 2010). Yet many people have never heard about cloud computing.

In the early years of the 21st Century, public and business perception of information technology (IT) was about modernization and prestige. The more companies spent on IT structure and development, the more prestige they gained. However, during weakened economic times, especially the recession in 2001 and 2008 financial crisis, companies were looking for ways to reduce expenses. Cloud computing has enabled companies to reduce costs in various ways. Companies can choose whether they want to use public clouds, private clouds, community clouds or hybrid clouds, which are a combination (Hurwitz, 2010). Each category has benefits and disadvantages. For example, public clouds are usually low cost or no cost at all, but they are missing some features and proper technical assistance. Alternatively, private clouds used for on-demand computing service can be very efficient, but also very expensive.

Cloud computing is not just another technology or application. It is so far the last stage in evolution and innovation of the internet and computing as a whole. This has brought an interest from companies, both demanding cloud computing and supplying cloud services. Companies with sufficient cash, technology and know-how see an opportunity for growth in a completely new area. First movers gain a better position and reputation. One very good example is Amazon and its merit in cloud development. “International Data Corporation estimates the market size for cloud computing to be at \$42 Billion by 2012, with an annual growth rate of 27%. Extending this to 2020, the market size for cloud computing stands at an astronomical \$284 Billion” (Duncan, Chu, & Vecchiola, 2009).

1.1. Definition

Cloud computing is not one simple service, and the description is not agreed upon. Therefore, there are countless definitions, different views and approaches.

The most used and interpreted definition of cloud computing is stated by National Institute of Standards and Technology (NIST):

“Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction” (Mell & Grance, 2011).

For comparison, another definition stated:

“Clouds are a large pool of easily usable and accessible virtualized resources (such as hardware, development platforms and/or services). These resources can be dynamically reconfigured to adjust to a variable load (scale), allowing also for an optimum resource utilization. This pool of resources is typically exploited by a pay-per-use model in which guarantees are offered by the Infrastructure Provider by means of customized Service Level Agreements” (Van Bon & Van der Veen, 2007).

Briefly, cloud provides computing as a service through a set of hardware, networks, storage, services and interfaces. Clouds are accessible particularly through the internet which makes it accessible all over the world. Cloud service is mainly considered the virtual delivery of software, infrastructure and storage based on user demand (Hurwitz, 2010).

According to NIST, cloud computing is divided into three service models and four deployment models.

1.1.1. Service Models

Since cloud computing is usually provided as an on-demand service and paid on a usage basis (the more services a company is using, the more they pay), it is helpful to differentiate certain services. There are three services according to NIST (Mell & Grance, 2011):

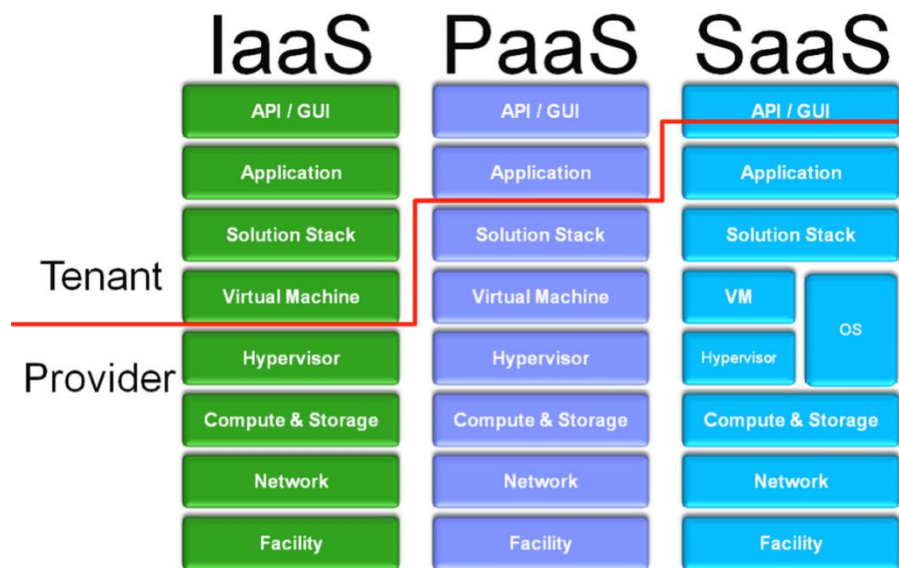
- Software as a Service (SaaS) – SaaS is usually provided to the end user through a web browser or developer’s program interface. The application or software

commonly requires no installation and it is on a pay per use basis. The user does not change the infrastructure including network, servers, operating systems or storage. Since SaaS is used on demand, it is considered as a low-cost way of acquiring software. Typical SaaS are: Google Docs, Gmail, Microsoft Office 365, Netflix and Photoshop.com.

- Platform as a Service (PaaS) – PaaS is used by software developers to develop, operate and run their applications created using programming languages, libraries, services, and tools supported by the provider.
- Infrastructure as a Service (IaaS) – There are several ways to use IaaS as it covers a “wide range of features, from individual servers, to private networks, disk drives, various long term storage devices as well as email servers, domain name servers as well as messaging systems” (Czarnecki, 2011). Users have the possibility to control operating systems, deploy applications and a way of storage (Orlando, 2011) (Mell & Grance, 2011).

As is visible in the following chart, different service models are classified according to a user’s ability to use, manage and change certain features of the cloud. SaaS provides users with just the Application Program Interface (API) and Graphical User Interface (GUI). PaaS gives the additional privilege of managing the Application. The remainder is managed by the cloud provider. IaaS is the most complex of all; it allows the tenant to use and manage API/GUI, applications, solution stack (set of software subsystems or components) and also use virtualization, an advantage being that storage; the networking and facility, is managed and maintained by the provider.

Chart 1. Cloud Service Model



Source: <http://pen-testing.sans.org/blog/2012/07/05/pen-testing-in-the-cloud>

1.1.2. Deployment models

Cloud models can be identified according to their purpose and availability. According to NIST, there are four deployment models:

- Public cloud – It is mostly for open use and especially offered as a pay-per-use model for the general public by a service provider. The most famous public cloud providers are Facebook and Google. This deployment model is most common.
- Private cloud – A private cloud is exclusively operated by one organization with multiple users. The infrastructure can be managed directly by the organization or a third-party. A private cloud is mostly used by bigger organizations, which need a certain degree of security for their sensitive data.
- Community cloud – A community cloud has a similar principal as a private cloud, but it is used between several organizations which have shared concerns and needs (such as security requirements, policy, structure or interest). This cloud may be owned and operated within the community or a third party. Common use of the Community cloud is for governmental institutions, such as hospitals and ministries.
- Hybrid cloud – It is a combination of two or more other clouds (private, public and community) that remain unique entities, but are bound together. Usually it

is for companies that need vital data and applications separated or protected by private cloud, and use the public cloud for supporting activities, such as email (Visma, 2012) (Mell & Grance, 2011).

1.2. History

Many people believe that cloud computing is something revolutionary and it is here not longer than half a decade. However, the roots of cloud computing date back around 50 years.

The very first idea of cloud computing was formed during the **1960s**, by two computer gurus. John McCarthy stated that “*computation may someday be organized as a public utility*” (Biswas, 2011) (John McCarthy – 1960). The second person who has merits for cloud computing is J.C.R. Licklider (developer of ARPANET- first concept of the internet). He came up with the idea of an “intergalactic computer network” in 1969, which is connected to ARPANET and also led to the development of the internet.

In the **1990s**, telecommunication companies started to offer VPN (Virtual Private Network), which was a big step from previous point-to-point data circuits. By **1997**, Professor Ramnath Chellappa (Prakash, 2012), was the first person to use the term “cloud computing” during his lecture.

One of the first innovators to use cloud computing in real business was Salesforce.com. In **1999**, this company introduced online providing of applications and software. Three years later in **2002**, Amazon entered the cloud computing market with Amazon Web Service (AWS), which provided the first cloud-based services. AWS allowed users to store data online, the service was called “Amazon Mechanical Turk”. In **2004** Facebook was launched, bringing a unique way of communication and data storage (photos and videos), making cloud computing a public service.

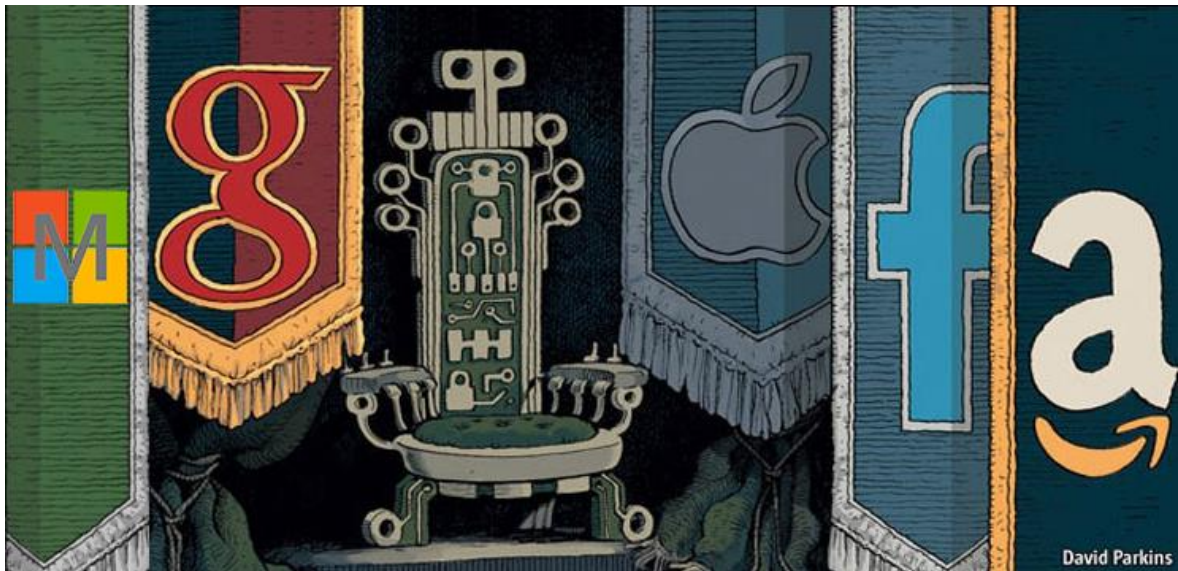
2006 was an important milestone for cloud computing. Amazon extended its cloud services by Elastic Compute cloud (EC2) and Simple Storage Service (S3). EC2 was a commercial web service focused on small business and individuals, allowing them to rent computers to run their own applications (Mohamed, 2009). Simple Storage Service was important, especially for the introduction of the pay-as-you-go model which is mostly used for current cloud services. In the same year, Google entered the cloud market with Google

Apps (especially Google Docs). It was revolutionary and changed cloud computing by offering free cloud services (storage and applications), which increased and changed public perception of cloud computing.

Google and IBM surely saw the potential in cloud computing and in **2007** they collaborated with each other, and some universities, to undertake research of cloud computing. In **2008** Eucalyptus was launched by Eucalyptus Systems, which was the first open source AWS API-compatible platform. By the beginning of **2010**, the next technology giant entered the market; Microsoft announced Microsoft Azure. This allowed developers to build, deploy and manage applications and services. Apple followed, and in **2011** started iCloud which was purely for cloud computing, allowing users to store and sync photos, music, applications and documents between their Apple devices.

Over time, other big technology companies followed such as Oracle, Dell, Hewlett-Packard, Fujitsu, Teradata, VMware and Rackspace.

1.2.1. Technology wars – Battle of The Internet Big Five



Source: Redesigned from <http://www.economist.com/news/21567361-google-apple-facebook-and-amazon-are-each-others-throats-all-sorts-ways-another-game>

Cloud computing needs the internet to survive, therefore those who dominate the internet market have, or may have, a huge potential to dominate also the cloud market. Eric Schmidt (Executive Chairman and formal CEO of Google) said that there are four companies (called “Gang of Four”) dominating the market- Google, Facebook, Apple and Amazon. He said *“It seems to me that there are four companies that are exploiting platform strategies really well. We’ve never had four companies growing at the scale those are, in aggregate”* (Kafka, Eric Schmidt’s “Gang Of Four” Doesn’t Have Room for Microsoft, 2011). Eric Schmidt explained his reasoning with the following speech: *“Each is a consumer brand that provides you something that you could not do otherwise. Google organizes the world's information; Facebook organizes every friend you've ever known, and even ones you can't quite remember. Amazon is the world's largest bookstore and Apple produces beautiful consumer products”* (Learmonth, 2011). He also mentioned that Microsoft does not fit to this group, because *“Microsoft is not driving the consumer revolution”* (Fried, 2011).

Some people do not share the idea of excluding Microsoft from this group. For example, John Battelle, a journalist and a professor, introduced “The Internet Big Five” through his website (Battelle, 2011). The Internet Big Five consists of Amazon, Apple, Facebook, Google and Microsoft. He defends his selection by strong financial position of

all five companies, especially in matters of huge financial capitalization and sufficient cash in order to make strategic moves, such as acquisitions. Another reason is a strong customer base; customers who are faithful to their favourite company. This helps companies to create substantial databases, which can be further used to improve other business activities. And the last reason is their ability to drive and lead their own core markets. The John Battelle’s idea of The Internet Big Five is very appropriate for this thesis and will be used further.

All five companies are monstrous in their category, which is reflected in their market capitalization. This fact is even more important when we consider growth of the selected companies. The following chart shows that the sum of the companies’ market capitalizations counts for 8.11% of the S&P 500 total market capitalization (\$13,297.80B as of 26 February 2013). With such large cash reserves, these companies are able to search for further investment, research or acquisition.

Chart 2. The Internet Big Five Financials

	Market Cap (\$ Billion)*	Market Cap as a % of S&P 500	Cash (\$ Billion)*
Amazon	117,01	0,88%	11,45
Apple	412,87	3,10%	39,82
Facebook	58,49	0,44%	9,63
Google	259,58	1,95%	49,09
Microsoft	231,16	1,74%	68,10

Source: Finance.Yahoo.com, *data as 26 February 2013

These companies are competitors ‘at war’ with many things going on behind the scenes. Some companies are trying to make deals to decrease the advantage of their competitors, and some of them are collecting ammunition (data centers and new technologies).

This war is not unique in the history of IT. Both Microsoft and Apple have been to war before and they know that the winner takes almost everything. Similarly, there was a rivalry between IBM and Apple. It all started in the 1980s when IBM released its new 1982 PC as a rival to Apple II. Apple provoked IBM by their simple advertisement “Welcome, IBM. Seriously”. It led to almost a decade long rivalry which resulted in a partnership favouring Apple (MCLean, 2009).

Another important battle happened in the 1990s between Microsoft and Netscape; it was called “The Browser Wars” (Beattie, 2011). Until 1995 Netscape’s Navigator was the dominant browser. However after Netscape’s massive IPO in 1995, Microsoft saw the potential in web browsers and developed its own web browser, Internet Explorer. Microsoft won this rivalry by offering free Internet Explorer along with every Microsoft OS sold; later in 2009, this was an issue of investigation by the European Commission for abuse of Microsoft’s dominant position in the market. Today, Google could face the same situation. Recently, in 2012, Microsoft bought part of Netscape (belonging to AOL). This included the internet department and some patents regarding internet browsers (Kafka, Attention Marc Andreessen: Microsoft Just Bought (Part of) Netscape, 2012).

Nowadays, the situation varies slightly due to the fact that some cloud services are free, making it easy for users to switch from one provider to another. Also, current companies are bigger, have more cash and most of them are able to compete in different markets. This gives them more available options and strategies; therefore it is hard to predict how they will behave.

The cloud computing market is not the only one where they compete. Some of the most significant competition is in the mobile devices market, web browsers market and social network market. Google’s Android, along with Samsung, is trying to reduce the power of Apple’s iPhone. Amazon with its Kindle tablet, Microsoft and Google are also attacking Apple’s iPod market. Google+ is unsuccessfully trying to cut a piece of the social networking market. And Microsoft’s Bing along with Yahoo is slowly getting its position in the web browser market over Google’s Chrome (The Economist, 2012).

Google and Apple were not always rivals and have cooperated in the past. However, both companies were growing and expanding, and they started to meet in the same markets and compete with each other. Until 2009, some top managers were members of both Apple’s and Google’s board, but with increasing competition they left their positions. For example Eric Schmidt (Google’s CEO at that time) quit Apple’s board. Similarly, Arthur Levinson (a director of Apple and a Google board member) decided to leave Google’s board (The Economist, 2009).

As was mentioned before, the Internet Big Five have accumulated an excessive amount of cash. This gives them a big advantage over smaller emerging companies, and

increases the opportunity to buy them out. This will destroy competition, improve their employee skill base and strengthen their position in the market. It is clear that acquiring companies forms part of their strategies. Microsoft and Google are really masters in terms of acquisitions, Microsoft has acquired more than 150 companies and Google has acquired more than 120 companies. Following is Amazon with half, but still an impressive 70 acquisitions. Both Apple and Facebook have made around 40 acquisitions.

Acquisitions are sometimes necessary to survive. For example, Facebook acquired its rival Instagram for \$1 billion in 2012 and Amazon acquired Zappos, an online shoe retailer which was a possible rival, for over \$1 billion in 2009 (The Economist, 2012). Acquisitions of each company will be deeply analysed in subsequent sections.

Acquisition is not the only option. Companies are creating partnerships or mergers to build up their competitiveness. As written before, Google and Apple cooperated. Google was providing Google Maps to iPhones until Apple developed their own software. Another case of cooperation was between Microsoft's Bing and Yahoo in 2009. Yahoo leased Microsoft's technology due to financial problems, and in return Microsoft kept 12 % of search revenues (Sullivan, 2009). As a result of this, Google lost some of its search engine market share. However, Google still holds a solid 88.8% of the global market and 86.3% of the US market.

2) Companies' Overview

2.1. Amazon.com Inc.



http://farm9.staticflickr.com/8488/8170723390_66a7b9f03e_z.jpg

There is one real and scary nightmare for all brick-and-mortar retailers all over the world; it is Amazon.com Inc. (AMZN). In its early days, Amazon marketed itself as the “World’s Largest Bookstore” (Miller, 2004). Due to Amazon’s low cost business model, highly efficient delivery network and low costs on customer service, Amazon gained a sustainable comparative advantage over brick-and-mortar bookstores (Hottovy, 2013). Those retailers could not keep the pace with Amazon and many of them went out of business.

Nowadays, Amazon not only focuses on books, but it provides a wide range of goods from music and electronics to clothing and jewellery. Amazon’s mission is “to be Earth’s most customer-centric company, where customers can find and discover anything they might want to buy online, and endeavours to offer its customers the lowest possible prices” (Amazon.com Inc., 2013). Amazon became a serious competitor of North America’s biggest retailers like Wal-Mart and Costco (for non-food products).

2.1.1. History

The company was founded by Jeff Bezos in Seattle, Washington in 1994. Jeff Bezos was cooperating with software specialists to create a unique internet e-shop with highly efficient search capabilities. The website was finished and launched in July 1995. The books were shipped from Bezos’s garage to secure low costs. At that time, Amazon was selling just books. Amazon tried to minimize its warehouse as much as possible, so it arranged an agreement with wholesalers and publishers to send books directly from them. As a result, Amazon kept only around 2,000 books in its warehouse, even though it provided more than 1.5 million titles. Within the first month of Amazon’s presence in the

market, it managed to fill orders all over the States and 45 other countries (Funding Universe, 2012). The name Amazon was selected particularly for its first letter “A” to be on the first page in online searches. Later, the name was used to illustrate its product availability from A to Z (AmaZon).

On 15 May 1997, Amazon went public with an IPO of three million shares of common stock (Rushton, 2009). Amazon’s IPO will be further discussed in the following section. Amazon opened its new East Coast distribution center in New Castle, Delaware to decrease delivery time for the East Coast. Amazon introduced its 1-Click™ system patent, which allowed making an online purchase with one click. In October 1997, Amazon passed their milestone of one million customers (Amazon.com Inc., 2013).

In 1998, Amazon expanded its growth through acquisitions in Germany (Telebook) and the United Kingdom (Bookpages). This enabled the launch of international websites (Amazon.co.uk and Amazon.de) and it gained new customer bases. In the same year, Amazon also started to offer movies and music. By the end of 1998, Amazon served over three million customers.

In 1999, Amazon launched an online auction service named Amazon Auctions. The company also included toys and electronics into its product range.

By the end of the 1990’s Bezos claimed that Amazon’s business model was mainly about growth and getting market share, not about profit. Bezos expected to not make a serious profit for four to five years. With the “dot-com boom” Amazon was making losses, but due to its high comparative advantage, low cost model and well-built infrastructure, Amazon was able to defeat its competitors and ensure its position in the market. This led to an increase in sales and in the last quarter of 2001, Amazon secured a net profit of \$5 million (Funding Universe, 2012).

In 2002, Amazon entered the cloud computing market with Amazon Web Service (AWS). Year over year, Amazon was adding new products along with new stores (Kitchen store, Travel store, Apparel & Accessories store, Amazon Services, Sports & Outdoor store, Health & Personal Care store, Jewellery store and many others), followed by many important acquisitions. The company was also establishing new fulfilment centers (Kansas, Kentucky and Nevada) and customer services (Washington and West Virginia). Amazon

joined important alliances with Toys “R” Us, National Basketball Association (NBA), Borders Group, Target stores and Bombay Company.

The important milestones for Amazon were in 2006, when Amazon extended its cloud services by Elastic Compute cloud and Simple Storage Service and in 2007, when the company introduced the first Kindle (electronic book reader). Since that time, Kindle has been updated and modernized every year.

Year 2011 meant for Amazon a big innovation in cloud computing. It introduced additional services for AWS: Cloud Formation, Amazon Cloud Drive, Amazon Cloud Player for Web, Amazon Cloud Player, Amazon Virtual Private Cloud (VPC) and Kindle Cloud Reader (3G electronic book reader with access to the cloud database) (Amazon Genius, 2012).

2.1.2. Initial Public Offering

On 24 March 1997, Amazon submitted a Securities and Exchange Commission (SEC) form S-1 regarding the public listing of Amazon.com Inc. with an expected IPO date of 15 May 1997. According to the SEC S-1 Form, Amazon asked to register 2,875,000 common stock shares with a proposed maximum offering price of \$13.00 per share, making the maximum aggregate offering price at \$37,375,000 (Amazon.com Inc., 1997). Three days later, in an S-1/A amendment, Amazon increased its proposed maximum offering price to \$14.00 per share. As of 13 May 1997, Amazon proposed both a maximum offering price of \$16.00 per share and 3,450,000 common stock shares to be issued. In total, the proposed maximum aggregate offering price was \$55,200,000 (Amazon.com Inc., 1997).

The target price was already increased twice, yet the day prior to the IPO the company’s investment bankers settled on \$18.00 per share and put three million shares forward for trading (Martin, 2011). On 15 May 1997, Amazon.com Inc. became publicly listed and available for trading on the NASDAQ stock exchange under the ticker AMZN.

On the first day of trading, Amazon’s stock value closed at \$23.50 per share with the day’s peak at \$30 per share. In total, the IPO raised \$54 million for Amazon, creating a total market value of \$438 million (Galante & Kawamoto, 1997).

Right after the IPO, the stock price fell and Amazon traded below the IPO price for over a month. In July 1997, Amazon reported a very good second quarter and Amazon's stock price sharply increased. Within two months, Amazon's stock price increased by more than 40% since the IPO.

2.1.3. Stock Splits

Amazon historically has split its stock three times (Amazon.com Inc., 2011).

- 1st split occurred on 2 June 1998; the stock split was 2-for-1
- 2nd split occurred on 5 January 1999; the stock split was 3-for-1
- 3rd split occurred on 1 September 1999; the stock split was 2-for-1

As a result of stock splits, shareholders received twelve times (2*3*2) more shares, but the stock price decreased twelve times as well. Therefore, instead of \$18 per share during the IPO, the stock price adjusted for the stock splits to \$1.50 per share. On the other hand, Amazon's current share price (\$258.05 as of 3 May 2013), in terms of the IPO price, is an enormous \$3,096.6.

2.1.4. Acquisitions

In the world of online retailing, Amazon is well known for its acquisitions and investments. Unlike Facebook and Google that are acquiring either small growing companies or their rivals, Amazon is mostly acquiring companies to expand its customer base or distribution channels. It is quite normal that Amazon is even acquiring dying companies before bankruptcy.

Amazon's 2012 annual report draws attention to the purpose and importance of acquisitions. "The primary reasons for acquisitions were to expand our customer base and sales channels, including our consumer channels and subscription entertainment services" (Amazon.com Inc., 2013).

In its almost twenty year history, Amazon managed to acquire over 70 companies. Some of them were smaller (CatalogCity.com for \$5 million) and some of them were big and expensive. An example of this case is Zappos, with Amazon paying about \$1.2 billion in total. Reasons for the acquisition included Zappos' growth potential, very niche culture, well managed customer service and also for Zappos' personnel (executives and their employees) (Parr, 2009).

Amazon's most recent acquisition is Goodreads, with 16 million users it was the largest book-focused social networking site. In March 2013, Amazon announced its purchase of Goodreads for \$150-200 million. In the case of \$200 million, Amazon would be paying just \$12.50 for each user. To compare, Facebook paid \$1 billion for Instagram with 35 million users; it was almost \$29 per user (Stock, 2013).

There were two main reasons for the acquisition. Goodreads provides a strong customer base offering a great opportunity to promote Amazon's books. The second reason is less obvious. Goodreads and Apple were discussing a partnership about connecting Goodreads with Apple's iBookstore to share and rate books directly from iBookstore. Therefore, the acquisition had a strategic purpose and decreased the threat from its competitor.

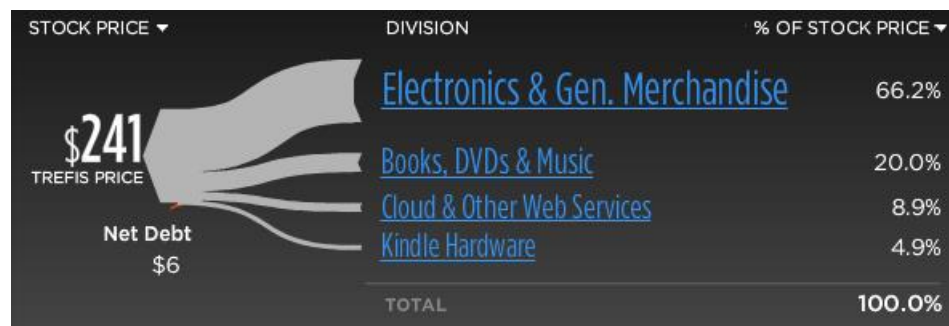
2.1.5. Stock Price

As was already stated before, Amazon's current stock price is \$258.05 per share (as of 3 May 2013). Analyst website Trefis.com assessed the theoretical stock price at \$241 per share based on estimated factors driving the company's value.

Despite Amazon's history and its roots in book selling, books with DVD sales and music sales create only 20% of the whole stock price value. The majority of Amazon's stock price (66.2%) consists of electronics and general merchandise sales. Cloud and other web services make 8.9% of Amazon's stock price; it is considerable when compared to their share of total revenue (4.13%). It shows the potential and importance of cloud services for Amazon. The rest of the stock price (4.9%) is made up by Kindle hardware sales (Trefis, 2013).

The total stock price is decreased by \$5.70 (about 2.3%) due to net debt. Amazon's net debt in the first quarter of 2013 was \$2.7 billion, producing \$5.70 debt per share (Amazon.com Inc., 2013).

Chart 3. Trefis Price Distribution for Amazon



Source: <http://www.trefis.com/company?hm=AMZN.trefis&from=search#/AMZN/n-0299?from=sankey>

2.1.6. Dividends

Amazon is currently not paying any dividends (as of 11 May 2013) and on its website claims the following: “We have never declared or paid cash dividends on our common stock. We intend to retain all future earnings to finance future growth and, therefore, do not anticipate paying any cash dividends in the foreseeable future. The Company currently does not offer a Direct Stock Purchase Plan” (Amazon.com Inc., 2011).

2.1.7. Fiscal Year

Amazon’s fiscal calendar is based on the calendar year. Therefore, it starts on 1 January 2013 and ends on 31 December 2013; quarters end on 31 March, 30 June, 30 September and 31 December 2013 (Amazon.com Inc., 2011).

2.1.8. Amazon by the Numbers

Amazon operates with 66 million square feet of fulfilment and data centers. About 53% of this is located in North America and the rest internationally. Only about 0.5% of fulfilment and data centers are directly owned, the rest are leased (Amazon.com Inc., 2013).

In April 2013, Amazon’s AWS S3 achieved two trillion objects stored in the cloud; a 100% increase since June 2012. With the world’s population around 7.1 billion, it is the equivalent of every person having around 280 objects in S3. S3 is also regularly peaking at over 1.1 million requests per second (Schwartz, 2013). Every object in S3 carries two kilobytes of metadata. Therefore, objects’ metadata solely carries approximately 1.82 petabytes (10^{15}).

Amazon has an average 191,660,324 page views per day, from 21,271,956 visitors every day, with the average page load time being 0.6 seconds. Just the page loading bandwidth is 37.32 TB per day (4seohunt, 2013).

2.2. Apple Inc.



Source: <http://scoolbell.files.wordpress.com/2012/12/apple-logo-silver.jpg?w=960>

Apple Inc. (AAPL) is the largest company ever to have existed (according to its market cap which peaked at \$656.3 billion on 21 September 2012) and has earned the status of “World’s most admired company” for five years in a row. This status is principally for its prosperity and successful products sales (Cable News Network, 2012).

There is no one in today’s developed world unaware of Apple and its products. Despite their price, Apple’s products, especially iPhones, are so trendy and fashionable that customers range from people who cannot afford it and buy it anyway to the richest people.

According the Boston Consulting Group (BCG) executive survey, Apple was the most innovative company in 2012. Apple has held the first place in this ranking since 2005. Google has been number two since 2006. Microsoft, Facebook and Amazon are numbers four, five and nine (The Boston Consulting Group, 2012). The complete list of the 50 most innovative companies can be found in Appendix 1.

Apple has a wide range of provided software, hardware and online services. The key offerings from Apple’s product lines are: Pro line laptops (MacBook Pro) and desktops (Mac Pro), consumer line laptops (MacBook Air) and desktops (iMac), servers (Xserve), Apple TV, the Mac OS X and Mac OS X Server operating systems, the iPod, the iPhone (now available for sale in over 90 countries), and the iPad (CrunchBase, 2013).

2.2.1. History

It all started in 1976 when two friends, Steve Jobs and Steve Wozniak, left their day jobs (for Atari and Hewlett-Packard) and developed the Apple I, personal computer kit. They immediately founded Apple Computers. Ronald Wayne was also co-founder, but he quit for fear of financial loss. Mike Markkula, former Intel employee, joined Apple, invested \$250,000 and offered the company's business plan. In 1977, Apple was incorporated and introduced the Apple II as the first personal computer for the mass market. The Apple II became popular and it secured the company's name, success and boosted company growth. By 1979, Apple sold more than 35,000 computers (Sanford, 2004).

In December 1980 Apple went public, and the same year the Apple III was introduced. However, it was not as successful as the Apple II. By 1983, Jon Sculley was named Apple's CEO (former president of Pepsi-Cola) and Apple Lisa, the personal computer with a graphical user interface (GUI), was released. Lisa was not successful either, because the market was already dominated with IBM's PC (Groeger, 2006). On 22 January 1984, Steve Jobs presented the first Macintosh (successful line of personal computers continuing until today). Macintosh was another milestone and finally a successful product after Apple II (Bellis, *Investors of the Modern Computer*, 2012).

Apple went through a time of severe crisis, during which Jobs did not get along with Sculley and later with members of the board. In May 1985, Jobs was dismissed from his managerial position and was left without any power or influence. In December 1989, Jobs left the company, later hiring some former employees of Apple, and founded a new company NeXT. Apple's crisis continued and it had to lay off 20% of its workforce (Linzmayr, 2006).

During the rest of the 1980s and the beginning of the 1990s, Apple released several new versions of Apple II and Macintosh, but the company was still struggling. This resulted in the dismissal of Sculley. In December 1996, Apple acquired NeXT and Jobs re-joined Apple. Despite Jobs' position in Apple as an advisor, he had significant influence on the company's strategy and development. Later in 2000, Jobs became the new CEO (Liang, 2011).

In 1998, iMac (new generation of PC) was introduced. It became immediately popular and launched Apple back as a computer industry leader. Later, famous products like iBook (laptop, 1999), Power Mac G4 (powerful personal computer, 1999), Mac OS X (operating system, 2001) and iPod (portable media player, 2001) were released strengthening Apple's position. In 2001, Apple opened new retail stores to improve the computer sales market and as a response to poor marketing. In 2003, sales of iPods were boosted with the introduction of iTunes (platform for downloading music and videos) (Laster, 2012). Within three years, iTunes sold 1 billion songs; 10 billion and 25 billion songs by 2010 and 2013 (Gross, 2013).

In January 2000, Apple opened its first online services space (iTools) to access an @mac.com email account plus some smaller features like a web page publishing service. Very soon, the iDisk feature was added; it allowed online storage up to 20 GB of data. In two years, iTools was renamed to .mac and some special features (personal data backup) were added to iDisk. Similarly in 2008, .mac was renamed to MobileMe (Bohon, 2011).

Since 2006, Apple has released very successful series of electronic technologies including MacBook (new generation laptop, 2006), iOS (mobile operating system, 2007), iPhone (smartphone, 2007) and iPad (tablet computer, 2010) (Apple Inc., 2013). On 9 January 2007, Apple Computers Inc. dropped "computers" from its name and became just Apple Inc. (Ricker, 2007). On 5 October 2011, Apple's CEO, Steve Jobs died and Tim Cook took his post as CEO (Fitzgerald, 2012).

On 12 October 2011, MobileMe was replaced by iCloud. Apple's "*iCloud is the Company's cloud service, which stores music, photos, applications, contacts, calendars, and documents and wirelessly pushes them to multiple iOS devices, Mac and Windows-based computers*" (Apple Inc., 2012). The service is also available for Windows PCs and it provides 5 GB of free storage space (Goodwill Community Foundation, Inc, 2013).

2.2.2. Initial Public Offering

On 12 December 1980, Apple Computer Inc. launched its IPO and went public on the NASDAQ with the ticker AAPL. Apple offered 4.6 million shares at \$22 per share; the previous suggested price range was \$20 to \$22 per share. According to Boston's state regulators, the offering was too risky and barred Apple's stock trading in Massachusetts (Rustin, 1980). In total, Apple raised slightly over \$100 million. The very same day as the

IPO, Apple's stock price closed at \$29 per share, making a 32% increase from the IPO price (Deffree, 2012).

2.2.3. Stock Splits

During its 32 years history, Apple has split its stock three times (Apple Inc., 2013).

- 1st split occurred on 15 June 1987; the stock split was 2-for-1
- 2nd split occurred on 21 June 2000; the stock split was 2-for-1
- 3rd split occurred on 28 February 2005; the stock split was 2-for-1

It resulted in a price eight times lower ($2*2*2$) and eight times more shares in the market since the IPO. Therefore, the adjusted IPO share price becomes \$2.75, instead of \$22. Apple's current share price (\$452.97 as of 10 May 2013), in terms of the IPO price, would be \$3,623.76; it is even more than Amazon in a similar situation.

2.2.4. Acquisitions

Despite Apple's cash reserves, Apple has the least acquisitions in comparison to the other companies; not even disclosed acquisition values are close. One of the reasons is that Apple presents itself as an innovator and invents its own products. But still, Apple's acquisitions are notable and the company has made around 40 acquisitions. The most recent acquisition was WifiSLAM, a technology company focusing on indoor-GPS location software; SLAM means simultaneous localization and mapping. WifiSLAM was acquired for its mobile apps to detect user's location in a building (without reaching GPS satellites) using Wi-Fi signal (Panzarino, 2013). Apple paid a humble \$20 million (Cheredar, 2013).

The largest and possibly the most important acquisition was already mentioned, the acquisition of Jobs' NeXT for \$400 million in 1997. NeXT was acquired for its technology (Mac OS X) and employees – including Jobs (Kawamoto, Zamamoto, & Peline, 1996).

The second most expensive acquisition was Israeli Anobit Technologies Ltd., a flash-memory maker, for \$390 million in 2011. Anobit's technology provided more efficient and optimized memory capabilities inside iPhones and iPads (Solomon & Feryiger, 2012).

Another important acquisition was Siri Inc., Siri was an app developer providing speech recognition and voice commands software. Siri was acquired in 2010 for an undisclosed price. Right after acquisition, Apple included Siri in the iPhone 4S in 2011 (Guglielmo, 2012).

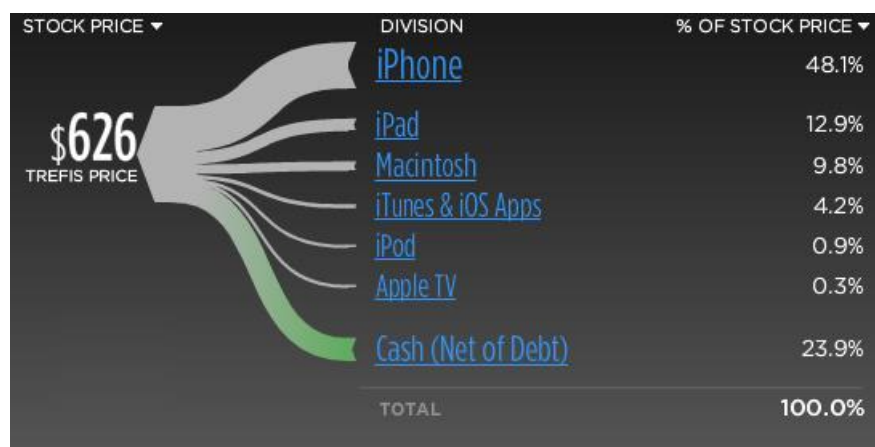
2.2.5. Stock Price

Apple's current stock price is \$452.97 per share, as of 10 May 2013. However, analyst website Trefis.com assessed the theoretical stock price at 38% higher than the actual stock price, based on estimated factors driving the company's value.

The largest part, almost half, of Apple's stock price (48.1%) is made up by sales of iPhones; followed by sales of iPads with 12.9%. Macintosh is split into four parts and in total Macintosh represents 9.8% of Apple's price; as well as 5.5% of notebooks, 2.9% of software and services, 0.7% of desktops and 0.7% of peripherals and accessories. 4.2% of Apple's price is represented by iTunes (1.1%) and iOS apps (3%, including iCloud and apps for iPhone, iPod and iPad). Sales of iPod represent just 0.9% and Apple TV represents a negligible 0.3%.

Apple is famous for its cash (net of debt), which is currently \$140 billion (fiscal Q2 of 2013, ending 30 March 2013); cash (net of debt) includes cash and cash equivalents less total debt (convertibles are excluded). Calculated cash (net of debt) per share is \$150. Therefore, 23.9% of Trefis' stock price for Apple (Trefis, 2013).

Chart 4. Trefis Price Distribution for Apple



Source: <http://www.trefis.com/company?hm=AAPL.trefis&from=search#>

2.2.6. Dividends

Since 1987, Apple regularly paid quarterly cash dividends, starting at \$0.06 per share. Apple was gradually increasing the Company's quarterly dividend; by 33% (to \$0.08 in 1987), 25% (to \$0.1 in 1988), 10% (to \$0.11 in 1989) and 9.1% (to \$0.12 in 1990). The quarterly dividend of \$0.12 per share stayed until 15 December 1995, when Apple suspended its dividends due to its financial crisis. However, in 2012, Apple started to pay dividends when it accumulated nearly \$100 billion in cash at the end of 2011. Apple intended to attract a new class of investors (Wingfield, 2012). Apple announced to buy back \$10 billion of its own shares over three years with the intention to *"help stave off earnings-per-share dilution from future employee stock grants and purchase programs"* (Goldman, 2012).

On 16 August 2012, Apple paid \$2.65 per share as a dividend and on 23 April 2013, Apple announced to increase quarterly dividends by 15% (payable on 16 May 2013) to \$3.05 per share (Apple Inc., 2013).

The same day, Apple announced to massively increase its buyback plan; Apple planned to buy back \$60 billion of its own stock. Apple Chief Financial Officer Peter Oppenheimer said *"This is the largest share buyback operation of any company in history"* (Zeitlin, 2013). The reason why Apple with a cash balance of \$145 billion wants to borrow \$60 billion is tax related; Apple holds around \$102 billion offshore and on transferring back to the US, the company would pay 35% corporate income tax. The buyback would reduce Apple's tax bill by more than it would pay on the interest needed to fund the share repurchase programme (Lovejoy, 2013); interest is deductible from corporate tax.

2.2.7. Fiscal Year

Apple has a relatively unusual fiscal year; it starts on 30 September 2012 through 28 September 2013; quarters end on 29 December 2012, 30 March, 30 June and 29 September 2013 (Apple Inc., 2013).

2.2.8. Apple by the Numbers

With net sales for 2012 at \$156.5 billion (Apple Inc., 2012), Apple's sales are higher than the combined 2011 GDP of Slovak Republic (\$96 billion) and Luxembourg (\$59.2 billion) (The World Bank Group, 2013).

Apple has beaten Wall Street's financial estimates in 16 out of the last 17 quarters.

Apple with a cash balance of \$145 billion would be able to bail out the external debt for the whole of Central America and six countries of South America (Ecuador, Guyana, Paraguay, Peru, Suriname and Uruguay). The table with external debts can be found in Appendix 2 (Central Intelligence Agency, 2013).

Apple sold over 350 million iPods which is more than the entire United States' population (Sloan, 2012).

The total number of iOS devices sold is over 500 million and there are over 250 million activated iCloud accounts (Ingraham, 2013).

Apple's current market cap (\$425.1 billion) covers the entire market cap of the nine following companies competing with Apple:

- Facebook (\$64.5 billion)
- Amazon (\$120 billion)
- LinkedIn Corporation (\$19 billion)
- Samsung Electronics Co. Ltd. (\$184 billion on OTC Markets)
- Research in Motion Limited (\$8 billion on NasdaqGS)
- Nokia Corporation (\$13.6 billion on NYSE)
- LG Electronics Inc. (\$3.4 billion on LSE)
- ZTE Corp. (\$2.9 billion on OTC Markets)
- HTC Corporation (\$6.2 billion on OTC Markets)

In total, their market cap is \$421.6 billion; all data are as of 10 May 2013.

2.3. Facebook, Inc.



http://www.serc.net/system/files/images/facebook_logo.preview.jpg

Facebook, Inc. (FB) is not the first significant social network on the internet like MySpace or Friendster. But it is the most important one. Facebook overgrew them very quickly and became the biggest social network ever. As of 31 December 2012, Facebook counted 1.06 billion monthly active users (MAU) (Facebook Inc., 2013). If Facebook was a country, it would be the third most populated nation. This counts approximately for 15% of the world's population, as of 30 March 2013 (Worldometers, 2013). Thus, the potential and influence that Facebook holds is unimaginable.

There are many websites providing very niche online services; MySpace provides social networking, Twitter allows real time communication, Flickr (owned by Yahoo! Inc.) allows users to upload photos, YouTube provides the uploading of videos, LinkedIn gives an opportunity to find a job or employee and many other websites offer free online games. What makes Facebook unique is combining all previously mentioned services together into one, user friendly website under one domain, facebook.com. Every uploaded photo or video, every status or conversation and all other online services are provided via cloud computing, mostly SaaS and PaaS.

The main purpose of Facebook is to remain as a free service with the ability to collect personal data and provide highly efficient target advertisements, its core source of revenue.

2.3.1. History

On 4 February 2004, creator and founder of Facebook, Mark Zuckerberg launched a pre-version of Facebook called TheFacebook. TheFacebook enabled social networking exclusively for Harvard students (recognized according to emails with Harvard's domain).

The website was developed along with Zuckerberg's classmates from Harvard; Eduardo Saverin, Dustin Moskovitz, Andrew McCollum and Chris Hughes. Six days after releasing TheFacebook, Zuckerberg was accused of stealing ideas for TheFacebook from a similar project (ConnectU), which belonged to Cameron Winklevoss, Tyler Winklevoss and Divya Narendra. (Bellis, 2011) Within twenty four hours after the launch over twelve hundred students had joined the network, and by the end of month, over half of the undergraduate students had a profile (Phillips, 2007).

In March 2004, TheFacebook expanded to another three universities (Columbia, Yale and Stanford). In June 2004, TheFacebook received its first investment of \$500,000 from the co-founder of PayPal in exchange for 10.2% of ownership. Gradually, TheFacebook was extended to other universities and colleges and by the end of 2004, one million users were registered.

In August 2005, TheFacebook bought facebook.com web address, which became the new website and official logo. Facebook.com was purchased for \$200,000. In September 2005, US high school students and UK university students could register on Facebook. Shortly afterwards, Facebook's membership was offered to employees of some companies; two of them were Microsoft and Apple. By the end of 2005, universities from Australia, New Zealand, Canada, Ireland and Mexico were added.

As of 26 September 2006, Facebook became open to people outside of the educational system. There were several offers of acquisitions or mergers, especially from Yahoo and Google, with the highest discussed amount around \$2B, but Zuckerberg refused to sell his company. On 24 October 2007, Microsoft purchased 1.6% of the company for \$240M.

The lawsuit concerning the IPO of ConnectU was settled on 25 June 2008. Facebook agreed to pay \$20M in cash and transfer 1,253,326 shares of common stock to ConnectU (FOX News Network, LLC, 2009). By September 2009, Facebook claimed the first positive cash flow since the creation of the company.

On 18 May 2012, Facebook made its initial public offering (IPO) and entered the stock market. As of October 2012, Facebook reached one billion registered users (Zeevi, 2013).

2.3.2. Initial Public Offering

On 1 February 2012, Facebook filed for an IPO on the NASDAQ with a plan to raise \$5B with a preliminary stock price estimate of \$29.73 per share, as of 31 December 2011 (Pepitone, Facebook files for \$5 billion IPO, 2012). In order to keep its own sovereignty, Zuckerberg was to retain 22% ownership and 57% of voting rights (Dipak, 2012). By May 2012, Facebook set the IPO price range between \$28 and \$35 per share and increased the maximum offering to \$13.6B (Pepitone, Facebook sets \$28 to \$35 IPO price range, 2012). Two weeks later, Facebook again increased the maximum size of its offering by 25% to \$16B (421.2 million shares instead of 337.4 million shares) (Isidore, 2012).

The day before its IPO, Facebook set the final IPO price at \$34 to \$38 per share. On 18 May 2012, Facebook opened at \$38, but the first trade came in at \$42.05 per share. The final price, at market close, was \$38.23 per share. With a volume of 565 million traded shares, Facebook set the record for IPO volume. As a result, Facebook was valued at \$104B, which was the largest company value on the day of public offering (McCarthy & Rushe, 2012).

2.3.3. Acquisitions

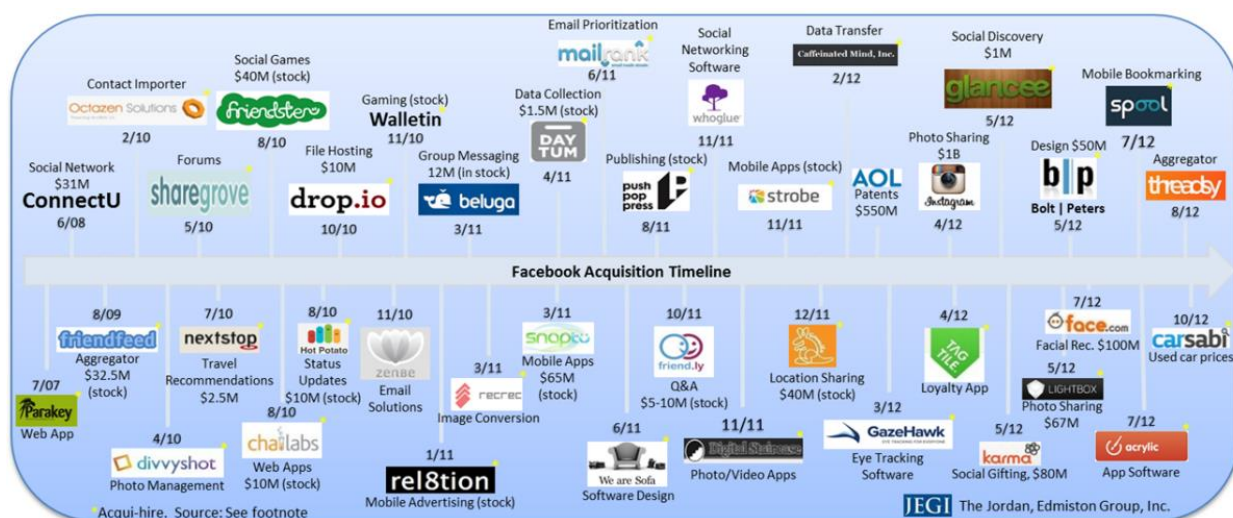
Acquisition is a very powerful tool to get new employees, technologies and know-how, but also to eliminate competition. Facebook is aware of this and with rising cash reserves, Facebook is acquiring more companies year by year.

Historically, the first acquisition occurred on 16 July 2007, when Facebook bought a small software company called Parakey. This is a good example of purchasing a company for its skilled employees with their know-how. Parakey's software was used in Facebook Mobile (Malik, 2007). Other strategic acquisitions followed: FriendsFeed for real-time news feed, Octazen for advanced friend lists, Divvyshot for Facebook Photos, ShareGrove for Facebook Groups, Beluga for Facebook Messenger, Snaptu for improving Facebook Mobile and many others (Black, 2012). A complete timeline of Facebook's acquisitions is visible on the following chart.

The largest acquisition of Facebook is Instagram. Instagram allows users to upload and share photos. On 9 April 2012, Facebook agreed to pay \$1B for Instagram. Facebook kept Instagram sovereignty and began cooperation efforts beneficial for both companies (Darwell, 2012).

It has to be mentioned also, that Facebook signed a 5-year contract with Zynga (Provider of online games) regarding a strategic partnership on 18 May 2010. However, this contract was terminated. Their partnership still remained, but Zynga was no longer an exclusive online games provider (Owen, 2012).

Chart 5. Facebook Acquisition Timeline



Source: <http://www.iab.net/media/file/JEGIIABSocialMediaReport.pdf>

2.3.4. Stock Price

Facebook's current share price is \$25.58, as of 27 March 2013. Analyst website Trefis.com assessed the theoretical stock price at \$24.74 per share based on estimated factors driving the company's value.

According to Trefis, 70.8% of Facebook's stock price is created by text & display ads; the sum of both online and mobile advertising. Transactions on virtual goods generate 12.7%, where virtual goods can be digital books or movies. However, in this case, it is connected to online games. 10% of the stock price is created by current cash (\$6.5B); more precisely, \$2.4B in cash and cash equivalents and \$7.2B in marketable securities, weighted by long-term and short-term debt (\$3.1B). The last part of Facebook's price is social commerce, creating 6.6% of the stock price (Trefis, 2013).

Chart 6. Trefis Price Distribution for Facebook



Source: <http://www.trefis.com/company?hm=FB.trefis&from=search#/FB/n-0003?from=sankey>

2.3.5. Dividends

Facebook is currently paying no dividends, as of 11 May 2013. In the beginning of 2013, analysts expected Facebook to announce paying dividends in order to boost its declining stock price, but Zuckerberg did not mention anything about dividends (Van Grove, 2013).

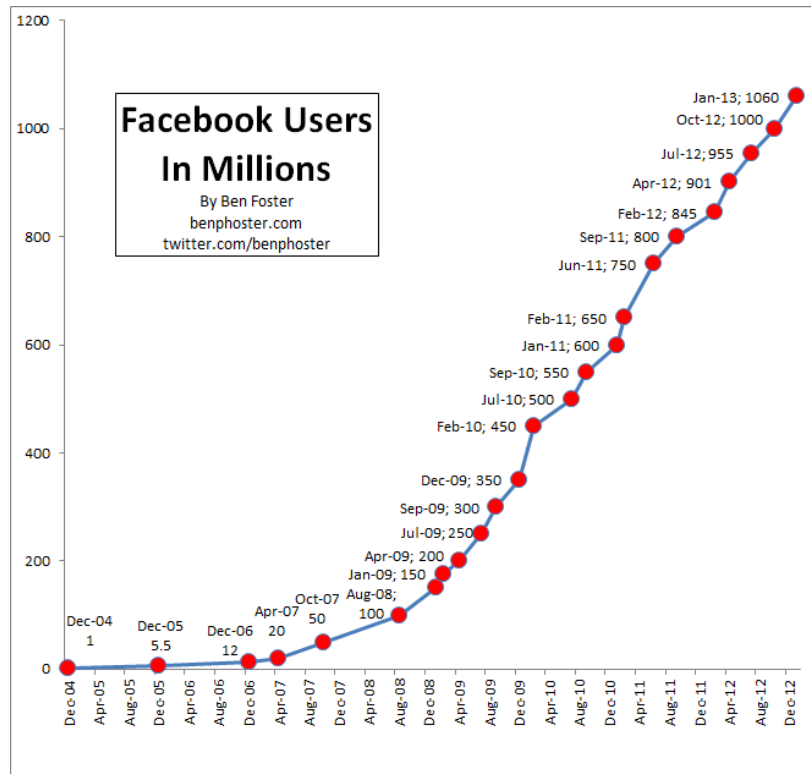
2.3.6. Fiscal Year

Facebook's fiscal year is according calendar year. Therefore, it is from 1 January to 31 December 2013; quarters end on 31 March, 30 June, 30 September and 31 December 2013 (Facebook, Inc., 2013).

2.3.7. Facebook by the Numbers

Facebook's customer base has continuously grown month on month for over eight years. As of 31 December 2012, Facebook recorded over 1.06 billion monthly active users (MAUs), a 25% increase from last year. Of those, 680 million MAUs accessed Facebook through Facebook Mobile (57% increase from last year). At the same time, Facebook noted 618 million daily active users (DAUs) with year-to-year growth of 28%. It is an incredible growth, which has to stop someday, the question is when? The total population with internet connection is around 2.4B (as of 30 June 2012) (Miniwatts Marketing Group, 2012). This means that the market reach is 44% and Facebook still has space to grow; the possible potential growth is 126%.

Chart 7. Facebook Monthly Active Users

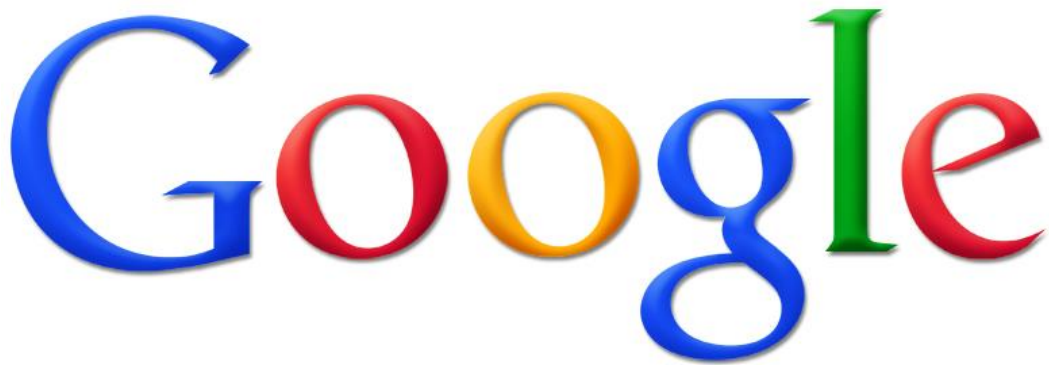


Source: <http://www.benphoster.com/wp-content/uploads/2011/07/Facebook-User-Growth-Chart.png>

In the fourth quarter of 2012, people uploaded over 350 million photos every day (on average) (Facebook Inc., 2013). Assuming that the size of one picture is around 1 megabyte, this is more than 333 terabytes per day and over 29 petabytes (megabyte * 10⁹) in 3 months. All of this data is stored in a cloud. An average personal computer (PC) has no more than 1 terabyte of memory. Therefore, this data would require more than 30,000 PCs.

Facebook has in average 1,988,851,107 page views per day from 112,810,613 visitors every day with the average page load time in 1.2 seconds. Just page loading bandwidth is 75.11 TB per day (4seohunt, 2013).

2.4. Google Inc.



Source: <http://www.seomfo.com/downloads/new-google-logo-official.png>

There are hundreds, maybe thousands, of internet search engines, but there is just one used worldwide; it is Google Inc. (GOOG). Google is the most prominently used, known and important search engine. It completely changed not just the perception of search engines, but the whole internet and services provided on it. Google as a verb is even defined in The Oxford English Dictionary as a “*search for information about (someone or something) on the Internet using the search engine Google*” (Oxford University Press, 2013). The importance of Google’s strength stands on the search engine market share, which is 83.22%; the second is Yahoo with 8.01% (Appendix 3).

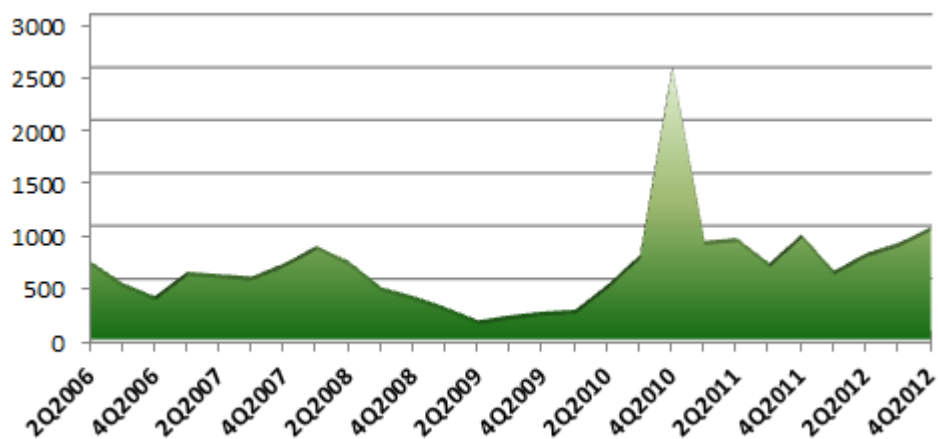
Google started and continued as an internet services provider (search engine, advertisement, social network, and countless online applications), but over time, it gradually added other products; from computer operating system through to hardware (Google phone) and internet network providing. The latest and the hottest product is Google Glass. “*Google Glass is an attempt to free data from desktop computers and portable devices like phones and tablets, and place it right in front of your eyes*” (Rivington, 2013).

Google’s mission is “*to organize the world’s information and make it universally accessible and useful*” (Google Inc., 2013). Google’s search engine fulfills this statement perfectly using over one million servers in data centers around the world. The data centers manage around four billion search requests every day (Richter, 2013).

The importance of data centers for Google reflects its capital expenditures, mostly going toward expanding its data centers. In the fourth Quarter 2012, Google invested over \$1 billion into data center operations. From the following chart it is visible that there is an

increasing trend in Google’s capital expenditures since 2009. There is \$2.55 billion of capital expenditure in the fourth quarter 2010; it is due to purchasing Google’s offices in New York City for \$1.9 billion.

Chart 8. Capital Expenditure of Google



Source: <http://www.datacenterknowledge.com/archives/2013/01/23/google-pours-1-billion-into-data-centers-in-three-months/>

2.4.1. History

It all started in 1997 with BackRub, a search engine developed by Larry Page and Sergey Brin, who were then studying for their PhD at Stanford University. BackRub was renamed Google, which came from a mathematical term “googol”. In September 1998, Google was incorporated in California after receiving a check for \$100,000 from Andy Bechtolsheim. Three months after its incorporation Google was ranked by “PC Magazine” in the TOP 100 websites for 1998, and the magazine reported that Google has “an uncanny knack for returning extremely relevant results” (Google Inc., 2013).

In less than one year after its incorporation, Google received an investment of \$25 million from Kleiner Perkins and Sequoia Capital; both invested \$12.5 million under condition that Google will hire an experienced Chief Executive Officer (CEO). In May 2000, Google.com had ten language versions available (all European languages). With the first one billion index (making Google the world’s largest search engine), Google closed a partnership with Yahoo!. This partnership secured Google as a default search provider for Yahoo (All Yahoo searches went through Google.com). In July 2000, Google launched

AdWords, which enabled advertisements according to search words. By the end of 2000, Google expanded its versions to 15 languages, entering the Asian market (Vise, 2005).

In 2001, Google Images (search engine just for images) was started with access to over 250 million images and pictures. Google's search index was brought up to three billion web documents and language availability grew to 26 languages, extended to 72 languages in February 2002. As of March 2001, Eric Schmidt was named chairman of the board of directors and four months of operating in this position, he became Google's CEO (Google Inc., 2001); this was a result of an agreement with Kleiner Perkins and Sequoia Capital. In the same month, Google, knowing its potential in Asia, opened its first international office in Tokyo (Google Inc., 2013).

As of November 2004, the search index reached 8 billion. In the same year, Google moved to the "Googleplex" (new facility in Mountain View, California) and the new European Headquarters in Dublin was opened. On 19 August 2004, Google Inc. went public (Vise, 2005).

Google's relationship with cloud computing began in 2007, when Google Apps was launched completely through cloud. Google Maps Navigation, GPS navigation software, started in 2009 and was connected to the Google' cloud, from where it was downloading the newest information. Google Docs, operating completely in the cloud, provides also the uploading and storing of graphic files and zip archives (along with word processors, spreadsheets and presentations) (Google Inc., 2013). In 2012, Google Drive was released providing cloud storage and real time file sharing. Google Drive offers a free 5GB of storage, and the prepaid cloud service offers up to 16TB for about \$0.05 per GB per month, as of 8 May 2013 (Google Inc., 2013). Since 2012, Google Play (2008) entirely uses cloud to store apps, games, music, movies and books, which are accessible from Android phones and tablets (Google Inc., 2013).

Over time, Google introduced very successful online services such as Google Books (2003), Google Scholar (2004), Google Earth (2005), Google Maps (2005), Google Analytics (2005), Picasa (2006), Google Docs & Spreadsheets (2006), Gmail (2007), Google Finance (2008) and Google+ (2011). Google also developed open platform for mobile devices Android (2007), internet browser Google Chrome (2008), operating system Chrome OS (2009) and mobile device Nexus One (2010) (Google Inc., 2013).

2.4.2. Initial Public Offering

On 29 April 2004, Google submitted form S-1 SEC registration statement for an IPO. As a proposed maximum aggregate offering price, Google stated \$2,718,281,828 (Google Inc., 2004); this sum is according to the Euler's number ($e=2.718281828$) (MathsIsFun.com, 2011). In order to keep voting power to the executives, Google chose a dual-class structure for the IPO. Google intended to issue class A common stock and class B common stock. *"The rights of the holders of Class A common stock and Class B common stock are identical, except with respect to voting and conversion. Each share of Class A common stock is entitled to one vote per share. Each share of Class B common stock is entitled to ten votes per share and is convertible at any time into one share of Class A common stock"* (Google Inc., 2004).

On 26 July 2004, Google reported that 24,636,659 shares of class A common stock will be offered with an intended IPO price between \$108 and \$135 per share and proposed maximum aggregate offering price at \$3,824,841,195 (Google Inc., 2004).

The proposed IPO price did not change till the day before the IPO, when Google priced it in the range between \$85 and \$95 per share. Google decreased also the offered shares to 19,605,052 (Google Inc., 2004).

On 19 August 2004, Google Inc. became publicly listed on NASDAQ stock exchange with a "GOOG" ticker. The Class A common stock, offered during the IPO, was priced at \$85 per share (Google Inc., 2004). Google's stock price opened at \$100 per share and closed at \$100.34 per share. In total, Google raised \$1.67 billion and its initial market cap started at \$23.1 billion (Travlos, 2012). At year-end 2004, Google closed at \$192.79; making a 127% gain from its IPO price.

2.4.3. Acquisitions

Google acquired its first company on 12 February 2001; it was Deja.com (usenet discussion service) (Google Inc., 2001). Since its first acquisition, Google has managed to acquire 125 companies, making almost 0.8 acquisitions per month (159 months), as of 9 May 2013. Even though most of the acquisition prices have not been disclosed, the total amount paid for acquisitions with disclosed amounts is almost \$22 billion (39 companies) (CrunchBase, 2013).

The majority of acquisitions were made for acquiring new technologies and talents (in the form of employees). However, a significant number of them were made for market reasons; weakening/eliminating competition, getting a stronger position or conquering new markets.

A remarkable acquisition was Android. Google purchased Android for around \$50 million and the company's executives said that it was the "best deal ever" (Protalinski, 2010). It really was, because total revenue from advertisements and sales on Android phones are estimated at \$1.2 billion by 2013 (Arthur, 2012).

In total, three of Google's acquisitions exceeded \$1 billion; Motorola Mobility, DoubleClick and YouTube.

Motorola Mobility was acquired on 15 August 2011 for \$12.5 billion. The acquisition was a strategic plan to protect the Android ecosystem, and successfully enter and boost mobile devices market share for Google (Google Inc., 2011).

On 13 April 2007, Google acquired DoubleClick (online advertising company) for \$3.1 billion. At that time, it was a very large amount for Google, because revenues in the prior quarter (Q1 2007) were \$3.66 billion (Google Inc., 2007). DoubleClick was a strategic move to improve Google AdSense and overall online advertising (Holahan, 2007).

Google acquired YouTube on 9 October 2006 for \$1.65 billion. The main reason for the acquisition was for online advertisements; both Google and YouTube had similar Ads platforms. Therefore, YouTube's transformation into Google's hands was fast and simple (Arrington, 2006).

2.4.4. Stock Price

Google's current stock price is \$873.63 per share, as of 8 May 2013. However, analyst website Trefis.com assessed the theoretical stock price at \$802 per share based on estimated factors driving the company's value; more than 8% less.

The largest part of Google's stock price is advertisements with 65.2%, which includes 33.1% of Google PC Search Ads and Google Mobile Search Ads. Mobile search Ads are as important as PC search Ads; it answers possible questions as to why Google is

putting so much effort into mobile phone software and hardware. Acquired website YouTube, with its advertising partnerships with content providers, makes 9.6% of Google’s stock price. Ad Partnerships for Search & Content is 4%. Google Phone & Motorola are just 2.5% of Google’s stock price; where Motorola is 0.5% and Google Phone 2%. When Motorola is compared to YouTube, the acquisition of YouTube was more efficient, and cheaper, in terms of stock price.

The rest of Google’s stock price is made up of Gmail, Orkut, Blogger & other (1%), search appliances (0.7%) and Google Apps with its revenue from business customers (0.5%).

The total stock price is increased by current cash net of debt (16.3%). Google has \$8.4 billion debt on \$52 billion cash and cash equivalents, making it around \$43 billion of cash (net of debt); it is \$131 per share (Trefis, 2013).

Chart 9. Trefis Price Distribution for Google



Source: <http://www.trefis.com/company?hm=GOOG.trefis&from=search#>

2.4.5. Dividends

Google is currently (as of 11 May 2013) not paying any dividends and on its website states the following: “we don’t expect to pay any cash dividends in the foreseeable future” (Google Inc., 2013).

However, many analysts believe that Google should pay dividends. The reasons for this are cash reserves over \$50 billion, cash flow margin of more than 30% with cash flow of almost \$14 billion and steady growth with a positive outlook (Moses, 2012).

2.4.6. Fiscal Year

Google's fiscal year is the same as a calendar year. Therefore, from 1 January 2013 to 31 December 2013; quarters end on 31 March, 30 June, 30 September and 31 December 2013 (Google Inc., 2013).

2.4.7. Google by the Numbers

As was reported before, Google has immense capital expenditures. But it is a reasonable investment when Google's statistics are included. Google was able to index over 20 billion webpages, managing over three billion daily search queries, available in more than 100 languages and more than 50 countries. Each Google search assigns individually personalized advertisements according to search history and user's profile; while using Google Instant predictions, it is usually assigned even before the "googler" (person using Google) finishes typing the query. Both, search and Ads assignment have to be processed in real time (within milliseconds). Moreover, Google offers email storage to 425 million Gmail users and processes millions of YouTube videos every day. In order to handle this huge data transfer, Google's multibillion data centers are appropriate and justified (De Argaez, 2013).

In March 2013, Google's YouTube reached one billion unique monthly visitors, which is almost the same as Facebook's MAU (Rogowky, 2013). There were 135 million MAU on Google+ with five million "+1 button" hits (vs. 2.7 billion hits of Facebook's "like" button) every day. In total, Google processed 1.2 trillion search queries (Pingdom AB, 2013).

Google has in average 1,836,333,244 page views per day from 115,856,987 visitors every day with the average page load time of 0.8 seconds. Just page loading bandwidth is 70.57 TB per day (4seohunt, 2013).

2.5. Microsoft Corporation



Source: http://cdn3.sbnation.com/entry_photo_images/5142552/mslogo_large_verge_medium_landscape.jpg

Microsoft Corporation (MSFT) is the biggest software company in the world. Microsoft is best known for its, almost 30 year old, operating system series called Microsoft Windows and for its founder Bill Gates who is currently the second richest person in the World (Whitney, 2013).

Microsoft dominates most of its key markets and in some there are basically no real competitors. Even though Microsoft Windows is considered as Microsoft's flagship, the biggest revenue driver is Microsoft Office (productivity suite software). Microsoft Office has a strong position in its market, dominating it with 95% of the market share (The Street Fighters, 2013). Their operating system market share is not behind either, with two main operating systems (Windows 7 and Windows XP) counting for 83.03% of market share and Microsoft has 91.78% in total of the Operating system market share (Appendix 4). The market dominance is a clear sign of Microsoft's importance and strength.

Besides computer software of all kinds (from operating systems through to storage software and games) for desktops and mobile devices, Microsoft's product line includes Zune (Digital music player) and Xbox (video game console). Microsoft provides also cloud and consulting services (Microsoft Corporation, 2013).

2.5.1. History

The history of Microsoft started in 1975, when Paul Allen and Bill Gates developed an interpreter (computer program) of the computer language Basic to run on the Altair 8800 (microcomputer developed by Micro Instrumentation and Telemetry Systems) that worked flawlessly. Both Allen and Gates wanted to continue in programming, so on 4 April

1975 they created a company, which was later (April 1976) called Microsoft (a combination of MICROcomputers and SOFTware) (British Broadcasting Corporation, 2000).

In 1977, Microsoft released its second language product called FORTRAN-80. Until 1981, Microsoft was steadily growing and developing new software.

In 1981, Microsoft became incorporated and changed its name to Microsoft Inc. The same year, Microsoft signed probably the most important contract, with IBM to develop an operating system for IBM PC. The operating system was called MS-DOS. *“Rather than developing the OS and then selling it to IBM, they would license it to them, and every computer that IBM would sell would include that OS, and in turn they would pay Microsoft a licensing fee”* (Garvis, 2011).

During 1983, Microsoft introduced the Microsoft mouse for the IBM PC and unveiled Microsoft Windows, an extension of the MS-DOS providing a graphical operating environment (Microsoft Corporation, 2009).

On 13 March 1986, Microsoft went public and Bill Gates became the youngest billionaire. Meanwhile, Microsoft was developing the first productivity tool and in 1989, the company released Microsoft Office (Bellis, Microsoft, 2012). The following year, The Federal Trade Commission started to investigate Microsoft and IBM’s partnership; this started on-going investigations and suits.

In 1995, Microsoft introduced Windows 95 and the web browser Internet Explorer, which came bundled with Microsoft Windows 95; later on, it was the reason behind many lawsuits. As a result, in 1997 the Department of Justice sued Microsoft for abusing its dominant position of operating systems, by selling Internet Explorer with the operating system (Wired, 2002).

The year 2001 was important for Microsoft because the company released Windows XP, which was very popular and it is still active with extended support (Microsoft Corporation, 2013). Microsoft also started to compete with Sony and Nintendo in the video game console market with Xbox.

In 2004, The European Union fined Microsoft €497 million for abusing its operating system by including other products with the operating system (especially

Windows Media Player); Microsoft was fined an additional €280.5 million and €899 million in 2006 and 2008 for non-compliance from 2004. Additionally, in March 2013, the EU fined Microsoft (€561 million) for failing to promote a range of web browsers (CNT Group, 2013).

On 27 October 2008, Microsoft entered the cloud computing market with Azure Services Platform. Windows Azure completely focuses on enterprises with PaaS and IaaS services, completely skipping SaaS (Microsoft Corporation, 2013).

In 2009, Microsoft opened its first retail Microsoft store and introduced there, the replacement of unsuccessful Windows Vista, Windows 7 (currently the most popular operating system). The following year, Microsoft replaced Office 2007 with the new Office 2010 and replaced also the operating system for mobile devices Windows Mobile with Windows Phone.

In years 2011, 2012 and 2013, Microsoft began its rebranding concept, with replacing most of products' and company's logos, releasing the new Windows 8, Windows Phone 8 (mobile operating system), Windows Server 2012 and introducing Microsoft Surface (tablet) (Warren, 2013).

2.5.2. Initial Public Offering

On 17 December 1986, Microsoft decided to apply for an IPO. In the first stage of IPO preparations, Microsoft expected \$15 per share as the IPO price. In the beginning of 1986, a bullish market increased the expected IPO price at range in between \$17 and \$20. After a deeper analysis, Goldman Sachs praised Microsoft's books. Therefore, Microsoft decided to set the IPO price range at \$20-\$22. Finally, the company decided to set the IPO price at \$21 (Shirvani & Wilbratte, 2010).

On 13 March 1986, Microsoft went public with the IPO price at \$21 per share; Microsoft became traded on the Nasdaq stock exchange with the "MSFT" ticker. The very same day as the IPO, Microsoft's stock price rose by 32% to \$27.75 per share. The IPO instantly made four billionaires and 12,000 millionaires from Microsoft's employees. Microsoft raised around \$61 million (Hysell, 2010).

2.5.3. Stock Splits

Microsoft has the most stock splits among the selected companies. Historically, Microsoft has made nine stock splits. All of them were between 1987 and 2003; nine splits in 17 years (Microsoft Corporation, 2013).

- 1st split occurred on 18 September 1987; the stock split was 2-for-1
- 2nd split occurred on 12 April 1990; the stock split was 2-for-1
- 3rd split occurred on 26 June 1991; the stock split was 3-for-2
- 4th split occurred on 12 June 1992; the stock split was 2-for-1
- 5th split occurred on 20 May 1994; the stock split was 2-for-1
- 6th split occurred on 6 December 1996; the stock split was 2-for-1
- 7th split occurred on 20 February 1998; the stock split was 2-for-1
- 8th split occurred on 26 March 1999; the stock split was 2-for-1
- 9th split occurred on 14 February 2003; the stock split was 2-for-1

In total, Microsoft has increased its number of shares 384 times ($2*2*1.5*2*2*2*2*2*2$) since the IPO, which resulted in a 384 times lower stock price. Therefore, the adjusted initial IPO price is less than \$0.06 per share, instead of \$21. However, the current stock price (\$33.03 per share, as of 13 May 2013), in terms of the IPO price, would be at an incredible \$12,683.52 per share.

If anyone invested \$2,100 (100 shares) in Microsoft's shares at the IPO price, today, the investment would be worth \$1.27 million without any dividends; at its peak of \$58.72 (20 December 1999), the investment would be worth \$2.25 million.

2.5.4. Acquisitions

Since Microsoft does not have to deal with possible growing competitors, it is acquiring companies mostly for their talent and intellectual property.

Microsoft started with the acquisition of Forethought in 1987; which later led to Microsoft PowerPoint. Since then, Microsoft has acquired 156 companies. Another key acquisition was in 1997, when Microsoft acquired Hotmail for \$500 million and linked it to its MSN services.

So far, Microsoft has made six acquisitions for over \$1 billion each; these are Skype Communications, aQuantive, Inc., Fast Search & Transfer ASA, Navision, Yammer Inc. and Visio Corporation.

The most expensive acquisition was Skype on 10 May 2011 for \$8.5 billion (Skype Global S.à.r.l. , 2011). There were several possible reasons for this acquisition, but the biggest reason was to keep up with its competition (Google Voice and Apple's Face Time) and the implementation of Skype to Windows Phone (Kumar, 2012).

The second most expensive acquisition was aQuantive on 18 May 2007 for \$6.3 billion (Wilhelm, 2012). The acquisition was about to get a strong stream of revenue from online advertising and compete with Google's recent acquisition of DoubleClick at that time (Isidore C. , 2007).

Despite the acquisition price, one of the most profitable acquisitions was Bungie (creator of Halo videogames for Xbox). The acquisition was for a price between \$20 million and \$40 million in 2000. Successful game series Halo boosted sales of Xbox and raised billions of dollars in revenues (Rosoff, 2011). The newest of its series, Halo 4 earned more than \$220 million just within 24 hours from its release (Microsoft Corporation, 2013).

2.5.5. Stock Price

Microsoft's current stock price is \$33.03 per share, as of 13 May 2013. However, analyst website Trefis.com assessed the theoretical stock price at 24% higher than the actual stock price, based on estimated factors driving the company's value.

As already mentioned, the largest part of Microsoft's sales is from Microsoft Office. Therefore, Microsoft Office creates the largest part of its stock price as well; it makes more than one third (38.5%). The second largest part (20.2%) of Microsoft's stock price is made up of operating systems for servers (Windows Server and SQL Server). Microsoft's online services (Bing search, MSN and aQuantive) make just 2.9% of the company's stock price. Xbox sales and services, together with Windows Phone count only as 2.4% of the stock price. The acquired Skype has a negligible 0.1%.

Similar to Trefis' stock price estimation for Apple, Microsoft has over one fifth of the stock price in cash (net of debt), which is currently \$71 billion (fiscal Q3 of 2013,

ending 31 March 2013). Due to Microsoft’s considerably high volume of shares, cash (net of debt) per price is just \$8.60 per share. Therefore, 23.9% of Trefis’ stock price for Microsoft (Trefis, 2013).

Chart 10. Trefis Price Distribution for Microsoft



Source: <http://www.trefis.com/company?hm=MSFT.trefis&from=search#>

2.5.6. Dividends

Microsoft started to pay dividends in the 2003 fiscal year (FY), when it paid \$0.08 per share annually. The next FY, Microsoft paid 50% more (\$0.16 per share). Since Q4 of FY 2004, Microsoft started to pay quarterly dividends, starting at \$0.08. In FY 2005, Microsoft paid a special \$3 per share dividend. Since then, Microsoft has gradually increased its dividends; the company increased dividends seven times by 16% in average. Currently, Microsoft pays \$0.23 per share quarterly (Microsoft Corporation, 2013).

If dividends are included in the investment case from the previous chapter (Microsoft stock splits), than today’s possible investment worth would be \$1.27 million from price change plus \$307,200 as an accumulated gain from dividends; in total, \$1.57 million (dividend calculations are in Appendix 5).

2.5.7. Fiscal Year

Similar to Apple, Microsoft has a relatively unusual fiscal year. Its 2013 fiscal year starts in the middle of the calendar year on 1 July 2012 and ends on 30 June 2013; quarters end on 30 September 2012, 31 December 2012, 31 March 2013 and 30 June 2013 (Microsoft Corporation, 2013).

2.5.8. Microsoft by the Numbers

Microsoft's cloud file hosting SkyDrive (part of Windows Live) is used by more than 250 million people to store their content. Outlook.com, Microsoft's equivalent of Gmail, hosts email domains for more than 400 million users. Skype's users spend more than two billion minutes connected to the server through audio call, chat or video call every day; it is like every person in the world would spend more than 15 seconds on Skype every day (Microsoft Corporation, 2013).

There have been more than 100 million Microsoft Windows 8 licenses sold since its release on 26 October 2012 (As of May 2013) (Foley, 2013); the price of a Windows 8 license starts at \$119.99 (Microsoft Corporation, 2013).

The subscriptions of cloud service through Azure increased by 48% within six months and Azure revenues exceeded \$1 billion. Companies' usage of Azure for cloud purposes is around 20%; Amazon has 71%, as of May 2013 (Bass, 2013).

2.6. Companies' Overview Summary

Chart 11. The Internet Big Five Basic Summary

	Amazon	Apple	Facebook	Google	Microsoft
IPO Price	\$ 18.00	\$ 22.00	\$ 38.00	\$ 85.00	\$ 21.00
Adjusted IPO Price	\$ 1.50	\$ 2.75	\$ 38.00	\$ 85.00	\$ 0.055
IPO date	24.3.1997	12.12.1980	18.5.2012	19.8.2004	13.3.1986
Years since IPO	16.2	32.5	1.0	8.8	27.2
Current Stock Price*	\$ 267.17	\$ 445.11	\$ 22.90	\$ 859.70	\$ 34.78
Profit/Loss since IPO	17,711%	16,086%	-40%	911%	63,498%
Annualized Profit/Loss since IPO	1093%	495%	-38%	104%	2330%
Total dividends yield per one IPO share (stock splits included)	\$ -	\$ 95.60	\$ -	\$ -	\$ 3,056.64
Annualized Profit/Loss with dividends since IPO	1,093%	602%	-38%	104%	207,447%
Market Cap (in USD billions)	121.63	417.8	55.37	285.22	290.45
Acquisitions made	around 70	around 40	around 40	over 120	over 150
Fiscal year end	31.12.2013	28.9.2013	31.12.2013	31.12.2013	30.6.2013
Monthly price for 1GB of storage (\$ per GB)	0.095*	0.1515**	Free***	0.085*	0.095*

Source: based on data from this thesis, Finance.Yahoo.com, cloud.google.com/pricing/cloud-storage.html, aws.amazon.com/s3, facebook.com, support.apple.com/kb/ht4874 and <http://www.windowsazure.com/en-us/pricing/calculator/?scenario=data-management>
All data as of 5 June 2013

* for standard US and below 1TB

** \$100/year for maximum 55GB

*** free pictures and document uploading and storing with maximum size of 25MB per document; possible cooperation with Dropbox

IV Empirical Part

1) Methodology

The previous literature review is based on the study of secondary data such as scientific resources, books, internet articles from trusted financial websites and FY2012 annual reports of Amazon, Apple, Facebook, Google and Microsoft.

The empirical study is predominantly quantitative analysis sourced from annual reports. For further financial analysis, fundamental and technical analyses have been used. These two analyses were selected for their different approaches of evaluating companies; fundamental focuses on the intrinsic value and technical focuses on the market value.

Fundamental analysis includes vertical and horizontal quantitative analysis of annual reports (balance sheet, income statement and cash flow statements). Another methods used is revenue structure analysis and ratio analysis (calculating and analysing liquidity, solvency, profitability and valuation ratios). Calculations are based on data from the most recent annual reports (FY2012). Discounted cash flow method is also utilised; using partially data from analyst websites and partially calculated data through the net present value method. Analysis also considers rates of return analysis, comparing required rates of return and expected rates of return; calculations are based on the latest data information.

Technical analysis of the company's stock price uses technical indicators (simple moving averages, commodity channel index, relative strength index and moving averages convergence-divergence) and overlays (Bollinger Bands) sourced from market data providers to compare companies and predict their stock price development.

Discussion uses solely internet articles and own findings.

2) Fundamental Analysis

In order to successfully analyse and assess the five selected companies, fundamental analysis is essential. The fundamental analysis will use both quantitative and qualitative methods with the main focus on quantitative. The main source of all quantitative figures are financial statements (balance sheet, income statement and cash flow statement) extracted from 10K annual reports. It is important to point out that Apple and Microsoft have different ends of the fiscal year (30 June 2012 and 29 September 2012) than the other companies that end on 31 December.

Because all five companies operate in the same market (cloud computing market) and their spheres of business and industries are connected, industry analysis will be omitted.

2.1. Balance Sheet

The balance sheet is a good reflection of a company's financial position at a certain point in time. There are two charts below with balance sheets of the internet big five for FY2011 and FY2012; complete charts with single balance sheet entries as a percentage of total assets and v% (percentage difference of two years) from 2011 to 2012 are in Appendix 6-10.

Chart 12. Balance Sheets 2011

	Amazon	Apple	Facebook	Google	Microsoft
Assets					
Current assets					
Cash and cash equivalents	5,269	9,815	1,512	9,983	9,610
Short-term marketable securities	4,307	16,137	2,396	34,643	43,162
Cash and short-term investments	9,576	25,952	3,908	44,626	52,772
Accounts receivable	2,571	5,369	547	5,427	14,987
Inventories	4,992	776	-	35	1,372
Prepaid expenses	-	-	149	1,710	
deferred tax assets	351	2,014	-	215	2,467
Other current assets	-	10,877	-	745	3,320
Total current assets	17,490	44,988	4,604	52,758	74,918
Non-current assets					
Long-term investments	-	55,618	-	790	10,865
Property and equipment, net	4,417	7,777	1,475	9,603	8,162
deferred tax assets	28	-	-	-	
Goodwill	1,955	896	82	7,346	12,581
Intangible assets	-	3,536	80	1,578	744
Other long-term assets	1,388	3,556	90	499	1,434
Total assets	25,278	116,371	6,331	72,574	108,704
Liabilities and Shareholders' Equity					
Current liabilities					
Accounts payable	11,145	14,632	234	588	4,197
Short-term debt	-	-	279	3,225	-
Accrued expenses and other curr. liab.	3,751	9,247	296	4,356	8,275
deferred revenue and deposits	-	4,091	90	547	15,722
Income Taxes	-	-	-	197	580
Total current liabilities	14,896	27,970	899	8,913	28,774
Long-term debt	255	-	398	2,986	11,921
Deferred revenue - long-term	-	1,686	-	44	1,398
Deferred income tax - long-term	-	-	-	1,980	1,456
Other long-term liabilities	2,370	10,100	135	506	8,072
Total Liabilities	17,521	39,756	1,432	14,429	51,621
Shareholders' equity					
Preferred stock	-	-	615	-	-
Common stock	5	13,331	-	20,264	63,415
Treasury stock	(877)	-	-	-	-
Additional paid-in capital	6,990	-	2,684	-	-
Retained earnings	1,955	62,841	1,606	37,605	(6,332)
Accumulated other comprehensive income	(316)	443	(6)	276	-
Total shareholders' equity	7,757	76,615	4,899	58,145	57,083
Total Liabilities and Shareholders' Equity	25,278	116,371	6,331	72,574	108,704

Source: Based on data from annual reports (all numbers are in millions USD)

Chart 13. Balance Sheets 2012

	Amazon	Apple	Facebook	Google	Microsoft
Assets					
Current assets					
Cash and cash equivalents	8,084	10,746	2,384	14,778	6,938
Short-term marketable securities	3,364	18,383	7,242	33,310	56,102
Cash and short-term investments	11,448	29,129	9,626	48,088	63,040
Accounts receivable	3,364	10,930	719	7,885	15,780
Inventories	6,031	791	-	505	1,137
Prepaid expenses	-	-	471	2,132	-
Deferred tax assets	453	2,583	-	1,144	2,035
Other current assets	-	14,220	451	700	3,092
Total current assets	21,296	57,653	11,267	60,454	85,084
Non-current assets					
Long-term investments	-	92,122	-	1,469	9,776
Property and equipment, net	7,060	15,452	2,391	11,854	8,269
deferred tax assets	123	-	-	-	-
Goodwill	2,552	1,135	587	10,537	13,452
Intangible assets	-	4,224	801	7,473	3,170
Other long-term assets	1,524	5,478	57	2,011	1,520
Total assets	32,555	176,064	15,103	93,798	121,271
Liabilities and Shareholders' Equity					
Current liabilities					
Accounts payable	13,318	21,175	234	2,012	4,175
Short-term debt	-	-	365	4,222	1,231
Accrued expenses and other curr. liab.	5,684	11,414	423	6,968	7,840
deferred revenue and deposits	-	5,953	30	895	18,653
Income Taxes	-	-	-	240	789
Total current liabilities	19,002	38,542	1,052	14,337	32,688
Long-term debt	3,084	-	1,991	2,988	10,713
Deferred revenue - long-term	-	2,648	-	100	1,406
Deferred income tax - long-term	-	-	-	3,918	1,893
Other long-term liabilities	2,277	16,664	305	740	8,208
Total Liabilities	24,363	57,854	3,348	22,083	54,908
Shareholders' equity					
Preferred stock	-	-	-	-	-
Common stock	5	16,422	-	22,835	65,797
Treasury stock	(1,837)	-	-	-	-
Additional paid-in capital	8,347	-	10,094	-	-
Retained earnings	1,916	101,289	1,659	48,342	566
Accumulated other comprehensive income	(239)	499	2	538	-
Total shareholders' equity	8,192	118,210	11,755	71,715	66,363
Total Liabilities and Shareholders' Equity	32,555	176,064	15,103	93,798	121,271

Source: Based on data from annual reports (all numbers are in millions USD)

2.1.1. Vertical Common-size Balance Sheet Analysis

Because all selected companies are different sizes, especially Apple and Facebook, vertical common-size balance sheet analysis is a useful tool as each balance sheet entry is calculated as a percentage of total assets.

Chart 14. Vertical Common-size Balance Sheet 2012

	Amazon	Apple	Facebook	Google	Microsoft
	% of total assets	% of total assets	% of total assets	% of total assets	% of total assets
Assets					
Current assets					
Cash and cash equivalents	24.8%	6.1%	15.8%	15.8%	5.7%
Short-term marketable securities	10.3%	10.4%	48.0%	35.5%	46.3%
Cash and short-term investments	35.2%	16.5%	63.7%	51.3%	52.0%
Accounts receivable	10.3%	6.2%	4.8%	8.4%	13.0%
Inventories	18.5%	0.4%	0.0%	0.5%	0.9%
Prepaid expenses	0.0%	0.0%	3.1%	2.3%	0.0%
Deferred tax assets	1.4%	1.5%	0.0%	1.2%	1.7%
Other current assets	0.0%	8.1%	3.0%	0.7%	2.5%
Total current assets	65.4%	32.7%	74.6%	64.5%	70.2%
Non-current assets					
Long-term investments	0.0%	52.3%	0.0%	1.6%	8.1%
Property and equipment, net	21.7%	8.8%	15.8%	12.6%	6.8%
Deferred tax assets	0.4%	0.0%	0.0%	0.0%	0.0%
Goodwill	7.8%	0.6%	3.9%	11.2%	11.1%
Intangible assets	0.0%	2.4%	5.3%	8.0%	2.6%
Other long-term assets	4.7%	3.1%	0.4%	2.1%	1.3%
Total assets	100.0%	100.0%	100.0%	100.0%	100.0%
Liabilities and stockholders' equity					
Current liabilities					
Accounts payable	40.9%	12.0%	1.5%	2.1%	3.4%
Short-term debt	0.0%	0.0%	2.4%	4.5%	1.0%
Accrued expenses and other curr. liab.	17.5%	6.5%	2.8%	7.4%	6.5%
Deferred revenue and deposits	0.0%	3.4%	0.2%	1.0%	15.4%
Income Taxes	0.0%	0.0%	0.0%	0.3%	0.7%
Total current liabilities	58.4%	21.9%	7.0%	15.3%	27.0%
Long-term debt	9.5%	0.0%	13.2%	3.2%	8.8%
Deferred revenue - long-term	0.0%	1.5%	0.0%	0.1%	1.2%
Deferred income tax - long-term	0.0%	0.0%	0.0%	4.2%	1.6%
Other long-term liabilities	7.0%	9.5%	2.0%	0.8%	6.8%
Total Liabilities	74.8%	32.9%	22.2%	23.5%	45.3%
Shareholders' equity					
Preferred stock	0.0%	0.0%	0.0%	0.0%	0.0%
Common stock	0.0%	9.3%	0.0%	24.3%	54.3%
Treasury stock	-5.6%	0.0%	0.0%	0.0%	0.0%
Additional paid-in capital	25.6%	0.0%	66.8%	0.0%	0.0%
Retained earnings	5.9%	57.5%	11.0%	51.5%	0.5%
Accumulated other comprehensive income	-0.7%	0.3%	0.0%	0.6%	0.0%
Total shareholders' equity	25.2%	67.1%	77.8%	76.5%	54.7%
Total liabilities and stockholders' equity	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Based on data from annual reports

The field where Apple excels the most is current and long-term investments. Apple has \$121.25 billion which is 68.8% of total assets. The only problem is that cash and short-term investments are just 16.5% of total assets; its long-term investments are less liquid and may create problems with paying off current liabilities, presently higher than cash and short-term investments. Due to Facebook's relatively small total assets, its \$9.626 billion of cash and short-term investments represent 63.7%. Microsoft has 360 percentage points (pp) less than Apple with long-term investments at \$72.816 billion. Google has 52.9% cash and short-term investments of total assets. Amazon has the least percentage of long-term investments to total assets; it has \$11.448 billion (35.2%).

Facebook, Google and Microsoft have more cash and short-term investments than total liabilities indicating they are healthy and liquid companies. Apple's cash and short-term investments are lower than current liabilities, thus it may not be able to pay off all its current liabilities. However, cash and short-term investments plus accounts receivable cover this. Liquidity and solvency ratios will be analysed further in the ratios section. Compare Current Assets to Current Liabilities.

Even though Apple is mostly a hardware retailer, its inventory represents just 0.4% of total assets; it shows high inventory efficiency and optimization it also highlights that often Apple does not have enough products in stock when it launches its new products. On the positive side, this creates marketing hype as the media reports the length of the queues each time. On the negative side, it can turn off potential customers who are not willing to wait in line and are offended that Apple does not manage its inventory more appropriately to meet customer demand. On the other hand, Amazon has an inventory of 18.5% of total assets; it may be a sign of some troubles with inventory inefficiency and possible future low liquidity. Amazon is aware of this problem and states it in its annual report as a risk factor.

Amazon's need to have a strong network of fulfilment centers and warehouses, as well as data centers and equipment, is reflected in Amazon's net property and equipment that represents 21.7% of total assets. Facebook follows with 15.8%, from which 89% is kept in the United States and it is mostly represented by buildings (18%) and network equipment (58%) that is needed to secure a stable connection to Facebook servers for one seventh of the population. Google's need to secure stable connections all over the world

costs 12.6% of total assets as net property and equipment, from which information technology assets represent 42% with 15% of construction in progress (mostly data centers). Despite Apple's retail shops in the majority of developed countries and Microsoft's offices all over the world, they only have respectively 8.8% and 6.8% of net property and equipment of total assets.

A closer look at goodwill reveals the companies' strategies to grow through acquisitions, especially regarding Google and Microsoft with goodwill higher than 11% of total assets; Amazon has 7.8% and Facebook 3.9%. Apple's goodwill of 0.6% of total assets supports Apple's position of a self-sufficient company with internal growth and its own research.

Accounts payable create a significant portion (40.9%) of Amazon's total assets, the reason may be that Amazon's orders are usually paid through third party companies, such as PayPal and various credit and debit card companies; the average accounts payable days is increasing over the years and currently at 76 days.

Facebook has the highest long-term debt at 13.2% of total assets (the purpose of this debt was discussed in previous section), but still it has the lowest long-term liabilities.

Amazon has the smallest amount of shareholders' equity (25.2%) and one of the reasons is its buyback plan which decreased equity by 5.6% of total assets. Its equity is mostly created by additional paid-in capital.

Microsoft's equity is solely made by common shares (54.3% of total assets and 99% of equities) and the rest is a small portion of retained earnings. In 2011, retained earnings counted as -5.8% of total assets. Both negative retained earnings in 2011 and very small retained earnings in 2012 are not result of unsatisfying net income (see income statement and cash flow section), but the result of Microsoft's on-going repurchase program with the intention to buyback over \$40 billion worth of shares. Microsoft record common stock cash dividends and repurchasing as a reduction in retained earnings. Therefore, retained earnings were negative.

On the contrary, Apple and Google have over 50% of retained earnings to total assets; Apple has 57.5% (\$101.289 billion) and Google has 51.5% (\$48.342 billion). Their shareholder's equity also consists of common stock; 9.3% for Apple and 24.3% for

Google. In total, Apple's total assets have the least percentage of shareholders' shares or additional paid-in capital. Facebook has the highest percentage of shareholders' equity to total assets (77.8%); 86% of it created by additional paid-in capital and the rest is from retained earnings.

2.1.2. Horizontal Common-size Balance Sheet Analysis

Horizontal common-size balance sheet analysis helps to analyse companies' change in financial statements within a certain time frame.

Chart 15. 2011- 2012% change of balance sheet entries

	Amazon	Apple	Facebook	Google	Microsoft
Assets					
Current assets					
Cash and cash equivalents	153.4%	109.5%	157.7%	148.0%	72.2%
Short-term marketable securities	78.1%	113.9%	302.3%	96.2%	130.0%
Cash and short-term investments	119.5%	112.2%	246.3%	107.8%	119.5%
Accounts receivable	130.8%	203.6%	131.4%	145.3%	105.3%
Inventories	120.8%	101.9%	0.0%	1442.9%	82.9%
Prepaid expenses	0.0%	0.0%	316.1%	124.7%	0.0%
Deferred tax assets	129.1%	128.3%	0.0%	532.1%	82.5%
Other current assets	0.0%	130.7%	0.0%	94.0%	93.1%
Total current assets	121.8%	128.2%	244.7%	114.6%	113.6%
Non-current assets					
Long-term investments	0.0%	165.6%	0.0%	185.9%	90.0%
Property and equipment, net	159.8%	198.7%	162.1%	123.4%	101.3%
Deferred tax assets	439.3%	0.0%	0.0%	0.0%	0.0%
Goodwill	130.5%	126.7%	715.9%	143.4%	106.9%
Intangible assets	0.0%	119.5%	1001.3%	473.6%	426.1%
Other long-term assets	109.8%	154.0%	63.3%	403.0%	106.0%
Total assets	128.8%	151.3%	238.6%	129.2%	111.6%
Liabilities and stockholders' equity					
Current liabilities					
Accounts payable	119.5%	144.7%	100.0%	342.2%	99.5%
Short-term debt	0.0%	0.0%	130.8%	130.9%	0.0%
Accrued expenses and other curr. liab.	151.5%	123.4%	142.9%	160.0%	94.7%
Deferred revenue and deposits	0.0%	145.5%	33.3%	163.6%	118.6%
Income Taxes	0.0%	0.0%	0.0%	121.8%	136.0%
Total current liabilities	127.6%	137.8%	117.0%	160.9%	113.6%
Long-term debt	1209.4%	0.0%	500.3%	100.1%	89.9%
Deferred revenue - long-term	0.0%	157.1%	0.0%	227.3%	100.6%
Deferred income tax - long-term	0.0%	0.0%	0.0%	197.9%	130.0%
Other long-term liabilities	96.1%	165.0%	225.9%	146.2%	101.7%
Total Liabilities	139.1%	145.5%	233.8%	153.0%	106.4%
Shareholders' equity					
Preferred stock	0.0%	0.0%	0.0%	0.0%	0.0%
Common stock	100.0%	123.2%	0.0%	112.7%	103.8%
Treasury stock	209.5%	0.0%	0.0%	0.0%	0.0%
Additional paid-in capital	119.4%	0.0%	376.1%	0.0%	0.0%
Retained earnings	98.0%	161.2%	103.3%	128.6%	
Accumulated other comprehensive income	75.6%	112.6%	-33.3%	194.9%	0.0%
Total shareholders' equity	105.6%	154.3%	239.9%	123.3%	116.3%
Total liabilities and stockholders' equity	128.8%	151.3%	238.6%	129.2%	111.6%

Source: Based on data from annual reports

Assets

The company with the largest market capitalization has also the largest total assets; it is Apple with \$176.1 billion. Second largest total assets has Microsoft with \$121.3 billion; 69% of Apple's total assets. Google's total assets (\$93.8 billion) are equal to 53% of Apple's total assets. Apple has 5.4 times and 11.7 times higher total assets than Amazon (\$32.6 billion) and Facebook (\$15.1 billion).

All five companies have increased their total assets, Microsoft by 11.6%, Amazon by 28.8%, Google by 29.2% and Apple by a solid 51.3%; the reason for Apple's total assets increase is driven by \$50.9 billion of operating cash flow (see cash flow analysis chapter). Facebook's growth of total assets by 138.6%, is understandable for a relatively new growing company and moreover, for its IPO in May 2012.

All companies had a similar increase in current assets as a percentage of total assets, except Apple with a 28.2% increase (from 52.3% of total). The reason for this is a massive increase in net property and equipment that was almost doubled, stemming from the building of new data centers. The one in North Carolina has an estimated cost of around \$1 billion and has just one purpose, to boost iCloud growth (Fehrenbacher, 2012).

The next reason for an increase in total assets is hidden in long-term investments, which is continuously increasing due to Apple's vast cash reserves. The increase in Apple's long-term marketable securities is 65.6% and it serves also as its own hedge fund. In total, it made just 1.03% in interest income during 2012 (Ebrahim, 2013). According to Appendix 11, Apple is repositioning its portfolio from U.S. agency securities (58.3% in 2008 and 15.1% in 2012) to corporate securities (11.9% in 2008 and 36.4% in 2012) and starting to invest again in mortgage/asset backed securities.

Amazon shows relatively steady growth, with one of the most notable increases in net property and equipment of 59.8%, which is quite substantial when considering Amazon's warehouses and data centers. However, this investment is necessary for healthy growth.

Facebook's asset increase comes from both current and long-term assets. Facebook's total current cash increased by 146.3%, which was caused mainly by an increase in short-term marketable securities of 202.3% (71% of it is held in U.S.

government securities). In the case of long-term assets, a 62.1% increase in net property and equipment was caused by the purchase of offices and by expansion of data centers. With Facebook's recent acquisitions, especially the Instagram acquisition for an arguably higher purchase price than fair value, Facebook's goodwill was pushed higher by 615.9%. The increase of 901.3% in intangible assets is mainly carried by newly acquired patents (75% of growth).

The most significant of all is Google's growth in inventories, which is 1,342.9%. It is driven by Google's focus on hardware, which is reflected in the annual report as finished goods and raw materials (85% of total) and work in process (15% of total). The 432.1% increase in deferred tax assets is mainly caused by a change in investments toward home business. Similar to Apple, Google focuses on long-term investments with an increase of 85.9%. However, unlike Apple, Google's investments are in non-marketable equity securities. Google experienced a 373.6% rise in intangible assets by patents and developed technology (695% increase) and customer relationships (69.7% increase).

Microsoft remained relatively unchanged, with the main reason for an increase in current assets (113.6%) being a rise in short-term marketable securities by 30% (creates 46.3% of all total assets). As well as Google and Facebook, Microsoft drastically increased its intangible assets by 326.1%. The reasons being technology-based intangible assets (215% increase) and market-related intangible assets (7,827% increase).

Liabilities and Shareholders' Equity

Since Liabilities and Shareholders' Equity are considered as the way in which assets are financed, their sum is equal to total assets. Therefore, Facebook has again the highest percentage increase. Obviously, due to Facebook's IPO, the highest increase results from paid in capital (276.1% increase representing 66.8% of total assets). An interesting increase in long-term liabilities is due to a 400.3% gain in long-term debt, caused by \$1.5 billion debt "*to fund tax withholding and remittance obligations related to the settlement of RSUs (restricted stock units) in connection with Facebook's IPO*" (Facebook Inc., 2013). In total, Facebook has a 17% increase in current liabilities alongside a 133.8% increase in long-term liabilities.

A significant increase in long-term debt can also be seen regarding Amazon, with a 1,109.4% increase caused by issuing \$3 billion worth of unsecured senior notes. The

109.5% increase in the negative number of treasury stock was created through a common stock repurchase program. Total shareholders' equity remained almost unchanged.

The reason for Apple's increase in total assets lies in retained earnings with a 62.2% increase (weight of 57.5% of total assets). The increase of retained earnings was caused by Apple's \$41.7 billion of net income in 2012.

The very same reason relates to Google, with a 28.6% increase in retained earnings and weight of 51.5% of total assets (due to \$10.7 billion of net income). Long-term deferred tax (97.9% increase), accounts payable (242.2% increase) and accrued expenses (60% increase) count for the rest of the important changes.

Since Microsoft's total assets did not change much, liabilities experienced no substantial change either. However, one notable increase is in retained earnings, where Microsoft scratched off \$6.3 billion negative retained earnings and gained \$0.5 billion positive retained earnings; due to \$17 billion of net income.

2.2. Income Statement

The analysis of an income statement helps to examine and evaluate companies' financial performance and its distribution of total revenues and expenses; complete charts with individual income statement lines as a percentage of total revenues and variance from 2011 to 2012 are in Appendix 12-16.

Chart 16. Income Statements 2011

	Amazon	Apple	Facebook	Google	Microsoft
Revenues	48,077	108,249	3,711	37,905	69,943
Cost of revenue	37,288	64,431	860	13,188	15,577
Gross profit	10,789	43,818	2,851	24,717	54,366
Operating expenses					
Research and development	-	2,429	388	5,162	9,043
Sales, general and administrative	6,864	7,599	707	7,313	18,162
Other operating expenses	3,063	-	-	500	0
Total operating expenses	9,927	10,028	1,095	12,975	27,205
Operating income	862	33,790	1,756	11,742	27,161
Interest expense	(65)	-	(42)	(58)	-
Interest income	61	-	-	812	-
Net interest expense/ (income)	(4)	-	(42)	754	-
Other loss/ (income)	76	415	(19)	(170)	910
Income before provision for income taxes	934	34,205	1,695	12,326	28,071
Provision for income taxes	291	8,283	695	2,589	4,921
Other income	(12)	-	-	-	-
Net income	631	25,922	1,000	9,737	23,150
Less: Net income attributable to participating securities	-	-	332	-	-
Net income available to common shareholders	631	25,922	668	9,737	23,150
Earnings per share:					
Basic	\$1.39	\$28.05	\$0.52	\$30.17	\$2.73
Diluted	\$1.37	\$27.68	\$0.46	\$29.76	\$2.69
Weighted average shares outstanding					
Basic	453	924,258	1,294	323	8,490
Diluted	461	936,645	1,508	327	8,593

Source: Based on data from annual reports (all numbers are in millions USD, except per share amounts)

Chart 17. Income Statements 2012

	Amazon	Apple	Facebook	Google	Microsoft
Revenues	61,093	156,508	5,089	50,175	73,723
Cost of revenue	45,971	87,846	1,364	20,634	17,530
Gross profit	15,122	68,662	3,725	29,541	56,193
Operating expenses					
Research and development	-	3,381	1,399	6,793	9,811
Sales, general and administrative	9,723	10,040	1,788	9,988	18,426
Other operating expenses	4,723	-	-	-	6,193
Total operating expenses	14,446	13,421	3,187	16,781	34,430
Operating income	676	55,241	538	12,760	21,763
Interest expense	(92)	-	(51)	(84)	-
Interest income	40	-	-	713	-
Net interest expense/ (income)	(52)	-	(51)	629	-
Other loss/ (income)	(80)	522	7	(3)	504
Income before provision for income taxes	544	55,763	494	13,386	22,267
Provision for income taxes	428	14,030	441	2,598	5,289
Other income	(155)	-	-	(51)	-
Net income	(39)	41,733	53	10,737	16,978
Less: Net income attributable to participating securities	-	-	21	-	-
Net income available to common shareholders	(39)	41,733	32	10,737	16,978
Earnings per share:					
Basic	\$ (0.09)	\$ 44.64	\$ 0.02	\$ 32.81	\$ 2.02
Diluted	\$ (0.09)	\$ 44.15	\$ 0.01	\$ 32.31	\$ 2.00
Weighted average shares outstanding					
Basic	453	934,818	2,006	323	8,396
Diluted	453	945,355	2,166	323	8,506

Source: Based on data from annual reports (all numbers are in millions USD, except per share amounts)

2.2.1. Vertical Common-size Income Statement Analysis

Because all selected companies are different sizes, especially Apple and Facebook, vertical common-size income analysis is a useful tool as each balance sheet entry is calculated as a percentage of revenues.

Chart 18. Vertical Common-size Income Statement Analysis 2012

	Amazon	Apple	Facebook	Google	Microsoft
Revenues	100.00%	100.00%	100.00%	100.00%	100.00%
Cost of revenue	75.25%	56.13%	26.80%	41.12%	23.78%
Gross profit	24.75%	43.87%	73.20%	58.88%	76.22%
Operating expenses					
Research and development	0.00%	2.16%	27.49%	13.54%	13.31%
Sales, general and administrative	15.92%	6.42%	35.13%	19.91%	24.99%
Other operating expenses	7.73%	0.00%	0.00%	0.00%	8.40%
Total operating expenses	23.65%	8.58%	62.63%	33.44%	46.70%
Operating income	1.11%	35.30%	10.57%	25.43%	29.52%
Interest expense	-0.15%	0.00%	-1.00%	-0.17%	0.00%
Interest income	0.07%	0.00%	0.00%	1.42%	0.00%
Net interest expense/ (income)	-0.09%	0.00%	-1.00%	1.25%	0.00%
Other loss/ (income)	-0.13%	0.33%	0.14%	-0.01%	0.68%
Income before provision for income taxes	0.89%	35.63%	9.71%	26.68%	30.20%
Provision for income taxes	0.70%	8.96%	8.67%	5.18%	7.17%
Other income	-0.25%	0.00%	0.00%	-0.10%	0.00%
Net income	-0.06%	26.67%	1.04%	21.40%	23.03%
Less: Net income attributable to participating securities	0.00%	0.00%	0.41%	0.00%	0.00%
Net income available to common shareholders	-0.06%	26.67%	0.63%	21.40%	23.03%

Source: Based on data from annual reports (percentage of revenues)

The company with the highest profitability as measured by gross margin percent is Microsoft with 76.22% gross profit of total revenue. Right behind Microsoft is Facebook with 73.2%, then after a gap is Google with 58.88%, Apple with 43.87% and Amazon which has a gross profit percentage of revenues (24.75%) as low as Microsoft's cost of revenue. However, the most profitable overall is Apple, with a net income of 26.67% of total revenue. Net profit of Microsoft is just 23.03%; Google 21.4%, Facebook is almost breaking even with 0.63% and Amazon is losing with negative 0.06%. It is worth mentioning that Apple's total sales (\$156.508 billion) are higher than Amazon (\$61.093 billion), Facebook (\$5.089 billion) and Google (\$50.175 billion) combined. The reason for Microsoft's lower net income than Apple is noticeable in operating expenses. Research and development is an interesting, where Microsoft (13.31% of total revenues) invests relatively more than 5 times of Apple (2.16% of total revenues) and almost two times more in absolute dollars. Facebook invests 27.49% of its revenues in R&D and Google invests 13.54%. The entry is interesting mainly because as was written before, Facebook, Google and Microsoft are famous for obtaining new technologies through acquisitions and still have the highest R&D expenses.

With the lowest operating expenses, Apple's operating income is more than one third of revenue, while Amazon has just about one percent. Facebook's increase in R&D

expenses and other operating expenses now count for 62.63%, making just 10.57% of operating income to total revenue.

An interesting fact is how much companies pay in income taxes. Amazon paid in provisions for income taxes 0.7% of total revenues when income before provision for income was 0.89% of total revenues in 2012; it is an effective tax rate of 78.7%. The previous year, it was just 31.1%.

Facebook's situation was even worse; it paid 89.3% of income before provision for income taxes on actual taxes. The reason is that Facebook recorded a negative income before provision for income taxes of \$568 million from foreign operations, and the majority of current provision for income taxes was paid from \$1.062 billion domestic income.

Apple's effective tax rate was a stable 24.2% in 2011 and 25.1% in 2012. But still, Apple paid \$14.030 billion on taxes (8.96% of total revenues). In that case, the previously mentioned buyback program and paying out dividends was a reasonable way to reduce taxes. Even Apple's CEO Tim Cook said that Apple is the "largest corporate tax payer in the United States" (Koetsier, 2013).

Google provided for income tax almost the same amount in 2011 and 2012 (just \$2 million difference), but absolute income before taxes was higher in 2012. Therefore, tax paid is lower. The reason is in deferred taxes, it was \$343 million in 2011 and negative \$273 million in 2012. Microsoft was in the opposite position and had to pay almost \$1 billion more in deferred taxes in 2012.

2.2.2. Horizontal Common-size Income Statement Analysis

Horizontal common-size income statement analysis helps to analyse companies' change of income statement entries in the time period of 2011-2012.

Chart 19. 2011- 2012% Change of Income Statement Entries

	Amazon	Apple	Facebook	Google	Microsoft
Revenues	127%	145%	137%	132%	105%
Cost of revenue	123%	136%	159%	156%	113%
Gross profit	140%	157%	131%	120%	103%
Operating expenses					
Research and development	0.0%	139%	361%	132%	108%
Sales, general and administrative	142%	132%	253%	137%	101%
Other operating expenses	154%	0.0%	0.0%	0%	0.0%
Total operating expenses	146%	134%	291%	129%	127%
Operating income	78%	163%	31%	109%	80%
Interest expense	142%	0.0%	121%	145%	0.0%
Interest income	66%	0.0%	0.0%	88%	0.0%
Net interest expense/ (income)	1300%	0.0%	121%	83%	0.0%
Other loss/ (income)	-105%	126%	-37%	2%	55%
Income before provision for income taxes	58%	163%	29%	109%	79%
Provision for income taxes	147%	169%	63%	100%	107%
Other income	1292%	0.0%	0.0%	0.0%	0.0%
Net income	-	161%	5%	110%	73%
Less: Net income attributable to participating securities	0.0%	0.0%	6%	0.0%	0.0%
Net income available to common shareholders	-6%	161%	5%	110%	73%

Source: Based on data from annual reports

Apple recorded \$156.5 billion in revenues; it is the largest revenue of all five companies. Microsoft, the company with the second largest revenues (\$73.7 billion), recorded less than half of Apple's revenues. Amazon recorded \$61.1 billion (39% of Apple's revenues). Apple's revenues are more 3 times larger than Google's revenues (\$50.2 billion) and 30 times larger than Facebook's revenues (\$5.1 billion).

Despite Apple's highest total revenues, Apple has also the highest percentage increase of all selected companies; the change was 45% (by more than \$48 billion), 2012 compared to 2011. The remaining four companies' revenue growth rates were the following: Facebook 37%, Google 32%, Amazon 27% and Microsoft with a minimal increase of 5%. However, Microsoft's absolute increase in revenues was still higher than Facebook's total revenues in 2011.

Amazon and Apple are the only companies where the cost of revenue rose less than total revenues (123% and 136% respectively), making the change in gross profit even

higher (57% and 40% respectively). The reason for it is that Apple increased the iPhone as a percent of total sales; the iPhone has the highest gross margin. Despite Amazon's increase of units sold, its shipping cost increased just slightly. Another reason for higher gross margin is that Amazon sold more electronics, which allows setting higher margin than books.

Facebook had the highest increase in cost of revenues (59%) to its significantly lower increase in revenues (37%), mainly because of the expansion of their data center operations and increasing depreciation. Google's increase in cost of revenue (56% vs. 32% increase in revenues) was slightly lower than Facebook's and it is primarily given by increasing cost of data centers, traffic acquisition cost (especially AdSense arrangements) and the fact that Google acquired Motorola and its manufacturing and inventory-related cost. Microsoft had comparatively lower increase of 13% and revenues increase just 5%. The largest difference between the increase of revenues and cost of revenue recorded Google with 2,400pp.

Concerning the increase of operating expenses, Facebook conclusively leads with 191% increase that is way higher than its 37% growth in revenues, compared to 2011. The reason is a 261% increase in Research and Development (R&D) justified as a supported effort to improve existing products and build new products for users, developers and marketers (Facebook Inc., 2013). Apple and Google also invested more in R&D, respectively a 39% and 32% increase. However in total, Google (29%) and Microsoft (27%) have similar increase in total operating expenses; where Google's increase is corresponding to its revenues growth but Microsoft's operating expenses growth is more than five times higher than revenues growth. Amazon experienced the same thing where operating expenses increase (46%) is 70% higher than revenues growth. Apple is the only company that increased total operating expenses (34%) less than revenues (45%).

The result of increased operating expenses resulted in decrease of operating income for Microsoft by 20%, Amazon by 22% and Facebook's operating income decreased by 69%. Google's operating income increased slightly by 9%. In case of Amazon, Google and Microsoft, the difference between revenues and operating expenses growth almost corresponds to decrease/increase in operating income. On the other hand,

Apple managed to increase its operating income by far more (almost five times) than this difference.

Despite decreased income before provision of 42%, Amazon increased its provision for income taxes by 47%. The reason is that Amazon, was forced to pay 446% more taxes in the United States, compared to 2011. Microsoft was in similar position, with a decrease of income before provision for income taxes by 21%, Microsoft still paid 7% more in income taxes. Facebook with 29% of previous year's income before provisions paid 63% in taxes, which is an increase in tax rate of more than 100%. Apple and Google had very similar increase in both income before provision for income taxes and provision for income taxes.

In total, Apple ended up with 61% increase of net income and Google with 10% increase. Microsoft recorded a 27% decrease in net income and Facebook almost broke even recording a 95% decrease in net income. Amazon had a loss for 2012 and profit in 2011, thus the increase is not possible to compare.

2.3. Cash flow statement

The cash flow statement is a useful tool to analyse a company's sources and uses of cash. There are two charts below with simplified cash flow statements of the internet big five for FY2011 and FY2012; complete charts with single cash flow items as a percentage of total revenues and v% from 2011 to 2012 are in Appendix 17-21.

Chart 20. Simplified Cash Flow Statements 2011

	Amazon	Apple	Facebook	Google	Microsoft
Cash and cash equivalents, beginning of period	3,777	11,261	1,785	13,630	5,505
Operating activities					
Net income	631	25,922	1,000	9,737	23,150
Adjustments to reconcile net income to cash	1,808	5,850	514	4,198	6,847
Changes in operating assets and liabilities	1,464	5,757	35	630	(3,003)
Net cash provided by operating activities	3,903	37,529	1,549	14,565	26,994
Net cash used in investing activities	(1,930)	(40,419)	(3,023)	(19,041)	(14,616)
Net cash (used in)/generated by financing activities	(482)	1,444	1,198	807	(8,376)
Effect of exchange rate changes on cash and cash equivalents	1	0	3	22	103
Increase/(decrease) in cash and cash equivalents	1,492	(1,446)	(273)	(3,647)	4,105
Cash and cash equivalents, end of period	5,269	9,815	1,512	9,983	9,610

Source: Based on data from annual reports (all numbers are in millions USD)

Chart 21. Simplified Cash Flow Statements 2012

	Amazon	Apple	Facebook	Google	Microsoft
Cash and cash equivalents, beginning of period	5,269	9,815	1,512	9,983	9,610
Operating activities					
Net income	(39)	41,733	53	10,737	16,978
Adjustments to reconcile net income to cash	2,696	9,422	2,050	4,984	14,822
Changes in operating assets and liabilities	1,523	(299)	(491)	898	(174)
Net cash provided by operating activities	4,180	50,856	1,612	16,619	31,626
Net cash used in investing activities	(3,595)	(48,227)	(7,024)	(13,056)	(24,786)
Net cash (used in)/generated by financing activities	2,259	(1,698)	6,283	1,229	(9,408)
Effect of exchange rate changes on cash and cash equivalents	(29)	0	1	3	(104)
Increase/(decrease) in cash and cash equivalents	2,815	931	872	4,795	(2,672)
Cash and cash equivalents, end of period	8,084	10,746	2,384	14,778	6,938

Source: Based on data from annual reports (all numbers are in millions USD)

2.3.1. Cash Flow Statement Analysis

It is important to notice that all companies in both fiscal years primarily use operating activities as a major source of cash. Just Facebook in 2012, due to the IPO and additional paid-in capital, raised \$6.760 billion in financing activities, making it the main source of cash. As operating cash flow impacts the total assets, Apple's \$50.9 billion in operating cash flow explains 51% increase of total assets.

Chart 22. Vertical Common-Size Cash Flow Statements 2012

	Amazon	Apple	Facebook	Google	Microsoft
Cash and cash equivalents, beginning of period	8.6%	6.3%	29.7%	19.9%	13.0%
Operating activities					
Net income	-0.1%	26.7%	1.0%	21.4%	23.0%
Adjustments to reconcile net income to cash	4.4%	6.0%	40.3%	9.9%	20.1%
Changes in operating assets and liabilities	2.5%	-0.2%	-9.6%	1.8%	-0.2%
Net cash provided by operating activities	6.8%	32.5%	31.7%	33.1%	42.9%
Net cash used in investing activities	-5.9%	-30.8%	-138.0%	-26.0%	-33.6%
Net cash (used in)/generated by financing activities	3.7%	-1.1%	123.5%	2.4%	-12.8%
Effect of exchange rate changes on cash and cash equivalents	0.0%	0.0%	0.0%	0.0%	-0.1%
Increase/(decrease) in cash and cash equivalents	4.6%	0.6%	17.1%	9.6%	-3.6%
Cash and cash equivalents, end of period	13.2%	6.9%	46.8%	29.5%	9.4%

Source: Based on data from annual reports (as a percent of revenues)

In general, it is expected and desirable that operating cash flow (OCF) exceeds net income, which is a sign of high earnings quality. All companies are successful in this within the last two years. Apple, Facebook and Google have OCF slightly above 30% of revenues and Microsoft has over 42%. However, Apple's absolute OCF of \$50.9 billion is 61% higher than Microsoft (which is considered as a monopoly) and three times higher than Google (Apple's main competitor in terms of the stock market); further analysis is in the operating activities chapter.

Apple had a decrease in cash and cash equivalents in 2011. However, it counted just for 1.34% of revenues. This was due to \$102.317 billion invested in marketable securities, causing negative cash used in investing activities to be greater than the positive change in operating assets. The purchase of marketable securities rose by 47.81% over the year to \$151.232 billion. But as proceeds from sales of marketable securities rose by 101.9% (from \$49.416 billion to \$99.77 billion), the total cash used in investing activities was lower than the positive change in operating activities. Together with the cash used in

financing activities (negative \$1.698 billion), there was an increase in cash and cash equivalents of \$931 million (0.59% of revenues).

With an inflow of \$6.760 billion due to net proceeds from the issuance of common stock, Facebook was able to turn its decrease in cash and cash equivalents in 2011 (\$273 million) to an increase of \$872 million the following year. The main cause was a 47.83% decrease in the purchasing of marketable securities.

Microsoft produced a decrease in cash of \$2.672 billion in 2012 (from an increase of \$4.105 billion in 2011). One of the main reasons was a purchase of investments, which can be recognized as marketable securities, with an increase of 59.06% to \$57.250 billion.

Detailed cash flow analyses are provided in the following chapters.

Operating Activities

The biggest change in operating activities (from 2011 to 2012) amongst the companies, recorded Apple with a 35.51% increase. It stems from a 60.99% higher net income. The total change in operating assets and liabilities is almost one third of revenue.

Amazon slightly increased cash from operating activities by 7.1% with the most significant change in depreciation of 199.35%. Net cash provided by operating activities counts for 6.84% of revenue.

Facebook increased its operating activities in almost every entry of the statement, except net income that caused just a small increase in net cash provided by operating activities of 4.07%. The main determinant of operating cash flow is share-based compensation which counts for 30.89% of revenue and it was mainly driven by higher expenses in R&D. In total, cash inflow from operating activities as a percentage of revenue dropped to 31.68% from 41.74% in 2011.

Google shows signs of steady growth with a 10.27% increase in net income and a 14.1% increase in cash flow of operating activities. This is despite net cash provided by operating activities as a percentage of revenues decreasing from 38.43% to 33.12%. The biggest determinant of operating activities is net income (21.4% of revenue) and stock-based compensation expense (5.37% of revenue).

Despite Microsoft's lower net income, they still managed to increase net cash from operations by 17.16%. It is worth noticing that goodwill impairment, which counts for 8.4% of revenue, was caused by a higher fair value of the online service division than expected. Net cash from operations counts for 42.9% of revenue, which is a 430pp increase from 2011.

Investing activities

Amazon increased their capital expenditures outflow by 109% to \$3,785 billion that is still covered by operating activities. It is crucial for the company; otherwise it may be a signal of an unsustainable business. The balance between sales and maturities, and purchases of marketable securities is \$935 million in 2012 and \$586 million in 2011. This shows the decrease of marketable securities. When the balance is compared to the difference in marketable securities of the balance sheets in 2011 and 2012, a loss of \$9 million is visible and it is recorded as an entry in operating activities.

From the other side, Apple is continuously increasing its marketable securities (both short and long-term). It is noticeable in the 47.81% increase in purchases of marketable securities and the difference between purchases, and sales and maturities is still increasing in favour of purchases. Currently, purchases of marketable securities are 93.63% equal to revenues and sales with maturities are 72.08% equal. In another words, purchases of new securities cost 21.55% of revenues. When the cash flow of marketable securities is compared to the balance sheet, there is a \$323 million profit on securities. It is just a 0.29% gain on total securities. Capital expenditures increased by 94.72% and cost 5.3% of revenues. Cash used in investing activities is 30.81% of revenue.

Facebook is interesting in matters of marketable securities, it increased its purchases by more than 240% (from \$3.025 billion to \$10.307 billion) and have a value more than twice as much as revenue. In the case of sales and maturities, the increase is 764% to \$5.433 billion. It would be sufficient as a main source of income, because it counts for 106.76% of revenue. However, the real loss from marketable securities was \$28 million in 2012. Facebook spent 17.9% of revenues on acquisitions. Net cash used in investing activities is 38% higher than revenue.

Google slightly decreased its capital expenditures by around 5% to 6.52% of revenue. Due to some expensive acquisitions, Google's acquisition cash outflow was

21.06% of revenue. Basically one fifth of revenue is spent on acquisitions. Google also reduced trading with marketable securities. Google's inflow from tradable securities is 3.53% of revenue. In total, Google profited from \$437 million as the difference between securities in the cash flow and balance sheet; it is a 1.31% gain in total marketable securities (352% more than Apple). Net cash used in investing activities is equal to 26.02% of revenue.

Microsoft's biggest increase in investing activities was in acquisitions (14,142% to \$10.112 billion, 13.72% of revenues). Microsoft purchased 26.5% more investments than sold and gained from maturities. When the balance of investments is compared to the change in balance sheet, Microsoft profited by \$965 million; that is 1.72% of total investments and it is the highest profit on investments of all companies. Even though Apple's investments are almost twice as big as Microsoft's, Microsoft has an almost 300% higher absolute profit than Apple. Net cash used in investing counts as 33.62% of revenue.

When the companies are compared together, Facebook as a growing company has the largest capital expenditure as a percentage of revenues (24.27%) and other companies have around 6% and less; Amazon 6.2%, Apple 5.3%, Google 6.25% and Microsoft 3.31%.

Financing Activities

The largest cash inflow of Amazon's financing activities primarily went from long-term debt (the nature of it was discussed in the balance sheet section) and it was \$3.378 billion. This was reduced by \$588 million of repayments to long-term debt, making it \$2.790 billion of cash inflow from long-term debt. In order to proceed with the \$2 billion buyback program from 2010, Amazon bought back 5.3 million of common stock worth \$960 million; it was a 246.57% increase since the previous year. Net cash provided by financing activities is equal to 3.7% of revenue.

In 2012, Apple decided to pay dividends again and repurchased almost \$2.5 billion (1.59% of revenues), it was also the main cash outflow driver in financing activities. In total, cash used in financing activities is negative \$1.698 billion.

Facebook's financing activities are quite interesting, especially for its IPO in May 2012 which raised \$6,760 billion (132.84% of revenue), and its related taxes paid to net share settlement of equity awards of \$2.862 billion (56.24% of revenues). The second cash

inflow determinant is long-term debt, already analysed in the balance sheet chapter. Net cash provided by financing activities was \$6.283 billion; it exceeds revenues by 23.46%.

Google's largest cash provided from financing activities was from debt at \$16.109 billion (32.11% of revenues). However, \$14.781 billion of debt was repaid that leaves \$1.328 billion of cash inflow by debt; it is 2.65% of revenues. Net cash provided by financing activities was \$1.229 billion (2.45% of revenues).

Unlike the previous year, Microsoft's financing activities for 2012 consisted only from common stock operations; instead of debt operations with \$6.960 billion of debt proceeds. Microsoft is continuously issuing new common stocks, but this trend decreased by 21% in 2012. The financing operations were mainly driven by common stock repurchases; it was part of a share repurchase program from 2008 with a plan to repurchase \$40 billion worth of common shares by 30 September 2013. In 2012, Microsoft bought back shares worth \$5.029 billion (6.82% of revenue), it is a 56.48% decrease from the last year, when the common stock repurchase stood for 16.52% of revenue. Despite the intensive buyback program, Microsoft is still paying more on dividends. In 2012, Microsoft paid \$6.385 billion in dividends (8.66% of revenue), a 23.26% increase from 2011. When compared to Apple, Microsoft paid absolutely 157% more on dividends and, relatively to revenues, 445% more. Net cash used in financing was \$9,408 billion which is equal to 12.76% of revenue.

2.4. Revenues Structure

This section analyses what business is the main determinant, what are other entries in companies' revenues and how diversified their revenue models are.

2.4.1. Amazon

Chart 23. Revenues Structure for Amazon

Revenues	2011	2011 % of Revenues	2012	2012 % of revenues	2011-2012 v%
North America					
Media	7,959	16.55%	9,189	15.04%	115.45%
Electronics and other general merchandise	17,315	36.02%	23,273	38.09%	134.41%
Other	1,431	2.98%	2,351	3.85%	164.29%
Total North America	26,705	55.55%	34,813	56.98%	130.36%
International					
Media	9,820	20.43%	10,753	17.60%	109.50%
Electronics and other general merchandise	11,397	23.71%	15,355	25.13%	134.73%
Other	155	0.32%	172	0.28%	110.97%
Total International	21,372	44.45%	26,280	43.02%	122.96%
Consolidated					
Media	17,779	36.98%	19,942	32.64%	112.17%
Electronics and other general merchandise	28,712	59.72%	38,628	63.23%	134.54%
Other	1,586	3.30%	2,523	4.13%	159.08%
Total Consolidated	48,077	100.00%	61,093	100.00%	127.07%

Source: Based on data from annual reports (all numbers are in millions USD)

* Includes sales from non-retail activities, such as AWS in the North America segment, advertising services, and co-branded credit card agreements in both segments.

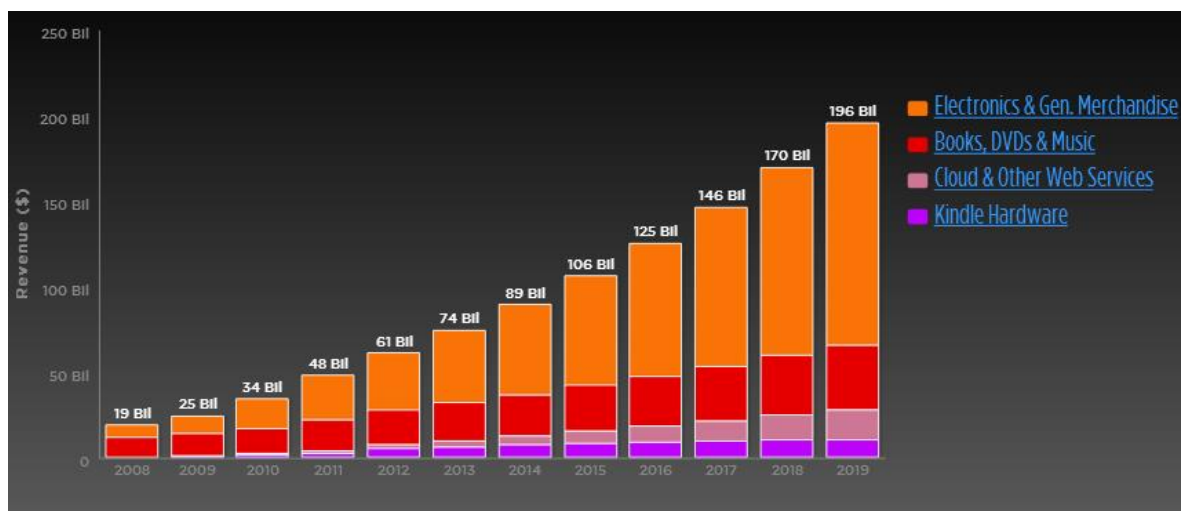
Amazon divides its revenue sources into three segments: media, electronics and other merchandise, and other. Other includes non-retail activities (AWS included), advertising services and co-branded credit card agreements.

Almost 57% of total revenue is generated in North America with 38.09% from tangible merchandise sold online. It is what Amazon started with, still has a major position in its revenue model, and its position is continuously rising; by 34.41% from last year and by 207pp as a percentage of revenues. International revenues from electronics and other general merchandise are significantly lower by 34%.

Even though international revenues are 34% lower than those from North America, media revenues are higher, counting for 17.6% of total revenue; it is 256pp more than media revenues from North America.

In total, 63.23% of total revenue is from electronics and other general merchandise with an annual growth of 34.54%; 32.64% is from media. Other revenues, mainly driven by AWS, rose by 59.08%. According Ben Schacter, the Macquarie Capital analyst, AWS generated \$2.1 billion in revenue for 2012 (Babcock, 2013).

Chart 24. Revenues Forecast for Amazon



Source: <http://www.trefis.com/company?hm=AMZN.trefis&from=search#/AMZN/n-0011>

According to analyst website Trefis.com, Amazon should increase its revenue by 21.3% in 2013 and by 221% in seven years. The percentage that AWS has on total revenue should increase by 14.5% in 2013, meaning slower growth compared to 2011-2012. In 2019 cloud and other web services should represent 9.01% of total revenues at the expense of media sales, which should decrease from 32.6% to 19.4%.

2.4.2. Apple

Chart 25. Revenues Structure for Apple

	2011	2011 % of Revenues	2012	2012 % of revenues	2011-2012 v%
By product					
Desktops	6,439	5.95%	6,040	3.86%	93.80%
Portables	15,344	14.17%	17,181	10.98%	111.97%
iPod	7,453	6.89%	5,615	3.59%	75.34%
Other music related products and services	6,314	5.83%	8,534	5.45%	135.16%
iPhone and related products and services	47,057	43.47%	80,477	51.42%	171.02%
iPad and related products and services	20,358	18.81%	32,424	20.72%	159.27%
Peripherals and other hardware	2,330	2.15%	2,778	1.77%	119.23%
Software, service and other sales	2,954	2.73%	3,459	2.21%	117.10%
Total Revenues	108,249	100.00%	156,508	100.00%	144.58%
By operating segment					
Americas net sales	38,315	35.40%	57,512	36.75%	150.10%
Europe net sales	27,778	25.66%	36,323	23.21%	130.76%
Japan net sales	5,437	5.02%	10,571	6.75%	194.43%
Asia-Pacific net sales	22,592	20.87%	33,274	21.26%	147.28%
Retail net sales	14,127	13.05%	18,828	12.03%	133.28%
Total revenues	108,249	100.00%	156,508	100.00%	144.58%

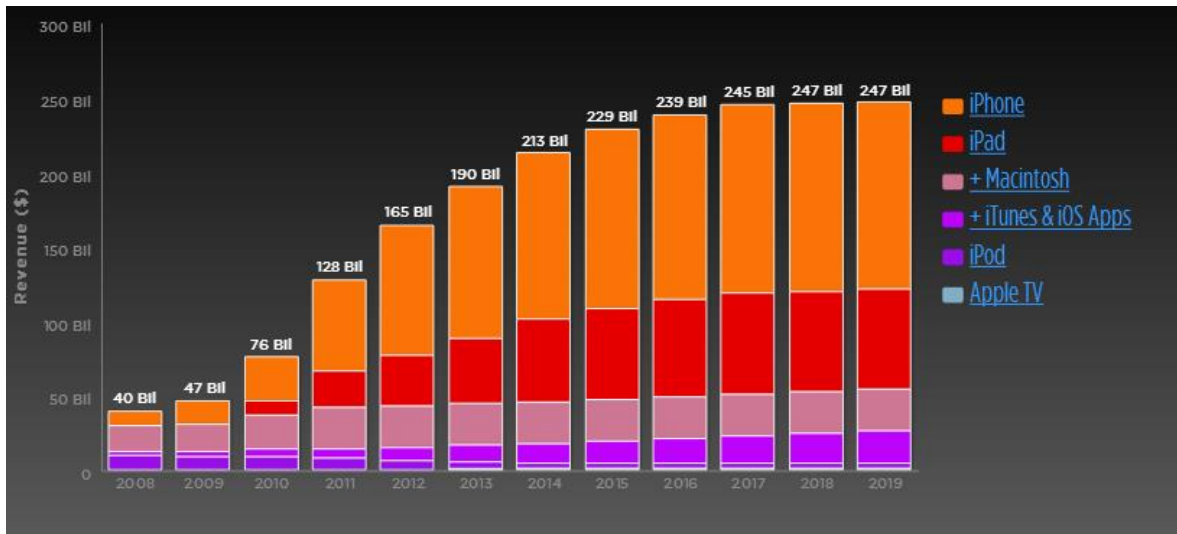
Source: Based on data from annual reports (all numbers are in millions USD)

Apple's largest revenues driver is doubtlessly the iPhone. The iPhone and related products and services represent 51.42% of revenues. iPhone sales also recorded the highest growth of 71.02%, selling 125.05 million iPhones. The second revenue determinant is iPads and related products and services, representing 20.72% of revenue; 59.27% year-to-year growth. iCloud revenues are represented by software, service and other sales and its revenue counts only for 2.21% of total.

Revenue from iPod sales are decreasing (25% decrease from 2011), especially due to the fact that many other smartphones can substitute the function of an iPod. The decrease of Desktop sales (9%) is reasoned by a change in preference toward laptops and corporate customers are often switching to cheaper competition.

The strongest sales are in America's markets with share of 36.75% and 50% annual increase. The fastest growing market is Japan with 94.43% growth.

Chart 26. Revenues Forecast for Apple



Source: <http://www.trefis.com/company?hm=AAPL.trefis&from=search#/AAPL/n-10034>

In 2013, Trefis.com estimates Apple’s revenue growth to be 15% and total revenue \$190 billion. Within seven years, Apple is estimated to grow by almost 50% to \$247 billion in revenue. Trefis is expecting a slight decrease in iPhone sales as a percentage of total revenue, but a 30% growth (630pp) of iPads, 76% growth (394pp) in iTunes and iOS apps. Sales of iPods should almost fade out to 1.3%.

2.4.3. Facebook

Chart 27. Revenues Structure for Facebook

	2011	2011 % of Revenues	2012	2012 % of revenues	2011-2012 v%
Advertising	3,154	84.99%	4,279	84.08%	135.67%
Payments and other fees	557	15.01%	810	15.92%	145.42%
Total revenue	3,711	100.00%	5,089	100.00%	137.13%

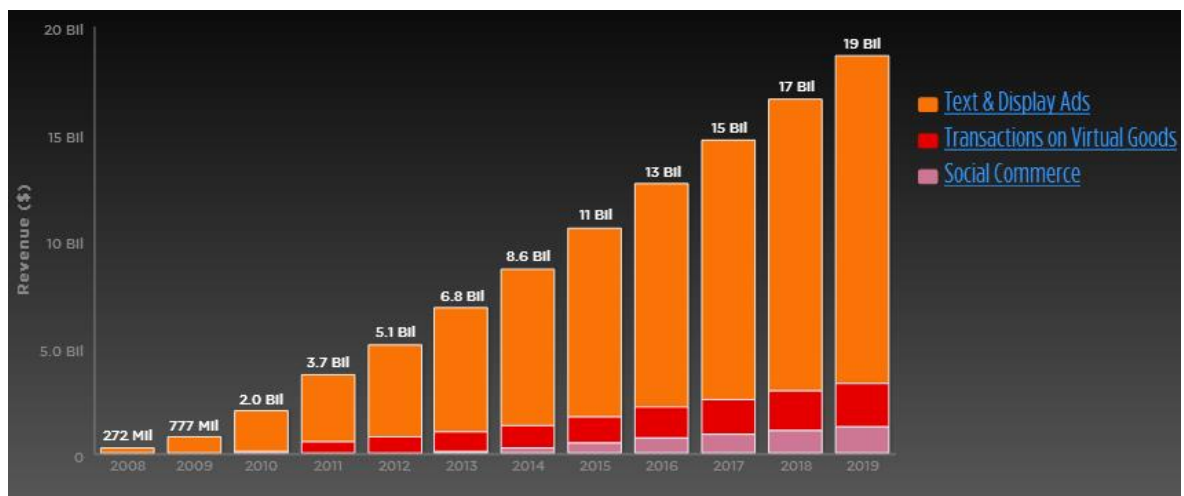
Source: Based on data from annual reports (all numbers are in millions USD)

Facebook divides its revenues simply into two segments advertising, and payments and other fees, from which the major is advertising (84.08% of revenues). Payments and other fees mostly consist of the provision of payments from Facebook users to Facebook application developers (the majority of it are games).

The 36% increase in revenue from advertising is partially due to a 3% increase in average price, but mainly for a 25% increase in MAUs and consequent 32% increase in displayed ads. Approximately 11% of advertising revenue was made by mobile advertising.

The revenue from payments and other fees rose by 45.42% and the main reason is that Facebook game developers have submitted mandatory payments for using Facebook’s platform since July 2011.

Chart 28. Revenues Forecast for Facebook



Source: <http://www.trefis.com/company?hm=FB.trefis&from=search#/FB/n-0054?from=sankey>

Trefis.com estimated 2013 revenue growth by 27.5% to \$6.8 billion revenue and 275.5% growth within the next seven years to \$19 billion revenue. Even though Facebook still does not have comparable revenues to other companies, it has a solid growth with sustainable revenue.

The revenue structure in the case of advertisements should remain the same but payments and other fees (transactions on virtual goods) are estimated to decrease by 17.3% to create a new source of revenue, social commerce. Social commerce is basically online sales of goods through social networks and it is expected to have a 6.8% share of Facebook’s revenues in 2019.

2.4.4. Google

Chart 29. Revenues Structure for Google

	2011	2011 % of Revenues	2012	2012 % of revenues	2011-2012 v%
Google					
Advertising revenues:					
Google websites	26,145	68.98%	31,221	62.22%	119.41%
Google Network Member's websites	10,386	27.40%	12,465	24.84%	120.02%
Total advertising revenues	36,531	96.38%	43,686	87.07%	119.59%
Other revenues	1,374	3.62%	2,353	4.69%	171.25%
Total Google revenues	37,905	100.00%	46,039	91.76%	121.46%
Motorola Mobile					
Total Motorola Mobile revenues	0	0.00%	4,136	8.24%	-
Total revenues	37,905	100.00%	50,175	100.00%	132.37%

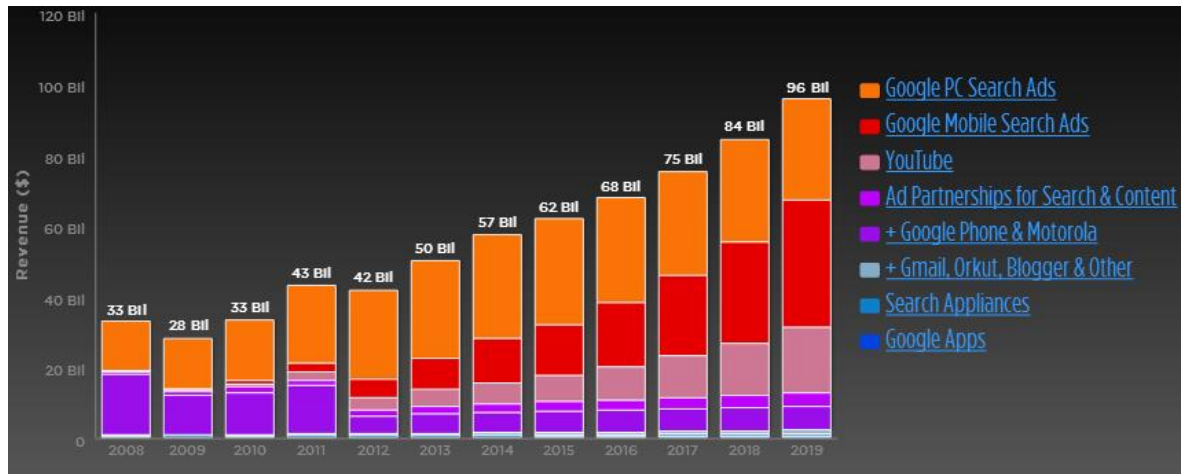
Source: Based on data from annual reports (all numbers are in millions USD)

Since FY 2012, Google divides its revenues into two main parts, Google and recently acquired Motorola Mobile. Motorola represents only 8.24% of revenues with \$4.136 billion; it is approximately one third of the price paid for the acquisition.

The rest (91.76%) is mainly determined by Google's advertising revenue (87.07% of revenue) with an annual increase of almost 20%. Other revenues have the largest year-over-year growth (71.25%), cloud services are included and it is partly the reason for the growth.

Despite Google not disclosing its exact revenue of cloud services, Technology Business Research, Inc. (TBR, analyst of technology companies) estimated its 2012 cloud services revenue at \$314 million; cloud services concern Google Apps, Google App Engine and Google Compute Engine. TBR also claimed that Google's cloud business will triple its revenues to \$1 billion in 2013 (Panettieri, 2013).

Chart 30. Revenues Forecast for Google



Source: <http://www.trefis.com/company?hm=GOOG.trefis&from=search#>

In 2013, Trefis.com estimates revenue growth to be 19%. Within the next seven years, in 2019, the revenue growth is estimated to be 129%. The largest relative growth is supposed to be in Google mobile search ads (from 12.5% of total revenue in 2012 to 37.5% in 2019) and YouTube (from 8.27% of total revenue in 2012 to 19.4% in 2019).

2.4.5. Microsoft

Chart 31. Revenues Structure for Microsoft

	2011	2011 % of Revenues	2012	2012 % of revenues	2011-2012 v%
Windows & Windows Live Division	18,787	26.86%	18,818	25.53%	100.17%
Server and Tools	16,691	23.86%	18,696	25.36%	112.01%
Online Service Division	2,680	3.83%	2,934	3.98%	109.48%
Microsoft Business Division	22,314	31.90%	23,963	32.50%	107.39%
Entertainment and Devices Division	8,896	12.72%	9,585	13.00%	107.75%
Unallocated and other	575	0.82%	(273)	-0.37%	-
Total revenues	69,943	100.00%	73,723	100.00%	105.40%

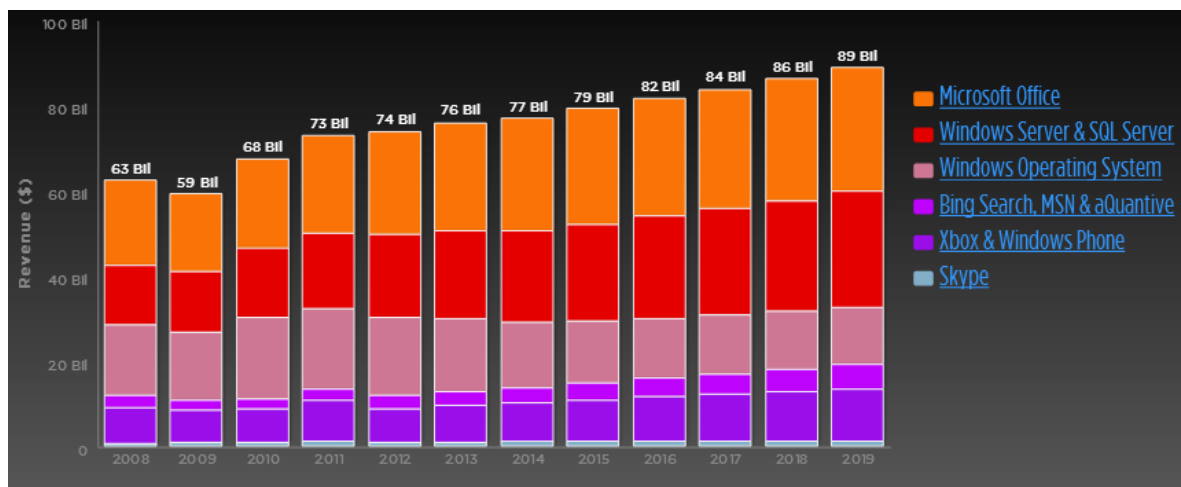
Source: Based on data from annual reports (all numbers are in millions USD)

Microsoft's revenues structure mainly consists of three divisions Windows & Windows Live Division (25.53% of revenue), Server and Tools (25.36% of revenue) and the largest one Microsoft Business Division (32.5% of revenue). Microsoft Business Division includes highly profiting Microsoft Office and other software offerings for corporate customers.

In total, the growth is stable in the range of 5-12%, except Windows & Windows Live Division, which has almost zero growth. The largest growth is from Server and Tools.

Microsoft Azure is included in Server and Tool and Microsoft did not disclose the exact number for Azure revenues. However, in April 2013 Bloomberg (Bass, Microsoft Azure Sales Top \$1 Billion Challenging Amazon, 2013) reported \$1 billion in annual sales of Azure and related services.

Chart 32. Revenues Forecast for Microsoft



Source: <http://www.trefis.com/company?hm=MSFT.trefis&from=search#>

Analyst website Trefis.com estimates that Microsoft should increase its revenue by 3% to \$76 billion in 2013 with minimal movements of division shares. Within seven years to 2019, Microsoft is estimated to increase its revenue by 20%, with a 28% increase in the Entertainment and Devices Division, 16% increase of Service and Tools and a decrease of Windows & Windows Live Division by 39%.

2.4.6. Summary

In every technology war, the company that is technologically ahead has an undeniable advantage over its competitors. For example Amazon, due to its 11 years of experience, owns the majority of the market and is recognized as #1 in cloud computing.

According to the revenue structure, Amazon also leads in revenue from cloud computing. As was mentioned in this chapter, Amazon collected around \$2.1 billion from AWS, which is completely in cloud.

Apple did not disclose revenues coming from cloud and neither has Microsoft. However, as was said in the previous chapter, Microsoft stated that annual revenues from Microsoft Azure hit \$1 billion in April 2013. It makes Microsoft the second most successful company of the Internet Big Five according to cloud revenues.

Since Facebook works entirely in cloud, it is complicated to recognize its revenue from true cloud services. Although, revenue from payments and other fees for making Facebook's platform available to developers is close enough. Therefore, Facebook's revenue from cloud services was \$810 million in 2012.

Google's estimated revenue from true cloud services was about \$314 million, which makes it fourth in the ranking, but with a promising growth of 200% to \$1 billion for the next year.

Considering revenue growth, the highest one year growth is from Facebook with 33% revenue growth. Amazon and Google have around 20% growth; Apple has 15% and Microsoft has only a small 3% growth.

Within 3 years, Facebook is estimated to have a 116% revenue growth and Amazon is supposed to have 74% growth. Microsoft is expected to struggle with only 7% growth.

In the long-term, the growth increase remains constant and Facebook, with Amazon, are supposed to more than triple their revenue (by 273% and 221%); this equates to an average 39% and 32% annual growth. Google is still considered as a fast growing company with an expected 129% seven year revenue growth. Both Apple and Microsoft's revenues are forecast to grow by 50% and 20% respectively by 2019; this is a 7% and 3% average annual growth.

2.5. Ratios Analysis

For a deeper understanding of financial statements, more explanatory ratio analysis will be used. The following ratios are a result of financial statements and will be divided into four sections according to the information they provide; liquidity, solvency, profitability and valuation ratios.

Even though financial statements can be manipulated by companies, financial ratios are usually a truer insight into a companies' financial situation.

2.5.1. Liquidity Analysis

Liquidity analysis provides information about the companies' ability to pay short-term obligations in time. The table below summaries liquidity ratios and a detailed analysis will be discussed further.

Chart 33. Liquidity Ratios

	Amazon	Apple	Facebook	Google	Microsoft
Current ratio	1.12	1.50	10.71	4.22	2.60
Quick ratio	0.78	1.04	9.83	3.90	2.41
Cash ratio	0.60	0.76	9.15	3.35	1.93
Defensive interval ratio	97.07	144.39	829.69	274.38	628.60

Source: Based on data from annual reports

Formulas used for ratios are following:

- $Current\ ratio = \frac{Current\ assets}{Current\ liabilities}$
- $Quick\ ratio = \frac{Cash+Short-term\ marketable\ investments+Receivables}{Current\ liabilities}$
- $Cash\ ratio = \frac{Cash+Short-term\ marketable\ investments}{Current\ liabilities}$
- $Defensive\ interval\ ratio = \frac{Cash+Short-term\ marketable\ investments+Receivables}{Daily\ cash\ expenditures^*}$

* Daily cash expenditures include cost of goods sold, general and administrative expenses, and research and development expenses; divided by 365 days.

Current Ratio

Both Amazon and Apple have a current ratio close to one meaning the book value of current liabilities and current assets are almost equal. This demonstrates lower liquidity than the other companies and is a sign that they rely more on cash flow from operating activities.

Microsoft and Google have solid liquidity and ability to pay short-term liabilities without outside financing. Facebook has the highest current ratio.

Quick Ratio

Quick ratio, sometimes referred to as an acid test, has the same explanatory value as the current ratio, but excludes less liquid current assets, such as inventories. Then Amazon is getting into problems, because its liquidity is strongly decreased by its vast inventory and the quick ratio is less than one; it is a signal of a greater reliance on cash flow from operating activities, and possible reliance on the repayment of short-term liabilities from outside sources. Apple's quick ratio is almost as low as one and may lead toward the same problem as Amazon.

Since the main business structures of Facebook, Google and Microsoft do not require inventory, their quick ratio is still high and they have high liquidity.

Cash Ratio

The cash ratio is basically a company's ability to sustain a crisis situation, where immediate cash is needed to repay current liabilities. However, in a global crisis situation, the market value of marketable securities may decrease even more and cause troubles with repaying.

Both Amazon and Apple are considerably below one, and they may face a problematic situation during any crisis. Microsoft is getting closer to one, but still have enough reserves to be liquid. Facebook and Google would be out of trouble with high ratios.

Defensive Interval Ratio

The defensive interval ratio provides the number of days that a company could continue in their daily operations without any additional cash inflow. In this matter, all

companies are performing quite well. Even Amazon with the lowest ratio is able to survive and continue in its operations for 97 days; Apple almost 5 months, Google around 9 months, Microsoft over one and half years and Facebook over two years.

Liquidity Summary

The reason why Apple performs relatively badly in liquidity ratios is its large investment in long-term securities that consequently decrease current cash. Amazon, due to its needed large inventory, is losing ability to repay immediate obligations and this may be alarming for some investors. The rest of the companies are performing very well with Facebook doing exceptionally well.

2.5.2. Solvency Analysis

While liquidity ratios evaluate the ability to pay short-term obligations, solvency ratios evaluate the ability to pay long-term debt obligations. Solvency ratios provide information of long-term debt as a part of other components. The table below summaries liquidity ratios and detailed analysis will be discussed further. Since Apple recorded no short-term or long-term debt, it has zero in debt-to-component ratios.

Chart 34. Solvency Ratios

	Amazon	Apple	Facebook	Google	Microsoft
Debt-to-assets	9.5%	-	15.6%	7.7%	9.8%
Debt-to-capital	37.6%	-	20.0%	10.1%	18.0%
Debt-to-equity	0.27	-	0.17	0.09	0.15
Financial leverage	3.63	1.50	1.29	1.28	1.86

Source: Based on data from annual reports

Formulas used for ratios are following:

- $Debt - to - assets = \frac{Total\ Debt^*}{Total\ assets}$
- $Debt - to - capital = \frac{Total\ Debt^*}{Total\ shareholders'\ equity + Total\ Debt^*}$
- $Debt - to - equity = \frac{Total\ Debt^*}{Total\ shareholders'\ equity}$
- $Financial\ leverage = \frac{Average\ total\ assets^{**}}{Average\ total\ equity^{**}}$

* Total debt includes short-term and long-term debt

** Average values of the beginning and the ending values

Debt-to-assets Ratio

Facebook has the highest percentage of assets financed with debt of all companies and it indicates Facebook's relatively higher reliance on debt as a source of financing. But 15.6% is still considered as a low percentage. Therefore all companies have strong solvency and not weighted by large debt.

Debt-to-capital Ratio

Since Amazon has the smallest share of equity on assets, then presumably Amazon will have the largest debt-to-capital ratio; that is true. Amazon has 37.6% of debt represented by capital (equity + debt). It is not extremely high, but when compared to other companies, it is disturbing and may bear a certain financial risk with weak solvency.

Other companies have a higher debt-to-capital ratio than debt-to-assets ratio, especially Microsoft, but still low to be worrisome.

Debt-to-equity Ratio

Similar to the debt-to-capital ratio, Amazon has the highest ratio increasing its financial risk and casting doubt on Amazon's solvency.

Financial Leverage

Amazon's 3.63 financial leverage (sometime referred to as the leverage ratio) means that each \$1 of equity supports \$3.63 of total assets. It indicates that in comparison with other companies, Amazon is highly leveraged and it is using more debt and other liabilities to finance assets than other companies.

The rest of the companies have leverage ratios below 2 meaning that they use mostly equity to finance their assets.

Solvency summary

Similar to the results of the liquidity ratios, Amazon performed significantly worse than other companies; except regarding debt-to-assets where Facebook had the highest ratio. However, despite high ratios, Amazon is still performing relatively well and is not insolvent. Apple as a holder of no debt theoretically performed the best of all companies.

2.5.3. Profitability Analysis

Profitability is considered as one of the most important indexes for setting companies' competitive position in the market, companies' value and how well companies manage their revenues.

The table below summaries profitability ratios and divides them into two groups according to measurements of return on sales and return on investments; detailed analysis will be discussed further.

Chart 35. Profitability Ratios

	Amazon	Apple	Facebook	Google	Microsoft
Return on Sales					
Gross profit margin	24.75%	43.87%	73.20%	58.88%	76.22%
Operating profit margin	1.11%	35.30%	10.57%	25.43%	29.52%
Pre-tax margin	0.89%	35.63%	9.71%	26.68%	30.20%
Net profit margin	-0.06%	26.67%	1.04%	21.40%	23.03%
Return on Investment					
Operating ROA	2.08%	31.38%	3.56%	13.60%	17.95%
ROA	-0.12%	23.70%	0.35%	11.45%	14.00%
Return on total capital	6.00%	46.73%	3.81%	16.17%	27.79%
ROE	-0.49%	42.84%	0.64%	16.54%	27.51%

Source: Based on data from annual reports

Formulas used for ratios are following:

- Return on sales
 - $Gross\ profit\ margin = \frac{Gross\ profit}{Revenue}$
 - $Operating\ profit\ margin = \frac{Operating\ income\ (EBIT)}{Revenue}$
 - $Pre - tax\ margin = \frac{EBT}{Revenue}$
 - $Net\ profit\ margin = \frac{Net\ income}{Revenue}$
- Return on investment
 - $Operating\ ROA = \frac{Operating\ income\ (EBIT)}{Average\ total\ assets}$
 - $ROA = \frac{Net\ income}{Average\ total\ assets}$
 - $Return\ on\ total\ capital = \frac{EBIT}{Total\ debt + total\ shareholder\ equity}$
 - $ROE = \frac{Net\ income}{Average\ total\ equity}$

Gross Profit Margin

Microsoft, sometimes considered as a monopoly, has set its prices relatively high for most of its products. Therefore gross profit margin is 76.22%; it is the highest gross profit margin. Right behind Microsoft is Facebook with 73.2%. Facebook has the advantage that it only provides online services and its revenue cost is very low. Due to the recent acquisition of Motorola and its related revenue cost, Google has decreased its gross profit margin to 58.88%.

Even though Apple's main source of revenue comes from hardware sales, Apple has a higher gross profit margin (43.87%) than Amazon (24.75%). This is the main reason why Amazon's profitability ratios were so low and may raise concern from investors as to why Amazon is not as profitable as other companies. However, both companies have completely different strategies and business models. While Apple sells a small scope of products that are highly demanded for their high-tech, sleek design and trendy features, Apple can mass produce and charge high prices. It is a great 'recipe' for high margins. On the other hand, Amazon sells large range of products and mostly as an intermediary. Amazon is famous for its very low and competitive prices and sometimes is also accused of dumping prices; as will be analysed in the discussion section, Amazon does not even try to increase its margins.

Operating Profit Margin

After subtracting operating expenses, Apple becomes the most profitable in current operations with an operating profit margin of 35.3%. The greatest difference between operating profit margin and gross profit margin was recorded by Facebook with just 10.57% of operating margin after a gross margin of 73.2%; it means that only 10.57 cents of operating margin are made from each dollar of sales. Investors may be concerned as to why Facebook is spending so much on operating expenses; this is the same case for Amazon with just 1.11%. Google and Microsoft have comparatively healthy 25.43% and 29.52% operating profit margins.

Pre-tax Margin

The pre-tax margin is basically the same as operating profit margin, but includes interest expense/income. Apple, Google and Microsoft were able to slightly increase pre-tax margin against operating profit margin through interest and other related income.

Net Profit Margin

Net profit margin reflects the pre-tax margin after tax, or net income. Therefore, for Amazon it means that it has a negative margin of 0.06%; it is almost breaking even and brings no profit for investors. Facebook is almost breaking even as well and its 1.04% margin generates just one cent of each dollar of revenue for its investors. As discussed in the previous section on the Income Statement, several of these companies are paying seemingly excessive tax rates in 2012.

Apple, Google and Microsoft all have desirable net profit margins over 20% leading to investor satisfaction.

Operating ROA

Operating Return on Assets (ROA) measures how effectively companies use their total assets to create profit before taxes and interest. Amazon and Facebook generate only 2.08% and 3.56% of assets into earnings before interest and tax (EBIT). The most effective is Apple with 31.38%. In other words, Apple's huge total assets are able to create EBIT that is equal to one third of those assets. This is remarkable as Cash, Short Term Investments and Long Term Investments represent 68.8% of Total Assets. These assets do not generate significant income. Google and Microsoft are able to generate EBIT equal to 13.6% and 17.95% of total assets, barely half as much.

ROA

ROA is very similar to operating ROA, but its numerator contains net income instead. Therefore ROA is generally lower and informs the percentage of net assets that is generated for investors through net income. As in the case of operating ROA, Facebook (0.35%) and Amazon (-0.12%) are performing very poorly and the highest ROA is produced by Apple (23.7%); Apple has also the largest difference between ROA and Operating ROA (768pp) which demonstrates how much of total assets Apple is paying in taxes.

Return on Total Capital

Return on total capital (ROTC) evaluates how much of EBIT companies generate from the capital they employ and since Apple has no debt, its ROTC (46.73%) is very high in comparison with other companies.

Given Amazon's low equity percentage of total assets, Amazon is supposed to have the largest ROTC. However, as it has a low EBIT, Amazon has just 6% ROTC.

The combination of low EBIT and high percentage of equity makes Facebook's ROTC just 3.81%. Facebook generates just 3.81% EBIT of capital employed.

Google and Microsoft have again a satisfying 16.17% and 27.79%.

ROE

Return on equity (ROE) measures how efficiently companies make profit from investors' capital. Apple is definitely the most efficient with 42.84% ROE. As poor as other ratios, Amazon has a worrying -0.49% ROE and Facebook is very close to 0%.

Google and Microsoft are hitting similar percentages as in ROTC.

Profitability Summary

Net profit margin is considerably low for Facebook and even negative for Amazon; it could be justified by expenses in R&D and other growth promising investments. This is the case with Facebook and due to large investments supporting the actual net profit margin growth. On the other hand, Amazon has no R&D expenses, but it spends relatively large amounts of revenues on capital expenditures, which may lead to possible future growth as well.

Apple scored the best in most of the ratios and it is able to generate the highest profit from what investors have provided to Apple.

Google and Microsoft are above average in most of the ratios and from investors' points of view appear to be healthy and profitable companies, with a strong ability to generate profit.

2.5.4. Valuation Analysis

Valuation ratios usually precede investment decisions, because they provide companies' comparison, stock attractiveness and simple and easily understandable insight to companies' performance and underestimation/overestimation.

The table below summaries valuation ratios; a detailed analysis will be discussed further. Supporting data for the calculations are in Appendix 22.

Chart 36. Valuation Ratios

	Amazon	Apple	Facebook	Google	Microsoft
Price to earnings ratio	-3,064.33	9.77	1,186.50	26.73	17.19
Price to cash flow ratio	29.95	8.04	29.53	17.27	9.22
Price to sales ratio	2.05	2.61	9.35	5.72	3.95
Price to book value ratio	22.20	3.62	4.59	5.34	4.73

Source: Based on data from annual reports

Formulas used for ratios are following:

- $Price\ to\ earnings\ ratio = \frac{Price\ per\ share}{Earnings\ per\ share}$
- $Price\ to\ cash\ flow\ ratio = \frac{Price\ per\ share}{Cash\ flow\ per\ share^*}$
- $Price\ to\ sales\ ratio = \frac{Price\ per\ share}{Sales\ per\ share}$
- $Price\ to\ book\ value\ ratio = \frac{Price\ per\ share}{Book\ value\ per\ share}$
 - Book value = Total assets – intangible assets – goodwill – total liabilities

* Operating cash flow was used

Price to Earnings Ratio

Price to earnings ratio (P/E ratio) is one of the best explanatory investment indicators, by some investors it is even considered as the most important one. Unlike earnings per share (EPS), because every company is different with a different amount of shares, P/E ratio can be used for comparisons between companies.

Since Amazon reported a loss in 2012, the P/E ratio is naturally negative as well. Therefore, it is not suitable for comparison and additional analysis. On the other hand, Facebook's very low net income caused its incredibly high P/E ratio that basically screams

that it is a massively overestimated stock and investors get a ridiculously small profit in advance. However, a high P/E ratio may sometimes suggest high earnings growth expectations.

When compared to companies with a “normal” level P/E ratio, Google’s investors pay the highest price per dollar of earnings (26.73 P/E). Apple, however, has the lowest P/E ratio (9.77), and may lead to the conclusion that Apple is underestimated and for the lowest price, investors get the highest return. Microsoft is the average of them with 17.19.

Price to Cash Flow Ratio

Because operating cash flow is considered as a main source of cash inflow for the company and should be considered for an investment but sometimes earnings quality can be argued, price to cash flow (P/CF) can be an interesting ratio for investors. Similar to the P/E ratio, P/CF ratio sets the relative value of a company.

This ratio allows Amazon to be compared with other companies. Due to Amazon’s highest P/CF ratio it can be stated that according to the current price (13 June 2013) and FY2012 results, Amazon was the most overpriced company and its shares were trading 29.95 times higher than the company’s operating cash flow. Facebook is in the very same situation with P/CF ratio of 29.53; it is caused by a large cash inflow from financing activities.

Apple, scores the lowest (8.04) and it indicates that Apple’s fair value is the closest to its value of operating cash flow. Microsoft is close to Apple with 9.22. Generally smaller P/CF ratios are preferred because it may indicate that a company is generating enough cash flow, which is still not included in the current share price that may increase in future. Google trades 17.27 times more than its operating cash flow value and it is rather neutral when compared to other companies.

Price to Sales Ratio

Price to sales ratio (P/S ratio) compares a company’s stock price to its past potential of creating value (revenue). Therefore, it does not consider the path from revenues to net income, just pure revenue.

While Amazon generates a loss, P/S ratio may be a good opportunity for it because it evaluates the company according its revenues; not net income. Then, Amazon scores the

lowest P/S ratio (2.05), which is considered as good news for investors for the fact that investors are paying less for a unit of sales, and any decrease of cost may boost the value of the investment. Sometimes P/S ratio is interpreted as a last hope for companies with a negative P/E ratio and in this case it really was. Apple scored a similar low score (2.61).

Facebook scored more than four times higher than Amazon, demonstrating the certain risk of paying more than a company's past performance deserves.

Google and Microsoft scored a neutral P/S ratio compared to other companies.

Price to Book Value Ratio

Book value in itself tells how much investors would get for invested capital when a company is bankrupted. Price to book value ratio (P/BV ratio), therefore, says how many times investors overpay the stock from the stock's book value, the higher the ratio is, the worst situation for investors.

Even though P/BV ratios of Apple, Facebook, Google and Microsoft are approximately the same, Apple has the lowest ratio and it means for investors that they are overpaying the book value (value of the company that can be sold in the case of bankruptcy) 3.62 times, Facebook 4.59 times, Microsoft 4.73 times and Google 5.34 times. It is understandable that Microsoft and Google obtained higher ratio than other companies due to their large value of intangible assets and goodwill (from acquired companies). For the very same reason Apple has the lowest ratio, because Apple is developing new technologies and patents by itself and rarely through acquisitions. It is also important to point out that majority of Apple's book value is created from cash, short-term investments and long-term investments; in another words assets with minimum profit creating value (in case of Apple, just about 1%).

Amazon, due to its high financial leverage, in any case of bankruptcy, Amazon would first pay off its liabilities. In total, Amazon has 22.2P/BV; the stock is 22.2 times overvalued than its value.

Valuation Ratios Summary

Any of the ratios are useless when used alone because they can be taken out of context. Apple obtained the lowest score in all ratios and that may arise a concern of investors that the stock is significantly undervalued compared to other companies. Microsoft and Google performed very well and showed safe investment potential.

Low ratios indicate that the stock is not overpriced, but it is usually considered to have smaller growth prospects, and this growth is considered in the stock price but not in past financial reports. Therefore, investments in Facebook can be risky but also profitable if the company grows as expected. The future of companies' stock prices will be analysed in the technical analysis section.

2.6. Rates of Return

The following table shows beta, required rate of return (RRR), expected rate of return trailing (ERR₁) and forward (ERR₂) and supporting data trailing annual dividend yield (D₁), forward annual dividend yield (D₂), estimated growth for this year (g₁), estimated growth for next year (g₂), stock price (P as of 14 June 2013), risk free rate (K_{rf}) and market return rate (K_m).

Chart 37. Rates of Return and supporting data

	Amazon	Apple	Facebook	Google	Microsoft
Beta	1.105	1.244	0.539	0.880	0.966
RRR	9.68%	10.89%	4.75%	7.72%	8.48%
ERR₁	1,544.4%	-10.29%	7.5%	15.8%	0.78%
ERR₂	146.2%	10.51%	35.1%	15.6%	11.38%
D ₁ =	0.00	2.50	0.00	0.00	2.600
D ₂ =	0.00	2.80	0.00	0.00	2.700
g ₁ =	1544.40	-10.30	7.50	15.80	0.700
g ₂ =	146.20	10.50	35.10	15.60	11.300
P=	273.99	430.05	23.63	875.04	34.400

K _{rf} =	0.05
K _m =	8.77

Source: Finance.Yahoo.com, Nasdaq.com; Data as of 14 June 2013

Formulas used for ratios are following:

- $RRR = K_{rf} + (K_m - K_{rf}) * \beta$
 - K_{rf}= yield rate of 6 month US Treasury bill
 - K_m= annual rate of return of Nasdaq Composite Index (seven year average)
 - $\beta = \frac{\text{Covariance of return percentages (equity; benchmark)}}{\text{Variance of return percentages (benchmark)}}$
 - Nasdaq Composite Index used as a benchmark
 - Data used for trailing one year (249 days)
- $ERR_1 = \frac{D_1}{P} + g_1$
- $ERR_2 = \frac{D_2}{P} + g_2$

2.6.1. Beta

The chosen benchmark used for calculating beta was the Nasdaq Composite Index rather than the S&P 500 Index, because it better underlines the nature of the selected stocks.

Apple has the highest beta of the selected companies. Apple's beta of 1.244 indicates higher volatility to the market; it means that Apple has performed 1.244 times (24.4%) the market. However it goes the other way as well; if the market decreases, Apple's price decreases 24.4% more. It generally means higher risk than a beta of 1, but 1.244 beta is not considered as highly risky.

Amazon, Google and Microsoft have betas close to 1 and it should not be more or less risky than the market. Facebook's low market performance since its IPO caused a low beta of 0.539; it means that Facebook is less volatile than other companies and it is underperforming the market.

2.6.2. RRR vs. ERR

As the names of returns suggest, it is the difference between what investors want and what they possibly can get. ERR, no matter which one, is wanted to be higher than RRR, to obtain at least a proportional profit to a company's market risk and other safe investments. It should be taken into consideration that ERR calculations use growth estimations. Thus investment decision should not rely just on these findings.

As was mentioned in the valuation ratios section, generally higher per share ratios might mean high expected growth. It is the case of Amazon that has almost 160 times higher ERR_1 than RRR and 14 times higher ERR_2 . In both cases, this year and next year, Amazon is expected to have a higher return than other companies; especially in the short-term period.

And vice versa, low valuation ratios are usually connected to small growth. This is the case with Apple and a negative ERR_1 , and slightly lower ERR_2 than RRR. Hence, according to this measure, Apple would not be a desirable investment in the short-term and not so attractive in the long-term either. In the short-term, Microsoft is in a similar position to Apple; its ERR_1 is almost 0%. However, Microsoft's ERR for next year is 34% higher than its RRR.

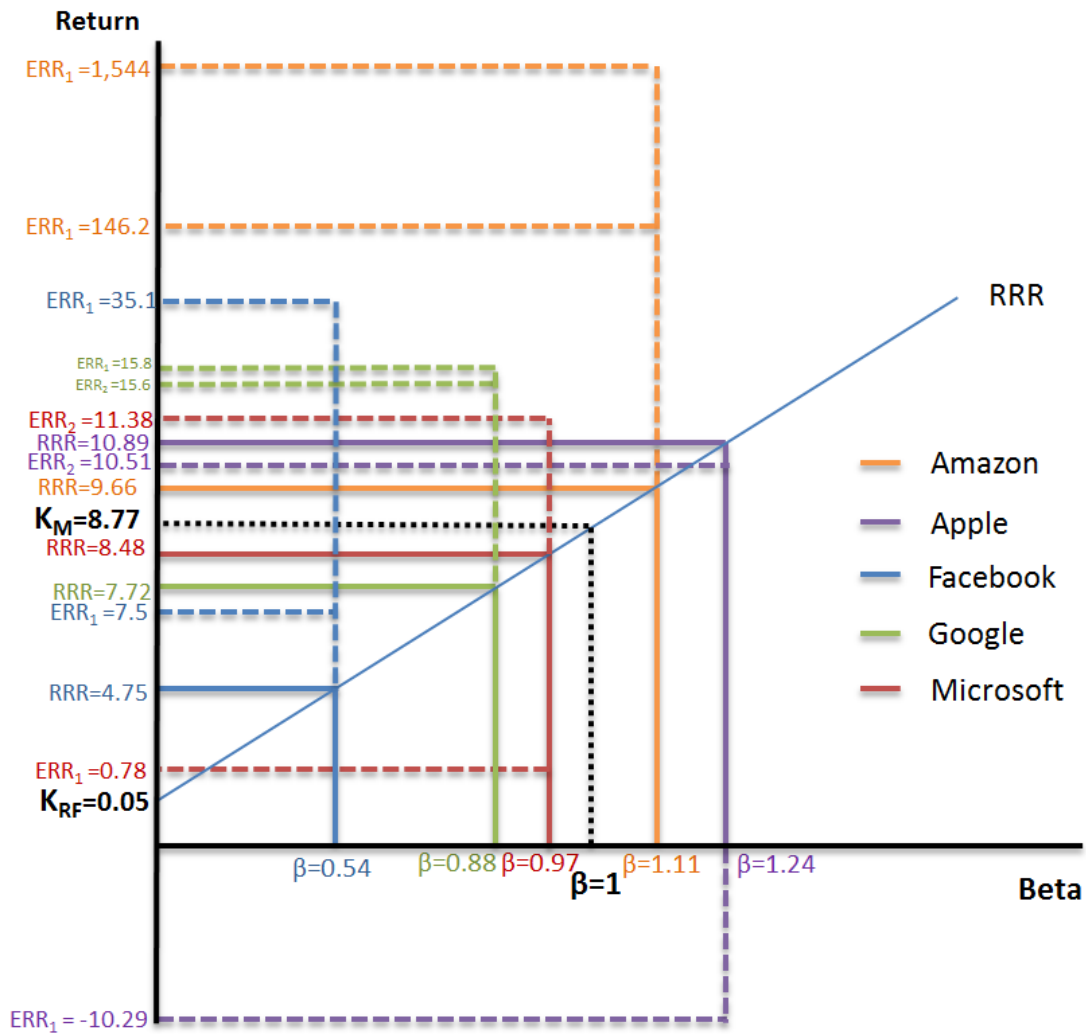
Facebook, due to its low beta, has a low RRR as well. Consequently, despite a low percentage of ERR_1 , expected return is still higher than required. In the long-term, expected return is over 6 times higher. Facebook may be a slightly profitable investment in the short-term, but strongly profitable in the long-term.

Google has both this year and next year's ERR at more than 100% higher than the RRR; it has a good stable return in both years.

Security Market Line

The following chart is a security market line (SML) and it summaries and underlines the difference between RRR and ERRs.

Chart 38. Security Market Line



Source: Based on data from the previous section

2.7. Discounted Cash Flow

Discounted cash flow (DCF) is one of the most used valuation methods, together with the dividend discount model (DDM). It is a useful tool to estimate an absolute fair value of the company, also called the intrinsic value. DCF sets the intrinsic value according to its future growth of FCF and other financial factors. On the other side, market value is rather relative and it includes also the situation in the market, competitors, supply/demand and other factors. DCF uses forecasts of free cash flow (FCF) for several years; in this case seven years.

Chart 39. Discounted Cash Flow

	Amazon	Apple	Facebook	Google	Microsoft
Total intrinsic value (in millions)	127,260	641,084	79,457	345,076	423,590
Intrinsic value per share	\$ 279.54	\$ 682.99	\$ 32.83	\$ 1,040.10	\$ 49.33
Actual market price per share	\$ 277.55	\$ 433.34	\$ 24.02	\$ 887.74	\$ 34.97

Source: based on annual reports, Trefis.com and Wikiwealth.com, as of 14 June 2013

The table above shows the output of DCF; complete data for DCF is in Appendix 23-27. The calculated intrinsic value per share, using the DCF of all companies is higher than the actual market price per share. This indicates that the market trades with shares of the companies below their intrinsic value.

If the market value would compensate for the fair value, Apple would have the largest increase at 58%, then Microsoft at 41%, Facebook at 37% and Google at 17%. Amazon has the narrowest gap at 1%; its fair and market values are almost equal and it indicates that Amazon's market price is almost equal to its absolute value.

3) Technical Analysis

Technical analysis takes into consideration past market data (predominantly prices and volume) and can be used to forecast the direction of stock price future development. Unlike fundamental analysis, technical analysis does not measure intrinsic value, but it purely focuses on market value. The result of technical analysis can be used to identify if the stock may rise (those stocks are called bullish and they are suitable for long position/buy) or fall (those stocks are called bearish and they are suitable for short position/sell) in the near or further future.

Technical analysis utilises different tools to analyse existing chart data. It can provide a prediction of the future price development using empirical experience. There are many tools for this prediction. However, for the sake of length, just four technical indicators (Commodity Channel Index, MACD, simple moving averages and relative strength index) and one overlay (Bollinger bands) will be used.

Technical analysis is rather relevant for recent changes in the stock price. Therefore, a YTD daily time series will be used (as of 19 July 2013) with 118 days of data. Market data provider Barchart.com will be used as a source of all charts. The concrete charts are displayed in each indicator section and charts with all indicators and overlays are presented in Appendix 28-32.

3.1. Simple Moving Averages

Simple moving averages (SMA) are smoothing a stock's price in a certain time period to set a trend following indicator; they help to eliminate the noise (extreme values). They create an average value for past x days. For the purpose of short and medium-term investment 10, 20 and 50 day moving averages will be included. Moving averages is a good indicator to see if the actual price is higher or lower than average past price and if the stock is heading bullish or bearish.

Chart 40. Simple Moving Averages



Source: <http://www.barchart.com>; Red line is 10 days SMA, Green is 20 days SMA and blue is 50 days SMA

For the positive development of company's price, it is desirable to have the market price above the moving averages; at best, $\text{price} > 10\text{d SMA} > 20\text{d SMA} > 50\text{ SMA}$. There are only two companies, which have this position of price and averages; Amazon and Google.

Amazon set a strong bullish trend, since June 2013, with a large spread between averages and price. It is the longest on-going trend since January. Amazon is bullish in the long (50 days) and medium-term (20 days) although the price crossed the 10 day SMA last day of the chart. Another day would be required to see if short-term trend has changed or it is a whipsaw. Amazon's price and long SMA have crossed over many times in relatively short time.

Google is currently facing a rise of a bullish trend, where short SMA crossed medium SMA, price keeps above them and long SMA is still rising. Google's price fell below the long SMA just once in April but has remained above the SMA for the analysed period; it is an example of a long-term bullish trend.

Apple has opposing trends to those discussed for Google; its price was below the long SMA during the first quarter. In May, the short SMA and medium SMA crossed over the long SMA, setting a short-term bullish trend. But currently, Apple is bearish for the short and long term. It is notable that Apple's price fluctuates almost inversely to its market rival Google as portfolio managers substitute one stock for another depending on relevant news items.

Facebook demonstrated unstable price development with many crossovers within last 6 months. However, last month (June) was bearish with all SMAs indicating a downward trend of the price. Currently, Facebook is turning bullish short-term, although the price line is at a significant distance below Long SMA.

Microsoft demonstrated a stable bullish trend until June. Currently the price has fallen below both the short and medium SMA and it is moving closer to the long SMA. Continued analysis for the forthcoming days would establish if the price has stabilised.

3.1.1. Moving Averages Result

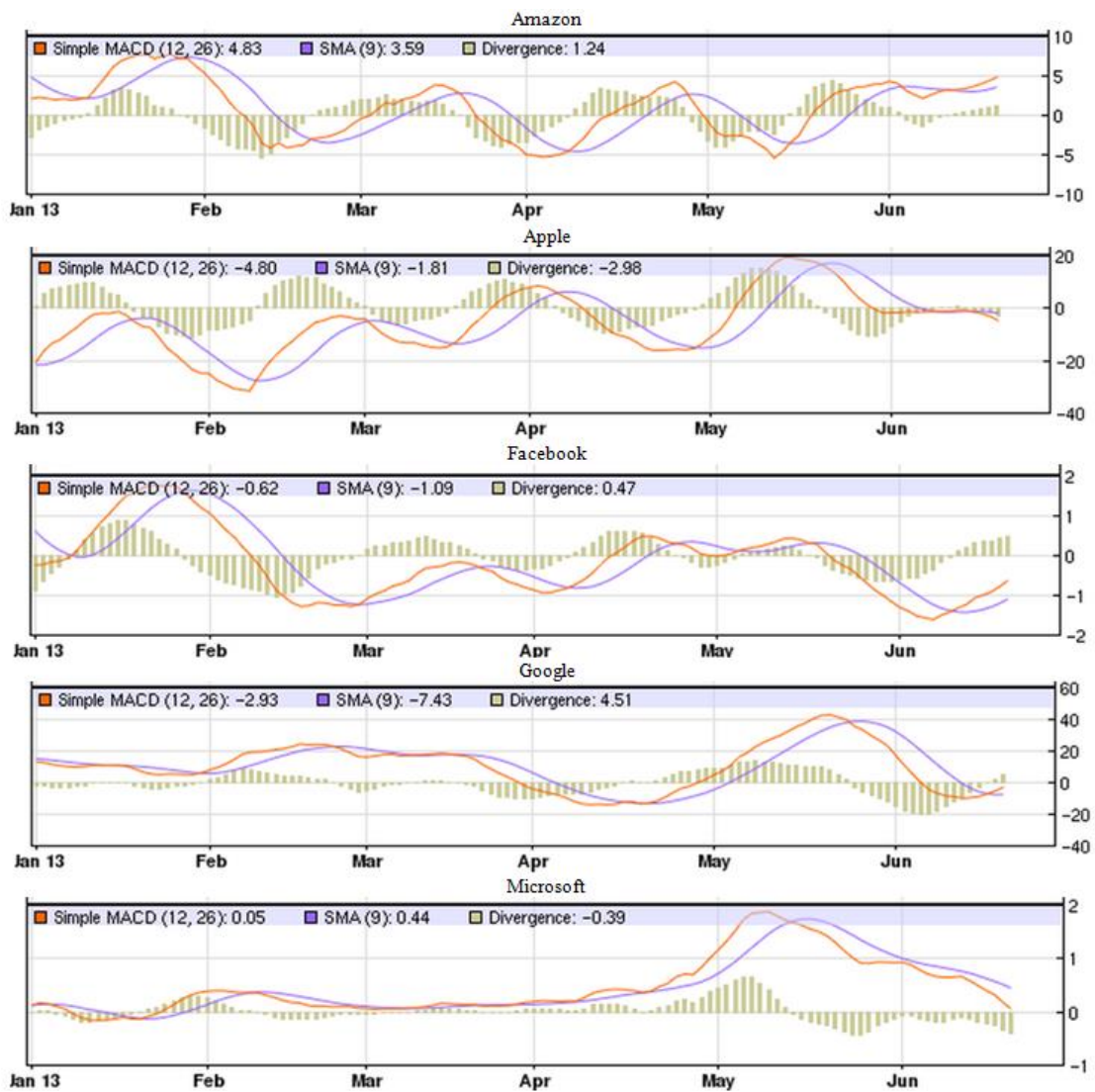
The results of simple moving averages can be divided into two parts; short and long-term. According to SMA indicators, the results are as follows:

- Amazon is **HOLD** in short-term and in **BUY** long-term
- Apple is **SELL** in short-term and **SELL** in long-term
- Facebook is **HOLD** in short-term and **SELL** in long-term
- Google is **BUY** in short-term and **BUY** in long-term
- Microsoft is **SELL** in short-term and **HOLD** in long-term

3.2. Moving Average Convergence-Divergence

Moving Average Convergence-Divergence (MACD) analysis the difference between short (12 day SMA) and long-term (26 day SMA) price trends to set bullish/bearish market trends and predict future price development. MACD is usually compared to 9 day SMA (signal line) to set buy or sell signals.

Chart 41. MACD



Source: <http://www.barchart.com>; orange line is MACD, purple line is 9 days SMA

When the MACD is above a signal line, it is a signal to buy; the MACD below the signal line is a signal to sell. Amazon and Facebook show signals of a bullish market trend with an increasing distance between MACD and the signal line, it suggests that this trend will continue. However, there is a significant difference between Amazon and Facebook. Amazon's MACD is above the zero line, (centerline) caused by higher short-term SMA over long-term SMA, signalling upward momentum and supporting the buy signal. When the MACD is above the signal line but below the zero line, it may indicate a short-term buy signal but long-term momentum, as in the case of Facebook.

Google' MACD just crossed the signal line and it is receding, while the MACD is approaching the zero line; it is a buy signal and possibly the start of an upward trend.

Apple paralleled both the zero line and the signal line for the majority of June with a slight fall of the MACD.

Microsoft's MACD has been below the signal line since mid-May and it is approaching the zero line with a strong signal to sell. However, sharp distancing of the MACD and the signal line may be a signal of an overbought or oversold market; in this case oversold, with a possible future bullish trend.

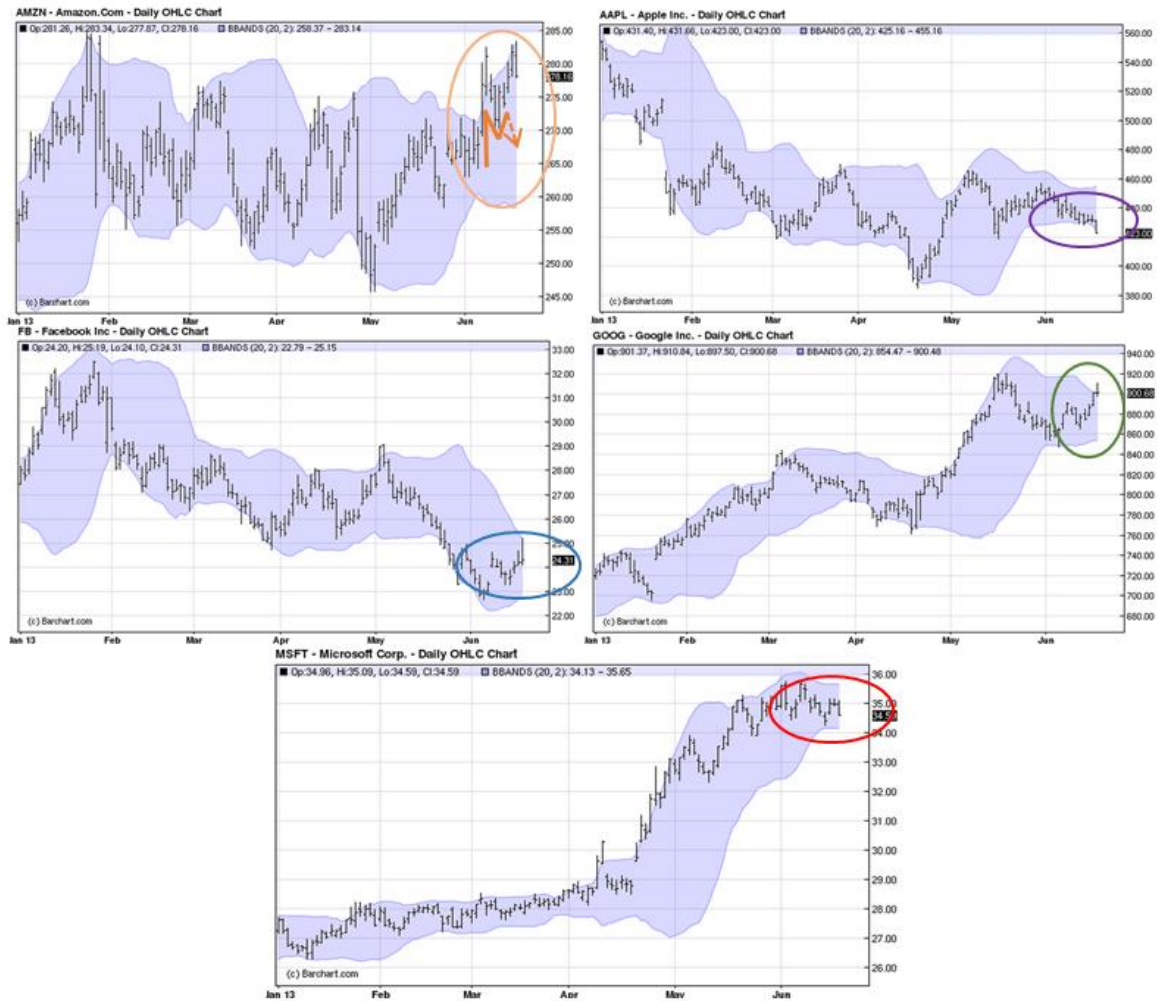
3.2.1. *MACD Result*

The results from MACD analysis are: Amazon **BUY**, Apple **HOLD**, Facebook **BUY**, Google **BUY** and Microsoft **SELL**.

3.3. **Bollinger Bands**

Bollinger Bands (BB) is a useful tool to measure volatility of a stock and highness or lowness of stock's price. Bollinger bands consists of three parts; middle part (simple moving average), upper and lower band (standard deviations). The bands indicate volatility, the closer they are the less volatility and vice versa. The closer the stock's price is to the upper band, the more overbought the market is and the same with lower band and oversold. Some trends of BB are repeating, it is taken into consideration and market signals can be identified.

Chart 42. Bollinger Bands



Source: <http://www.barchart.com>

From the charts above, all companies have vastly different BB and their position of price, relative to BB.

According to BB wideness, Amazon has the highest current volatility to the market. Amazon's relative price position shows signs of an M-Top signal. This occurs when a stock's price goes above the upper band, then pulls back heading to the middle of the bands. The next stage is when actual price is above the prior price but still does not reach the upper band. Failing to reach the upper band, the stock's price is expected to fall. This is the case of Amazon. Therefore, Amazon's price is expected to drastically fall, close to the lower band (due to high volatility).

Other companies do not show any clear signals. However, relative position of the price and BB indicates some other trends. For example Apple's price touches, but does not

exceed the lower band with a continuously narrowing BB; it is a sign that Apple's price will rise (due to the market being oversold) in the near future with significantly higher volatility. Google's position is opposite to that of Apple's. Consequently, after Google's price touches the upper band, it is expected to fall.

Facebook's BB recently narrowed and it may still continue to narrow further due to decreasing volatility. Additionally the price has closed near the centre of the bands; signalling a neutral position. Microsoft's price is in the middle of the bands too, but BB are narrowing, signalling a future increase in volatility.

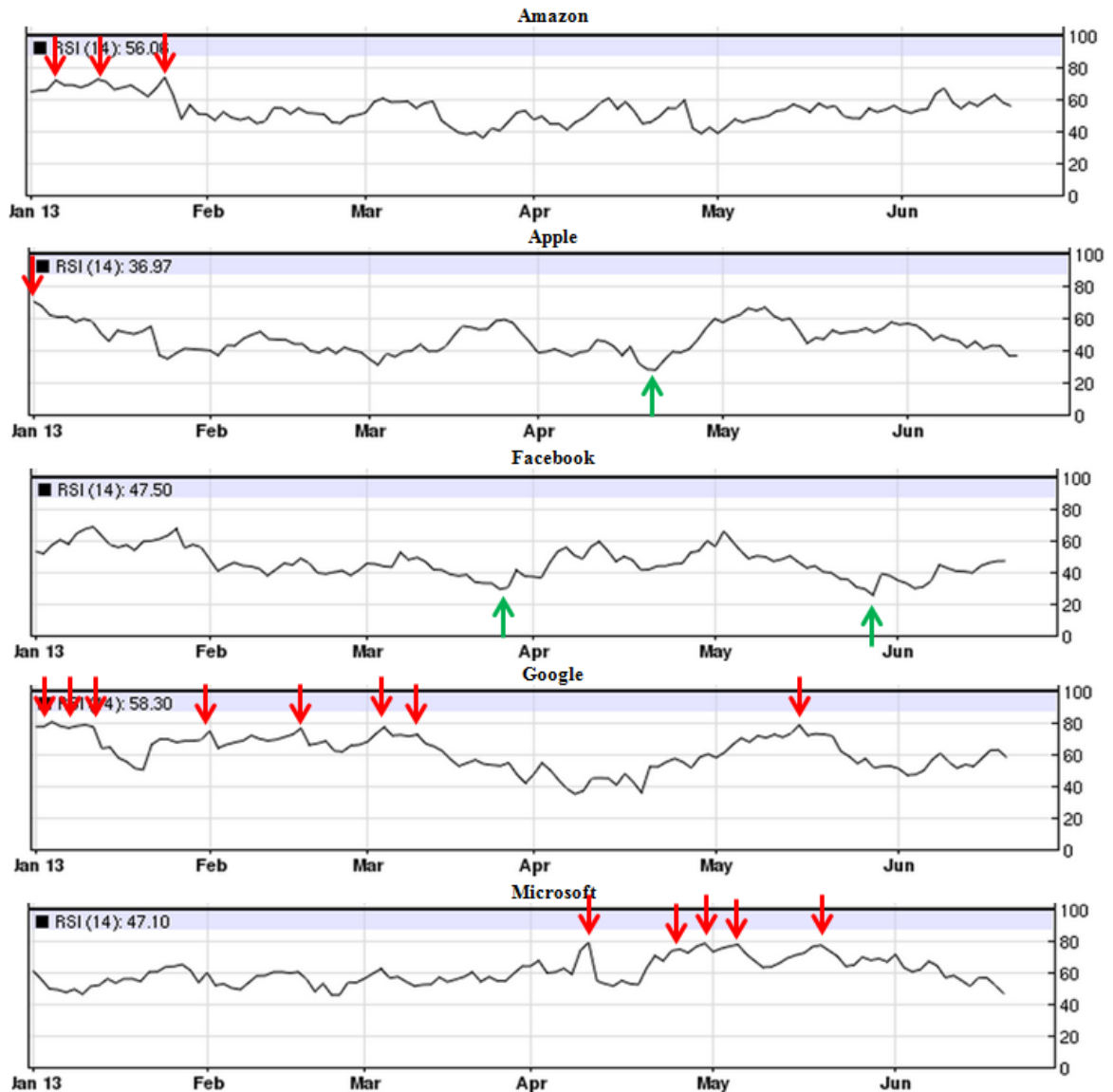
3.3.1. Bollinger Bands Result

As Bollinger Bands calculates 20 days as an average, it is considered as a short-term tool and the signals are: Amazon **SELL**, Apple **BUY**, Facebook **HOLD**, Google **SELL** and Microsoft **HOLD**.

3.4. Relative Strength Index

Relative strength Index (RSI) is a famous and commonly used technical indicator to measure if the market is overbought or oversold. The range of RSI values goes from 0 to 100 and everything below 30 indicates that the market is oversold and the bearish trend is weakening and about to change to the bullish market; everything above 70 indicates the opposite.

Chart 43. Relative Strength Index



Source: <http://www.barchart.com>

Currently, all companies are in the range of 30 and 70, which indicates neutral position and a signal to hold. However, Apple is getting closer to RSI 30 that supports the signal of BB to buy, but the support is still weak. Google has the highest RSI at 58.30, but it is still a neutral signal.

Amazon experienced an overbought position three times within a frame of six months. The third one was followed by a large drop in its price. Amazon was mostly above 40 RSI.

Apple was closest to an overbought market in the beginning of the year, but never crossed the 70 RSI line. Apple crossed the 30 RSI line just once in the middle of April and

it was followed by a significant increase in Apple's price. Apple may be considered as a stable company without any big rush in trades.

Facebook recorded significant drops in its price since January leading to an oversold situation twice.

In the first quarter of the year, Google was predominantly close to or above the overbought line as a result of increasing investors' confidence in Google and its price. Google last crossed the overbought line in the middle of May.

Microsoft's trading activity, due to an increasing price in May, caused Microsoft to nearly touch the 80 RSI line three times: in total, Microsoft was overbought five times during 2013. Microsoft has not fallen below 40 RSI.

3.4.1. Relative Strength Index Result

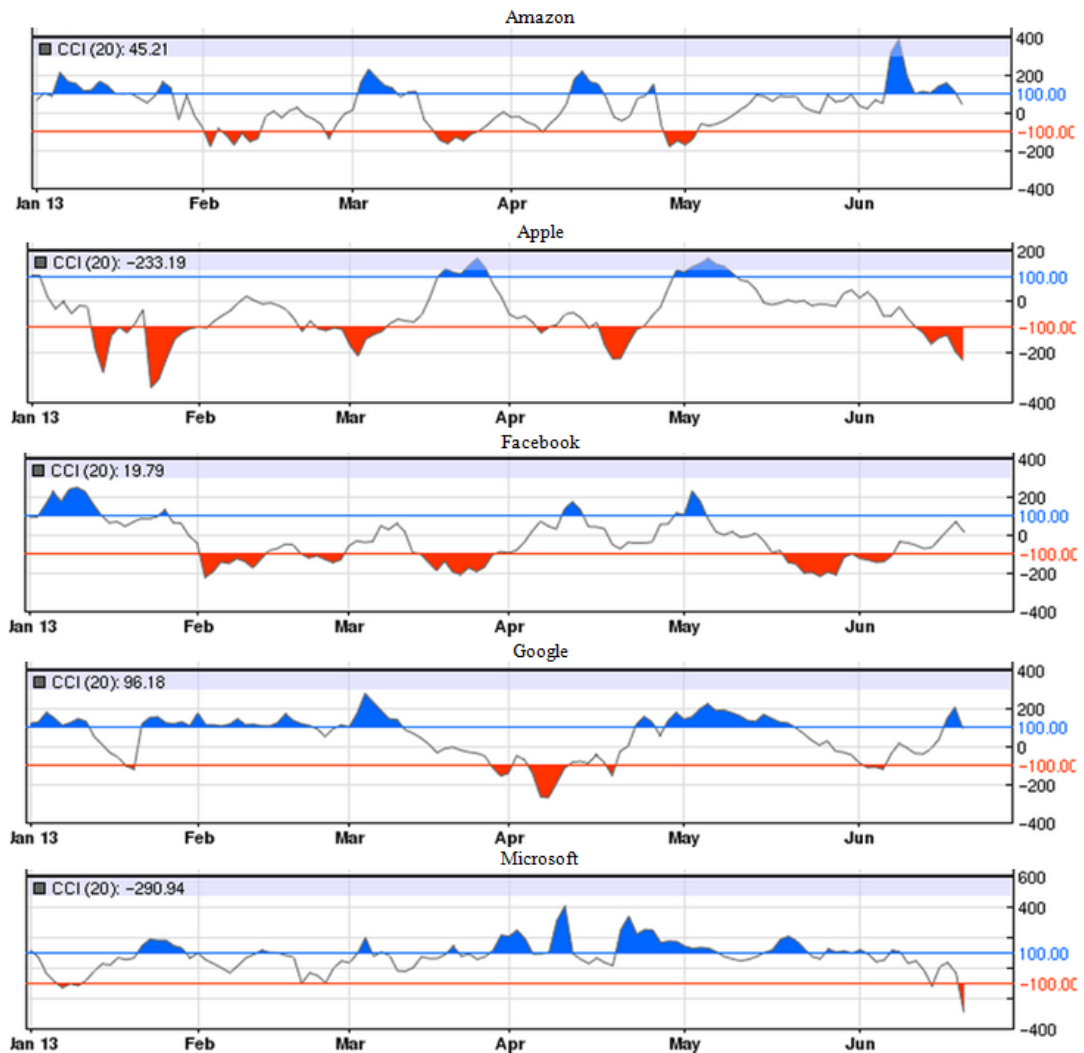
As a short-term indicator the relative strength index does not give any signal about bullish and bearish market or overbought and oversold market. Therefore, all companies are **HOLD**.

3.5. Commodity Channel Index

Commodity Channel Index (CCI) is an oscillator originally developed for identifying cyclical trends (overbought/oversold) for commodities. Yet, CCI can be applied to other market equities and currencies. CCI measures the relationship between the asset's price, moving average and normal deviation. It can help to recognize a peak or a valley of a trend and consequently if the trend will change.

There are two main lines, +100 and -100. Anything that exceeds those lines becomes a trend as far as it stays behind those values. If it crosses the line back on the way to 0, it is a sign of an overbought or oversold market.

Chart 44. Commodity Channel Index



Source: <http://www.barchart.com>

There is currently no company exceeding a +100 line. Google just crossed the +100 line, but it is on the way back to zero; signalling the end of an upward trend and an overbought market. Google is currently in the neutral zone. Amazon experienced the same situation.

Facebook remains in the neutral zone between +100 and -100; showing no signal.

Both Apple and Microsoft show signs of a bearish market, exceeding a -200 line with a continuous trend to deepen this fall. In this case the -100 breaking line is adjusted to the + 200 line and when they turn back above the -200 line, it is a signal of an oversold market.

3.5.1. Commodity Channel Index Result

Amazon and Google recently showed a signal of an overbought market, but according to CCI, they are considered as **HOLD**. Facebook shows a **HOLD** signal. Both Apple and Microsoft are strong **SELL**, according the CCI oscillator.

3.6. Technical Analysis Summary

Every technical indicator is based on different observations and variables. Therefore, some of them have unlike results and consequent summary is necessary.

Chart 45. Technical Analysis Summary

		Amazon	Apple	Facebook	Google	Microsoft
Short-term	SMA	HOLD	SELL	HOLD	BUY	SELL
	MACD	BUY	HOLD	BUY	BUY	SELL
	BB	SELL	BUY	HOLD	SELL	HOLD
	RSI	HOLD	HOLD	HOLD	HOLD	HOLD
	CCI	HOLD	SELL	HOLD	HOLD	SELL
	S-T Average	HOLD	20% SELL	20% BUY	20% BUY	60% SELL
Medium-Term	SMA	BUY	SELL	SELL	BUY	HOLD
	Total Average	17% BUY	33% SELL	HOLD	33% BUY	50% SELL

Source: This thesis

Since long-term technical analysis is not of significant value to investors, as it can change quite quickly, this analysis focused especially on the short-term period. The best performing company, according to technical indicators, is Google with an average of 20% buy in the short-term period and 33% buy including the medium-term period.

Amazon is hold in the short-term period but the medium-term SMA caused a total average of 17% buy. Facebook's short-term signal is 20% buy, but due to a sell signal in medium-term SMA, total average indicates hold.

The worst performing companies considering technical analysis is Microsoft and Apple. In total, Apple and Microsoft are 33% sell and 50% sell; while in the short-term 20% sell and 60% sell.

V Discussion

The current situation of the Internet big five cloud computing leaders has already been analysed. This section will focus on future growth potential, forecasts and an outlook of each company and the whole cloud computing industry.

1) The Future

1.1. Amazon

Amazon's future is often questioned, because the company reported a negative net income in the last operating year (2012). Amazon wants to be considered as a growing company and justifies low margins due to upcoming openings of new fulfilment centers and data centers; it will not change anytime soon. Amazon's focus, according its CEO Jeff Bezos, is to have strong growth in revenue and in FCF. Jeff Bezos said in an interview for Harvard Business Review: "Percentage margins are not one of the things we are seeking to optimize. It's the absolute dollar-free cash flow per share that you want to maximize, and if you can do that by lowering margins, we would do that. So if you could take the free cash flow, that's something that investors can spend. Investors can't spend percentage margins" (HBR IdeaCast , 2013). It is true that its CFC growth is estimated to be the highest out of selected companies (see Appendix 23-27).

Amazon main core business, e-commerce in the United States, is expected to grow by 13% to \$262 billion in 2013 (Trefis Team, 2013). With Amazon's increasing competitiveness through low margins, Amazon is expected to take the largest share of e-commerce sales as it can.

As a result, Amazon is expected to see revenue growth whilst net income remains low. Investors can expect a return of increasing FCF instead of improving profitability ratios. Amazon's current stock price is \$273.36 (as of 21 June 2013) and analysts' mean target is at \$314.73; it is more than a 15% forecasted increase. (Data source: Finance.Yahoo.com)

1.2. Apple

One of Apple's undisputed advantages over other companies (except Microsoft) is dividends payment. Apple is expected to pay \$12.2 per share in dividends and \$21.5 per share within the next five years (Arnold, 2013); it is over 75% growth. While other companies are not paying dividends, it is significant.

The big question is what Apple is planning to do with almost \$145 billion in total cash (according Q2 FY13 report). One thing which Apple is expected to do, and is already doing, is increasing capital expenditures; as was seen in the cash flow statement analysis. According to some theories, Apple is doing this to increase its competitiveness over its iPhone rival Samsung through investing in component suppliers (Dilger, 2013). Apple intends to open another 30 new stores and expand existing stores; around \$1 billion of its cash reserves should cover it. By the end of 2013, Apple is to increase its payment to developers to \$4 billion for an expansion of App Store. However, the largest outflow of Apple's cash reserves should go to Apple's project to build green data centers and Apple's new campus. Its cost is estimated up to \$5 billion (Hughes, 2013).

The increased expenditure is unlikely to deplete the cash reserve, but as Apple's revenue and FCF growth is expected to slow down or even decrease (see revenues structure analysis and DCF analysis), it will be necessary to cover expenditures until Apple launches a new and innovative product. According to some opinions, Apple lacks innovation (Arnold, Why Apple Is Becoming Irrelevant, 2013).

Apple's current stock price is at \$413.5 (as of 21 June 2013) and analysts' mean target is \$541.04; it is a forecasted increase of over 30%. (Data source: Finance.Yahoo.com)

1.3. Facebook

Facebook is aware that mobile advertising is very important so Facebook is developing new technologies and apps to attract more attention to Facebook through smart phones. Evidently, 23% of revenue comes from mobile advertising. The current trend is that people are using their smart phones rather than laptops and many companies are catching up to follow this trend. However, Facebook is already ahead and it is expected to have an increase in revenue from mobile ads by 333% (King, 2013). According to the

revenues structure chapter, Facebook is considered to have the largest revenue growth (33%). The 2013 acquisition of Atlas should improve advertising and other connected revenues.

In 2012, Facebook announced that it will start a heavy investment phase (Pepitone, Facebook coughs up details on its mobile problem, 2012). This money-spending trend is expected to continue in 2013 and it may go a similar way as Amazon; sacrificing profit margins to secure growth and high profits in the future. Facebook will focus on long-term returns. Profitability ratios will remain very low and valuation ratios overpriced (Pimentel, 2013).

Facebook is currently working on the improvement of a search feature and there are rumours of Facebook's own internet search engine. If this is true, Facebook could seriously attack Google's market share of the internet search engine. With a 1 billion customer base, Facebook could get strong revenue income from ads related to web searches (Crum, 2013).

Facebook is also criticised for its source of revenue; critics claim it is not fully using its revenue potential and it should secure new revenue streams. In February 2013, Facebook introduced a buy button (Grove, 2013). If Facebook can expand this function to provide business in e-commerce, its stock price would sharply increase.

Facebook's current stock price is at \$24.53 (as of 21 June 2013) and analysts' mean target is \$32.8; a 35% forecasted increase. (Data source: Finance.Yahoo.com)

1.4. Google

Some people say that what Apple lacks in innovation, Google has twice as much. Google's new products can not only change its own stock price, but also the world for many people; for a certain price, of course. Google's starting project, Google Fiber that provides sometimes more than 100x times faster internet has potential to take over the whole U.S. market. Comparably Comcast Corporation, one of the largest internet service providers, earned over \$6 billion in net income. Another upcoming product is Google Glass, it is already estimated to sell over 20 million units with revenue over \$10 billion (Luger, 2013), not to mention more ads displayed through this device.

Google recently introduced an "enhanced campaign" for AdWords, which should distinguish the difference between accessing devices for better ads targeting. According to

some analysts (Crum, What Google's Enhanced Campaigns Mean For Small Businesses, 2013), it should increase pricing of advertisements, and consequently Google's value.

Google's revenue growth is estimated at almost 20% (according to revenues structure chapter). On 15 May 2013, Google closed at \$915.89 and some analysts predict that Google will cross \$1,000 line by the end of 2013 (Reuters, 2013). However, Google's current stock price is at \$880.93 (as of 21 June 2013) and analysts' mean target is \$942.09; it is just a 7% forecasted increase. (Data source: Finance.Yahoo.com)

1.5. Microsoft

As was mentioned in the balance sheet analysis chapter, Microsoft generates over \$8 billion from the Xbox platform (almost 11% of total revenue). Microsoft recently introduced the new generation of Xbox at E3 (Electronic Entertainment Expo); Xbox One. Xbox One was doomed by gamers for requiring constant internet connection for playing games and it forbids burrowing of games or even selling used games. Moreover, Microsoft overpriced Xbox over its largest competitor (Sony and PlayStation 4) by \$100 (Marse, 2013). If customers switch to Sony, Microsoft's Entertainment and Devices Division will lose a significant portion of revenue.

According to the International Data Corporation, a forecasted decline of PC shipments in 2013 was increased to 7.8% (from 1.3%). It may threaten Microsoft's sales of Windows 8 and Microsoft Office. Both are a significant source of Microsoft's income and could impact Microsoft's future growth.

However, Microsoft is expected growth through Azure. Microsoft is expected to attack against AWS to take a larger market share. Microsoft is predicted to gain 35% of the market share by the end of 2013; in April, Azure held 20% of market share with an annual revenue of \$1 billion (Bass, 2013). Therefore, if predictions are accurate, Azure will generate an estimated \$2 billion of revenue.

Despite negative expectations, Microsoft has a forecasted growth of 3% in 2013; although relatively small it is growth. Microsoft's current stock price is at \$33.26 (as of 21 June 2013) and analysts' mean target is \$35.13; just a 6% forecasted increase. (Data source: Finance.Yahoo.com)

1.6. Cloud Computing

According to a report issued by Gartner, Inc. (technology research firm), cloud computing and the companies connected should expect a bright future. Global spending on public cloud services is expected to grow by 18.5% in 2013 to \$131 billion (from \$110 billion in 2012). Within another three years, the cloud computing market should reach \$210 billion in spending; a 91% growth in four years. SaaS is forecasted to grow by 22% in 2013 and by 202% through 2016. The most growing part of SaaS is office suites with 78% growth in 2013 and 320% growth by 2016. PaaS and IaaS are expected to grow by 31% and by 47% in 2013 (153% and 296% through 2016) (Columbus, 2013). Therefore, companies providing IaaS such as Amazon and Microsoft should expect the largest increase of revenue.

The U.S. government has already started using cloud computing to take advantage of cost savings and other advantages, although it is predominantly on a local scale. In the very near future, the U.S. government is expected to use cloud computing more intensively; it is estimated to save over \$12 billion (McCarthy J. , 2012).

A threat to the industry has been identified, Chinese hackers are generally unsuccessful in hacking American companies for corporate espionage whilst the servers remain in the US. If data is held internationally in servers, this threat could be increased (Ward, 2013).

Global cloud traffic of data was estimated to be 1,181 exabytes (megabyte * 10^{18}) in 2012 and the increase of traffic in 2013 is forecasted at 43% (1,694 exabytes). By the end of 2016, annual global cloud traffic of data is forecasted to be 4,255 exabytes (260%); an annual average growth of 65% (Cisco Systems, Inc., 2013).

VI Conclusion

1) Summary

The first part of the literature review explained what cloud computing is and how it is divided by different type of services. The second part described companies' history, how they relate to cloud computing and how they influence it, their presence in the stock market (since IPO through stock splits to paying out dividends) and analysed their acquisitions.

The empirical part consists of two main parts; fundamental analysis and technical analysis. Fundamental analysis has another 7 parts. Balance sheet analysis, income statement analysis and cash flow analysis analysed the structure of presented financial statements. Furthermore, they analysed their entries in time (2011 and 2012) and relatively to total assets/revenue. Financial statement analysis was followed by revenue structure analysis that revealed what companies' revenues consist of and future revenue forecasts.

The next part of the fundamental analysis was ratio analysis divided into four parts; liquidity, solvency, profitability and valuation ratios. Ratio analysis showed the relatively weaker positions of Amazon and Facebook, profitability ratios, and valuation ratios showed that their stock price is overpriced, due to high expected growth. Apple constantly scored high, with the exception of liquidity ratios (because of its long-term investments). Both Google and Microsoft had strong ratios.

Rates of return analysis compared required rates of return with expected rates of return (trailing and future). Amazon, Facebook and Google showed higher expected rate of return for both time periods (current and future); Amazon showed very high ERR. Apple showed a negative percentage of trailing ERR and slightly lower future ERR than RRR. Microsoft was in a very similar position.

The last part of the fundamental analysis, discounted cash flow, compared companies' intrinsic value to actual market value. All companies showed a higher intrinsic value than actual market value; it means that the stock price is undervalued and an increase in market capitalisation is possible, especially for Apple.

Technical analysis used four indicators (Commodity Channel Index, MACD, simple moving averages and relative strength index) and one overlay (Bollinger Bands) to

set current bullish or bearish trends and future possible development. Google showed an average signal of 33% buy and Amazon 17% buy. Facebook averaged as a hold. Both Apple and Microsoft averaged as a sell; Apple 33% sell and Microsoft 50% sell.

The discussions introduced possible future scenarios and how they may influence the market price for each company and cloud computing as a whole industry.

2) Recommendation

It would be unrealistic to come up with any better advice and recommendation than Google's or Apple's world's best analysts who have access to insider information. However, there are presented some hardly realistic and extreme scenarios using acquisitions as a tool for expansion (all data are as of 21 June 2013 and premium payments over the market price are not considered):

Amazon's purpose is to compete with brick and mortar retailers and take market share. The combination of brick and mortar retailer with Amazon's advanced distribution centres and know-how could lead to a superior competitive advantage. For example, Amazon with its available cash of \$11.45 billion would be able to acquire Best Buy co., Inc. (BBY) for \$9.10 billion (Best Buy's market cap). Amazon would still have cash to acquire Dixons Retail plc (DSITY), one of the largest European electronic retailers, for \$2.31 billion (Dixons Retail's market cap).

Apple's largest threat of its main sources of income (iPhone and iPad) is definitely Samsung Electronics Co. Ltd. reaching for Apple's market share. Apple should re-consider its buyback program and with overseas profits buy shares of Samsung. According to the latest quarter, Apple holds \$144.69 billion in total cash. Even though Samsung's market cap is \$183.22 billion (OTC Markets), Apple could afford to buy a majority of Samsung's shares (80%) and either buy the rest continuously or control the company through 80% ownership.

Facebook is, according to some opinions, not using its potential of the world's largest customer base as much as it can. One possible way to improve is through e-commerce as Amazon does. Resulting from the latest annual report, Facebook holds \$9.62 billion in cash. It would allow acquiring C.H. Robinson Worldwide (CHRW), provider of transportation and logistics solutions operating worldwide. With secured logistics channel,

Facebook could close contracts with small retailers, perfectly target users' needs through collected data and sell them products that they want.

Mostly major projects started by Google are successful, except Google+. Google is aware of Facebook's potential and tried to cut off Facebook in its early stage, but it did not succeed. Facebook means for Google lower advertisement prices (to be competitive) and long-term threat (with the possible arrival of Facebook's own search engine). A logical step to eliminate the threat and gain the world's largest customer base and new possibilities is through the acquisition of Facebook. Besides already mentioned reasons, Google would own the three most visited websites; Google itself, YouTube and Facebook. Even though Facebook's market cap (\$59.31 billion) is about \$9 billion more than Google's total cash (\$51.57 billion), Google can easily and cheaply burrow money through long-term debt with low interest or by issuing more shares; Google has the least shares outstanding of the Internet Big Five.

Microsoft underestimated the initial boom of smartphones and despite a few attempts and ideas, it is too late to enter the market with new devices. However, there is one chance for Microsoft, its partner and customer of Microsoft Phone, Nokia. Microsoft already invested in this company and Nokia would welcome a new source of financing to renew its business. Microsoft can cover Nokia's market cap of \$14.59 billion from its cash reserves without any problem. For Microsoft, it would be a new stream of revenue, boost its mobile operating software and another way to compete with Apple and Google. This scenario is the most possible and some rumours about it taking place do exist.

3) Author's Opinion

Resulting from all the research of this thesis, the personal opinion of the author is following:

Amazon and Facebook might be very profitable, but rather in medium-term future (3 years and more). They focus on growth, rather on dividends or any other form of return, except company's value. It may be a risky investment, but when comes their time, it may be very profitable. Moreover, they do not have any serious competitor in their core business. The recommendation is to buy shares while the price is still relatively low

(especially Facebook), even though valuation ratios say otherwise, and keep them for several years to get return from their growth.

Apple and Microsoft are already very large companies; they cannot provide further fast growth. On the other hand, they are very unlikely to fail and they pay-out solid dividends. They are solid, stable and low-risk companies able to provide certain return from shares and maintain stock's value. Moreover, Apple for its vast cash reserves (including short-term and long-term investments) and its ability to annually generate very high amounts of OFC, is safe investment even when the whole overall stock is in very bad condition (like in 2008-2011); especially when its cash reserves are invested very carefully with minimal risk (it is very often criticised, because it generates very low return). They can be a good investment for mutual and hedge funds.

Google has a combination of both, a huge growth potential and very strong financials. This growth can be amplified through various acquisitions and highly innovative and welcomed products, such as Google Glass. Unless Google engages in any large unsuccessful investment that could lose significant cash reserves (possibly Google's self-driving car), Google should remain financially strong, big and largely growing company unlikely to fail.

As seen in future forecasts, cloud computing has a big future full of opportunities and many newly incoming companies. No technology companies should miss it and step early into cloud computing, because cloud computing is new upcoming technological revolution, almost as big as internet computing itself. Investing into cloud computing should be safe and profitable investment. For example in First Trust ISE Cloud Computing Index (SKYY) a well performing cloud ETF; its price increased by almost 14% in 2012.

4) Limitations

The largest limitation of this thesis was the actual length of it. All of the selected companies are interesting (in matters of possibilities and strategies) and their financial reports have lots to say. However, proper analysis of each item of each statement would entail hundreds of pages.

Most of the data was extracted from annual fiscal reports, but Microsoft and Apple do not close their fiscal years with the end of calendar year; when Google closes its fiscal

year on 31 December, Microsoft already closes the second quarter of the following fiscal year. Therefore, data used for comparison are not issued from the same month and there may be some differences, but it is the only way it can be properly compared.

Concerning annual reports, Facebook entered the stock market approximately a year ago and it provides just two years of all data required by SEC. Therefore, all companies' analyses were limited to two years.

Time issue is also a very big limitation, the thesis was written continuously from February 2013 to June 2013 and the mentioned stock price was always current at that day when it was written. Consequently, there may be some differences in calculations and figures.

5) Possible Openings

The thesis initially intended to analyse companies' culture, technology and customer relations as well. However, as already mentioned, the limiting factor of pages length, it has not been included in the final report. This would be an interesting opening for any other consequent analysis at the level of a PhD dissertation. For the very same reason, technical analysis could not include and contain more technical indicators. Additional technical indicators, especially long-term focused are recommended for any further openings.

There are other influential and important companies in the cloud computing market such as Salesforce.com, Inc. (CRM), Rackspace Hosting, Inc. (RAX) and VMware, Inc. (VMW) with annual revenue of \$3.05 billion, \$1.31 billion and \$4.61 billion, respectively. Their potential as a competitor of the Internet Big Five should be analysed as well.

Already mentioned cloud ETF (SKYY) as the first cloud computing exchange-traded fund, is an investment opportunity and an analysis of the fund using different valuation methods that are common for stocks would be an interesting study.

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IX Appendixes

Appendix 1. The Most Innovative Companies in 2012, by BCG

EXHIBIT 1 | The Most Innovative Companies in 2012

#	Company	Change from 2010	Industry	#	Company	Change from 2010	Industry
1	Apple	NC	Technology and telecom	26	Siemens ¹	↑ 8	Industrial products and processes
2	Google	NC	Technology and telecom	27	Lenovo	↑ 3	Technology and telecom
3	Samsung ¹	↑ 8	Technology and telecom	28	HSBC	↑ 21	Financial services
4	Microsoft	NC	Technology and telecom	29	General Motors	R	Automotive
5	Facebook	↑ 43	Technology and telecom	30	Anheuser-Busch InBev	E	Consumer and retail
6	IBM	↓ 2	Technology and telecom	31	SoftBank	E	Technology and telecom
7	Sony	↑ 3	Technology and telecom	32	Fast Retailing Co.	↓ 5	Consumer and retail
8	Haier ¹	↑ 20	Consumer and retail	33	Philips ¹	R	Industrial products and processes
9	Amazon	↓ 3	Consumer and retail	34	Renault	R	Automotive
10	Hyundai ¹	↑ 12	Automotive	35	Shell	R	Energy and environment
11	Toyota	↓ 6	Automotive	36	Huawei	E	Technology and telecom
12	Ford	↑ 1	Automotive	37	Virgin ¹	↓ 13	Consumer and retail
13	Kia Motors	E	Automotive	38	Boeing	R	Industrial products and processes
14	BMW	↑ 4	Automotive	39	Nike	↑ 7	Consumer and retail
15	Hewlett-Packard	↑ 1	Technology and telecom	40	Caterpillar	E	Industrial products and processes
16	General Electric ¹	↑ 7	Industrial products and processes	41	McDonald's	↑ 12	Consumer and retail
17	Coca-Cola	↑ 2	Consumer and retail	42	DuPont ¹	R	Industrial products and processes
18	Dell	↑ 17	Technology and telecom	43	Twitter	E	Technology and telecom
19	Intel	↓ 7	Technology and telecom	44	China Petroleum & Chemical	E	Energy and environment
20	Wal-Mart	↑ 1	Consumer and retail	45	Volkswagen	↓ 30	Automotive
21	Starbucks	R	Consumer and retail	46	Airbus	E	Industrial products and processes
22	Nissan	E	Automotive	47	Tata ¹	↓ 30	Industrial products and processes
23	BASF ¹	E	Industrial products and processes	48	Inditex	R	Consumer and retail
24	HTC	↑ 23	Technology and telecom	49	Procter & Gamble	↓ 24	Consumer and retail
25	Audi	R	Automotive	50	3M ¹	R	Industrial products and processes

Sources: 2010 BCG/BusinessWeek Senior Executive Innovation Survey; 2012 BCG Global Innovators Survey; BCG analysis.
Note: NC = no change; E = entered list; R = returned to list. The change from 2010 is the number of places that a company moved up or down.
¹Diversified conglomerate; categorized by primary industry.

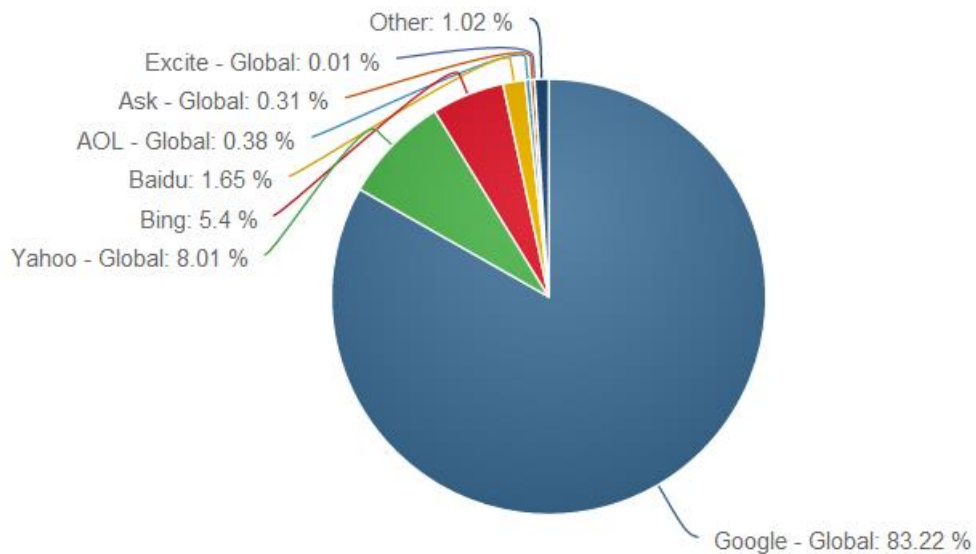
Source: https://www.bcgperspectives.com/content/articles/growth_innovation_the_most_innovative_companies_2012/?chapter=2

Appendix 2. External Debt of Central America and Selected Countries

Country	External Debt (in \$ billions)
Belize	\$ 1.5
Costa Rica	\$ 12.0
El Salvador	\$ 12.8
Guatemala	\$ 16.2
Honduras	\$ 4.9
Nicaragua	\$ 5.2
Panama	\$ 13.1
Ecuador	\$ 20.0
Guyana	\$ 1.2
Paraguay	\$ 5.7
Peru	\$ 38.9
Suriname	\$ 0.5
Uruguay	\$ 11.6
Total	\$ 143.6

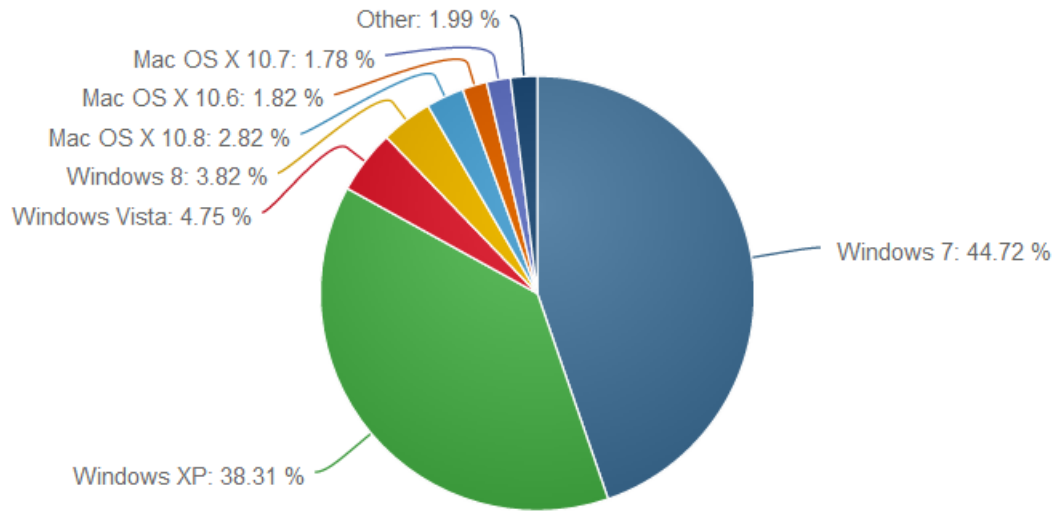
Source: Based on data from <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2079rank.html>

Appendix 3. Search Engine Market Share for April 2013



Source: <https://www.netmarketshare.com/>

Appendix 4. Operating System Market Share for April 2013, by version



Source: <https://www.netmarketshare.com/>

Appendix 5. Accumulated Microsoft's Dividend Gain for 38,400 shares

Dividend Period	Amount	Payable Date	Increase	Gain	Accumulated Gain
FY2013 Q3	\$ 0.23	June 13, 2013	0%	\$ 8,832.00	\$ 307,200.00
FY2013 Q2	\$ 0.23	Mar 14, 2013	0%	\$ 8,832.00	\$ 298,368.00
FY2013 Q1	\$ 0.23	Dec 13, 2012	15%	\$ 8,832.00	\$ 289,536.00
FY2012 Q4	\$ 0.20	Sept 13, 2012	0%	\$ 7,680.00	\$ 280,704.00
FY2012 Q3	\$ 0.20	Jun 14, 2012	0%	\$ 7,680.00	\$ 273,024.00
FY2012 Q2	\$ 0.20	Mar 8, 2012	0%	\$ 7,680.00	\$ 265,344.00
FY2012 Q1	\$ 0.20	Dec 8, 2011	25%	\$ 7,680.00	\$ 257,664.00
FY2011 Q4	\$ 0.16	Sept 8, 2011	0%	\$ 6,144.00	\$ 249,984.00
FY2011 Q3	\$ 0.16	Jun 9, 2011	0%	\$ 6,144.00	\$ 243,840.00
FY2011 Q2	\$ 0.16	Mar 10, 2011	0%	\$ 6,144.00	\$ 237,696.00
FY2011 Q1	\$ 0.16	Dec 9, 2010	23%	\$ 6,144.00	\$ 231,552.00
FY2010 Q4	\$ 0.13	Sept 9, 2010	0%	\$ 4,992.00	\$ 225,408.00
FY2010 Q3	\$ 0.13	Jun 10, 2010	0%	\$ 4,992.00	\$ 220,416.00
FY2010 Q2	\$ 0.13	Mar 11, 2010	0%	\$ 4,992.00	\$ 215,424.00
FY2010 Q1	\$ 0.13	Dec 10, 2009	0%	\$ 4,992.00	\$ 210,432.00
FY2009 Q4	\$ 0.13	Sep 10, 2009	0%	\$ 4,992.00	\$ 205,440.00
FY2009 Q3	\$ 0.13	Jun 18, 2009	0%	\$ 4,992.00	\$ 200,448.00
FY2009 Q2	\$ 0.13	Mar 12, 2009	0%	\$ 4,992.00	\$ 195,456.00
FY2009 Q1	\$ 0.13	Dec 11, 2008	18%	\$ 4,992.00	\$ 190,464.00
FY2008 Q4	\$ 0.11	Sep 11, 2008	0%	\$ 4,224.00	\$ 185,472.00
FY2008 Q3	\$ 0.11	Jun 12, 2008	0%	\$ 4,224.00	\$ 181,248.00
FY2008 Q2	\$ 0.11	Mar 13, 2008	0%	\$ 4,224.00	\$ 177,024.00
FY2008 Q1	\$ 0.11	Dec 13, 2007	10%	\$ 4,224.00	\$ 172,800.00
FY2007 Q4	\$ 0.10	Sep 13, 2007	0%	\$ 3,840.00	\$ 168,576.00
FY2007 Q3	\$ 0.10	Jun 14, 2007	0%	\$ 3,840.00	\$ 164,736.00
FY2007 Q2	\$ 0.10	Mar 8, 2007	0%	\$ 3,840.00	\$ 160,896.00
FY2007 Q1	\$ 0.10	Dec 14, 2006	11%	\$ 3,840.00	\$ 157,056.00
FY2006 Q4	\$ 0.09	Sep 14, 2006	0%	\$ 3,456.00	\$ 153,216.00
FY2006 Q3	\$ 0.09	Jun 8, 2006	0%	\$ 3,456.00	\$ 149,760.00
FY2006 Q2	\$ 0.09	Mar 9, 2006	13%	\$ 3,456.00	\$ 146,304.00
FY2006 Q1	\$ 0.08	Dec 8, 2005	0%	\$ 3,072.00	\$ 142,848.00
FY2005 Q4	\$ 0.08	Sep 08, 2005	0%	\$ 3,072.00	\$ 139,776.00
FY2005 Q3	\$ 0.08	Jun 09, 2005	0%	\$ 3,072.00	\$ 136,704.00
FY2005 Q2	\$ 0.08	Mar 10, 2005	0%	\$ 3,072.00	\$ 133,632.00
FY2005 Q1	\$ 0.08	Dec 02, 2004	0%	\$ 3,072.00	\$ 130,560.00
Special	\$ 3.00	Dec 02, 2004		\$ 115,200.00	\$ 127,488.00
FY2004 Q4	\$ 0.08	Sep 14, 2004		\$ 3,072.00	\$ 12,288.00
FY2004	\$ 0.16	Nov 7, 2003	100%	\$ 6,144.00	\$ 9,216.00
FY2003	\$ 0.08	Mar 7, 2003		\$ 3,072.00	\$ 3,072.00

Source: <http://www.microsoft.com/investor/InvestorServices/FAQ/default.aspx>

Appendix 6. Balance Sheet for Amazon

	2011	2011 % of total assets	2012	2012 % of total assets	2011- 2012 v%
Assets					
Current assets					
Cash and cash equivalents	5,269	20.8%	8,084	24.8%	153.4%
Short-term marketable securities	4,307	17.0%	3,364	10.3%	78.1%
Cash and short-term investments	9,576	37.9%	11,448	35.2%	119.5%
Accounts receivable	2,571	10.2%	3,364	10.3%	130.8%
Inventories	4,992	19.7%	6,031	18.5%	120.8%
Prepaid expenses	-	0.0%	-	0.0%	0.0%
Deferred tax assets	351	1.4%	453	1.4%	129.1%
Other current assets	-	0.0%	-	0.0%	0.0%
Total current assets	17,490	69.2%	21,296	65.4%	121.8%
Non-current assets					
Long-term investments	-	0.0%	-	0.0%	0.0%
Property and equipment, net	4,417	17.5%	7,060	21.7%	159.8%
Deferred tax assets	28	0.1%	123	0.4%	439.3%
Goodwill	1,955	7.7%	2,552	7.8%	130.5%
Intangible assets	-	0.0%	-	0.0%	0.0%
Other long-term assets	1,388	5.5%	1,524	4.7%	109.8%
Total assets	25,278		32,555	100.0%	128.8%
Liabilities and Shareholders' Equity					
Current liabilities					
Accounts payable	11,145	44.1%	13,318	40.9%	119.5%
Short-term debt	-	0.0%	-	0.0%	0.0%
Accrued expenses and other curr. liab.	3,751	14.8%	5,684	17.5%	151.5%
Deferred revenue and deposits	-	0.0%	-	0.0%	0.0%
Income Taxes	-	0.0%	-	0.0%	0.0%
Total current liabilities	14,896	58.9%	19,002	58.4%	127.6%
Long-term debt	255	1.0%	3,084	9.5%	1209.4%
Deferred revenue - long-term	-	0.0%	-	0.0%	0.0%
Deferred income tax - long-term	-	0.0%	-	0.0%	0.0%
Other long-term liabilities	2,370	9.4%	2,277	7.0%	96.1%
Total Liabilities	17,521	69.3%	24,363	74.8%	139.1%
Shareholders' equity					
Preferred stock	-	0.0%	-	0.0%	0.0%
Common stock	5	0.0%	5	0.0%	100.0%
Treasury stock	(877)	-3.5%	(1,837)	-5.6%	209.5%
Additional paid-in capital	6,990	27.7%	8,347	25.6%	119.4%
Retained earnings	1,955	7.7%	1,916	5.9%	98.0%
Accumulated other comprehensive income	(316)	-1.3%	(239)	-0.7%	75.6%
Total shareholders' equity	7,757	30.7%	8,192	25.2%	105.6%
Total Liabilities and Shareholders' Equity	25,278	100.0%	32,555	100.0%	128.8%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 7. Balance Sheet for Apple

	2011	2011 % of total assets	2012	2012 % of total assets	2011- 2012 v%
Assets					
Current assets					
Cash and cash equivalents	9,815	8.4%	10,746	6.1%	109.5%
Short-term marketable securities	16,137	13.9%	18,383	10.4%	113.9%
Cash and short-term investments	25,952	22.3%	29,129	16.5%	112.2%
Accounts receivable	5,369	4.6%	10,930	6.2%	203.6%
Inventories	776	0.7%	791	0.4%	101.9%
Prepaid expenses	-	0.0%	-	0.0%	0.0%
Deferred tax assets	2,014	1.7%	2,583	1.5%	128.3%
Other current assets	10,877	9.3%	14,220	8.1%	130.7%
Total current assets	44,988	38.7%	57,653	32.7%	128.2%
Non-current assets					
Long-term investments	55,618	47.8%	92,122	52.3%	165.6%
Property and equipment, net	7,777	6.7%	15,452	8.8%	198.7%
Deferred tax assets	-	0.0%	-	0.0%	0.0%
Goodwill	896	0.8%	1,135	0.6%	126.7%
Intangible assets	3,536	3.0%	4,224	2.4%	119.5%
Other long-term assets	3,556	3.1%	5,478	3.1%	154.0%
Total assets	116,371	100.0%	176,064	100.0%	151.3%
Liabilities and Shareholders' Equity					
Current liabilities					
Accounts payable	14,632	12.6%	21,175	12.0%	144.7%
Short-term debt	-	0.0%	-	0.0%	0.0%
Accrued expenses and other curr. liab.	9,247	7.9%	11,414	6.5%	123.4%
Deferred revenue and deposits	4,091	3.5%	5,953	3.4%	145.5%
Income Taxes	-	0.0%	-	0.0%	0.0%
Total current liabilities	27,970	24.0%	38,542	21.9%	137.8%
Long-term debt	-	0.0%	-	0.0%	0.0%
Deferred revenue - long-term	1,686	1.4%	2,648	1.5%	157.1%
Deferred income tax - long-term	-	0.0%	-	0.0%	0.0%
Other long-term liabilities	10,100	8.7%	16,664	9.5%	165.0%
Total Liabilities	39,756	34.2%	57,854	32.9%	145.5%
Shareholders' equity					
Preferred stock	-	0.0%	-	0.0%	0.0%
Common stock	13,331	11.5%	16,422	9.3%	123.2%
Treasury stock	-	0.0%	-	0.0%	0.0%
Additional paid-in capital	-	0.0%	-	0.0%	0.0%
Retained earnings	62,841	54.0%	101,289	57.5%	161.2%
Accumulated other comprehensive income	443	0.4%	499	0.3%	112.6%
Total shareholders' equity	76,615	65.8%	118,210	67.1%	154.3%
Total Liabilities and Shareholders' Equity	116,371	100.0%	176,064	100.0%	151.3%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 8. Balance Sheet for Facebook

	2011	2011 % of total assets	2012	2012 % of total assets	2011- 2012 v%
Assets					
Current assets					
Cash and cash equivalents	1,512	23.9%	2,384	15.8%	157.7%
Short-term marketable securities	2,396	37.8%	7,242	48.0%	302.3%
Cash and short-term investments	3,908	61.7%	9,626	63.7%	246.3%
Accounts receivable	547	8.6%	719	4.8%	131.4%
Inventories	-	0.0%	-	0.0%	0.0%
Prepaid expenses	149	2.4%	471	3.1%	316.1%
Deferred tax assets	-	0.0%	-	0.0%	0.0%
Other current assets	-	0.0%	451	3.0%	0.0%
Total current assets	4,604	72.7%	11,267	74.6%	244.7%
Non-current assets					
Long-term investments	-	0.0%	-	0.0%	0.0%
Property and equipment, net	1,475	23.3%	2,391	15.8%	162.1%
Deferred tax assets	-	0.0%	-	0.0%	0.0%
Goodwill	82	1.3%	587	3.9%	715.9%
Intangible assets	80	1.3%	801	5.3%	1001.3%
Other long-term assets	90	1.4%	57	0.4%	63.3%
Total assets	6,331	100.0%	15,103	100.0%	238.6%
Liabilities and Shareholders' Equity					
Current liabilities					
Accounts payable	234	3.7%	234	1.5%	100.0%
Short-term debt	279	4.4%	365	2.4%	130.8%
Accrued expenses and other curr. liab.	296	4.7%	423	2.8%	142.9%
Deferred revenue and deposits	90	1.4%	30	0.2%	33.3%
Income Taxes	-	0.0%	-	0.0%	0.0%
Total current liabilities	899	14.2%	1,052	7.0%	117.0%
Long-term debt	398	6.3%	1,991	13.2%	500.3%
Deferred revenue - long-term	-	0.0%	-	0.0%	0.0%
Deferred income tax - long-term	-	0.0%	-	0.0%	0.0%
Other long-term liabilities	135	2.1%	305	2.0%	225.9%
Total Liabilities	1,432	22.6%	3,348	22.2%	233.8%
Shareholders' equity					
Preferred stock	615	9.7%	-	0.0%	0.0%
Common stock	-	0.0%	-	0.0%	0.0%
Treasury stock	-	0.0%	-	0.0%	0.0%
Additional paid-in capital	2,684	42.4%	10,094	66.8%	376.1%
Retained earnings	1,606	25.4%	1,659	11.0%	103.3%
Accumulated other comprehensive income	(6)	-0.1%	2	0.0%	-33.3%
Total shareholders' equity	4,899	77.4%	11,755	77.8%	239.9%
Total Liabilities and Shareholders' Equity	6,331	100.0%	15,103	100.0%	238.6%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 9. Balance Sheet for Google

	2011	2011 % of total assets	2012	2012 % of total assets	2011- 2012 v%
Assets					
Current assets					
Cash and cash equivalents	9,983	13.8%	14,778	15.8%	148.0%
Short-term marketable securities	34,643	47.7%	33,310	35.5%	96.2%
Cash and short-term investments	44,626	61.5%	48,088	51.3%	107.8%
Accounts receivable	5,427	7.5%	7,885	8.4%	145.3%
Inventories	35	0.0%	505	0.5%	1442.9%
Prepaid expenses	1,710	2.4%	2,132	2.3%	124.7%
Deferred tax assets	215	0.3%	1,144	1.2%	532.1%
Other current assets	745	1.0%	700	0.7%	94.0%
Total current assets	52,758	72.7%	60,454	64.5%	114.6%
Non-current assets					
Long-term investments	790	1.1%	1,469	1.6%	185.9%
Property and equipment, net	9,603	13.2%	11,854	12.6%	123.4%
Deferred tax assets	-	0.0%	-	0.0%	0.0%
Goodwill	7,346	10.1%	10,537	11.2%	143.4%
Intangible assets	1,578	2.2%	7,473	8.0%	473.6%
Other long-term assets	499	0.7%	2,011	2.1%	403.0%
Total assets	72,574	100.0%	93,798	100.0%	129.2%
Liabilities and Shareholders' Equity					
Current liabilities					
Accounts payable	588	0.8%	2,012	2.1%	342.2%
Short-term debt	3,225	4.4%	4,222	4.5%	130.9%
Accrued expenses and other curr. liab.	4,356	6.0%	6,968	7.4%	160.0%
Deferred revenue and deposits	547	0.8%	895	1.0%	163.6%
Income Taxes	197	0.3%	240	0.3%	121.8%
Total current liabilities	8,913	12.3%	14,337	15.3%	160.9%
Long-term debt	2,986	4.1%	2,988	3.2%	100.1%
Deferred revenue - long-term	44	0.1%	100	0.1%	227.3%
Deferred income tax - long-term	1,980	2.7%	3,918	4.2%	197.9%
Other long-term liabilities	506	0.7%	740	0.8%	146.2%
Total Liabilities	14,429	19.9%	22,083	23.5%	153.0%
Shareholders' equity					
Preferred stock	-	0.0%	-	0.0%	0.0%
Common stock	20,264	27.9%	22,835	24.3%	112.7%
Treasury stock	-	0.0%	-	0.0%	0.0%
Additional paid-in capital	-	0.0%	-	0.0%	0.0%
Retained earnings	37,605	51.8%	48,342	51.5%	128.6%
Accumulated other comprehensive income	276	0.4%	538	0.6%	194.9%
Total shareholders' equity	58,145	80.1%	71,715	76.5%	123.3%
Total Liabilities and Shareholders' Equity	72,574	100.0%	93,798	100.0%	129.2%

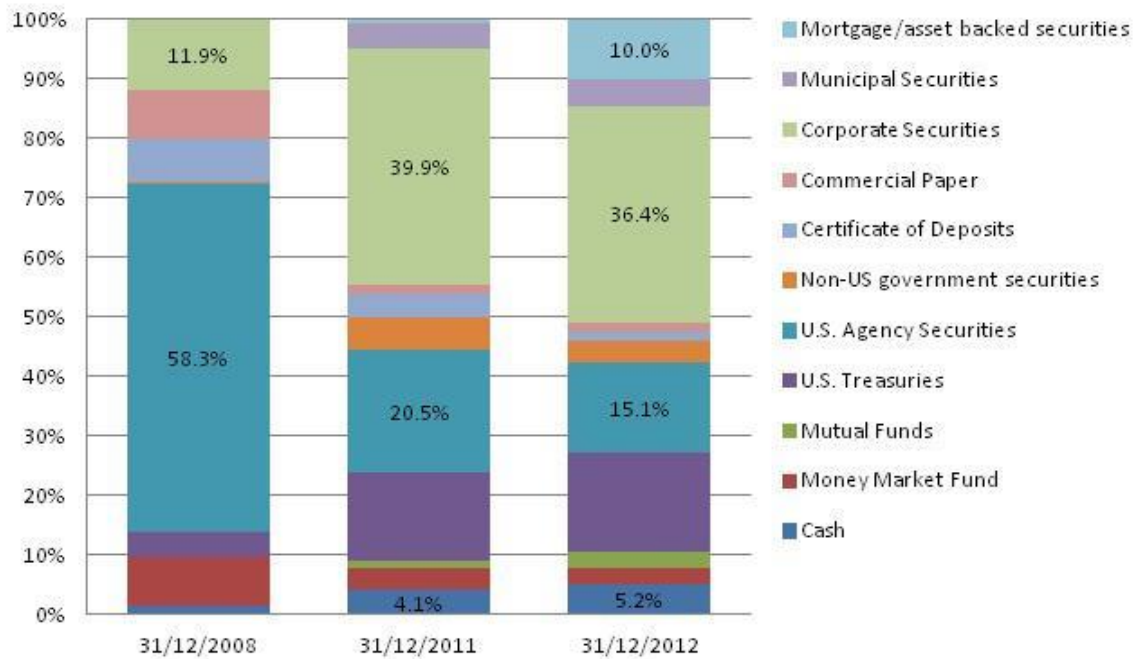
Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 10. Balance Sheet for Microsoft

	2011	2011 % of total assets	2012	2012 % of total assets	2011- 2012 v%
Assets					
Current assets					
Cash and cash equivalents	9,610	8.8%	6,938	5.7%	72.2%
Short-term marketable securities	43,162	39.7%	56,102	46.3%	130.0%
Cash and short-term investments	52,772	48.5%	63,040	52.0%	119.5%
Accounts receivable	14,987	13.8%	15,780	13.0%	105.3%
Inventories	1,372	1.3%	1,137	0.9%	82.9%
Prepaid expenses		0.0%		0.0%	0.0%
Deferred tax assets	2,467	2.3%	2,035	1.7%	82.5%
Other current assets	3,320	3.1%	3,092	2.5%	93.1%
Total current assets	74,918	68.9%	85,084	70.2%	113.6%
Non-current assets					
Long-term investments	10,865	10.0%	9,776	8.1%	90.0%
Property and equipment, net	8,162	7.5%	8,269	6.8%	101.3%
Deferred tax assets		0.0%		0.0%	0.0%
Goodwill	12,581	11.6%	13,452	11.1%	106.9%
Intangible assets	744	0.7%	3,170	2.6%	426.1%
Other long-term assets	1,434	1.3%	1,520	1.3%	106.0%
Total assets	108,704	100.0%	121,271	100.0%	111.6%
Liabilities and Shareholders' Equity					
Current liabilities					
Accounts payable	4,197	3.9%	4,175	3.4%	99.5%
Short-term debt	-	0.0%	1,231	1.0%	0.0%
Accrued expenses and other curr. liab.	8,275	7.6%	7,840	6.5%	94.7%
Deferred revenue and deposits	15,722	14.5%	18,653	15.4%	118.6%
Income Taxes	580	0.5%	789	0.7%	136.0%
Total current liabilities	28,774	26.5%	32,688	27.0%	113.6%
Long-term debt	11,921	11.0%	10,713	8.8%	89.9%
Deferred revenue - long-term	1,398	1.3%	1,406	1.2%	100.6%
Deferred income tax - long-term	1,456	1.3%	1,893	1.6%	130.0%
Other long-term liabilities	8,072	7.4%	8,208	6.8%	101.7%
Total Liabilities	51,621	47.5%	54,908	45.3%	106.4%
Shareholders' equity					
Preferred stock	-	0.0%	-	0.0%	0.0%
Common stock	63,415	58.3%	65,797	54.3%	103.8%
Treasury stock	-	0.0%	-	0.0%	0.0%
Additional paid-in capital	-	0.0%	-	0.0%	0.0%
Retained earnings	(6,332)	-5.8%	566	0.5%	-
Accumulated other comprehensive income	-	0.0%	-	0.0%	0.0%
Total shareholders' equity	57,083	52.5%	66,363	54.7%	116.3%
Total Liabilities and Shareholders' Equity	108,704	100.0%	121,271	100.0%	111.6%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 11. Apple's long-term portfolio



<http://seekingalpha.com/article/1333981-a-different-perspective-on-apple-s-valuation?source=yahoo>

Appendix 12. Income Statement for Amazon

	2011	2011 % of total revenues	2012	2012 % of total revenues	2011- 2012 v%
Revenues	48,077	100.00%	61,093	100.00%	127%
Cost of revenue	37,288	77.56%	45,971	75.25%	123%
Gross profit	10,789	22.44%	15,122	24.75%	140%
Operating expenses					
Research and development	-	0.00%	-	0.00%	0.0%
Sales, general and administrative	6,864	14.28%	9,723	15.92%	142%
Other operating expenses	3,063	6.37%	4,723	7.73%	154%
Total operating expenses	9,927	20.65%	14,446	23.65%	146%
Operating income	862	1.79%	676	1.11%	78%
Interest expense	(65)	-0.14%	(92)	-0.15%	142%
Interest income	61	0.13%	40	0.07%	66%
Net interest expense/ (income)	(4)	-0.01%	(52)	-0.09%	1300%
Other loss/ (income)	76	0.16%	(80)	-0.13%	-105%
Income before provision for income taxes	934	1.94%	544	0.89%	58%
Provision for income taxes	291	0.61%	428	0.70%	147%
Other income	(12)	-0.02%	(155)	-0.25%	1292%
Net income	631	1.31%	(39)	-0.06%	-
Less: Net income attributable to participating securities	-	0.00%	-	0.00%	0.0%
Net income available to common shareholders	631	1.31%	(39)	-0.06%	-

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 13. Income Statement for Apple

	2011	2011 % of total revenues	2012	2012 % of total revenues	2011- 2012 v%
Revenues	108,249	100.00%	156,508	100.00%	145%
Cost of revenue	64,431	59.52%	87,846	56.13%	136%
Gross profit	43,818	40.48%	68,662	43.87%	157%
Operating expenses					
Research and development	2,429	2.24%	3,381	2.16%	139%
Sales, general and administrative	7,599	7.02%	10,040	6.42%	132%
Other operating expenses	-	0.00%	-	0.00%	0.0%
Total operating expenses	10,028	9.26%	13,421	8.58%	134%
Operating income	33,790	31.22%	55,241	35.30%	163%
Interest expense	-	0.00%	-	0.00%	0.0%
Interest income	-	0.00%	-	0.00%	0.0%
Net interest expense/ (income)	-	0.00%	-	0.00%	0.0%
Other loss/ (income)	415	0.38%	522	0.33%	126%
Income before provision for income taxes	34,205	31.60%	55,763	35.63%	163%
Provision for income taxes	8,283	7.65%	14,030	8.96%	169%
Other income	-	0.00%	-	0.00%	0.0%
Net income	25,922	23.95%	41,733	26.67%	161%
Less: Net income attributable to participating securities	-	0.00%	-	0.00%	0.0%
Net income available to common shareholders	25,922	23.95%	41,733	26.67%	161%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 14. Income Statement for Facebook

	2011	2011 % of total revenues	2012	2012 % of total revenues	2011- 2012 v%
Revenues	3,711	100.00%	5,089	100.00%	137%
Cost of revenue	860	23.17%	1,364	26.80%	159%
Gross profit	2,851	76.83%	3,725	73.20%	131%
Operating expenses					
Research and development	388	10.46%	1,399	27.49%	361%
Sales, general and administrative	707	19.05%	1,788	35.13%	253%
Other operating expenses	-	0.00%	-	0.00%	0.0%
Total operating expenses	1,095	29.51%	3,187	62.63%	291%
Operating income	1,756	47.32%	538	10.57%	31%
Interest expense	(42)	-1.13%	(51)	-1.00%	121%
Interest income	-	0.00%	-	0.00%	0.0%
Net interest expense/ (income)	(42)	-1.13%	(51)	-1.00%	121%
Other loss/ (income)	(19)	-0.51%	7	0.14%	-37%
Income before provision for income taxes	1,695	45.68%	494	9.71%	29%
Provision for income taxes	695	18.73%	441	8.67%	63%
Other income	-	0.00%	-	0.00%	0.0%
Net income	1,000	26.95%	53	1.04%	5%
Less: Net income attributable to participating securities	332	8.95%	21	0.41%	6%
Net income available to common shareholders	668	18.00%	32	0.63%	5%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 15. Income Statement for Google

	2011	2011 % of total revenues	2012	2012 % of total revenues	2011- 2012 v%
Revenues	37,905	100.00%	50,175	100.00%	132%
Cost of revenue	13,188	34.79%	20,634	41.12%	156%
Gross profit	24,717	65.21%	29,541	58.88%	120%
Operating expenses					
Research and development	5,162	13.62%	6,793	13.54%	132%
Sales, general and administrative	7,313	19.29%	9,988	19.91%	137%
Other operating expenses	500	1.32%	-	0.00%	0%
Total operating expenses	12,975	34.23%	16,781	33.44%	129%
Operating income	11,742	30.98%	12,760	25.43%	109%
Interest expense	(58)	-0.15%	(84)	-0.17%	145%
Interest income	812	2.14%	713	1.42%	88%
Net interest expense/ (income)	754	1.99%	629	1.25%	83%
Other loss/ (income)	(170)	-0.45%	(3)	-0.01%	2%
Income before provision for income taxes	12,326	32.52%	13,386	26.68%	109%
Provision for income taxes	2,589	6.83%	2,598	5.18%	100%
Other income	-	0.00%	(51)	-0.10%	0.0%
Net income	9,737	25.69%	10,737	21.40%	110%
Less: Net income attributable to participating securities	-	0.00%	-	0.00%	0.0%
Net income available to common shareholders	9,737	25.69%	10,737	21.40%	110%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 16. Income Statement for Microsoft

	2011	2011 % of total revenues	2012	2012 % of total revenues	2011- 2012 v%
Revenues	69,943	100.00%	73,723	100.00%	105%
Cost of revenue	15,577	22.27%	17,530	23.78%	113%
Gross profit	54,366	77.73%	56,193	76.22%	103%
Operating expenses					
Research and development	9,043	12.93%	9,811	13.31%	108%
Sales, general and administrative	18,162	25.97%	18,426	24.99%	101%
Other operating expenses	0	0.00%	6,193	8.40%	0.0%
Total operating expenses	27,205	38.90%	34,430	46.70%	127%
Operating income	27,161	38.83%	21,763	29.52%	80%
Interest expense	-	0.00%	-	0.00%	0.0%
Interest income	-	0.00%	-	0.00%	0.0%
Net interest expense/ (income)	-	0.00%	-	0.00%	0.0%
Other loss/ (income)	910	1.30%	504	0.68%	55%
Income before provision for income taxes	28,071	40.13%	22,267	30.20%	79%
Provision for income taxes	4,921	7.04%	5,289	7.17%	107%
Other income	-	0.00%	-	0.00%	0.0%
Net income	23,150	33.10%	16,978	23.03%	73%
Less: Net income attributable to participating securities	-	0.00%	-	0.00%	0.0%
Net income available to common shareholders	23,150	33.10%	16,978	23.03%	73%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 17. Cash Flow Statement for Amazon

	2011	2011 % of revenues	2012	2012 % of revenues	2011- 2012 v%
Cash and cash equivalents, beginning of period	3,777	7.86%	5,269	8.62%	139.50%
Operating activities					
Net income	631	1.31%	(39)	-0.06%	-
Adjustments to reconcile net income to cash					
Depreciation of property and equipment, including internal-use software and website development, and other amortization	1,083	2.25%	2,159	3.53%	199.35%
Stock-based compensation	557	1.16%	833	1.36%	149.55%
Other operating expense (income), net	154	0.32%	154	0.25%	100.00%
Losses (gains) on sales of marketable securities, net	(4)	-0.01%	(9)	-0.01%	225.00%
Other expense (income), net	(56)	-0.12%	253	0.41%	-
Deferred income taxes	136	0.28%	(265)	-0.43%	-
Excess tax benefits from stock-based compensation	(62)	-0.13%	(429)	-0.70%	691.94%
Changes in operating assets and liabilities					
Inventories	(1,777)	-3.70%	(999)	-1.64%	56.22%
Accounts receivable, net and other	(866)	-1.80%	(861)	-1.41%	99.42%
Accounts payable	2,997	6.23%	2,070	3.39%	69.07%
Accrued expenses and other	1,067	2.22%	1,038	1.70%	97.28%
Additions to unearned revenue	1,064	2.21%	1,796	2.94%	168.80%
Amortization of previously unearned revenue	(1,021)	-2.12%	(1,521)	-2.49%	148.97%
Net cash provided by operating activities	3,903	8.12%	4,180	6.84%	107.10%
Investing activities					
Purchases of property and equipment, including internal-use software and website development	(1,811)	-3.77%	(3,785)	-6.20%	209.00%
Acquisitions, net of cash acquired, and other	(705)	-1.47%	(745)	-1.22%	105.67%
Sales and maturities of marketable securities and other investments	6,843	14.23%	4,237	6.94%	61.92%
Purchases of marketable securities and other investments	(6,257)	-13.01%	(3,302)	-5.40%	52.77%
Net cash provided by (used in) investing activities	(1,930)	-4.01%	(3,595)	-5.88%	186.27%
Financing activities					
Excess tax benefits from stock-based compensation	62	0.13%	429	0.70%	691.94%
Common stock repurchased	(277)	-0.58%	(960)	-1.57%	346.57%
Proceeds from long-term debt and other	177	0.37%	3,378	5.53%	1908.47%
Repayments of long-term debt, capital lease, and finance lease obligations	(444)	-0.92%	(588)	-0.96%	132.43%
Net cash provided by (used in) financing activities	(482)	-1.00%	2,259	3.70%	-
Effect of exchange rate changes on cash and cash equivalents	1	0.00%	(29)	-0.05%	-
Increase/(decrease) in cash and cash equivalents	1,492	3.10%	2,815	4.61%	188.67%
Cash and cash equivalents, end of period	5,269	10.96%	8,084	13.23%	153.43%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 18. Cash Flow Statement for Apple

	2011	2011 % of revenues	2012	2012 % of revenues	2011- 2012 v%
Cash and cash equivalents, beginning of period	11,261	10.40%	9,815	6.27%	87.16%
Operating activities					
Net income	25,922	23.95%	41,733	26.67%	160.99%
Adjustments to reconcile net income to cash					
Depreciation and amortization	1,814	1.68%	3,277	2.09%	180.65%
Share-based compensation expense	1,168	1.08%	1,740	1.11%	148.97%
Deferred income tax expense	2,868	2.65%	4,405	2.81%	153.59%
Changes in operating assets and liabilities					
Accounts receivable, net	143	0.13%	(5,551)	-3.55%	-
Inventories	275	0.25%	(15)	-0.01%	-
Vendor non-trade receivables	(1,934)	-1.79%	(1,414)	-0.90%	73.11%
Other current and non-current assets	(1,391)	-1.29%	(3,162)	-2.02%	227.32%
Accounts payable	2,515	2.32%	4,467	2.85%	177.61%
Deferred revenue	1,654	1.53%	2,824	1.80%	170.74%
Other current and non-current liabilities	4,495	4.15%	2,552	1.63%	56.77%
Changes in operating assets and liabilities	37,529	34.67%	50,856	32.49%	135.51%
Investing activities					
Purchases of marketable securities	(102,317)	-94.52%	(151,232)	-96.63%	147.81%
Proceeds from maturities of marketable securities	20,437	18.88%	13,035	8.33%	63.78%
Proceeds from sales of marketable securities	49,416	45.65%	99,770	63.75%	201.90%
Payments made in connection with business acquisitions, net of cash acquired	(244)	-0.23%	(350)	-0.22%	143.44%
Payments for acquisition of property, plant and equipment	(4,260)	-3.94%	(8,295)	-5.30%	194.72%
Payments for acquisition of intangible assets	(3,192)	-2.95%	(1,107)	-0.71%	34.68%
Other	(259)	-0.24%	(48)	-0.03%	18.53%
Cash used in investing activities	(40,419)	-37.34%	(48,227)	-30.81%	119.32%
Financing activities					
Proceeds from issuance of common stock	831	0.77%	665	0.42%	80.02%
Excess tax benefits from equity awards	1,133	1.05%	1,351	0.86%	119.24%
Dividends and dividend equivalent rights paid	0	0.00%	(2,488)	-1.59%	0.00%
Taxes paid related to net share settlement of equity awards	(520)	-0.48%	(1,226)	-0.78%	235.77%
Cash (used in)/generated by financing activities	1,444	1.33%	(1,698)	-1.08%	-
Increase/(decrease) in cash and cash equivalents	(1,446)	-1.34%	931	0.59%	-
Cash and cash equivalents, end of period	9,815	9.07%	10,746	6.87%	109.49%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 19. Cash Flow Statement for Facebook

	2011	2011 % of revenues	2012	2012 % of revenues	2011-2012 v%
Cash and cash equivalents, beginning of period	1,785	48.10%	1,512	29.71%	84.71%
Operating activities					
Net income	1,000	26.95%	53	1.04%	5.30%
Adjustments to reconcile net income to cash					
Depreciation and amortization	323	8.70%	649	12.75%	200.93%
Loss on write-off of equipment	4	0.11%	15	0.29%	375.00%
Share-based compensation	217	5.85%	1,572	30.89%	724.42%
Deferred income taxes	(30)	-0.81%	(186)	-3.65%	620.00%
Tax benefit from share-based award activity	433	11.67%	1,033	20.30%	238.57%
Excess tax benefit from share-based award activity	(433)	-11.67%	(1,033)	-20.30%	238.57%
Changes in operating assets and liabilities					
Accounts receivable	(174)	-4.69%	(170)	-3.34%	97.70%
Income tax refundable	0	0.00%	(451)	-8.86%	-
Prepaid expenses and other current assets	(24)	-0.65%	(14)	-0.28%	58.33%
Other assets	(5)	-0.13%	2	0.04%	-
Accounts payable	6	0.16%	1	0.02%	16.67%
Platform partners payable	96	2.59%	(2)	-0.04%	-
Accrued expenses and other current liabilities	37	1.00%	160	3.14%	432.43%
Deferred revenue and deposits	49	1.32%	(60)	-1.18%	-
Other liabilities	50	1.35%	43	0.84%	86.00%
Net cash provided by operating activities	1,549	41.74%	1,612	31.68%	104.07%
Investing activities					
Purchases of property and equipment	(606)	-16.33%	(1,235)	-24.27%	203.80%
Purchases of marketable securities	(3,025)	-81.51%	(10,307)	-202.53%	340.73%
Sales of marketable securities	113	3.05%	2,100	41.27%	1858.41%
Maturities of marketable securities	516	13.90%	3,333	65.49%	645.93%
Investments in non-marketable equity securities	(3)	-0.08%	(2)	-0.04%	66.67%
Acquisitions of businesses, net of cash acquired, and purchases of intangible and other assets	(24)	-0.65%	(911)	-17.90%	3795.83%
Change in restricted cash and deposits	6	0.16%	(2)	-0.04%	-
Net cash used in investing activities	(3,023)	-81.46%	(7,024)	-138.02%	232.35%
Financing activities					
Net proceeds from issuance of common stock	998	26.89%	6,760	132.84%	677.35%
Taxes paid related to net share settlement of equity awards	0	0.00%	(2,862)	-56.24%	-
Proceeds from exercise of stock options	28	0.75%	17	0.33%	60.71%
Proceeds from long-term debt, net of issuance cost	0	0.00%	1,496	29.40%	-
Repayment of long-term debt	(250)	-6.74%	0	0.00%	0.00%
Proceeds from sale and lease-back transactions	170	4.58%	205	4.03%	120.59%
Principal payments on capital lease obligations	(181)	-4.88%	(366)	-7.19%	202.21%
Excess tax benefit from share-based award activity	433	11.67%	1,033	20.30%	238.57%
Net cash provided by financing activities	1,198	32.28%	6,283	123.46%	524.46%
Effect of exchange rate changes on cash and cash equivalents	3	0.08%	1	0.02%	33.33%
Increase/(decrease) in cash and cash equivalents	(273)	-7.36%	872	17.13%	-
Cash and cash equivalents, end of period	1,512	40.74%	2,384	46.85%	157.67%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 20. Cash Flow Statement for Google

	2011	2011 % of revenues	2012	2012 % of revenues	2011-2012 v%
Cash and cash equivalents, beginning of period	13,630	35.96%	9,983	19.90%	73.24%
Operating activities					
Net income	9,737	25.69%	10,737	21.40%	110.27%
Adjustments to reconcile net income to cash					
Depreciation and amortization of property and equipment	1,396	3.68%	1,988	3.96%	142.41%
Amortization of intangible and other assets	455	1.20%	974	1.94%	214.07%
Stock-based compensation expense	1,974	5.21%	2,692	5.37%	136.37%
Excess tax benefits from stock-based award activities	(86)	-0.23%	(188)	-0.37%	218.60%
Deferred income taxes	343	0.90%	(266)	-0.53%	-
Impairment of equity investments	110	0.29%	0	0.00%	-
Gain on divestiture of business	0	0.00%	(188)	-0.37%	-
Other	6	0.02%	(28)	-0.06%	-466.67%
Changes in assets and liabilities, net of effects of acquisitions					
Accounts receivable	(1,156)	-3.05%	(787)	-1.57%	68.08%
Income taxes, net	731	1.93%	1,492	2.97%	204.10%
Inventories	(30)	-0.08%	301	0.60%	-
Prepaid revenue share, expenses and other assets	(232)	-0.61%	(833)	-1.66%	359.05%
Accounts payable	101	0.27%	(499)	-0.99%	-
Accrued expenses and other liabilities	795	2.10%	762	1.52%	95.85%
Accrued revenue share	259	0.68%	299	0.60%	115.44%
Deferred revenue	162	0.43%	163	0.32%	100.62%
Net cash provided by operating activities	14,565	38.43%	16,619	33.12%	114.10%
Investing activities					
Purchases of property and equipment	(3,438)	-9.07%	(3,273)	-6.52%	95.20%
Purchases of marketable securities	(61,672)	-162.70%	(33,410)	-66.59%	54.17%
Maturities and sales of marketable securities	48,746	128.60%	35,180	70.11%	72.17%
Investments in non-marketable equity securities	(428)	-1.13%	(696)	-1.39%	162.62%
Cash collateral related to securities lending	(354)	-0.93%	(334)	-0.67%	94.35%
Investments in reverse repurchase agreements	5	0.01%	45	0.09%	900.00%
Acquisitions, net of cash acquired and proceeds received from divestiture, and purchases of intangible and other assets	(1,900)	-5.01%	(10,568)	-21.06%	556.21%
Net cash used in investing activities	(19,041)	-50.23%	(13,056)	-26.02%	68.57%
Financing activities					
Net proceeds (payments) from stock-based award activities	(5)	-0.01%	(287)	-0.57%	5740.00%
Excess tax benefits from stock-based award activities	86	0.23%	188	0.37%	218.60%
Repurchase of common stock in connection with acquisitions	0	0.00%	0	0.00%	-
Proceeds from issuance of debt, net of costs	10,905	28.77%	16,109	32.11%	147.72%
Repayment of debt	(10,179)	-26.85%	(14,781)	-29.46%	145.21%
Net cash provided by financing activities	807	2.13%	1,229	2.45%	152.29%
Effect of exchange rate changes on cash and cash equivalents	22	0.06%	3	0.01%	13.64%
Increase/(decrease) in cash and cash equivalents	(3,647)	-9.62%	4,795	9.56%	-
Cash and cash equivalents, end of period	9,983	26.34%	14,778	29.45%	148.03%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 21. Cash Flow Statement for Microsoft

	2011	2011 % of revenues	2012	2012 % of revenues	2011-2012 v%
Cash and cash equivalents, beginning of period	5,505	7.87%	9,610	13.04%	174.57%
Operating activities					
Net income	23,150	33.10%	16,978	23.03%	73.34%
Adjustments to reconcile net income to cash					
Goodwill impairment	0	0.00%	6,193	8.40%	-
Depreciation, amortization, and other	2,766	3.95%	2,967	4.02%	107.27%
Stock-based compensation expense	2,166	3.10%	2,244	3.04%	103.60%
Net recognized gains on investments and derivatives	(362)	-0.52%	(200)	-0.27%	55.25%
Excess tax benefits from stock-based compensation	(17)	-0.02%	(93)	-0.13%	547.06%
Deferred income taxes	2	0.00%	954	1.29%	47,700%
Deferral of unearned revenue	31,227	44.65%	36,104	48.97%	115.62%
Recognition of unearned revenue	(28,935)	-41.37%	(33,347)	-45.23%	115.25%
Changes in operating assets and liabilities					
Accounts receivable	(1,451)	-2.07%	(1,156)	-1.57%	79.67%
Inventories	(561)	-0.80%	184	0.25%	-
Other current assets	(1,259)	-1.80%	493	0.67%	-
Other long-term assets	62	0.09%	(248)	-0.34%	-
Accounts payable	58	0.08%	(31)	-0.04%	-
Other current liabilities	(1,146)	-1.64%	410	0.56%	-
Other long-term liabilities	1,294	1.85%	174	0.24%	13.45%
Net cash from operations	26,994	38.59%	31,626	42.90%	117.16%
Financing activities					
Short-term debt repayments, maturities of 90 days or less, net	(186)	-0.27%	0	0.00%	0.00%
Proceeds from issuance of debt, maturities longer than 90 days	6,960	9.95%	0	0.00%	0.00%
Repayments of debt, maturities longer than 90 days	(814)	-1.16%	0	0.00%	0.00%
Common stock issued	2,422	3.46%	1,913	2.59%	78.98%
Common stock repurchased	(11,555)	-16.52%	(5,029)	-6.82%	43.52%
Common stock cash dividends paid	(5,180)	-7.41%	(6,385)	-8.66%	123.26%
Excess tax benefits from stock-based compensation	17	0.02%	93	0.13%	547.06%
Other	(40)	-0.06%	0	0.00%	0.00%
Net cash used in financing	(8,376)	-11.98%	(9,408)	-12.76%	112.32%
Investing activities					
Additions to property and equipment	(2,355)	-3.37%	(2,305)	-3.13%	97.88%
Acquisition of companies, net of cash acquired, and purchases of intangible and other assets	(71)	-0.10%	(10,112)	-13.72%	14,242%
Purchases of investments	(35,993)	-51.46%	(57,250)	-77.66%	159.06%
Maturities of investments	6,897	9.86%	15,575	21.13%	225.82%
Sales of investments	15,880	22.70%	29,700	40.29%	187.03%
Securities lending payable	1,026	1.47%	(394)	-0.53%	-
Net cash used in investing	(14,616)	-20.90%	(24,786)	-33.62%	169.58%
Effect of exchange rate changes on cash and cash equivalents	103	0.15%	(104)	-0.14%	-
Increase/(decrease) in cash and cash equivalents	4,105	5.87%	(2,672)	-3.62%	-
Cash and cash equivalents, end of period	9,610	13.74%	6,938	9.41%	72.20%

Source: Based on data from annual reports (all numbers are in millions USD)

Appendix 22. Supporting Data for Valuation Ratios

	Amazon	Apple	Facebook	Google	Microsoft
Price per share*	\$ 275.79	\$ 435.96	\$ 23.73	\$ 877.00	\$ 34.72
EPS	\$ -0.09	\$ 44.64	\$ 0.02	\$ 32.81	\$ 2.02
CF per share	\$ 9.21	\$ 54.22	\$ 0.80	\$ 50.79	\$ 3.77
Sales per share	\$ 34.57	\$ 166.85	\$ 2.54	\$ 153.34	\$ 8.78
Book value per share	\$ 12.42	\$ 120.31	\$ 5.17	\$ 164.13	\$ 7.35
Weighted average number of shares outstanding	454	938	2,006	327	8,396
Operating CF	\$ 4,180	\$ 50,856	\$ 1,612	\$ 16,619	\$ 31,626
Net income	\$ -39	\$ 41,733	\$ 53	\$ 10,737	\$ 16,978
Revenue	\$ 61,093	\$ 156,508	\$ 5,089	\$ 50,175	\$ 73,723
Book Value	\$ 5,640	\$ 112,851	\$ 10,367	\$ 53,705	\$ 61,673

Source: Based on data from annual reports (all numbers are in millions, except per share values)

* as of 13 June 2013

Appendix 23. Discounted Cash Flow for Amazon

Shares outstanding		455	
Discount rate		11.60%	
Long-term CF growth rate		4%	
Net debt		(5,000)	
FCF 2012		395	
Year		Projected FCF	Disc. FCF
1	2013 (E)	(2,500)	(2,240)
2	2014 (E)	1,300	1,044
3	2015 (E)	5,100	3,669
4	2016 (E)	7,300	4,706
5	2017 (E)	8,600	4,968
6	2018 (E)	9,900	5,124
7	2019 (E)	11,000	5,102
Sum of Disc. 6 years			17,271
Terminal year			144,737
Terminal value			114,388
Total intrinsic value			127,260
Intrinsic value of one share			\$ 279.54
Actual market price per share			\$ 277.55
Intrinsic/market value difference			101%

Source: Based on data from annual reports, Trefis.com and wikiwealth.com (all numbers are in millions, except per share values); as of 13 June 2013

Appendix 24. Discounted Cash Flow for Apple

Shares outstanding	939	
Discount rate	9.70%	
Long-term CF growth rate	3%	
Net debt	(10,746)	
FCF 2012	40,070	
Year	FCF	Disc. FCF
1 2013 (E)	43,900	39,337
2 2014 (E)	45,800	36,774
3 2015 (E)	44,000	31,656
4 2016 (E)	42,400	27,334
5 2017 (E)	40,700	23,511
6 2018 (E)	38,600	19,980
7 2019 (E)	37,000	17,161
Sum of Disc. 6 years		178,593
Terminal year		552,239
Terminal value		462,491
Total intrinsic value		641,084
Intrinsic value of one share		\$ 682.99
Actual market price per share		\$ 433.34
Intrinsic/market value difference		158%

Source: Based on data from annual reports, Trefis.com and wikiwealth.com (all numbers are in millions, except per share values); as of 13 June 2013

Appendix 25. Discounted Cash Flow for Facebook

Shares outstanding	2,420	
Discount rate	9.60%	
Long-term CF growth rate	3%	
Net debt	(28)	
FCF 2012	377	
Year	FCF	Disc. FCF
1 2013 (E)	1,200	1,075
2 2014 (E)	1,500	1,204
3 2015 (E)	2,400	1,727
4 2016 (E)	3,300	2,127
5 2017 (E)	4,100	2,368
6 2018 (E)	4,700	2,433
7 2019 (E)	5,400	2,505
Sum of Disc. 6 years		10,935
Terminal year		81,818
Terminal value		68,521
Total intrinsic value		79,457
Intrinsic value of one share		\$ 32.83
Actual market price per share		\$ 24.02
Intrinsic/market value difference		137%

Source: Based on data from annual reports, Trefis.com and wikiwealth.com (all numbers are in millions, except per share values); as of 13 June 2013

Appendix 26. Discounted Cash Flow for Google

Shares outstanding	332	
Discount rate	9.40%	
Long-term CF growth rate	4%	
Net debt	(7,568)	
FCF 2012	13,350	
Year	FCF	Disc. FCF
1 2013 (E)	13,500	12,097
2 2014 (E)	14,600	11,723
3 2015 (E)	14,700	10,576
4 2016 (E)	15,200	9,799
5 2017 (E)	16,200	9,358
6 2018 (E)	17,500	9,058
7 2019 (E)	19,300	8,952
Sum of Disc. 6 years		62,611
Terminal year		357,407
Terminal value		282,464
Total intrinsic value		345,076
Intrinsic value of one share		\$ 1,040.10
Actual market price per share		\$ 887.74
Intrinsic/market value difference		117%

Source: Based on data from annual reports, Trefis.com and wikiwealth.com (all numbers are in millions, except per share values); as of 13 June 2013

Appendix 27. Discounted Cash Flow for Microsoft

Shares outstanding	8,350	
Discount rate	9.20%	
Long-term CF growth rate	3%	
Net debt	5,006	
FCF 2012	22,940	
Year	FCF	Disc. FCF
1 2013 (E)	24,400	21,864
2 2014 (E)	20,500	16,460
3 2015 (E)	21,600	15,540
4 2016 (E)	22,000	14,183
5 2017 (E)	22,300	12,882
6 2018 (E)	22,800	11,802
7 2019 (E)	24,000	11,132
Sum of Disc. 6 years		92,731
Terminal year		387,097
Terminal value		324,187
Total intrinsic value		411,912
Intrinsic value of one share		\$ 49.33
Actual market price per share		\$ 34.97
Intrinsic/market value difference		141%

Source: Based on data from annual reports, Trefis.com and wikiwealth.com (all numbers are in millions, except per share values); as of 13 June 2013

Appendix 28. Technical Analysis for Amazon



Appendix 29. Technical Analysis for Apple



Appendix 30. Technical Analysis for Facebook



Appendix 31. Technical Analysis for Google



Appendix 32. Technical Analysis for Microsoft

