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Table of Contents

<i>List of figures</i>	<i>i</i>
<i>List of tables</i>	<i>ii</i>
<i>List of abbreviations</i>	<i>iii</i>
1. Introduction	1
2. Literature review	3
3. Smartphone industry	5
4. Acquisition rumor in detail	8
5. Overview of the companies involved in the possible acquisition	10
5.1. Overview of Samsung	10
5.2. Overview of BlackBerry	14
6. Potential reasons for acquisition	18
6.1. Financial reasons	18
6.2. Strategic reasons	20
7. Valuation of BlackBerry	23
7.1. DCF Valuation	23
7.1.1. Capital structure.....	23
7.1.2. Risk-free interest rate.....	24
7.1.3. Market risk premium	24
7.1.4. Beta	26
7.1.5. Weighted average cost of capital	27
7.1.6. Free cash flow	28
7.1.7. Terminal value	30
7.1.8. Value of the company	30
7.1.9. Equity value	31
7.1.10. Sensitivity analysis	31
7.2. Valuation using multiples	33

8. Analysis of results of potential acquisition	36
8.1. DCF valuation	36
8.2. Valuation using multiples	36
9. Conclusion	37
List of references	iv
Abstract (German)	ix
Abstract (English)	x

List of figures

Figure 1. Global smartphone market share by Operating System, 2008 – 2015.....	6
Figure 2. Percentage price change of BlackBerry's shares on 14th of January 2015	8
Figure 3. Samsung Electronics profit by segment (in trillion KRW), 2011-2014	11
Figure 4 Samsung's mobile operating profit as a percentage of overall profit (in trillion KRW), 2009 – Q1 2014.	12
Figure 5. Mobile revenues of Samsung Electronics before and after launch of iPhone 6 (in trillion KRW).....	13
Figure 6. Financial performance of Samsung (in trillion KRW), 2010-2015	14
Figure 7. BlackBerry's revenues by segment (in million USD), 2002-2014	15
Figure 8. BlackBerry vs. iPhone shipments (in million of units), June 2007 – September 2011 .	16
Figure 9. BlackBerry/RIM's revenue (in billion USD), 2004-2015	17

List of tables

Table 1. Worldwide smartphone sales to end users by vendor in 2014	5
Table 2. Worldwide smartphone sales to end users by Operating System in 2014.....	6
Table 3. Revenue growth of BlackBerry and its peers, 2013-2015.....	18
Table 4. EBIT margin of BlackBerry and its peers, 2013-2015	19
Table 5. ROA of BlackBerry and its peers, 2013-2015.....	19
Table 6. ROIC of BlackBerry and its peers, 2013-2015	20
Table 7. Historical returns and dividend yields, 1970-2015.....	25
Table 8. Free cash flow calculation for the years (in million USD), 2010-2014	28
Table 9. BlackBerry's forecasted free cash flow, 2015-2019	30
Table 10. Sensitivity analysis of DCF valuation of BlackBerry	32
Table 11. Valuation multiples of BlackBerry's peers	33
Table 12. Market value per BlackBerry's share using multiples	34
Table 13. BlackBerry's stock price range based on multiples	35

List of abbreviations

CAPM = Capital Asset Pricing Model

CE = Consumer Electronics

DCF = Discounted Cash Flows

D/E ratio = Debt-to-equity ratio

DS = Device Solutions

EBIT = Earnings Before Interest and Taxes

EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization

FCF = Free Cash Flows

IM = IT and Mobile Communications

M&A = Mergers and Acquisitions

OS = Operating System

RIM = Research In Motion

ROA = Return on assets

ROIC = Return on invested capital

S&P = Standard & Poor's

WACC = Weighted Average Cost of Capital

1. Introduction

In the fast developing business world, companies have to do their best to bring about quality and excellence in their industry. Growing effectively is the main goal of every company. The effective growth for companies can be achieved in two ways: internally and externally. The internal growth usually includes introduction and development of new products or enlargement of the capacity of already existing products. External growth can mean a merger with already an existing company or its acquisition. In nowadays globalized economy, Mergers and Acquisitions (M&A) are being more and more used all over the world as a way of obtaining a bigger asset base, for penetration into new markets, creating larger market shares, and increasing additional strength and expertise to be more competitive in the market.

The smartphone industry is considered to be one of the largest industries mainly due to latest technological growth which has led to an extremely dynamic environment in the last years (The Market mogul, 2017). The industry is highly concentrated so that the three biggest firms in that sector, together own more than 40% of the market (Hamilton et al, 2015). Under such conditions any significant business deal of the main market participants can lead to a power shift in the whole industry. News like mergers or acquisitions of a major market player can induce unpredictable market reactions, even if those news are nothing more than a rumor. That is exactly what happened in January 2015 when the Reuters news agency reported that Samsung is engaged in acquisition talk with BlackBerry (Reuters, 2015). Eventually no transaction took place; both companies refuted the rumors.

In this Master's thesis I am going to analyze the consequences that would arise if those news were actually true. The main goal is to examine a market rumor about BlackBerry's acquisition by Samsung, meaning to understand whether Samsung offered a fair price for Blackberry and how this transaction would impact the industry in general. In order to do such analysis, thorough strategic and financial research of both companies needs to be conducted, with accurate valuation of Blackberry as an acquired company. As there is no perfect model for valuation of a certain type of company, in my study I will apply two widely used techniques, namely Discounted Cash Flow (DCF) technique and multiples technique.

My Master's thesis I would like to begin with the review of the literature on M&A from the point of value creation, in general and in case of horizontal M&A, presenting already existing studies. Following to that, I will give a quick glance on the smartphone industry, including the meaning of

M&A in this industry with examples from the past. Later on, a rumor on the BlackBerry's acquisition itself will be described in more detail. Also, I will provide an overview on the potential acquirer and the target. Then, possible reasons for the acquisition will be presented. After that, I will evaluate BlackBerry applying DCF method and multiples. Finally, I will draw a conclusion based on the main goal of this thesis.

2. Literature review

Growth tends to be one of the benchmarks of success for business analysts and is required by investors. Even though growth is generally considered to be a significant factor of success for firms, scientists have argued about their relevance as not every growth strategy is effective or crucial in terms of value creation. Olsen & Chathoth (2007) claim that not all growth strategies add value that could cause an enhanced performance of a firm. Churchill & Lewis (1983) state that companies prefer growth strategies that suits them best in respect of market and competitors. The best way to growth differs in relation to the market and the type of business.

This thesis is focused on one of the growth strategy options, namely on M&A.

In accordance with the motives to merge or to acquire formulated previously, the implementation of M&A can be viewed as a well-considered decision, with expected benefits accumulating to the involved firms as an outcome. The results of Healy et al. (1992) confirm this intended outcome and prove positive effects on the efficiency of the merged firms. The hypothesis is also emphasized by Gugler et al. (2002), who draw a conclusion that mergers and acquisitions in general lead to significant profit increases for the combined firm. Nonetheless, there is a substantial body of research evidence provided by Andrade et al. (2001) and Haleblan et al. (2009), that indicates that mergers and acquisitions in fact have a poor record of positive results, where the main beneficiary is a seller of a business who gets a single-use gain from the premium paid by the acquirer. A considerable amount of research evidence presented by Ficery et al. (2007) and Homberg et al. (2009) shows that acquisitions generally result in poor outcome due to the fact that the expectation of synergies is rarely realized.

The effects of M&A can also be analyzed with regard to the firm's industry. This is important because M&A could affect firms differently in different industries. According to Andrade et al. (2001) and Kengelbach et al. (2011) most of M&A are horizontal, mixing companies within the same industry.

In the empirical literature two approaches have been implemented to study whether horizontal M&As create market power. The indirect approach of frequent occurrence in the finance literature analyzes the stock price reactions of merging companies, their rivals and suppliers to M&A announcements. Eckbo (1983) and Stillman (1983) conduct an event study, where efficient stock prices are supposed to correctly reflect the anticipated effects of horizontal mergers on prices. It

means that if horizontal M&As increase market power, competitors should also be affected. Nevertheless, they do not find any proof consistent with the creation of market power involving horizontal M&As. Also Eckbo (1985) and Eckbo et al. (1985) establish that horizontal M&As are good for reasons of efficiency and not for increased market power. Fee et al. (2004) and Shahrur (2005) study the stock price reactions of competitors, suppliers, and customers and also draw a conclusion that horizontal M&As are driven primarily by enhancements in production efficiencies. They find no evidence of improved selling power. The second, direct approach, commonly used in the industrial organization literature, concentrates directly on the effect horizontal M&As have on product prices. This approach is not relevant for the purpose of this thesis.

It consequently can be concluded that mergers and acquisitions do not necessarily result in better firm performance. M&As could negatively affect the merged firms or the entire industry.

There are no studies published which analyzed the mergers and acquisitions precisely in the smartphone industry.

There is also no scientific literature on the purchase of BlackBerry by Samsung, because it was a rumored buyout. The main source of the rumor is the report published by the international news agency Reuters (Reuters, 2015).

3. Smartphone industry

Samsung as well as BlackBerry are firms operating in the smartphone industry. The smartphone industry is one of the most dynamic industries in the world (Cecere et al., 2014). The market is developing rapidly with never-ceasing new technologies and innovation. The industry is highly concentrated; very few companies own market shares (Hamilton et al., 2015).

According to the market research firm Gartner, Inc., the size of the smartphone industry reached \$376 billion by 2015 (Gartner, Inc, 2016). As the buyout rumor was announced in January 2015, here and in the following chapters of the thesis, focus is mostly on the data of the year 2014.

Key market players according to worldwide sales at the end of 2014 are presented in Table 1.

Company	Units (ths)	Market Share (%)
Samsung	307 596,9	24
Apple	191 425,8	15
Lenovo*	81 415,8	6
Huawei	68 080,7	5
Xiaomi	56 529,3	4
Others	539 691,3	43
Total	1 244 739,8	100

Table 1. Worldwide smartphone sales to end users by vendor in 2014

Source: Gartner, Inc. 2015

*The results for Lenovo include sales of mobile phones by Lenovo and Motorola.

Samsung was the top smartphone producer of 2014. The South Korean company sold over 307 million units, claiming 24% share of the market. Apple came in second with 15% market share. Lenovo, Huawei and Xiaomi closed the top five with 6%, 5%, and 4% shares, respectively.

While talking about smartphones, it is impossible not to mention the Operating System (OS). Smartphone OS is the software platform with the help of which other programs can run on smartphones. Basically, *OS is the heart of smartphone software system (Lin et al., 2009)*. Segmentation of the market according to the OS is presented in Table 2 and Figure 1 shows the performance of different OS from 2008 to 2015.

Operating System	Units (ths)	Market Share (%)
Android	279 057,50	76
iOS	74 831,70	20
Windows	10 424,50	3
BlackBerry	1 733,90	0,5
Others	1 286,90	0,4
Total	367 334,40	100

Table 2. Worldwide smartphone sales to end users by Operating System in 2014

Source: Gartner, Inc. 2015.

Android secured the No.1 place in 2014 with over 70% share. Apple iOS is following with 20 % share. Windows was able to get only 3% of the market, while BlackBerry is struggling with the share of the market almost close to zero.

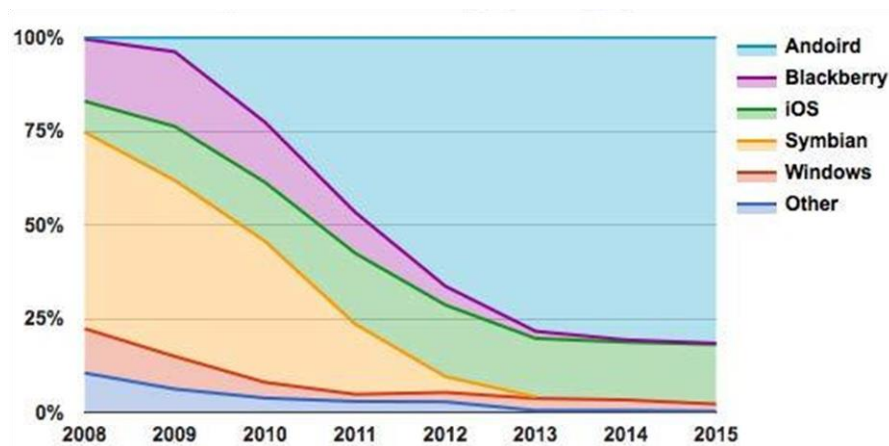


Figure 1. Global smartphone market share by Operating System, 2008 – 2015

Source: Han et al., 2016.

What also needs to be mentioned in the industry overview is the importance of patents. The connection between patent rights and the competitiveness of firms in the smartphone industry is crucial for understanding the dynamics of the smartphone market (Paik et al., 2016).

The smartphone industry today is characterized by so-called patent wars. Patent grants and patent lawsuits are rising dramatically. Every day brings a new lawsuit between main market participants (Carrier, 2012). In the meantime, large smartphone producers engaged in litigation have worked on expanding their patent portfolios in order to protect themselves and to attack their rivals (Siegler, 2011).

Mergers and acquisitions are common within the industry and can influence the dynamics of the market. In October 2014, Lenovo's Mobile Business Group completed the acquisition of Motorola

Mobility. The transaction positioned Lenovo as the world's third largest producer of smartphones, which brought new competition to the smartphone market (Lenovo, 2014).

M&A in smartphone industry can also happen between smartphone producer and a firm that owns software, applications, technology, etc. Thus, for example, Apple acquired Photography Software from SnappyLabs in 2014 and derived it into the iPhone's camera. In June 2014, Apple bought Social search engine from Spotsetter and applied it in its Maps application (Thomson Financial, 2014). All these acquisitions affected Apple's competitiveness in the market.

Even a rumor about M&A can significantly influence market players. That is what happened when the rumor about Samsung being interested in buying BlackBerry came to light. BlackBerry soared 30% in after-hours trading on the buyout rumor (Nasdaq Stock Market, 2015). Even though both sides denied the announced transaction, the rumor had entailed serious consequences.

4. Acquisition rumor in detail

According to the news published by Reuters on 14th of January 2015, Samsung approached BlackBerry for a potential acquisition worth for as much as \$7.5 billion. The initial price proposal was a range of \$13.35 to \$15.49 per share (Reuters, 2015). The Reuter's report is based on unidentified sources who affirmed Executives from both companies, were working with advisers, and met to talk over a possible buyout.

After the rumor announcement the value of BlackBerry call options soared, in some cases by several thousand percent (Ahmed, 2015). U.S.-listed shares increased by more than 30% the day the news broke. Percentage price change presented below in Figure 2.

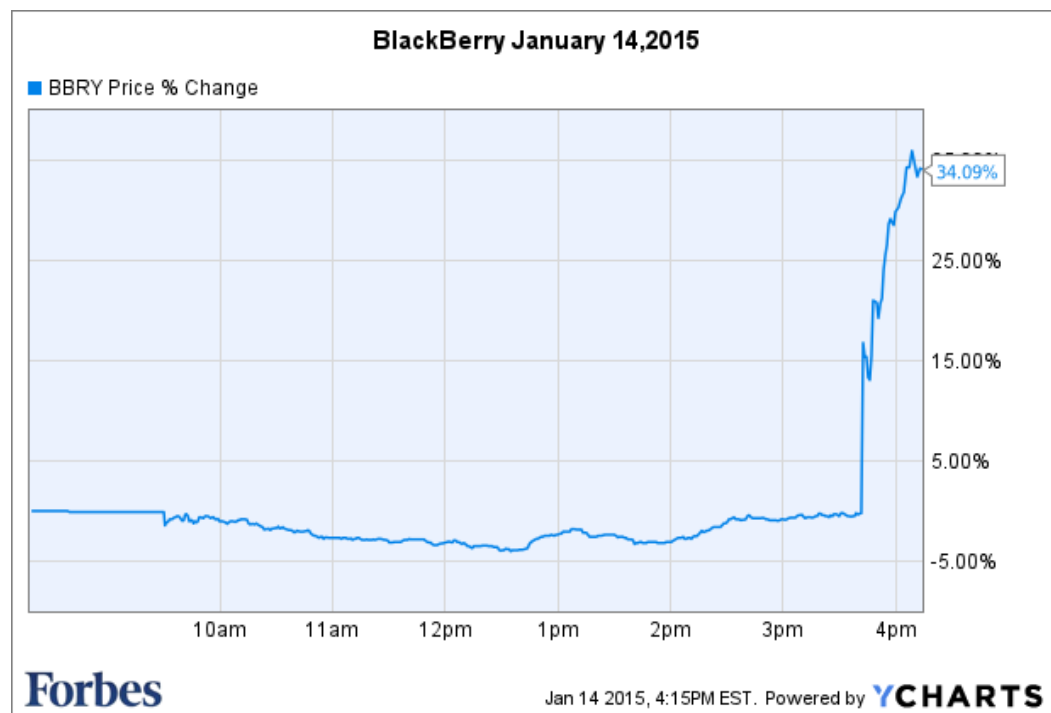


Figure 2. Percentage price change of BlackBerry's shares on 14th of January 2015.

Source: Forbes, 2015.

Later that day BlackBerry denied the fact of taking part in any discussions with Samsung about any possible acquisition. Samsung also announced that it had no plans to purchase Blackberry. After both these statements, shares of BlackBerry fell back about 15% (Alban et al., 2015).

According to Reuters, separately on 14th of January, Canadian newspaper Globe and Mail reported BlackBerry was avoiding takeover transactions in recent months, as its board believes offered price is much below BlackBerry's potential asset value in the future few years.

On 21st of January English Canadian business newspaper Financial Post reported that in spite of statements from both firms denying the news about acquisition, Samsung Electronics is actively considering a plan to take over a significant portion of BlackBerry. According to Financial Post there is a document, prepared by New York-based independent investment bank Evercore Partners Inc. in the last quarter of 2014 for Samsung that contains detailed scheme in more than 40 pages of possible takeover strategies (Brownell, 2015). Samsung and BlackBerry both declined to comment on that.

5. Overview of the companies involved in the possible acquisition

This chapter will present both companies announced to take part in the acquisition, namely, Samsung and BlackBerry. In order to understand the possible decision made about the acquisition, it is important to know the origin and development of both parties. Therefore, the significant events in the history of each company, their structure, competition environment and financial performance will be analyzed focusing on the period prior to the possible acquisition.

5.1. Overview of Samsung

Samsung Electronics Co. Ltd is a South Korean business giant operating in electronics industry with 159 subsidiaries all over the world. In 2014, the company was ranked No.7 among most valuable brands in the world according to Interbrand's 'Best 100 Global Brands 2014' report (Samsung History, 2017).

Samsung Electronics Co. Ltd was founded in 1969 as Samsung Electric Industry. Its first products were appliances including TVs, refrigerators, air conditioners and washing machines (Samsung History, 2017).

In 1988, the company launched its first mobile phone in the home market. At the beginning, quality of the product was poor, sales were low and by the early 1990s, Motorola owned a market share of more than 60% in the South Korean mobile phone market compared to only 10% for Samsung (Michell, 2010). Samsung needed new strategy. The production of under-selling product lines was stopped and instead the company started to invest in new technologies (BusinessWeek, 2009). Samsung had a series of technological major accomplishments, mostly in the field of memory that is necessary for most electrical products nowadays.

Samsung went public in June 2003. In 2007, Samsung Electronics advanced Motorola for the first time and was a second-largest mobile phone producer in the world (BusinessWeek, 2007). As a result of smartphone sales, Samsung gained record earnings in the third quarter of 2013. The operating profit was about 10.1 trillion won (US\$9.4 billion) (Bloomberg, 2013). Successful times did not last long, in the first quarter of 2015, because of the fierce smartphone competition Samsung's profit decreased by 39% to US\$4.35 billion (TechCrunch, 2015).

Although the smartphone production is the important part of Samsung business, the company has also other business segments.

Samsung supervises three independent divisions:

- Consumer Electronics (CE): TV, refrigerator, printer, medical devices, etc.
- Device Solutions (DS): LCD panel, mobile AP, LED, etc.
- IT and Mobile Communications (IM): smartphones, computer, digital camera, network system, etc. (Samsung Electronics Business Report, 2015).

In each division, Samsung has a product that is a world leader according to sales. The company earned No.1 global TV market share in 2014, gaining 28.3%. The brand also ranked as No.1 in the world mobile and smartphone markets. In 2014, Samsung became a leader in memory solution (Samsung Electronics Annual Report, 2014).

Figure 3 presents the changes of profit in respective segments of Samsung Electronics in the years 2011-2014. IT and Mobile Communications was the main profit contributor for a long time until in the third quarter of 2014 Device Solutions took the first place in the line.

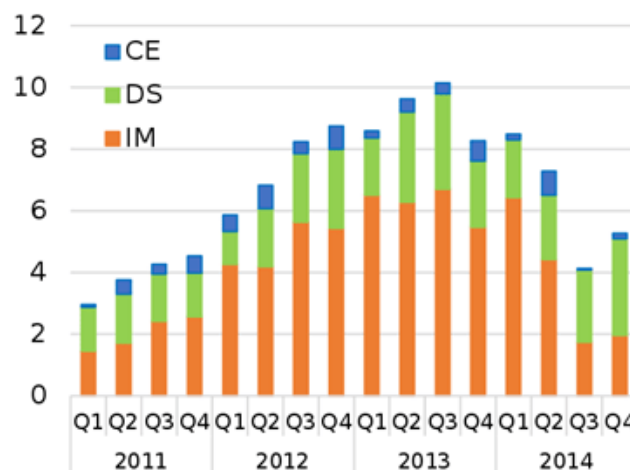


Figure 3. Samsung Electronics Profit by segment (in trillion KRW), 2011-2014

Source: BNL Finance, 2017.

However, for a long time Samsung's main source of profit was the mobile segment of IM division. On Figure 4, it is vividly demonstrated how Samsung smartphone operating profit as a percentage of overall operating profit increased for years. The problem here is that the company reposes trust on its smartphone segment too much for it to fail (Business insider, 2015).

Samsung uses Android owned by Google as the base operating system (OS) for its smartphone and tablet devices worldwide. Although, different smartphone producers use Google's Android OS, Samsung devices have the largest market share (IDC, 2015). Samsung and Google's relationship is based not only on a software. Companies also share ad revenue, patent co-licensing contracts and collaborations in the sphere of mobile security. Such partnership is beneficial for both sides (Investopedia, 2015).

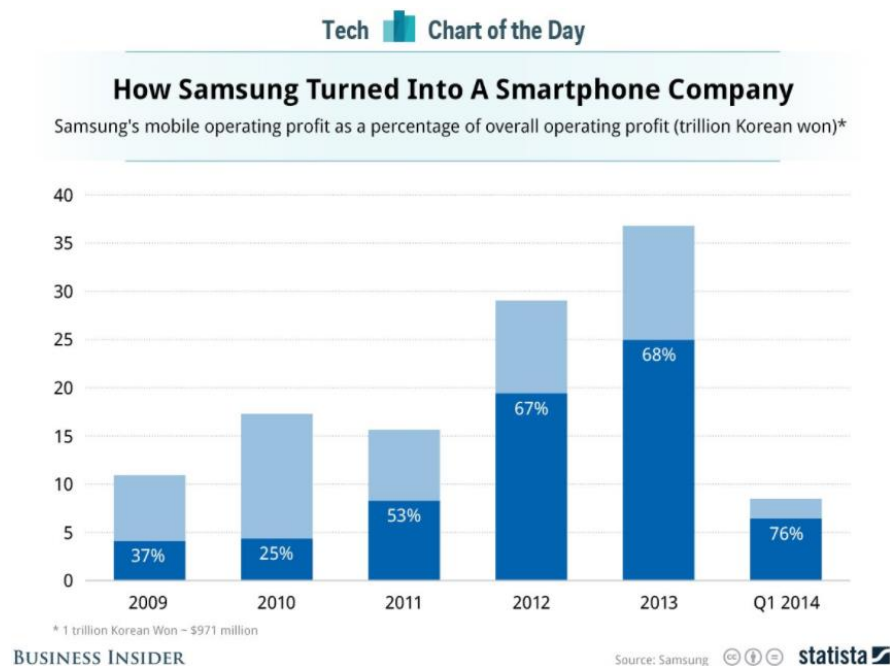


Figure 4. Samsung mobile operating profit as a percentage of overall profit (in trillion KRW), 2009 – Q1 2014.

Source: Business insider, 2015.

Despite of that, some analysts state that it is untrustworthy to rely on Android and not its own software. That is exactly the opposite to the strategy of Apple, which iPhones and iPads operate exclusively on its own iOS.

Apple is the main competitor of Samsung when it comes to smartphones. Exactly Apple's product iPhone 6 caused the loss of about 10 percentage points of Samsung smartphones market share in the fourth quarter of 2014. In 2014, Apple announced a launch of a new iPhone version without revealing the main features of the smartphone. It was expected to be of a new phablet size (a 3.5-inch screen). People postponed buying new Samsung smartphone models Note and Galaxy while they wanted to see what Apple would present. When iPhone 6 was launched, it worsened sales and

crushed Samsung (The Guardian, 2015). Figure 5 illustrates graphically the influence of iPhone 6 release on Samsung smartphones' revenues.

After a period of success Samsung started to lose ground within the market. According to industry insiders, the problem is that Samsung does not realize that smartphone devices themselves are not that important anymore, now the competition is about software, which the company does not own or control (Wired, 2014).

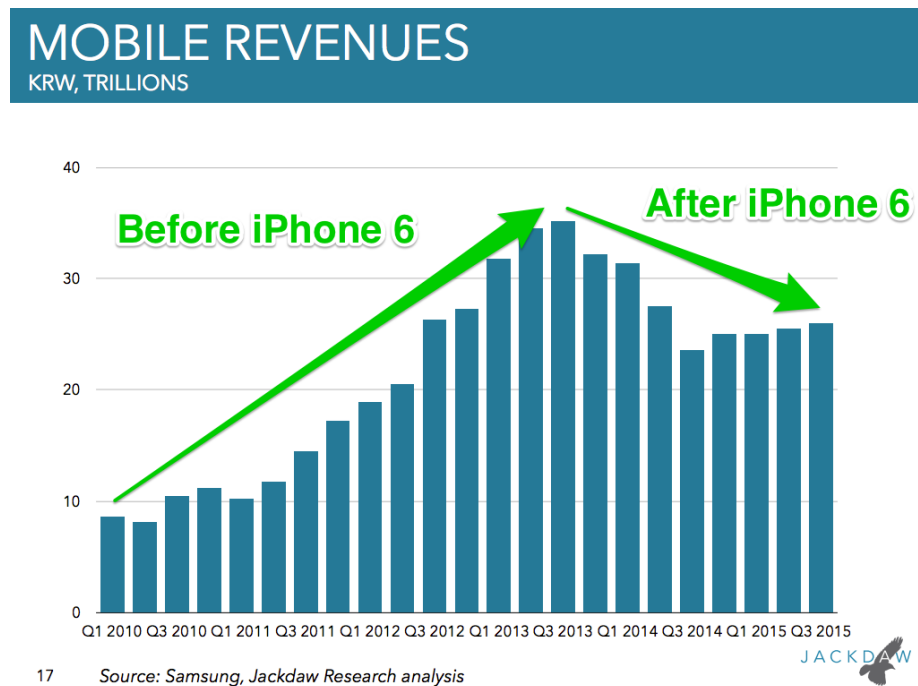


Figure 5. Mobile revenues of Samsung Electronics before and after launch of iPhone 6 (in trillion KRW).

Source: Business insider, 2015.

Through the Figure 6 below, we can see the big picture of entire company's financial performance in the years 2010 – 2015. The figure shows that a downturn in the smartphone segment in the year 2014 affected financial indicators of the whole company.

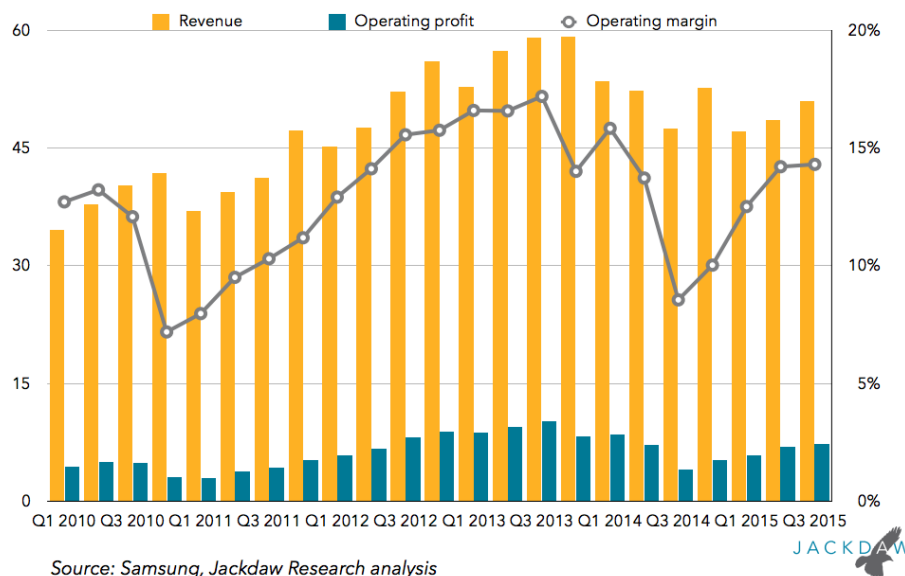


Figure 6. Financial performance of Samsung (in trillion KRW), 2010-2015

Source: Business insider, 2015.

5.2. Overview of BlackBerry

BlackBerry is a Canadian progressive cyber security software and services company devoted to securing the Internet of Things.¹ The company operates in North America, Europe, Asia, Australia, Middle East, Latin America and Africa (Blackberry, 2017).

Formerly called as Research In Motion (RIM), it was founded in 1984 by two engineering students. In 1988, RIM started wireless data technology development, often used by military and police services. The company launched the first two-way messaging pager in 1996. In January 1999, the BlackBerry OS came out and it was released specially for this pager. In February, RIM listed its shares on NASDAQ. Later that year, the company presented BlackBerry 850 Wireless Handheld, containing email, wireless data networks and a traditional “Qwerty” keyboard. It was not a true smartphone yet. It happened in 2003 with the launch of BlackBerry 7230.

RIM had a successful period from 2005 to 2010; the BlackBerry brand ruled the smartphone market in the U.S. The OS advanced gradually, adding media functions but staying focused on messaging. Then the touch screens and app stores knocked RIM down. The company was stuck with an operating system that had not been designed for touch. In 2007, after Apple revealed its

¹ The Internet of Things (IoT) - a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies. (ITU,2017)

first iPhone, RIM launches the BlackBerry competitor. This phone became an invention of the year according to Time magazine. RIM did not want to give up and in 2008 launched BlackBerry Storm, its first touchscreen and keyboard-less phone. RIM's report 2011 showed poor result in last two quarters, namely, a sharp drop in BlackBerry shipments. The year 2012 was not any better. In 2013, RIM decided to change its name to BlackBerry officially. The company called a committee to analyze strategic options, including also a sale of the company. Everything changed with the new CEO John S. Chen. (BlackBerry, Reuters, Telegraph, Global News and The Canadian Press).

BlackBerry operates in three segments:

- Software: software and services for enterprises;
- Mobility Solutions and Devices: BlackBerry-branded hand-held wireless devices;
- Service: operations related to subscribers using BlackBerry mobile devices or BlackBerry OS (Bloomberg, 2017).

Figure 7 presents the changes of revenues in respective segments of BlackBerry in the years 2002-2014. Mobility Solutions and Devices was the main profit contributor for a long time until in the first quarter of 2014 Service segment seized the lead.

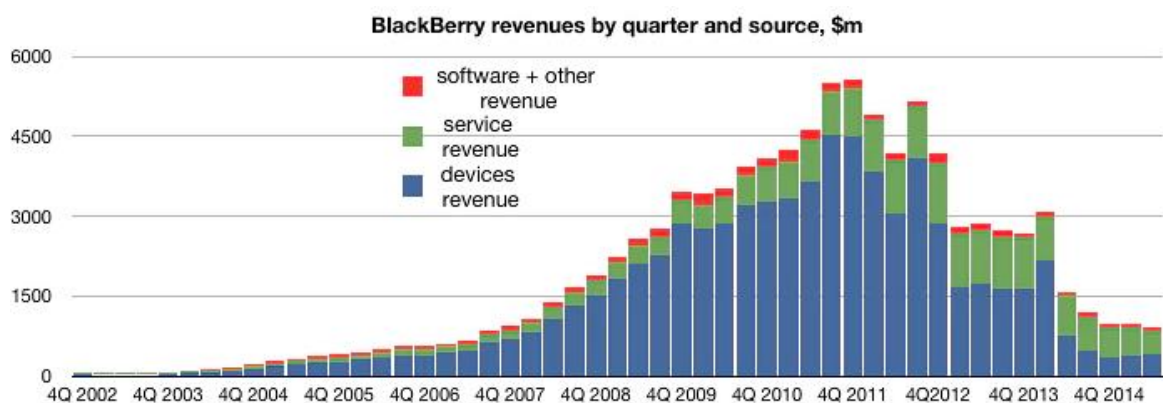


Figure 7. BlackBerry's revenues by segment (in million USD), 2002-2014

Source: The Guardian, 2014.

BlackBerry is widely known for its "Qwerty" keyboard cellphones that are the choice handset for business customers. Security and reliability were always its strong point. (Telegraph, 2016) However, since its main competitors Apple and Samsung introduced touchscreens, BlackBerry has been struggling to keep up. Besides competitors in the smartphone market, BlackBerry also has rivals in the market of operating system. The company has its own OS already since the year

1999. However, it cannot outrun its “younger” rivals, although BlackBerry offers a high degree of security. Data is completely encrypted, and applications functions can be limited.

In 2007, Apple presented the first iPhone as its first touchscreen device. The iOS was introduced as well. It caused the following increase of smartphone sales around the world. RIM’s share in the growing smartphone market started to wash out. In 2010, the Company introduced its new smartphone OS called BlackBerry10 along with first BlackBerry smartphone without a physical keyboard BlackBerry Z10. Nevertheless, it was considered as a late reaction to changing consumer preferences. On the Figure 8, it is clearly seen that in 2011 shipments of BlackBerry’s smartphone went down steadily, whereas its competitor’s numbers were growing.

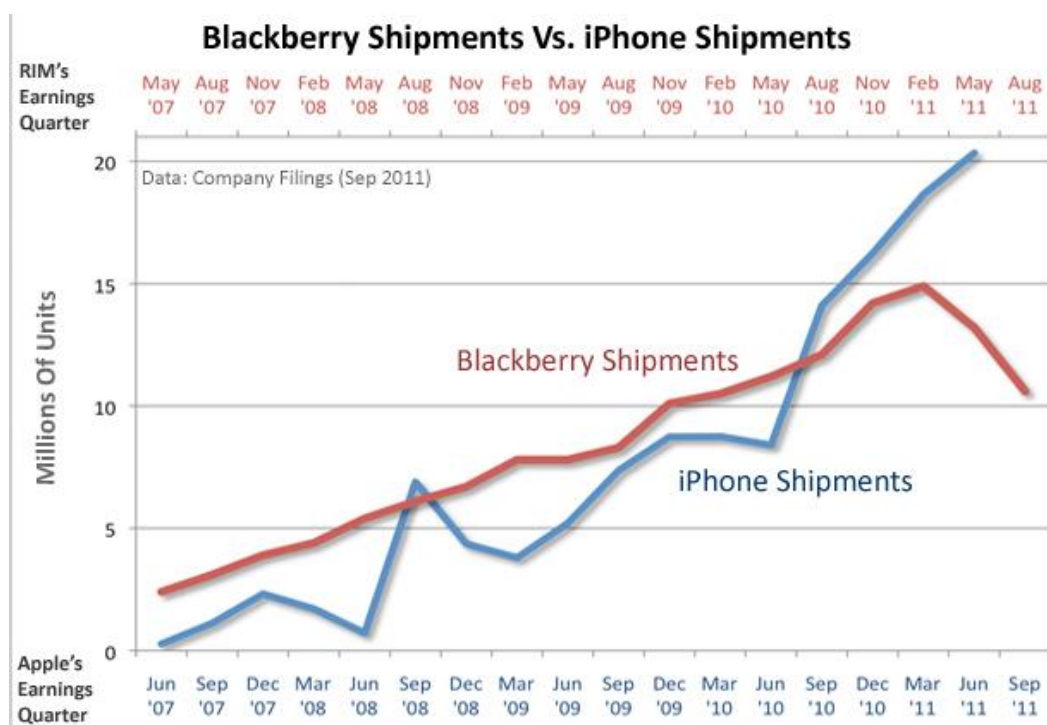


Figure 8. BlackBerry vs. iPhone shipments (in million of Units), June 2007 – September 2011

Source: Business Insider, 2011.

Figure 9 shows BlackBerry’s revenue in the years 2004 – 2015. We can see that the company was at its peak in 2010, but Google's Android software and Apple's iPhone containing millions of apps and full touchscreens, made it fall behind them (Telegraph, 2016).

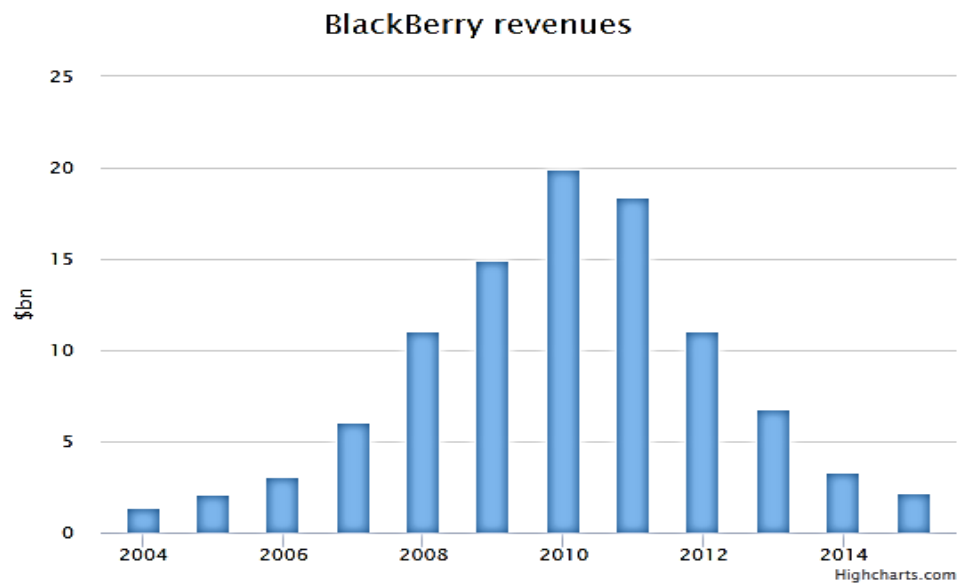


Figure 9. BlackBerry/RIM's revenue (in billion USD), 2004-2015

Source: Telegraph, 2016.

6. Possible reasons for potential acquisition

Every M&A decision-making foremost requires detailed analysis that includes assessment of pros and cons for every party involved in the process. In this chapter, possible reasons for potential acquisition will be performed from the financial and strategic point of view.

6.1. Financial reasons

The main emphasis in analyzing financial reasons for M&A is on the financial performance of the target company. The better financial indicators are the more attractive is the acquired company for a potential acquirer (Berk and DeMarzo, 2014).

The tables below illustrate different measures of financial performance for BlackBerry and its peers. Among peers are the companies operating in the same industry. First of all, Apple – the main rival of BlackBerry. Then, Samsung itself, as before the potential acquisition, it was considered as a strong competitor. Lenovo, also operating in smartphone industry, will be presented.

	2013	2014	2015
<i>BlackBerry</i>	-39,9%	-38,5%	-51,1%
Apple	9,2%	7,0%	27,9%
Samsung	13,7%	-9,8%	-2,7%
Lenovo	14,5%	14,3%	19,6%
Average	-0,6%	-6,8%	-1,6%

Table 3. Revenue growth of BlackBerry and its peers, 2013 - 2015

Source: data from Morningstar.com

The revenue growth was calculated using the historical data and the following formula:

Revenue growth = $\left(\frac{\text{Revenue}(t)}{\text{Revenue}(t-1)} - 1 \right)$. Last three years prior to the potential acquisition the target company experienced negative growth of revenue. The potential company acquirer also showed the negative numbers in 2014 and 2015. While the revenue of their competitors (Apple and Lenovo) was positive and increased through time.

	2013	2014	2015
<i>BlackBerry</i>	-11,2%	-105,1%	-12,7%
Apple	28,7	28,7%	30,5%
Samsung	16,1%	12,1%	13,2%
Lenovo	2,4%	2,7%	2,4%
Average	9,0%	-15,4%	8,4%

Table 4. EBIT margin of BlackBerry and its peers, 2013-2015

Source: data from Morningstar.com

The EBIT margin is the ratio of EBIT and sales of the firm. BlackBerry's EBIT margin was lower than the industry average all three years prior to the acquisition rumor. In 2014, it overcame the barrier of -100%. Based on that indicator it can be concluded that the company was not operating efficiently those years.

	2013	2014	2015
<i>BlackBerry</i>	-4,8%	-56,8%	-4,3%
Apple	19,3%	18,0%	20,5%
Samsung	15,1%	10,4%	7,9%
Lenovo	3,9%	4,6%	3,7%
Average	8,4%	-6,0%	7,0%

Table 5. ROA of BlackBerry and its peers, 2013-2015

Source: data from Morningstar.com

Return on assets (ROA) is computed as a ratio of net income and average total assets and presented in Table 5. The indicators of the year 2014 show that BlackBerry was especially unprofitable relative to its total assets; in 2015, the situation improved but remained a negative number. The ratio of Samsung decreased, but still stayed above industry average.

Table 6 shows the Return on invested capital (ROIC) of the chosen companies. This ratio is calculated as follows: $ROIC = \frac{EBIT(1-tax\ rate)}{Book\ Value\ of\ Equity + Net\ Debt}$. BlackBerry again shows negative results, meaning that the company does not use its assets properly to generate returns.

	2013	2014	2015
<i>BlackBerry</i>	-6,6%	-71,9%	-5,9%
Apple	25,8%	26,0%	31,0%
Samsung	20,0%	13,3%	9,8%
Lenovo	20,3%	24,5%	16,8%
Average	14,9%	-2,0%	13,0%

Table 6. ROIC of BlackBerry and its peers, 2013-2015

Source: data from Morningstar.com

Hereby, according to Berk and DeMarzo, BlackBerry cannot be considered as a proper target for acquisition from the financial point of view. As long as all financial indicators presented above mean poor performance of the company. However, BlackBerry itself needed change and an option of being acquired by the biggest smartphone supplier might be of an advantage. A close collaboration with Samsung could help the company return into the game.

6.2. Strategic reasons

As was concluded above, Samsung has no good financial reason to acquire BlackBerry. Why then would a smartphone company with declining market share be of any interest to the world biggest smartphone producer?

First, BlackBerry has its own mobile operating system called BlackBerry 10 (BB10). That is exactly what Samsung is missing, which is why its success in the smartphone market depends on Google's Android OS. Whereas, the company wants to have a full control over all aspects of its products, as its main competitor Apple does. Acquiring BlackBerry Samsung can get already existing and solidly performing operating system. Moreover, BB10 is built on QNX, a real-time OS designed for automobiles and the obvious leader in automotive software (QNX.com). With the help of this software platform, Samsung can enter new markets like in-car entertainment¹.

¹ In-car entertainment (ICE), or in-vehicle infotainment (IVI), is a collection of hardware and software in automobiles that provides audio or video entertainment. (Wikipedia)

Own OS can also help Samsung in fight with Xiaomi for emerging markets. Chinese company also uses Android OS and diversification through the own software can help Samsung in this competition.

Second, BlackBerry is a highly trusted brand in the corporate world. Mainly due to sound security features in spheres such as email, messaging and data management. Those are the main pillars of BlackBerry's secure enterprise network. Acquisition of BlackBerry may provide access to the enterprise market. Thereby, Samsung can diversify its profit from the retail and compete with Apple in this niche of the smartphone market.

Third possible reason to acquire BlackBerry is its massive patent portfolio. The portfolio consists of more than 44 000 patents covering a wide spectrum of applications (Reuters, 2015). Only 10% of Samsung's total amount of patents in 2014 was software-related patents and the majority was hardware-related. Whereas BlackBerry has wider range of patents, such as enterprise mobile management¹, OS and application software, message and communication, and network and device security (Cantechletter.com). It turns out that BlackBerry's patent collection may complement Samsung's patent library well.

As was mentioned before, patent wars in the wireless world became very severe last years. As for Samsung, the company has been engaged in countless amount of legal battles over patents with its main competitor Apple. Apple uses its own substantial patent portfolio to sue Samsung in the courts. Thereby, by acquiring BlackBerry the South Korean company would defend against its vexatious rivals.

Acquisition of BlackBerry might also have a managerial motive. John Chen was announced a chief executive officer of the company in late 2013, when the BlackBerry board was considering a possible scenario to sell the company. Chen is known for turning around failing companies and specifically for stabilizing BlackBerry in its hard times. Therefore, Samsung might need such a skilled manager for its mobile segment.

To sum up the financial and strategic reasons, a partnership of Samsung and BlackBerry would be mutually beneficial. With this acquisition, Samsung can compete on an equal footing with its main competitor Apple, by acquiring diversified portfolio of BlackBerry's patents and a sound software

¹ Enterprise Mobility Management (EMM) is the set of people, processes and technology focused on managing mobile devices, wireless networks, and other mobile computing services in a business context. (Wikipedia)

platform with access to the enterprise market. Whereas BlackBerry cannot return its share in the smartphone market without getting its software into more devices. Samsung can be a good option for the provision of hardware.

7. Valuation of BlackBerry

The following chapter is divided into two parts. The first one presents the valuation of BlackBerry as a standalone company using Discounted Cash Flow (DCF) model. The second one shows the calculation of multiples based on BlackBerry's peers.

7.1. DCF Valuation

“In discounted cash flow valuation, the value of a firm is the present value of the expected cash flows, discounted back at a rate that reflects the riskiness of these cash flows.” (Damodaran, 2011)

The basic concept of the DCF is the concept of the time value of money, which claims that money is worth more in the present than the same amount in the future. (Stein Fairhurst, 2017) In my thesis I will apply projections of future cash flows for BlackBerry and then discount this cash flow by the discount rate (in my thesis, weighted average cost of capital) to find what the company's worth today.

7.1.1 Capital structure

According to Berk and DeMarzo (2014), the firm's capital structure is a combination of debt, equity and other securities applied for financing its fixed assets. As at March 1, 2014, BlackBerry had the total debt equal to \$ 1.627 million consisted of the long-term debt and the current maturities of the long-term debt. The market value of equity was calculated using the following formula:

$$\text{Equity} = \text{Share price} \times \text{Number of shares outstanding}$$

The total number of BlackBerry's outstanding shares as at March 1, 2014 was 526.6 million (Annual report, 2015), while the closing price was \$10.38 (Finance Yahoo, 2014). It can be easily calculated that the total market value of BlackBerry's equity was worth $\$10.38 \times 526,552,000 = \$5,465,609,760$.

With the found above values of debt and equity the debt-to-equity ratio and debt-to-value ratios are equal to:

$$D/E = 1,627/5,466 \text{ million} = 30\%$$

$$D/V = 1,627 / (1,627+5,466) \text{ million} = 23 \%$$

$$E/V = 100\% - 23\% = 77\%$$

As I will use weighted average cost of capital (WACC) later as a discount rate for future cash flows, it is important to remember that WACC calculation does not take into account a dynamic capital structure; therefore, a debt-to-equity ratio assumed to be constant and should be adjusted to the level of its peers in the industry. Thus, the new debt-to-equity ratio will be used for BlackBerry, based on its peers from the smartphone industry (Samsung, Apple and Lenovo). The average capital structure of the firms in the industry accounts for D/E ratio of 14%, indicating D/V ratio of 12% and E/V ratio of 88%. BlackBerry's debt-to-equity as well as debt-to-value ratios are higher comparing to its peers. For further valuation, I will assume the ratio of the industry as 14% and constant.

7.1.2. Risk-free interest rate

Risk-free interest rate of a chosen period is a rate at which the borrowing is riskless in the period. In practice, however, the risk-free interest rate does not exist. Therefore, the geometric average of historical returns of 10-year US Treasury Bonds will be used as a proxy (Damodaran, 2016). For years 1928-2015 the geometric average taken from Damodaran's excel spreadsheet is 4,96%.

7.1.3. Market risk premium

For further calculations, the market risk premium will be necessary. This measure is computed as the difference of the expected return of the market portfolio and the risk-free interest rate (Berk and DeMarzo, 2014):

$$\text{Market risk premium} = E[R_{Mkt}] - r_f.$$

Expected return of the market portfolio will be calculated as the average of the Standard & Poor's (S&P) 500's return with the dividend yield for the years 1970-2015 (Berk and DeMarzo, 2014).

Year	Earnings Yield	Dividend Yield
1970	5,98%	3,46%
1971	5,46%	3,10%
1972	5,23%	2,70%
1973	8,16%	3,70%
1974	13,64%	5,43%
1975	8,55%	4,14%
1976	9,07%	3,93%
1977	11,43%	5,11%
1978	12,11%	5,39%
1979	13,48%	5,53%
1980	11,04%	4,74%
1981	12,39%	5,57%
1982	9,83%	4,93%
1983	8,06%	4,32%
1984	10,07%	4,68%
1985	7,42%	3,88%
1986	5,96%	3,38%
1987	6,49%	3,71%
1988	8,20%	3,68%
1989	6,80%	3,32%
1990	6,58%	3,74%
1991	4,58%	3,11%
1992	4,16%	2,90%
1993	4,25%	2,72%
1994	5,89%	2,91%
1995	5,74%	2,30%
1996	4,83%	2,01%
1997	4,08%	1,60%
1998	3,11%	1,32%
1999	3,07%	1,14%
2000	3,94%	1,23%
2001	3,85%	1,37%
2002	5,23%	1,83%
2003	4,87%	1,61%
2004	5,58%	1,60%
2005	5,47%	1,79%
2006	6,18%	1,77%
2007	5,62%	1,89%
2008	7,24%	3,11%
2009	5,35%	2,00%
2010	6,65%	1,84%
2011	7,72%	2,07%
2012	7,18%	2,13%
2013	5,81%	1,96%
2014	5,49%	1,92%

2015	5,20%	2,11%
Average	6,89%	3,01%

Table 7. Historical returns and dividend yields, 1970-2015

Source: Damodaran, 2016

The numbers reported above account for the following values of the market portfolio's expected return and market risk premium:

$$E[R_{Mkt}] = 6,89\% + 3,01\% = 9,90\%$$

$$\text{Market risk premium} = E[R_{Mkt}] - r_f = 9,90\% - 4,96\% = 4,94\%$$

7.1.4. Beta

“The beta of a security is the expected percentage change in its return given a 1% change in the return of the market portfolio.” (Berk and DeMarzo, 2014) BlackBerry's levered beta is equal to 0,77 (<1), meaning that the company's stock is less volatile than the market (Yahoo!Finance). Nevertheless, as it was assumed before, the capital structure of BlackBerry will be adjusted to the average capital structure in the industry, that means beta has to be unlevered and the re-levered accordingly. The unlevered beta (β_u) is calculated as the weighted average of its equity beta and debt beta:

$$\beta_u = \frac{E}{E+D} \beta_E + \frac{D}{E+D} \beta_D$$

It is common practice to assume the debt beta is zero (debt is riskless). Such simplification should not significantly influence the calculation, while β_D is, as a rule, very small compared to β_E (Damodaran, 2015). Thus, the unlevered beta under this assumption can be calculated as follows:

$$\beta_u = \frac{E}{E+D} \beta_E = 77\% \times 0,77 = 0,59$$

Thereafter, in order to re-lever beta, the new debt-to-equity ratio of 14% will be used:

$$\beta_E = \beta_u + \frac{D}{E}(\beta_u - \beta_D) = 0,59 + 14\% \times (0,59 - 0) = 0,65$$

7.1.5. Weighted average cost of capital

WACC shows the average cost of equity and debt that firm uses for its financing (Berk and DeMarzo, 2014). In order to calculate the BlackBerry's value in this thesis, WACC is used as the risk-adjusted discount rate for the future free cash flows (FCF) and is calculated as follows:

$$WACC = \frac{E}{E+D} r_E + \frac{D}{E+D} r_D (1-\tau_C)$$

The cost of equity (r_E) shows the return to a firm's stock that shareholders expect to receive from their investment for bearing the risk (Heller, 2010). Capital asset pricing model (CAPM) is used to calculate the cost of equity:

$$r_E = r_f + \beta_E \times (E[R_{Mkt}] - r_f)$$

Risk-free rate (r_f), market risk premium ($E[R_{Mkt}] - r_f$) and re-levered beta (β_E) were calculated before, therefore the cost of equity of BlackBerry can be computed and is equal to:

$$r_E = r_f + \beta_E \times (E[R_{Mkt}] - r_f) = 4,96\% + 0,65 \times 4,94\% = 8,17\%$$

The cost of debt (r_D) is the return that a firm provides to its debtholders on their investment. As BlackBerry had only the long-term debt in 2014, the interest rate is considered as a cost of debt and is equal to 6% (Annual report BlackBerry, 2015). As shareholders bear higher risk than debtholders, cost of equity should be higher than cost of debt (Gaughan, 2007).

The last indicator that is necessary for the WACC calculation is the tax rate. Annual report from the year 2014 states that the tax rate of BlackBerry that year was 26,6%.

As the cost of equity, the cost of debt and the capital structure of BlackBerry are known, weighted average cost of capital can be calculated:

$$WACC = 88\% \times 8,17\% + 12\% \times 6\% (1 - 26,6\%) = 7,7\%$$

7.1.6. Free cash flow

Next step is the calculation of the future free cash flow that will be then discounted by WACC in order to compute the value of the company:

$$FCF = EBIT (1 - \tau_C) + Depreciation - Capital Expenditures - Change in Working Capital$$

Table 8 presents the necessary data for BlackBerry in the years 2010-2014, five years before the potential acquisition. Last two years the company did not generate free cash flow, moreover the percentage of FCF was decreasing.

As BlackBerry is a solid company with a brand recognition, forecast period for future cash flow is set as 5 years.

	2010	2011	2012	2013	2014
EBIT	3 238	4 636	1 497	-1 235	-7 163
Depreciation	616	927	1 523	1918	1 270
Capital expenditures	791	957	1 386	1 434	1 135
Change in working capital	682	477	-191	314	-1 192
Tax rate	33%	31%	28%	27%	27%
FCF	1 319	2 715	1 406	-736	-3 931
% FCF increase	-	106%	-48%	-152%	-434%

Table 8. Free cash flow calculation (in million USD), 2010-2014

Source: BlackBerry's annual reports

To continue the calculation of the free cash flow of BlackBerry as a standalone company for the years 2015-2019, certain assumptions need to be made about each parameter from the formula above.

In order to determine the expected growth of EBIT, the firm's fundamentals can be taken into account and the following formula can be used (Damodaran):

$$\text{Expected EBIT growth} = \text{Reinvestment rate} \times \text{Return on capital},$$

where
$$\text{Reinvestment rate} = \frac{\text{Capital expenditure} - \text{Depreciation} - \text{Change in working capital}}{\text{EBIT} (1 - \text{tax rate})}$$

Calculated expected growth of EBIT based on the data of the year 2014 is negative and equal to 18%. I decided not to take into account this number, as the results of the year 2014 are not expected to occur again. The year 2014 was exceptional for the company. BlackBerry's CEO John Chen changed a company's main focus from the smartphone production towards its other strong areas, security and software. According to the forecast of analysts, the company should recover quite quickly. (IKnowFirst Daily Market Forecast, 2015).

Second possible option is to assume the future EBIT growth rate equal to the expected EBIT growth of the industry in 2015, which is 7,13% (according to Aswath Damodaran). As BlackBerry is a mature company, such growth rate may be considered as a bit too optimistic. Nevertheless, in this particular case I expect a considerable growth in EBIT in 2015 compared to the previous year. As BlackBerry plans diversification in its fields of business, this should allow the firm to increase its market share and its stock price to rise during next years. From the year 2016, I assume the growth rate after a significant breakthrough to be positive, but still less than the industry ratio. To be conservative, I decided to use historical EBIT growth as the basis for future projections. Into account were taken five previous years before the year 2014. As a result, the EBIT growth used for further calculations is equal to 3%.

Tax rate for the estimation period is equal to 29% and calculated as the arithmetic average of the historical tax rates of the last five years as it did not vary significantly.

In order to determine the growth of depreciation and capital expenditures in next five years, the same approach as for tax rate will be implemented, the average historical annual growth will be taken into consideration. Such decision is justified by the assumption that in future five years BlackBerry will not acquire any significant fixed assets. Therefore, depreciation's growth will reach 27% and the growth rate of capital expenditures will be 12%.

The change in working capital shows annual use of cash by a company. It is, as a rule, volatile from year to year (Damodaran). Hence, to predict its growth I will bind the changes in working capital to expected changes in revenues. In order to estimate future revenues, I will use the analyst sales estimates for the next 5 years (CNN money). As a result, the working capital will be obtained as a percentage of revenues and will amount as the arithmetic average of the historical percentage in 28%.

Free cash flow for the years 2015-2019 is concluded in the Table 9.

	2015	2016	2017	2018	2019
EBIT	-2 420	-2 347	-2 277	-2 209	-2 142
Depreciation	1 613	2 048	2 601	3 304	4 196
Capital expenditures	1 271	1 424	1 595	1 786	2 000
Changes in working capital	-1 863	-326	-236	-103	-8
Tax rate	29%	29%	29%	29%	29%
FCF	487	-716	-4 374	52	683

Table 9. BlackBerry's forecasted free cash flow, 2015-2019

Source: own calculations based on BlackBerry's annual reports

7.1.7. Terminal value

Since it is impossible to calculate cash flow forever, therefore, the time in the future when these calculations stop is called terminal value (V_N) and it reflects the value of a firm at that point in time (Damodaran). There are several methods to estimate a terminal value, I chose the method of stable growth model. The following formula shows the way of calculation:

$$V_N = \frac{FCF_{N+1}}{WACC - g_{FCF}} = \frac{FCF_N \times (1 + g_{FCF})}{WACC - g_{FCF}},$$

where g_{FCF} is the stable growth rate of the cash flow that company reaches on the year N. As a stable growth cannot be higher than the growth rate of the economy (Damodaran), so it should be less than the risk free rate of 4,96%. For my thesis, I set the growth rate to be 1%.

$$V_5 = \frac{683 \times (1 + 1\%)}{7,7\% - 1\%} = \$10\,296 \text{ million}$$

7.1.8. Value of the company

Now as each parameter is known, the value of the company can be calculated. The forecasted free cash flow and the terminal value of the company are discounted by WACC:

$$\text{Value of a firm} = \sum_{t=1}^{t=n} \frac{FCF_t}{(1+WACC)^t} + \frac{V_N}{(1+WACC)^n} = \$7\,105 \text{ million}$$

Potential offer of Samsung was higher than the calculated value of the firm, thereby Samsung offered fair price for BlackBerry with ca. 5% premium included.

7.1.9. Equity value

To calculate the equity value per share the following calculations should be done:

$$\text{Equity value per share} = \frac{\text{Enterprise value} - (\text{Debt} - \text{Cash})}{\text{Number of shares outstanding}} = \frac{7\,105 - (1\,627 - 1\,579)}{526,6} = \$13,4$$

BlackBerry's stock was trading at \$10,4 in March 2014, the date of valuation. It means that the company was undervalued.

7.1.10. Sensitivity analysis

Before making a conclusion, it is important to estimate the uncertainty of the calculations above and to compute their potential impact on the value of the company (Berk & DeMarzo). Therefore the sensitivity analysis is introduced to check how the value of BlackBerry varies if the key assumptions are changed.

First significant parameter is the EBIT growth rate of the company, which in the primary version I assumed to be less than the expected EBIT growth of the industry according to Aswath Damodaran and equal to 3%. The Damodaran's version of the growth rate equal to 7,13% will be analyzed together the calculated EBIT growth based on fundamentals and equal to -18%.

The second parameter to be analyzed is the debt-to-equity ratio (D/E) of the firm. The assumed ratio adjusted to the peers and equal to 14%. For more precise sensitivity analysis, the ratio in case of no adjustment will be considered, which is 30%. The D/E ratio of 23,2% reported by Aswath Damodaran as an average value for the industry is also examined.

The results of the sensitivity analysis are presented in Table 10.

				EBIT growth rate		
				-18%	3%	7,1%
D/E ratio	14%	WACC	7,7%	-	\$13,4	\$19,2
	23,2%		7,5%	-	\$14,0	\$19,9
	30%		7,3%	-	\$14,6	\$20,6

Table 10. Sensitivity analysis of DCF valuation of BlackBerry

Source: own calculations. Negative values are omitted.

Sensitivity analysis demonstrated above shows that the variation in EBIT growth rate has impact that is more significant on the share price of BlackBerry than the change in debt-to-equity ratio.

7.2. Valuation using multiples

In the following chapter, the valuation using multiples will be presented. This method can help to improve free cash flow forecast and test the plausibility of the DCF valuation.

In this method, there is no direct valuation of company's cash flow. There is rather an estimation of the firm value based on the value of other firms that are similar. However, existing differences in scale between companies need adjustment. Therefore, the companies value is defined through valuation multiples (Berk & DeMarzo). In my thesis to value BlackBerry I need to compare the company's valuation multiples to those of comparable companies in the same industry.

Valuation multiples usually are a ratio of a valuation metric to a financial performance metric. In this thesis, valuation multiples will be the following: Price / Book ratio (Equity multiple)

- Enterprise Value / Sales ratio (Revenue multiple)
- Price / Sales ratio (Revenue multiple)

Due to negative earnings of BlackBerry in last two years, in my thesis often used earnings multiples are replaced with the revenue multiples, so the final share price is a positive number (A. Damodaran). In addition, it is impossible to use transaction multiples because of absence of companies among BlackBerry's peers being target companies in acquisition transactions.

First step is to determine a peer group for BlackBerry. The peer group is the same as was used previously for determination of BlackBerry's capital structure in the DCF valuation. Namely, Samsung, Apple and Lenovo. Furthermore, the industry multiples will be taken into account, based on the calculations of Aswath Damodaran.

Second, the multiples for each comparable firm operating in the same industry should be calculated. The summarized results are presented in Table 11.

Multiple	Industry	Samsung	Apple	Lenovo	Mean
<i>Price / Book</i>	3,2x	1,0x	4,9x	3,8x	3,2x
<i>Enterprise Value / Sales</i>	3,5x	0,5x	3,2x	0,1x	1,8x
<i>Price / Sales</i>	3,1x	0,9x	2,6x	0,2x	1,7x

Table 11: Valuation multiples of BlackBerry's peers

Source: own calculations based on the annual reports of each company, Damodaran's data set and data from <http://www.morningstar.com>

The price-book ratio is equal to:

$$\text{Price / Book ratio} = \frac{\text{Market Value of Equity}}{\text{Book Value of Equity}}$$

The multiple based on firm's enterprise value is calculated as following:

$$\text{Enterprise Value} = \text{Market Value of Equity} + \text{Debt} - \text{Cash}$$

The final step is to multiply the estimated multiples with the corresponding values of BlackBerry. In order to calculate the firm's value per share using the price-book ratio, BlackBerry's current book value per share should be multiplied by the average ratio of the peers.

$$\text{Price / Book ratio} \times \text{Book Value per Share of BlackBerry} = \text{Market Value per Share}$$

To calculate the firm's value per share using the price-to-sales ratio, BlackBerry's current value of sales should be multiplied by the average ratio of the peers.

$$\text{Price / Sales ratio} \times \text{Sales of BlackBerry} = \text{Market Value per Share}$$

In case of the equity multiple, calculation of a market value per share has more steps:

- 1) $\text{Enterprise Value} / \text{Sales} \times \text{Sales of BlackBerry} = \text{Enterprise Value}$
- 2) $\text{Enterprise Value} - \text{Net Debt of BlackBerry} = \text{Market Capitalization}$
- 3) $\text{Market Capitalization} / \text{Shares Outstanding of BlackBerry} = \text{Market Value per Share}$

The market value per share with each multiple varies. Table 12 shows the exact numbers:

Multiple	Value per Share
<i>Price / Sales</i>	13,2
<i>Enterprise Value / Sales</i>	13,8
<i>Price / Book</i>	20,3

Table 12. Market value per BlackBerry's share using multiples

Source: own calculations based on the annual reports of each company and data from <http://www.morningstar.com>

According to the revenue multiples, BlackBerry's price per share is approximately in line with the one calculated using the DCF method. In accordance with price-to-book multiple, BlackBerry's price per share is undervalued.

The range of BlackBerry's stock price and enterprise value is presented in the Table 13.

	Minimum	Average	Maximum
Enterprise Value in bln \$	6,9	7,3	10,7
Stock price in \$ per share	13,2	13,8	20,3

Table 13. BlackBerry's stock price range based on multiples

Source: own calculations based on the annual reports of each company

To sum up, the valuation using multiples indicated that the enterprise value of BlackBerry as a standalone firm based on comparable firms should vary from \$6,9 bln to \$ 10,7 bln. According to this method of valuation, the price offered by Samsung for BlackBerry was fair as it lays in the estimated range.

8. Limitations of the valuation models

8.1. Valuation using multiples

If peers from the same industry used for the multiples valuation were identical, their multiples would match precisely. Certainly, in real world firms are not identical. Therefore, the utility of this valuation method depends on the character of the differences between the companies and multiples' sensitivity to these differences. The differences between multiples can be explained by different expected growth or decline of compared firms, their profitability and risk. There is no certain manual about possible adjustments to these differences. That means the main disadvantage of this method is the ignorance of substantial distinctions between firms (Berk & DeMarzo, 2011).

Valuation using multiples also neglects the future time therefore it is static. Only firm's position in a certain period of time is taken into consideration. Thus, it fails to include the potential firm's growth or any other possible changes in future.

8.2. DCF valuation

The main limitation of DCF method is the difficulty to predict future cash flows of a firm. Such forecasts can be unrealistic if projections are not done properly.

Operating cash flow projections can cause problems with the valuation. Cash flows are uncertain, this uncertainty increases each year of the forecast - for the DCF method, the projections for five, and more years are commonly used. The preciseness of the projections decreases quickly each year. The situation is aggravated by the fact that every cash flow projection depends on results of the previous years. That means wrong assumptions for the first year can cause wrong results in the later years. The same situation with the capital expenditures projections.

The most controversial assumptions of the DCF model are growth rate and discount rate assumptions. There are various options to calculate the discount rate, using Capital Asset Price Model or Weighted Average Cost of Capital. Both options are rather theoretical and may not be applicable in real world. The growth rate assumptions are done on the perpetual basis, thus it also is rather theoretical.

To sum up, both methods have their limitations. Errors in estimating the future cash flows with DCF model lead to incorrect firm's valuation, multiples valuation comes with the blind spots and

biases. In the other words, the quality and utility of valuation depends on many factors, mainly on the assumptions of a valuator. That is different analysts can estimate the same firm using the same model but get a different result in the end.

9. Conclusion

The focus of this thesis was on the rumored acquisition of the important player in the smartphone market, BlackBerry by a biggest smartphone producer in the world, Samsung.

The analysis of BlackBerry's financial performance relative to its peers several years prior to the rumored acquisition showed that the firm is far away from being a model of a target company. Therefore, from the financial point of view the transaction did not make any sense for the potential acquirer. However, the detailed consideration of possible strategic reasons proved that BlackBerry is a perfect acquisition target specifically for Samsung. The Canadian firm's sound software platform with access to the new markets, as well as the diversified portfolio of patents are the missing components for the South Korean smartphone giant to become a hard-to-conquer leader of the industry.

The valuation of BlackBerry using the method of Discounted Cash Flow showed that the rumored price offered by Samsung was higher than the real value of the firm and thereby included 5% premium. The trading price of BlackBerry's stocks at the time of valuation was lower than the estimated price that tells us about undervaluation of the company.

The valuation of the potential acquisition target using the method of multiples determined the interval within which the enterprise value of BlackBerry can vary and the potential purchase price offered by Samsung was within this interval.

In my opinion, the possible buyout of BlackBerry by Samsung could be beneficial for both sides. By the time of potential acquisition, BlackBerry's earnings were fallen catastrophically and the company delivered less value to its investors year after year. Furthermore, according to the earlier calculated enterprise value, Samsung offered a fair price for BlackBerry. For Samsung the purchase of BlackBerry could be beneficial in the competition with its main rival Apple. Since the smartphone industry is high concentrated, any significant business deal of the main market participants can lead to a power shift in the whole industry. This transaction in particular could make Samsung indisputable leader in the industry. Missing components to desired victory are the own operating system and the diversified portfolio of patents, which BlackBerry can certainly offer.

Despite the above-mentioned reasons, the acquisition never took place. Both sides denied the rumor. However, it did not stay unnoticed. The investigation by regulatory bodies in Canada and US has been undertaken about the theory that the acquisition rumor was an attempt to increase the BlackBerry's stock price in order to make money in the process (The Wall Street Journal, 2015). In any case, this intention is very difficult to prove and we will hardly ever know the truth behind it.

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Abstract (German)

Die Masterarbeit präsentiert eine detaillierte Analyse des möglichen Erwerbs des wichtigen Players im Smartphone-Markt, BlackBerry und des größten Smartphone-Herstellers der Welt, Samsung. Im Jahr 2015 berichtete Reuters Nachrichtenagentur, dass Samsung mit BlackBerry für eine potenzielle Übernahme im Wert von bis zu \$ 7,5 Milliarden angesprochen. Neben der Beschreibung der Smartphone-Industrie sowie beider Unternehmen wird in diesem Papier auch eine Zusammenfassung der strategischen und finanziellen Gründe für die mögliche Transaktion vorgestellt. Laut der Bewertung von BlackBerry mit der Methode Discounted Cash Flow und der Methode der Multiples, war der gemunkelte Preis von Samsung fair. Darüber hinaus könnte diese Übernahme Samsung unangefochtener Marktführer in der Branche machen. Diese Transaktion fand jedoch nie statt und wir können nur mögliche Konsequenzen erraten.

Abstract (English)

The Master's thesis presents a detailed analysis of the potential acquisition of the important player in the smartphone market BlackBerry by the biggest smartphone producer in the world Samsung. In 2015, Reuters news agency reported that Samsung approached BlackBerry for a potential acquisition worth for as much as \$7.5 billion. Besides description of the smartphone industry as well as both companies, also a summary of strategic and financial reasons of the possible transaction are presented in this paper. According to the valuation of BlackBerry using the method of Discounted Cash Flow and the method of multiples, the rumored price offered by Samsung was fair. Moreover, this acquisition could make Samsung indisputable leader in the industry. However, this transaction never took place and we can only guess about possible consequences.