

**CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE**

**Faculty of Economics and Management**

**Department of Economics**



**BACHELOR THESIS**

**Analysis of Samsung Electronics Co., Ltd Stocks**

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**Bachelor thesis supervisor: Ing. Petr Procházka, MSc, Ph.D.**

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

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# BACHELOR THESIS ASSIGNMENT

Tetyana Yarchak

Economics and Management

Thesis title

**Analysis of Samsung Electronics Co., Ltd. stock**

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## **Objectives of thesis**

Estimate global Samsung Electronics Co. position on Stock market. Determining the market value Samsung Appliances and comparing with competitors. Growth innovations of the Samsung Electronics Co. . Prediction of future position.

## **Methodology**

Reviewing of literature will be demonstrated using methods of induction and deduction also synthesis and extraction will be used. Analytical section will be made using methods of qualitative analysis and quantitative as well.

**The proposed extent of the thesis**

35-40 pages

**Keywords**

Samsung Electronics Co., financial market, stock market, innovation, appliances.

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**Recommended information sources**

1. "Trading commodities and Financial futures" George Kleinman
2. "Financial Markets and Trading" Anatoly B.Schmidt
3. "Characteristics of the Korean stock market Correlations" Woo-Sung Jung \*, Seungbyung Chae, Jae-Suk Yang, Hie-Tae Moon. 16 Jun 2005.
4. "Value-at-Risk Analysis of the Long Memory Volatility Process: The Case of Individual Stock Returns" Sang Hoon Kang, Seong-Min Yoon. 30 Dec. 2007
5. "The Equity Premium Puzzle: An Empirical Investigation of Korean Stock Market" Tae Hee Choi. December 2007.
6. "ECONOMIC PERFORMANCE OF GROUP-AFFILIATED COMPANIES IN KOREA: INTRAGROUP RESOURCE SHARING AND INTERNAL BUSINESS TRANSACTIONS" SEA JIN CHANG. Jun 2000.

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## DECLARATION

I hereby declare that I have worked on my Bachelor Thesis titled “Analysis of Samsung Electronics Co., Ltd. Stocks” solely and I have used the literature and sources listed in bibliography.

In Prague, 15<sup>th</sup> March 2015

.....  
Tetyana Yarchak

## **ACKNOWLEDGEMENT**

I would like to thank to my supervisor Ing. Petr Procházka, MSc, Ph.D. for his expert suggestions, recommendations and assistance with my bachelor thesis.

Further acknowledgement belongs to my parents for supporting me in all possible ways and for giving me the opportunity of university education

**Analysis of Samsung Electronics Co.,  
Ltd. Stocks**

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**Analýza akcií firmy Samsung  
Electronics Co., Ltd.**

## **Summary**

The bachelor thesis “Analysis of Samsung Electronics Co., Ltd. Stocks” focuses on fundamental economic analysis through looking at chosen Korean Company Samsung Electronics Co., Ltd. The thesis is divided into two main parts: literature review and practical part. Part of literature review focuses on the analysis of the Korean stock market and methods of developing the theory of fundamental economic analysis. The practical part consists of practical statement of the theoretical part of the company Samsung Electronics Co., Ltd. The economic situation of the company will be represented. Subsequently, part of calculations focuses on evaluation of financial statement of company Samsung Electronics Co., Ltd. The results from the analysis are used to recommend potential investment into Samsung Electronics Co., Ltd. stocks.

## **Keywords**

Samsung Electronics Co., Ltd., Fundamental analysis, Technical analysis, Economic analysis, Oscillators, Technical Indicators, Intrinsic value, Investment recommendation.

## **Souhrn**

Bakalářská práce na téma “Analýza akcií společnosti Samsung Electronics Co. Ltd.” se zaměřuje na fundamentální ekonomickou analýzu skrze pohled na vybranou Jiho-Korejskou společnost: Samsung Electronics Co. Ltd. Práce je rozdělena na dvě základní části: literální rešerži a praktickou část. První část literální rešerže se zajímá o současnou podobu Korejského trhu s cennými papíry a o metody rozvoje teorie fundamentální ekonomické analýzy. Praktická část se skládá z teoretického vymezení společnosti Samsung Electronics Co. Ltd., přičemž větší prostor dostane také ekonomická situace společnosti. Výsledky budou sesumarizovány a vzneseno doporučení, zda se vyplatí investovat do akcií Samsung Electronics Co. Ltd.

## **Klíčová slova**

Samsung Electronics Co. Ltd., fundamentální analýza, technická analýza, ekonomická analýza, oscilátory, technické indikátory, vnitřní hodnota, investiční doporučení.

## Content

2.	OBJECTIVES AND METHODOLOGY .....	11
2.1	Objectives.....	11
2.2	Methodology.....	11
3.	THEOETICAL PART AND LITERATURE REVIEW .....	12
3.1	Fundamental economic analysis.....	12
3.2	Technical economic analysis .....	12
3.3	Stock market .....	13
3.3.1	Stock.....	13
3.3.2	Exchange .....	13
3.3.3	Stock exchange.....	14
3.3.4	Characteristics of the Korean stock market correlations.....	14
3.3.5	An Empirical Investigation of Korean Stock Market.....	16
3.3.6	The Case of Individual Stock Returns .....	17
3.3.7	Economic performance of group-affiliated companies in Korea .....	18
3.4	Value of stock.....	21
3.4.1	Intrinsic Value.....	21
3.4.2	Extrinsic Value .....	22
3.5	Market structure .....	22
3.6	Samsung Co., Ltd.....	24
3.6.1	Company Overview .....	24
3.6.2	History .....	25
3.6.3	Performance by Region.....	25
3.7	Financial Ratios .....	26
3.7.1	Liquidity Ratios.....	27
3.7.2	Leverage ratios.....	28
3.7.3	Profitability Ratios.....	28
3.7.4	Valuation Ratios .....	32
3.8	Oscillators.....	32
3.8.1	Moving Average Convergence/Divergence.....	33
3.8.2	Relative Strength Index.....	33
3.9	Technical Indicators .....	34



3.9.1	Moving Average .....	34
3.9.2	Bollinger Bands.....	37
4.	PRACTICAL PART .....	38
4.1	Fundamental analysis.....	38
4.1.1	Competitors.....	38
4.1.2	Calculations and Interpretations.....	39
4.2	Technical analysis.....	43
4.2.1	Operating Profit Analysis.....	43
4.2.2	Shipments Forecast Analysis .....	44
4.2.3	Oscillator Analysis .....	48
4.2.4	Technical Indicator Analysis .....	50
5.	CONCLUSION AND INVESTMENT RECOMMENDATION .....	51
6.	RESOURCES .....	52
6.1	Bibliography .....	52
6.2	The Internet .....	53
7.1	List of tables .....	56
7.2	List of graphs .....	56

## 1. INTRODUCTION

In this thesis was chosen company Samsung Co., Ltd. a world leader in the production of semiconductor and telecommunications equipment, as well as in digital convergence technologies, for economic analysis also for valuation of market position and to investigate stock. Besides company produces high quality products and modern designs, which represents how developed and innovative company is.

The work is thematically divided into six chapters. The first chapter is mostly theoretically defined, for the purpose of explanation of all basic concepts. The second chapter Objectives and Methodology. Objectives shows main goal of thesis. Methodology performs what methods were used for collection data, literature review, calculations and forecast graphs. The third chapter which is called “Theoretical part and literature review” introduces company profile and historical process of company. As well it combines reviewing of four studies which are compares each other. In this part explains how technical and fundamental analysis are working. Also includes basic understanding of Stock and how do we evaluate it. Intrinsic value of stock and Extrinsic Value, Market structure and Ratios will be defined too. The fourth chapter called “Practical part” consist of Fundamental analysis and Technical analysis. Fundamental analysis contains of calculations. Technical analysis shows trends represented in graphs. And later this part based on comparing Samsung in terms of related companies. In the fifth part “Conclusion and Investment Recommendation” presents interpretation of the results and financial investigation of company. Afterwards decision will be done to recommend potential investment into Samsung Electronics Co., Ltd. Stocks.

## **2. OBJECTIVES AND METHODOLOGY**

### **2.1 Objectives**

The main objective of the thesis is to evaluate Samsung Electronics Co., Ltd. position on Stock market. A partial goal is to determine the market position of Samsung and compare it with competitors. As well to conduct prediction of future position. Then as part of the research it is necessary to evaluate financials of Samsung such as profitability, indeptness, etc. Further it is necessary to evaluate past data of Samsung stock and use it for future prediction.

### **2.2 Methodology**

All information about Samsung Electronics Co., Ltd. is received from the annual financial statements of the company available on the website of company.

The information for the fundamental economical analysis and technical analysis are gathered from the literature sources available online library and other sources.

Reviewing of literature will be demonstrated using methods of induction and deduction also synthesis and extraction will be used. Analytical section will be made using methods of qualitative analysis and quantitative as well.

All data calculated by different formulas for each specific indicator such as: Gross Profit Margin, Net Profit Margin, Operating Profit Margin, Pretax Profit Margin, Current ratio, Quick ratio, Return on assets, Return on investment, Return on equity, Earnings per Share, Price to earnings. All data of stocks for calculations are obtained mostly from internet source Yahoo.finance.com, Bloomberg.com and marketwatch.com.

All graphs and tables made by own computation in software Microsoft Office Excel 2007 and Paint.Net. Oscillators and Technical Indicators will be done using different methods available at online source investing.com. The main chosen Technical Indicators

are: Moving Average, Bollinger Band and the main Oscillators are: Moving Average Convergence/Divergence, Relative Strength Index were represented in graphs.

Afterwards, these results analyzed for making conclusion, prediction of future position and making decision about investing into a company.

### **3. THEORETICAL PART AND LITERATURE REVIEW**

#### **3.1 Fundamental economic analysis**

A method for determine companies that affect testing of their financial positions and real activities. The beginning for fundamental analysis is that the value of a company is the discounted value of the future flow of profits that will produce it. Fundamental analysis, later takes data into account on assets, earnings, growth, competitors, products management, debts and also to predict profits in future.<sup>1</sup> Fundamental analysis is established on the classical study of supply and demand factors that motive market prices to increase or decrease. In financial markets, the fundamentalist would attention at such things as trade deficits, corporate earnings and changes in the money supply. The purpose of this approach is to arrive at an estimate of the intrinsic value of a market in order to define if the market is over- or under-valued.<sup>2</sup>

#### **3.2 Technical economic analysis**

The usage of past data on security prices to predict future security prices, usually by using charts to present patterns in prices. Marketers who using technical analysis are occasionally referred to chartists. Against its use being fairly common, technical analysis has limited empirical excuse: the patterns that have been found cannot be abuse profitability once trading costs are taken into account.<sup>3</sup> As well it is study of market process and price charts that are using, to forecast future price direction. The cornerstone

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<sup>1</sup> BLACK, J.. 2012. A Dictionary of Economics (Oxford Paperback Reference). 4th ed. Oxford University Press. 325 p., ISBN 978-0-19-969632-1

<sup>2</sup> MURPHY, J.J., 2012. Charting made easy. 1st ed. Wiley. 69 p., ISBN 1-883272-59-9

<sup>3</sup> BLACK, J.. 2012. A Dictionary of Economics (Oxford Paperback Reference). 4th ed. Oxford University Press. 700 p., ISBN 978-0-19-969632-1

of the technical philosophy is the assumption that all of the factors that affect market price — political events, natural disasters, fundamental importance, and psychological factors — can be discounted fastly in market activity. By different words, the impact of these external factors will quickly show up in some form of price movement, either up or down.<sup>4</sup>

### **3.3 Stock market**

#### **3.3.1 Stock**

It is a category of security that signifies ownership in a corporation and expresses a request on part of the corporation's assets and earnings.<sup>5</sup> A share of a company controlled by an individual or group. Corporations raise capital by issuing stocks and allow the stock owners (shareholders) to partial ownership of the corporation.<sup>6</sup>

*Common stock* – well-known as ordinary shares and common shares of stock, provide the shareholder a proportion of the company's dividends, voting rights, and earnings growth.

*Preferred stock* - is specific stock sold to particular institutions or people that provide the holder priority over common stock holders in terms of dividends and bankruptcy claims. The drawback is that preferred stocks normally have no voting rights.

*Unlisted stock* – is not listed on any stock exchange and may be common, or preferred. It is acquired in direct allocation, from the issuer of the stocks, or in the secondary market.<sup>7</sup>

#### **3.3.2 Exchange**

The trade of one good or asset for another one. Exchange is the most basic form of economic activity. It claims a double coincidence of wants between the two parties: each

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<sup>4</sup> MURPHY, J.J., 2012. *Charting made easy*. 1st ed. Wiley. 71 p., ISBN 1-883272-59-9

<sup>5</sup> INVESTOPEDIA, (2003). *Stock Definition* | Investopedia. [online] Available at: <http://www.investopedia.com/terms/s/stock.asp> [Accessed 10 Sep. 2014].

<sup>6</sup> INVESTORWORDS.COM, (2015). *What is Stock? definition and meaning*. [online] Available at: <http://www.investorwords.com/4725/stock.html> [Accessed 10 Sep. 2014].

must want what the other possesses. Exchange is a place where trading is carried out: therefore shares were traded at the stock exchange, corn was traded at a corn exchange, and workers were hired at a labour exchange. In many cases most of the trade is nowadays done electronically, so that means that a stock exchange is often an institution rather than a physical place.<sup>8</sup>

### **3.3.3 Stock exchange**

An institution through which company shares and government stock are traded. Firstly the exchange would be a building, where traders raked together and trade proceeded or by individual discussion or by “open outcry”, where prices order and offered were announced out loud therefore as to notify to all traders within earshot. Linked by computer networks and also telephones were modern Stock exchanges are institutions with traders. As well Stock exchange have rights about the information companies have to present for their shares to be listed, the individuals or firms allowed to trade, the notification of trades carried out, and the operation for settlement, that is, current delivery of shares and money payments.<sup>9</sup>

### **3.3.4 Characteristics of the Korean stock market correlations**

In their study, they defined a network construction of the Korean stock market, one of the emerging markets, with its minimum spanning tree across the correlation matrix. It was established in this analysis, it is set up that the Korean stock market does not form the clusters of the business sectors or of the industry areas. When the MSCI (Morgan Stanley Capital International Inc.) index is exploited, it is understood that the clusters of the Korean stock market are formed. This showing implicates that the Korean market, in this context, is characteristically another from the mature markets.

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<sup>8</sup> BLACK, J.. 2012. A Dictionary of Economics (Oxford Paperback Reference). 4th ed. Oxford University Press. 282 p., ISBN 978-0-19-969632-1

<sup>9</sup> BLACK, J.. 2012. A Dictionary of Economics (Oxford Paperback Reference). 4th ed. Oxford University Press. 677 p., ISBN 978-0-19-969632-1

In this study the main goal is to analyze the topological characteristics of the Korean market as a representative emerging market. They study the taxonomy and network topology of the Korean market with it.

It is investigated that the largest company from the point of a market capitalization in the S&P500 is General Electric (GE), its fraction is 3.39%. In the case of the KOSPI200, Samsung Electronics Corporations (SEC) attends this position; its fraction is 21.94%. As well the KSE network to this company is centralized more, than the S&P500 and thus the KOSPI200's hub more powerful. However, it can be shown that the KOSPI200's IS distribution does not follow a power law distribution, but an exponential distribution. In the real world the Korean stock market is less centralized than the S&P500.

This study investigate that they attempted to determine groups of KOSPI200 with other rules than business parts, sectors or industry category. Most major companies in Korea are members of conglomerate forms of enterprise, commonly known as Chaebeol. Samsung Electronics Co. is a member of Samsung Conglomerate. This conglomerate is contains of many companies over different sectors, i.e., Samsung Electronics Co., Samsung Heavy Industries Co., Samsung Petrochemical Co., Samsung Life Insurance, Samsung Corporation, etc.. By complex of shareholding structures is controlled their ownerships. In this case their stocks can consider a group. But, it cannot be found any group structure related with Korean major conglomerates - Samsung, LG, SK .

They have studied the Korean stock market and then received some characteristics that another from the aspect of the US market. The relevant question is, why does the Korean stock market have different properties? One of the reasons is the composition of companies. The history of emerging markets is shorter than of mature markets. So in this case, the emerging markets have fewer companies than mature markets that have many companies including several large firms. Thus in the Korean market, there are only a few big companies, e.g. SEC; these corporations are very large in comparison with others. As such, these big companies are separated from other companies of the market. That's why by this accounts there are no hubs in the Korean stock market. They don't know yet whether this is just Korean characteristics or the characteristics of an emerging market. The other is the globalization and culture of trading. In the Korean market much important are trading patterns of Foreigners. Globalization has progressed very intensely and affect of a few intelligent and cultivated countries has become more and more powerful. It is observed

that at present a lot of stock markets' synchronization to the US. In different words, the whole markets in the world are synchronized. Thus it may find clusters in terms of the MSCI index. It is more synchronized to regarded and a foreign market as a good regarded, if a specified company's stock is included in the MSCI index. All markets throughout the world have characteristics of their own. Every market needs to be studied with its own properties.

In year 1997 was very serious event to the Korean market. It was Asian financial crisis. After that crisis, the market's respond to the external market is that is more sensitive. The Korean market's correlation coefficient is smaller than that of the American market and occasionally shows unusual distribution. The correlation and the MST have more knowledge about the market than this paper's analysis, i.e. average length, positive correlation and negative correlation. The research about the points analyzed with the knowledge on the history of the Korean market is future work.<sup>10</sup>

### **3.3.5 An Empirical Investigation of Korean Stock Market**

The purpose of this study is to examine the expected rates of return for the companies listed in the Korean stock market by investigating, implied costs of capital, equity premia, and firm characteristics affecting the expected rates of return. They compare the implied costs of equity capital in Korea stock market and U.S. stock market.

The financial data for this study were collected from companies listed in the Korean stock market. The sample collects annual data from the years 2000 to 2006. Also sample consists of the companies traded either on the KSE(Korea Stock Exchange) or on the KOSDAQ(Korea Securities Dealers Automated Quotation).

Results suggest that a substantial country risk premium exists in Korean stock market; however, the implied costs of capital have decreased over last 6 years. The result is in line with the argument that the phenomenon of "Korea discount" has been eased. In addition, it could be found significant association between the measure of the implied cost of capital in relation with variables that affect the risk and profitability perceived by market investors.

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<sup>10</sup> JUNG, W., CHAE, S., YANG, J. and MOON, H. 2006. Characteristics of the Korean stock market correlations



The result may imply that there is a significant discount in Korean stock market. Although it is not apparent that the implied cost of capital has monotonically decreased over the years from 2000 to 2006, it is clear that the equity premium is much higher in early 2000s (just after Asian economic crisis). It make sense because investors' required rates were much higher during the economic turmoil since many companies had financial difficulties if not went default. A likely explanation for this pattern is that the "Korea discount" has been eased in recent years although the implied cost of capital is still much higher than that of U.S. stock market. In sum, although there is obvious difference in estimation periods, it can be drawn the same conclusion since the implied cost of capital less varies period by period in U.S. stock market.

The results of this study have several important implications for the study of equity premium. First, this study provides compelling evidence that Korean stock market is traded at a discount. The estimated equity premium over risk-free rate for Korean stock market averages 10.9% over the years 2000 to 2006. What is clear is that the estimate is much higher than equity premium for U.S. stock market reported in prior studies. Second, the equity premium has decreased over the last 6 years. They postulate that the economic turmoil of 1997 had negatively (in a valuation sense) affected Korean stock market over several years, and investors' required rates were much higher after the crisis since many companies had financial difficulties if not went default.<sup>11</sup>

### **3.3.6 The Case of Individual Stock Returns**

This study investigated the relevance of the skewed Student-t distribution innovation in analyzing volatility stylized facts, namely, volatility clustering, volatility asymmetry, and volatility persistence, in three individual Korean shares. For this purpose, they assessed the performance of RiskMetrics and two long memory Value-at-Risk (VaR) models (FIGARCH and FIAPARCH) with the normal, Student-t, and skewed Student-t distribution innovations

The primary aim of this study was to investigate the volatility persistence for daily return series of individuals stock of three representative Korean companies

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<sup>11</sup> CHOI, T. H. and JUNG, J. 2007. Ethical Commitment, Financial Performance, and Valuation: An Empirical Investigation of Korean Companies.

(Samsung Electronics, etc.) using RiskMetrics and two long memory volatility models, FIGARCH and FIAPARCH. For Samsung Electronics the symmetric FIGARCH model was favoured.

By methodology they used Long memory volatility models, VaR models, Tests of accuracy for VaR estimates. This article investigated the relevance of the skewed Student-t distribution innovation in capturing stylized facts for the volatility of three representative individual stocks from the Korean stock market (Samsung Electronics and so on).

From the results of our VaR analysis, for the Samsung Electronics returns series, the FIGARCH model with the skewed Student-t distribution was the most appropriate. In the out-of-sample analysis, although RiskMetrics model in estimating VaR is adequate for the artifact of the choice of the 5% level, the FIGARCH and FIAPARCH models with the skewed Student-t distribution innovation is preferred for short and long positions.

Overall, in their study it can be concluded that the density of individual share returns exhibit asymmetry and fat tails. In addition, the volatility displays a long memory process in three individual share returns examined. These findings provide an accurate estimation of VaR for portfolio managers and investors.<sup>12</sup>

### **3.3.7 Economic performance of group-affiliated companies in Korea**

This study examined the economic performance of the firms associated with Korean business groups by explicitly addressing groupwide resource sharing and internal business transactions. The results show that group-affiliated firms benefit from group membership through sharing intangible and financial resources with other member firms. Further, this study shows that various forms of internal business transactions, such as debt guarantee, equity investment, and internal trade, are extensively used for the purpose of cross-subsidization.

They used the database developed by the Korea Information Service (KIS). KIS is a leading creditrating agency in Korea, equivalent to Standard & Poor's or Moody's, and it provides comprehensive corporate and financial information to the international business community. Its company profiles and financial information data are provided by the Korea

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<sup>12</sup> KANG, S. H. and YOON, S. 2007. Value-at-Risk Analysis of the Long Memory Volatility Process : The Case of Individual Stock Returns.

Securities Supervisory Board. The KIS scrutinizes its information with several steps of validity checking. It provides the most comprehensive and reliable database available in Korea. Some non-Asian interests have expressed concerns about the reliability of financial data available in Asian countries. Any systematic differences between the companies controlled by those individuals. Thus, final sample consisted of a total of 12,019 observations of 1,248 companies associated with 317 business groups as of 1996. Korean accounting system and those of Western countries do not affect their study since they studied only Korean firms.

In this study, they used profitability as an indicator of firm performance. Some have argued that Korean firms have pursued growth rather than profitability. So they agree with this view, with some qualifications. Study proposes that Korean firms pursued growth at the group level but pursued profitability at the individual affiliate. Korean business groups are organized under the multidivisional structure, with each affiliate functioning as an operating division. These groups typically pursue growth by venturing into new businesses, as exemplified by Samsung's entry into the automobile business in 1994. Such expansions took place through the creation of new affiliate companies in which several existing group affiliates assumed equity positions.

Although it is also true that some Korean companies emphasized market share (and sales growth), particularly when first entering businesses, they pursued profitability in the long term. Since data spanned 12 years, they could reasonably expect the economic performance of an individual affiliate to be indexed by its profitability. They thus calculated firm-level economic performance as a firm's return on invested capital (ROIC), defined as the sum of net income before tax plus interest payments, deflated by total assets, to provide a return metric that was comparable across firms. This measure of performance should capture operating efficiency without being biased by the relatively high debt-to-equity ratios common in Korean firms. Thus, profitability was the return on invested capital (ROIC), measured at time  $t$ . Their study distinguished between two types of productive resources commonly used in strategy research. Intangible, knowledge-based resources are identified through R&D and advertising intensities. Previous strategy research has used these measures as proxies for intangible knowledge-based resources. They also used indicators of liquidity and the level of debt carried by a firm to reflect the availability of capital. A high debt-to-equity ratio will increase the likelihood of

bankruptcy and financial distress and thereby limit a firm's ability to finance its investment by borrowing. Thus, they expected a positive sign for the R&D and advertising intensities and the liquidity ratio and a negative sign for the debt-to-equity ratio with respect to firm performance. In addition, they included firm size to control for any size-related factors. Variable definitions were as follows: R&D was the R&D expenditure divided by total sales, measured at time  $t$ . Advertising was the advertising expenditure divided by total sales, measured at time  $t$ . Liquidity was current assets divided by current liabilities, measured at time  $t$ . Leverage was long-term debt to equity, measured at time  $t$ . Firm size was the logarithm of total assets in thousands of won, measured at time  $t$ . In this study, they treated an affiliated company as an operating division just like an SBU in a diversified corporation. To measure group-level productive resources, they used the weighted averages of financial indicators of other firms associated with the same business group.

This study has several implications for the impending corporate restructuring of the Korean business groups. Since the so-called Asian currency crisis of 1997, Korean business groups are under great pressure to restructure. According to results of the study suggest that business groups are not necessarily inefficient. The real concern may instead be the lack of a corporate governance system that would guard against ill-conceived diversification moves. For instance, banks, shareholders, and governments were not able to deter the Samsung Group's foray into the automobile manufacturing business amidst the worldwide consolidation in this industry.

Further, study shows that debt guarantees, equity investments, and internal trade were extensively used to support poorly performing affiliates at the expense of profitable ones. Such cross-subsidization may force some highly performing companies to forgo profitable investment opportunities in their core businesses. Thus, results suggest that corporate divestiture of poorly performing affiliates helps other firms to focus more on their core competencies.

Lastly study shows us, that the future researchers should improve on the expenditure-based measures of intangible resources used in this study. Such a refinement of measures would help unveil the extent of intergroup sharing of intangible resources such as technology and know-how. The overall message of this study is that groupwide sharing of both intangible and financial resources has been Korean firms' primary source of competitive advantage and has enabled their fast economic growth. Although such

enterprise strategies enabled Korean firms to expand their empires with continuous investments, Korean business groups apparently became trapped in their own success by becoming too large and unwieldy. With more efficient external and internal corporate governance systems in place, Korean business groups may continue to show superior performance in the future.<sup>13</sup>

## **3.4 Value of stock**

### **3.4.1 Intrinsic Value**

The actual value of a firm or an asset established on an underlying feelings of its true value inclusive of possibilities of the business, in terms of both tangible and intangible factors. This value can be the same, but in same way it can be not the same as the current market value. Investors using value a plenty of analytical techniques for the sake of estimation the intrinsic value of securities in hope to find investments where the true value of the investment overtakes its current market value.<sup>14</sup>

Stocks have intrinsic value, thus they present partial ownership of a being with the power to earn money and finally distribute it as dividends. For real estate intrinsic value, can charge a rental fee.<sup>15</sup>

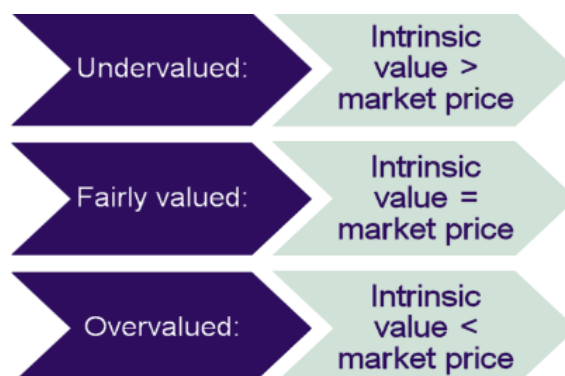
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<sup>13</sup> CHANG, S. J. and HONG, J. 2000. Economic performance of group- affiliated companies in Korea: Intragroup- resource sharing and internal business transactions.

<sup>14</sup> INVESTOPEDIA, (2003). *Intrinsic Value Definition | Investopedia*. [online] Available at: <http://www.investopedia.com/terms/i/intrinsicvalue.asp> [Accessed 12 Sep. 2014].

<sup>15</sup> MURCKO, T., (2015). *The Intrinsic Value of Stocks, Real Estate, and Precious Metals*. [online] Investorwords.com. Available at: <http://www.investorwords.com/tips/1260/the-intrinsic-value-of-stocks-real-estate-and-precious-metals.html> [Accessed 13 Sep. 2014].

Table 1: Estimated Value and Market Price (Source: own processing based on Equity Valuation: Concepts and Basic Tools)



### 3.4.2 Extrinsic Value

The difference among an options intrinsic value and market price. In theory, options should not trade above their intrinsic value due to the time value associated with option pricing. Extrinsic value as well the portion of an item's purchase that is assigned to it by external factors. And intrinsic value is the opposite of extrinsic value, which is the inherent worth of an item.<sup>16</sup>

### 3.5 Market structure

There are different market structures in which companies can act. The type of structure affects the companies' behavior, or it is efficient, and the level of profits it can be generated. The structure of a market belongs to the number of companies in the market, their market shares, and other main points which influence, the level of competition in the market. Market structures are high-ranking, mainly by the level of competition that present between the companies operating in the market. Structures are classified in term of the absence or presence of competition. When competition is presence, the market is not concentrated, but when competition is absent, the market is said to be concentrated. There is a spectrum, from perfect competition to pure monopoly.<sup>17</sup>

<sup>16</sup> INVESTOPEDIA, (2003). *Extrinsic Value Definition* / Investopedia. [online] Available at: <http://www.investopedia.com/terms/e/extrinsicvalue.asp> [Accessed 18 Jun. 2014].

<sup>17</sup> ECONOMICSONLINE.CO.UK, (2015). *Competition and market structures*. [online] Available at: [http://www.economicsonline.co.uk/Business\\_economics/Competition\\_and\\_market\\_structures.html](http://www.economicsonline.co.uk/Business_economics/Competition_and_market_structures.html) [Accessed 18 Jun. 2014].

Table 2: Characteristics of competition (Source: own processing based on: Economics Online)

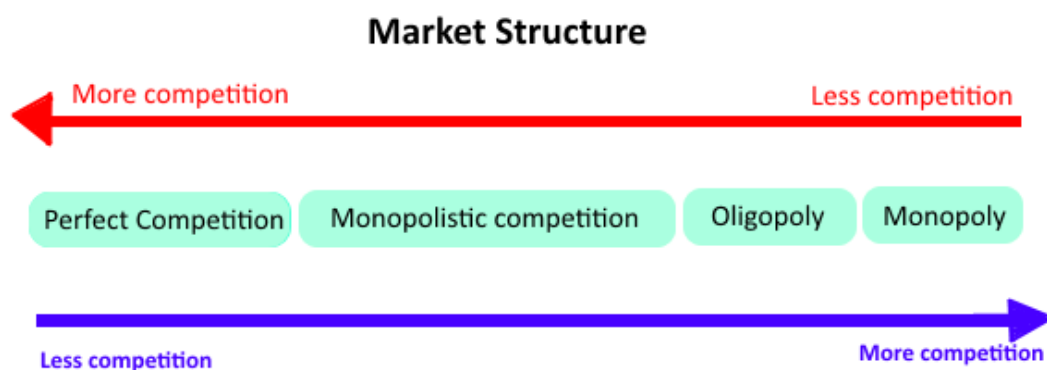


Table 3: Characteristics of Market Structure (Source: own processing based on: Economics (B.S.) October 15, 2013)

Market Structure	Characteristics				
	Number of Sellers	Number of Buyers	Barriers to Entry	Entry and Exit Activity	Homogeneous or Differentiated Product?
<i>Pure Competition</i>	Many firms	Many buyers	None	Yes, firms have the freedom to enter and exit	Homogeneous product, all goods are perfect substitutes for consumers
<i>Monopolistic Competition</i>	Many firms with non-interdependent pricing and quantity decisions	Many buyers	Very low	Yes, firms have the freedom to enter and exit	Differentiated products, but close substitutes for consumers so their demand curves are elastic
<i>Oligopoly</i>	Few firms with interdependent pricing and quantity decision	Unspecified	High	Difficult entry (often due to economies of scale)	Products can be either differentiated or non-differentiated
<i>Pure Monopoly</i>	Single seller	Unspecified	Complete	entry blocked	A single, homogeneous product with no close substitutes

## 3.6 Samsung Co., Ltd

### 3.6.1 Company Overview

Samsung Electronics Co., Ltd., through its subsidiaries, engages in the manufacture and sale of semiconductors, telecommunication products, home appliances, and digital media products segments. The company operates in four segments: Digital Media, Telecommunication Network, Semiconductor, and LCD. The company's digital media business produces a range of products, including digital televisions with monitors; audio-visual devices, such as blu-ray disc player; and all-in-one colour printers. Its product lineup includes refrigerators, air conditioners, washers, ovens, vacuum cleaners and other appliances. Telecommunication Network business: The company offers a range of mobile phones, including 3G and multimedia phones, in addition to telecommunication systems. It also offers personal computers and MP3 players. Semiconductor business: This segment consists of three major divisions: Memory, Large Scale Integration (LSI), and Storage. In the memory category, the company engages in the development of new memory devices, multichip packages, fusion memory; and the commercialization of nanotechnology. It operates in the dynamic random access memory (DRAM), static random access memory (SRAM), and flash markets. LSI division focuses on five main areas: display driver ICs (DDIs), smartcard chips for SIM cards, navigation application processors, CMOS image sensors, and systems-on-a-chip (SoCs) for media players. Storage division produces hard disk drives that provide high data storage capacity to both mobile devices and digital home appliances. LCD business The LCD business produces panels for TVs, digital information displays, notebook PCs and desktop monitors, as well as various display panels for mobile products, such as mobile phones, game consoles, PDAs and MP3 players.<sup>18</sup>

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<sup>18</sup> LTD, S., (2015). *SAMSUNG ELECTRONICS CO LTD (005930:Korean Stock Exchange): Company Description - Businessweek*. [online] Businessweek.com. Available at: [http://www.bloomberg.com/research/stocks/snapshot/snapshot\\_article.asp?ticker=005930:KS](http://www.bloomberg.com/research/stocks/snapshot/snapshot_article.asp?ticker=005930:KS) [Accessed 28 Jun. 2014].



### 3.6.2 History

In year 1938 was founded Samsung Electronics Co., Ltd.. Lately in 1969 Samsung Electronics was established. Afterwards the company in year 1971 exports first black-and-white television to Panama. Later Samsung Group enters the semiconductor market by forming Telecommunications Co and Samsung Semiconductor in 1978. Then in 1983 the company enters the personal computer market. As well in 1984 the firm was formerly prominent as Samsung Electronics Manufacturing and changed its name to Samsung Electronics Co, Ltd..<sup>19</sup> Long time ago in 1988 Samsung Electronics and Samsung Semiconductor merge. Samsung started producing memory and hard drives for use in personal computers in the early and mid-1990s. Still it is a big part of Samsung's business today. After in 1995 Exports reach \$10 billion. Regarding to the Asian economic crisis in 1997 company battles it. And later in 1999 the firm undergoes a major restructuring, and profits reach \$2.4 billion. And in 2000 sales reach \$26 billion and net profits climb to \$4.7 billion. "The annual profit far exceeded all other years except for 2004," Cho of Samsung said. On June 26, 2009, Samsung Electronics Co. Ltd. has teamed up with Kraft Foods Inc. to build a new breed of 21st-century vending machines. For 2010. HP, Samsung's biggest global rival in sales, is projecting about \$120 billion in sales.<sup>20</sup>

### 3.6.3 Performance by Region

*Table 4: Worldwide sales by region expressed in trillion KRW (Source: own processing based on SAMSUNG, Facts & Figures 2015)*

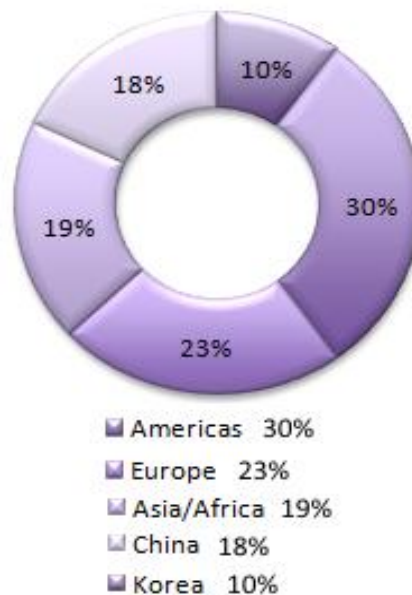
<i>Sales by region (Unit: KRW 1T)</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>
<b>Korea</b>	<b>26,50</b>	<b>29,20</b>	<b>22,80</b>
<b>Americas</b>	<b>47,50</b>	<b>58,20</b>	<b>69,40</b>
<b>Europe</b>	<b>39,00</b>	<b>49,50</b>	<b>52,70</b>
<b>Asia/Africa</b>	<b>28,80</b>	<b>36,10</b>	<b>43,70</b>
<b>China</b>	<b>23,10</b>	<b>28,20</b>	<b>40,10</b>

<sup>19</sup> REFERENCEFORBUSINESS.COM, (2015). *Samsung Electronics Co., Ltd. - Company Profile, Information, Business Description, History, Background Information on Samsung Electronics Co., Ltd.* [online] Available at: <http://www.referenceforbusiness.com/history2/16/Samsung-Electronics-Co-Ltd.html> [Accessed 7 Aug. 2014].

<sup>20</sup> KOREATIMES, (2015). *The New Big Blue.* [online] Available at: [http://koreatimes.co.kr/www/news/special/2010/01/133\\_59924.html](http://koreatimes.co.kr/www/news/special/2010/01/133_59924.html) [Accessed 7 Aug. 2014].

**Graph 1:** Proportion of sales by region in 2011 (Source: own processing based on SAMSUNG, F&F 2015)

### Sales by Region



This statistic shows the share of revenue made by Samsung Electronics from 2011 to 2013, broken down by region. Around 14 percent of sales revenue at Samsung Electronics was generated in China in 2012.

### 3.7 Financial Ratios

The financial ratio can be defined as a relationship between a two individual quantitative financial information connected with each other in some logical manner, and this connection, is considered as a meaningful financial indicator which can be used by the different financial information users. Any financial ratio/s might be useful and meaningful if we compare it with other related meaningful information, either a present or past similar indicator/s for the same firm or similar firms in the same industry. Although financial ratios are considered useful and practical in financial analysis, these financial ratios should be interpreted and analyzed in a rational manner with caution taken into consideration the limitations of these financial ratios in order to get the expected meaningful result from it.<sup>21</sup>

<sup>21</sup> The Relationship between the ROA, ROE and ROI Ratios with Jordanian Insurance Public Companies Market Share Prices. (2012). *International Journal of Humanities and Social Science*, [online] 2(11). Available at: [http://www.ijhssnet.com/journals/Vol\\_2\\_No\\_11\\_June\\_2012/12.pdf](http://www.ijhssnet.com/journals/Vol_2_No_11_June_2012/12.pdf) [Accessed 25 Aug. 2014].

### 3.7.1 Liquidity Ratios

Is a computation that is used to measure a company's ability to pay its short-term debts. There are three common calculations that fall under the category of liquidity ratios. The current ratio is the most liberal of the three. It is followed by the acid ratio, and the cash ratio. These three ratios are often grouped together by financial analysts when attempting to accurately measure the liquidity of a company.<sup>22</sup>

#### Quick Ratio

Is a measure of a company's ability to meet its short-term obligations using its most liquid assets (near cash or quick assets). Quick assets include those current assets that presumably can be quickly converted to cash at close to their book values. Quick ratio is viewed as a sign of a company's financial strength or weakness; it gives information about a company's short term liquidity. The ratio tells creditors how much of the company's short term debt can be met by selling all the company's liquid assets at very short notice.<sup>23</sup>

Formula:

$$\text{Quick ratio} = \frac{\text{Total Current Assets} - \text{Inventories}}{\text{Total Current Liabilities}}$$

#### Current Ratio

The current ratio is used by lenders to determine whether a company has a sufficient level of liquidity to pay its liabilities. A current ratio of 1:1 is considered to be the absolute minimum level of acceptable liquidity, whereas a ratio closer to 2:1 is preferred.<sup>24</sup>

Formula:

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<sup>22</sup> STUDY.COM, (2015). *Liquidity Ratio: Definition, Calculation & Analysis / Study.com*. [online] Available at: <http://study.com/academy/lesson/liquidity-ratio-definition-calculation-analysis.html> [Accessed 1 Sep. 2015].

<sup>23</sup> READYRATIOS.COM, (2011). *Quick Ratio*. [online] Available at: [http://www.readyratios.com/reference/liquidity/quick\\_ratio.html](http://www.readyratios.com/reference/liquidity/quick_ratio.html) [Accessed 1 Sep. 2014].

<sup>24</sup> BRAGG, S.M., 2002. *Business Ratios and Formulas: A Comprehensive Guide*. 1 st ed. Wiley. 105p., ISBN 0-471-39643-5

$$\text{Current ratio} = \frac{\text{Total Current Assets}}{\text{Total Current Liabilities}}$$

### 3.7.2 Leverage ratios

Can be aptly described as the extent to which a business or investor is using the borrowed money. Business companies with high leverage are considered to be at risk of bankruptcy if, in case, they are not able to repay the debts, it might lead to difficulties in getting new lenders in future. It is not that financial leverage is always bad. However, it can lead to an increased shareholders' return on investment. Also, very often, there are tax advantages related with borrowing, also known as leverage.<sup>25</sup>

#### Debt to equity

This ratio is one of the most closely watched by creditors and investors, because it reveals the extent to which company management is willing to fund its operations with debt, rather than equity. For example, a company that wants to increase its return on equity can do so by<sup>26</sup>

Formula:

$$DE \text{ ratio} = \frac{\text{Total debt}}{\text{Shareholders' equity}}$$

### 3.7.3 Profitability Ratios

Measure a company's ability to generate earnings relative to sales, assets and equity. These ratios assess the ability of a company to generate earnings, profits and cash flows relative to relative to some metric, often the amount of money invested. They highlight how effectively the profitability of a company is being managed.<sup>27</sup>

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<sup>25</sup> READYRATIOS.COM, (2013). *Financial Leverage*. [online] Available at: [http://www.readyratios.com/reference/debt/financial\\_leverage.html](http://www.readyratios.com/reference/debt/financial_leverage.html) [Accessed 2 Sep. 2014].

<sup>26</sup> BRAGG, S.M., 2002. *Business Ratios and Formulas: A Comprehensive Guide*. 1 st ed. Wiley. 130 p., ISBN 0-471-39643-5

<sup>27</sup> READYRATIOS.COM, (2015). *Financial Analysis and Accounting Book of Reference: Statement of Financial Position / IFRS Statements / IFRS Reports / ReadyRatios.com*. [online] Available at: [http://www.readyratios.com/reference/profitability/?sphrase\\_id=22723](http://www.readyratios.com/reference/profitability/?sphrase_id=22723) [Accessed 3 Sep. 2014].

## **Earnings per share**

Measures the amount of a company's net income that is theoretically available for payment to the holders of its common stock. A company with high earnings per share ratio is capable of generating a significant dividend for investors, or it may plow the funds back into its business for more growth; in either case, a high ratio indicates a potentially worthwhile investment, depending on the market price of the stock.<sup>28</sup>

Formula:

$$EPS = \frac{\textit{Earnings}}{\textit{Total Shares Outstanding}}$$

## **Gross profit margin**

The gross profit margin expresses your profits as a percentage of the total sales revenues generated. This percentage allows to compare the profits of businesses of various sizes because the results are measured as a percentage rather than in raw numbers. However, because different industries have different norms, gross profit margin is hard to compare between companies in different sectors. To calculate the gross profit margin as a percent, you need to know the revenues and the cost of the goods sold.<sup>29</sup>

Formula:

$$\textit{Gross Profit Margin} = \frac{\textit{Gross Profit}}{\textit{Total Revenue}}$$

## **Net profit margin**

Net profit margin is the most basic profitability ratio that measures the percentage of net income of an entity to its net sales. It represents the proportion of sales that is left over after all relevant expenses have been adjusted.

Net profit margin is used to compare profitability of competitors in the same industry. It can also be used to determine the profitability potential of different industries.

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<sup>28</sup> ACCOUNTINGTOOLS.COM, (2015). *Earnings per Share Ratio - AccountingTools*. [online] Available at: <http://www.accountingtools.com/earnings-per-share-ratio> [Accessed 4 Sep. 2014].

<sup>29</sup> SMALL BUSINESS – CHRON.COM, (2015). *How to Calculate Gross Profit Margin Percentage*. [online] Available at: <http://smallbusiness.chron.com/calculate-gross-profit-margin-percentage-4133.html> [Accessed 4 Sep. 2014].

While companies in some industries are able to generate high net profit margin, other industries offer very narrow margins. It depends on the extent of competition, elasticity of demand, production differentiation, etc. of the relevant product or market.<sup>30</sup>

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Total Revenue}}$$

### **Pretax Profit Margin**

A company's earnings before tax as a percentage of total sales or revenues. The higher the pre-tax profit margin, the more profitable the company. The trend of the pretax profit margin is as important as the figure itself, since it provides an indication of which way the company's profitability is headed.<sup>31</sup>

$$\text{Pretax Profit Margin} = \frac{\text{Pretax Profit}}{\text{Total Revenue}}$$

### **Operating Profit Margin**

The operating profit margin ratio indicates how much profit a company makes after paying for variable costs of production such as wages, raw materials, etc. It is expressed as a percentage of sales and shows the efficiency of a company controlling the costs and expenses associated with business operations.<sup>32</sup>

$$\text{Operating Profit Margin} = \frac{\text{Operating Income or Loss}}{\text{Total Revenue}}$$

### **Return on assets**

Measures how profitable a company is relative to its total assets. In turn, it measures how efficiently a company uses its assets. Generally, ROA should be used to

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<sup>30</sup> ACCOUNTINGEXPLAINED.COM, (2015). *Net Profit Margin Ratio | Formula | Example | Analysis*. [online] Available at: <http://accountingexplained.com/financial/ratios/net-profit-margin> [Accessed 1 Aug. 2014].

<sup>31</sup> INVESTOPEDIA, (2010). *Pretax Profit Margin Definition | Investopedia*. [online] Available at: <http://www.investopedia.com/terms/p/pretax-margin.asp> [Accessed 3 Aug. 2014].

<sup>32</sup> WILKINSON, J., (2013). *Operating Profit Margin Ratio • The Strategic CFO*. [online] Strategiccfo.com. Available at: <http://strategiccfo.com/wikicfo/operating-profit-margin-ratio/> [Accessed 31 Aug. 2014].

compare companies in the same industry. Everything else being equal, a higher ROA is better, as it means that a company is more efficient about using its assets.<sup>33</sup>

Formula:

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$$

### **Return on equity**

Measures the return earned on the common stockholders' investment in the firm. Generally, the higher these returns, the better off are the owners.<sup>34</sup>

Formula:

$$ROE = \frac{\text{Net Income}}{\text{Shareholder's Equity}}$$

### **Return on investment**

The earning power of assets measured as the ratio of the net income (profit less depreciation) to the average capital employed (or equity capital) in a company or project.

Expressed usually as a percentage, return on investment is a measure of profitability that indicates whether or not a company is using its resources in an efficient manner. For example, if the long-term return on investment of a company is lower than its cost-of-capital, then the company will be better off by liquidating its assets and depositing the proceeds in a bank.<sup>34</sup>

Formula:

$$ROI = \frac{\text{Net Profit}}{\text{Total Assets}}$$

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<sup>33</sup> WIKINVEST.COM, (2015). *Metric: Return on Assets (ROA)*. [online] Available at: [http://www.wikinvest.com/metric/Return\\_on\\_Assets\\_\(ROA\)](http://www.wikinvest.com/metric/Return_on_Assets_(ROA)) [Accessed 10 Sep. 2014].

<sup>34</sup> GITMAN, L.J., 2006. *Principles of Managerial Finance*. 11th ed. United States of America: Pearson Education, Inc. 69p., ISBN 0-321-31150-7

<sup>34</sup> BUSINESSDICTIONARY.COM, (2015). *What is return on investment (ROI)? definition and meaning*. [online] Available at: <http://www.businessdictionary.com/definition/return-on-investment-ROI.html> [Accessed 19 Sep. 2014].

### 3.7.4 Valuation Ratios

Is a fraction in which a value or price serves as the numerator and financial, operating, or physical data serve as the denominator. Valuation ratios also help us assess if a company is expensive or cheap relative to earnings, growth prospects and dividend distributions.<sup>36</sup>

#### Price to earnings ratio

The price to earnings ratio (P/E) tells an investor how many years it will take to return his investment were the company earnings maintained at a constant level, and were all those earnings to be paid to the shareholder.<sup>37</sup>

Formula:

$$PE = \frac{\textit{Share Price}}{\textit{Earning Per Share}}$$

## 3.8 Oscillators

Oscillators are used to define oversold and overbought market conditions. The oscillator is plotted on the bottom of the price chart and fluctuates within a horizontal band. When the oscillator line reaches the upper limit of the band, a market is said to be overbought and vulnerable to a short-term setback. When the line is at the bottom of the range, the market is oversold and probably due for a rally. The oscillator helps to measure market extremes and tells the chartist when a market advance or decline has become overextended.<sup>38</sup>

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<sup>36</sup> VENTURELINE.COM, (2015). *VALUATION RATIO DEFINITION*. [online] Available at: <https://www.ventureline.com/accounting-glossary/V/valuation-ratio-definition/> [Accessed 26 Sep. 2014].

<sup>37</sup> WISESTOCKBUYER.COM, (2015). *A Guide To Valuation Ratios / WiseStockBuyer*. [online] Available at: <http://www.wisestockbuyer.com/a-guide-to-valuation-ratios/> [Accessed 22 Sep. 2014].

<sup>38</sup> MURPHY, J.J., 2012. *Charting made easy*. 1st ed. Wiley. 47p., ISBN 1-883272-59-9



### 3.8.1 Moving Average Convergence/Divergence

It indicates the correlation between two price moving averages.<sup>39</sup> MACD displays trend following characteristics, and by plotting the difference of the moving averages as an oscillator, MACD displays momentum characteristics. The MACD proves most effective in wide-swinging trading markets. There are three popular ways to use the Moving Average Convergence/Divergence: crossovers, overbought/oversold conditions, and divergences. The basic MACD trading rule is to sell when the MACD falls below its signal line. Similarly, a buy signal occurs when the Moving Average Convergence/Divergence rises above its signal line. It is also popular to sell/buy when the MACD goes above/below zero.<sup>40</sup>

#### **Formula:**

$$\text{MACD} = \text{EMA}(\text{CLOSE}, 12) - \text{EMA}(\text{CLOSE}, 26)$$

$$\text{SIGNAL} = \text{SMA}(\text{MACD}, 9)$$

*Where:*

*EMA — the Exponential Moving Average;*

*SMA — the Simple Moving Average;*

*SIGNAL — the signal line of the indicator.*

### 3.8.2 Relative Strength Index

A technical momentum indicator that is comparing the magnitude of recent gains to recent losses in an attempt to define oversold and overbought as well conditions of an asset. The RSI determine momentum as the ratio of lower closes to higher closes: stocks which have had more or stronger positive changes and have a higher RSI than stocks which have had more or stronger negative changes. The RSI is most often used on a 14 day

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<sup>39</sup> TA.MQI4.COM, (2015). - *Oscillators - Technical Analysis*. [online] Available at: <http://ta.mql4.com/indicators/oscillators/macd> [Accessed 6 Oct. 2014].

<sup>40</sup> WIKI.MTHBUILT.COM, (2015). *Technical Indicators and Oscillators - MTHWiki - MTH Software - developers of high quality personal financial software - My Money and Portfolio Analyst*. [online] Available at: [http://wiki.mthbuilt.com/Technical\\_Indicators\\_and\\_Oscillators](http://wiki.mthbuilt.com/Technical_Indicators_and_Oscillators) [Accessed 6 Oct. 2014].

timeframe, which measured on a scale from 0 to 100, with low and high levels marked at 30 and 70, respectively. Traditionally, RSI is considered oversold when below 30 and overbought when above 70.<sup>41</sup>

**Formula:**

$$RSI = 100 - 100/(1 + RS)$$

*Where:*

RS = Average of x days' up closes / Average of x days' down closes.

## **3.9 Technical Indicators**

A technical indicator is a series of collection of data points that are derived by applying a formula to the price data of a security. Price data includes any combination of the low, open, high or close over a period of time. So also some indicators may use only for the closing prices, when others incorporate volume and open interest into their formulas. The price data is entered into the formula and a data point is produced.<sup>42</sup>

### **3.9.1 Moving Average**

The Moving Average Technical Indicator expresses the mean instrument price value for a certain period of time. When one calculates the moving average, one averages out the instrument price for this time period. In the moment when price changes, its moving average decreases or increases.

Moving averages are used to emphasize the direction of a trend and to smooth out price and volume fluctuations, or "noise", that can confuse results and interpretation. Normally, upward momentum is confirmed when a short-term average (e.g.15-day) crosses

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<sup>41</sup> INVESTOPEDIA, (2003). *Relative Strength Index (RSI) Definition / Investopedia*. [online] Available at: <http://www.investopedia.com/terms/r/rsi.asp> [Accessed 10 Oct. 2014].

<sup>42</sup> WIKI.MTHBUILT.COM, (2015). *Technical Indicators and Oscillators - MTHWiki - MTH Software - developers of high quality personal financial software - My Money and Portfolio Analyst*. [online] Available at: [http://wiki.mthbuilt.com/Technical\\_Indicators\\_and\\_Oscillators](http://wiki.mthbuilt.com/Technical_Indicators_and_Oscillators) [Accessed 10 Oct. 2014].

above a longer-term average (e.g. 50-day). Downward momentum is confirmed when a short-term average crosses below a long-term average.<sup>43</sup>

### **Simple Moving Average**

A moving average that is calculated by easily adding the closing price of a security for a number of periods and dividing the total by the number of periods; short-term averages respond quickly to price changes in the underlying securities, whereas long-term averages are slow to react.<sup>44</sup>

#### **Formula:**

$$\text{SMA} = \text{SUM}(\text{CLOSE}, \text{N})/\text{N}$$

*Where:*

N — is the number of calculation periods.

### **Exponential Moving Average**

A type of moving average that is similar to a simple moving average, exclude that more weight is given to the latest data. The exponential moving average is as well known as "exponentially weighted moving average".<sup>45</sup>

#### **Formula:**

$$\text{EMA} = (\text{CLOSE}(i)*P)+(\text{EMA}(i-1)*(1-P))$$

*Where:*

CLOSE(i) — the price of the current period closure;

EMA(i-1) — Exponentially Moving Average of the previous period closure;

P — the percentage of using the price value.

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<sup>43</sup> TA.MQ14.COM, (2015). - *Trends Indicators - Technical Analysis*. [online] Available at: [http://ta.mql4.com/indicators/trends/moving\\_average](http://ta.mql4.com/indicators/trends/moving_average) [Accessed 10 Oct. 2014].

<sup>44</sup> THEFREEDICTIONARY.COM, (2015). *Simple Moving Average*. [online] Available at: <http://financial-dictionary.thefreedictionary.com/Simple+Moving+Average> [Accessed 15 Oct. 2014].

<sup>45</sup> INVESTOPEDIA, (2003). *Exponential Moving Average (EMA) Definition | Investopedia*. [online] Available at: <http://www.investopedia.com/terms/e/ema.asp> [Accessed 15 Oct. 2014].

## Smoothed Moving Average

The SMMA gives recent prices an equal weighting to historic prices. For calculating take all available data series into account mainly than referring to a fixed period. This is achieved by subtracting the prior periods SMMA from the current periods price.<sup>46</sup>

### Formula:

- 1)  $SUM1 = SUM(CLOSE, N)$   
 $SMMA1 = SUM1/N$
- 2)  $PREVSUM = SMMA(i-1) * N$   
 $SMMA(i) = (PREVSUM - SMMA(i-1) + CLOSE(i))/N$

Where:

SUM1 — is the total sum of closing prices for N periods;

PREVSUM — is the smoothed sum of the previous bar;

SMMA1 — is the smoothed moving average of the first bar;

SMMA(i) — is the smoothed moving average of the current bar (except for the first one);

CLOSE(i) — is the current closing price;

N — is the smoothing period.

## Linear Weighted Moving Average

A type of moving average that appropriates a higher weighting to recent price data than does the common simple moving average. This average is calculated by taking each of the closing prices over a given time period and multiplying them by its certain position in the data series. When the position of the time periods have been accounted for they are summed together and divided by the sum of the number of time periods.<sup>47</sup>

### Formula:

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<sup>46</sup> MAHIFX.COM, (2015). *Smoothed Moving Average (SMMA) — MahiFX*. [online] Available at: <https://mahifx.com/indicators/smoothed-moving-average-smma> [Accessed 5 Nov. 2014].

<sup>47</sup> INVESTOPEDIA, (2006). *Linearly Weighted Moving Average Definition | Investopedia*. [online] Available at: <http://www.investopedia.com/terms/l/linearlyweightedmovingaverage.asp> [Accessed 30 Oct. 2014].

$$\text{LWMA} = \text{SUM}(\text{Close}(i) * i, N) / \text{SUM}(i, N)$$

Where:

SUM(i, N) — is the total sum of weight coefficients.

### 3.9.2 Bollinger Bands

The main goal of Bollinger Bands is to determine a relative determination of low and high. By expression process are low at the lower band and high at the upper band. Bollinger Band contains of a set of three curves draw in relation to securities prices. The middle band represents of the intermediate- term trend, typically simple moving average, than serves as the base for the upper band and lower band. The interval among the upper and lower bands and the middle band is defined by volatility, normally the standard deviation of the same collected data that were used for the average. The default parameters, 20 periods and two standard deviations.<sup>48</sup>

**-Bollinger bands are formed by three lines. The middle line (ML) is a usual Moving Average.**

**Formula:**

$$\text{ML} = \text{SUM} [\text{CLOSE}, N] / N$$

**-The top line, TL, is the same as the middle line a certain number of standard deviations**

**Formula:**

(D) higher than the ML.

$$\text{TL} = \text{ML} + (D * \text{StdDev})$$

**-The bottom line (BL) is the middle line shifted down by the same number of standard deviations.**

**Formula:**

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<sup>48</sup> BOLLINGERBANDS.COM, (2015). *Bollinger Bands | Official site of John Bollinger's Bollinger Bands and Capital Growth Letter*. [online] Available at: <http://www.bollingerbands.com/> [Accessed 10 Nov. 2014].

$$BL = ML - (D * StdDev)$$

$$StdDev = \sqrt{\text{SUM}[(CLOSE - SMA(CLOSE, N))^2, N] / N}$$

*Where:*

N — is the number of periods used in calculation;

SMA — Simple Moving Average;

StdDev — means Standard Deviation.

## **4. PRACTICAL PART**

### **4.1 Fundamental analysis**

#### **4.1.1 Competitors**

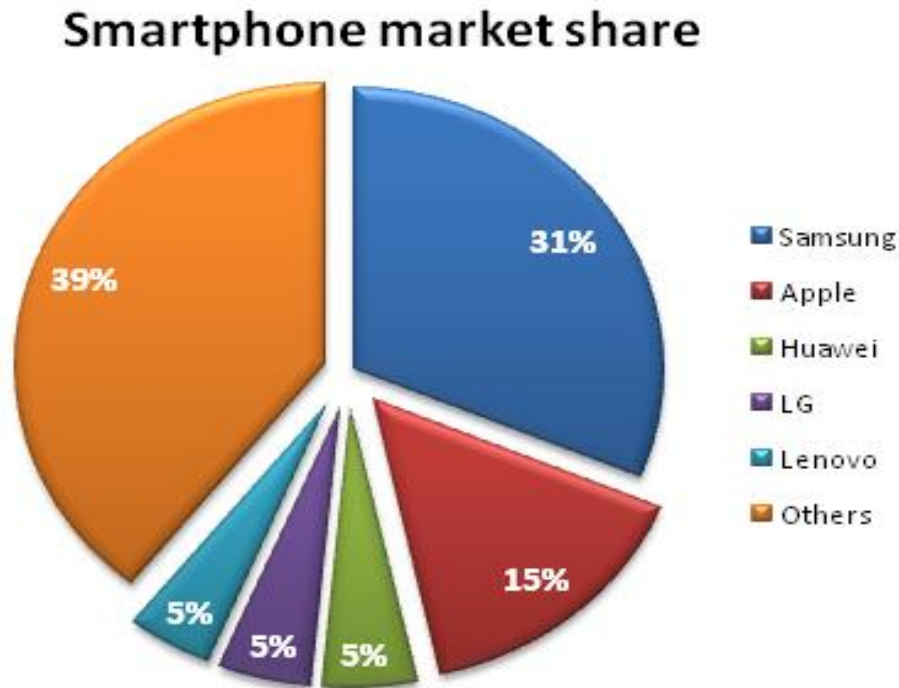
The biggest competitor of Samsung Electronics Co., Ltd is Apple Inc.. Samsung Electronics and Apple together soaked up 97.1% of the total profits generated in the global mobile phone market. According to 21.10.2013 data from market research firm Strategy Analytics, Samsung Electronics and Apple took 48.8% and 48.3% of the gross profits in the second quarter of this year, respectively. They were followed by LG Electronics (0.5%) and Sony (0.5%).

As recently as two years ago, Apple accounted for 61.6% of the global mobile phone market profits, while Samsung Electronics' percentage stood at 19.1%. However, in the second quarter of this year, Samsung Electronics recorded US\$5.2 billion in operating profits in the market overtaking Apple for the first time by a margin of US\$0.6 billion.

On global Market the biggest Samsung electronics Co., Ltd are Panasonic Corporation and Sony Corporation.

A graphic showing global market share of major Smartphone makers. By Smartphone market share it seems that Samsung takes 31%, Apple 15%, Huawei, LG and Lenovo 5% by each.<sup>49</sup>

**Graph 2:** Smartphone market share (Source: own processing based on SAMSUNG, Facts & Figures 2015)



#### 4.1.2 Calculations and Interpretations

All calculations were computed using data from Appendix.

##### *Gross Profit Margin*

**Formula:**

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Total Revenue}} = \frac{90,996,309,000}{228,692,667,000} = 39.7 \%$$

**Interpretation:**

Samsung Company's Gross Profit Margin for 2013 year is 39.7 %. It means that for every dollar generated in sales the company has 39.7 cents left over to cover basic operating costs and profit.

<sup>49</sup> BUSINESSKOREA, (2015). *Samsung Electronics' Operating Profits Exceed Apple's in Mobile Phone Market*. [online] Available at: <http://www.businesskorea.co.kr/article/2007/profit-competition-samsung-electronics'-operating-profits-exceed-apple's-mobile-phone> [Accessed 29 Nov. 2014].

### *Net Profit Margin*

**Formula:**

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Total Revenue}} = \frac{29,821,215,000}{228,692,667,000} = 13 \%$$

**Interpretation:**

This means that a company has 13 cents of net income for every dollar of sales.

### *Operating Profit Margin*

**Formula:**

$$\text{Operating Profit Margin} = \frac{\text{Operating Income or Loss}}{\text{Total Revenue}} = \frac{36,785,013,000}{228,692,667,000} = 16 \%$$

**Interpretation:**

It means that company (before interest and taxes) make 16 cents on each dollar of sales.

The higher increasing of operating margin, company is earning more per dollar.

### *Pretax Profit Margin*

**Formula:**

$$\text{Pretax Profit Margin} = \frac{\text{Pretax Profit}}{\text{Total Revenue}} = \frac{36,785,013,000}{228,692,667,000} = 16 \%$$

**Interpretation:**

This means the company is generating a profit of 16 cents for every dollar worth of sales before taxes.

### *Current ratio*

**Formula:**

$$\text{Current ratio} = \frac{\text{Total Current Assets}}{\text{Total Current Liabilities}} = \frac{110,760,271,000}{51,315,409,000} = 2.1$$

**Interpretation:**

The higher the current ratio, the more liquid the firm is considered to be. A current ratio of 2.1 is occasionally cited acceptable.



### *Quick ratio*

**Formula:**

$$\text{Quick ratio} = \frac{\text{Total Current Assets} - \text{Inventories}}{\text{Total Current Liabilities}} = \frac{110,760,271,000 - 19,134,868,000}{51,315,409,000} = 1.78$$

**Interpretation:**

A quick ratio of 1.78 is occasionally recommended. It suggests that a company is able to settle all and even more of its current liabilities.

### *Return on assets*

**Formula:**

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}} = \frac{29,821,215,000}{214,075,018,000} = 13.9\%$$

**Interpretation:**

The value notices that the firm earned 13.9 cents on each dollar of asset investment.

### *Return on investment*

**Formula:**

$$\begin{aligned} \text{ROI} &= \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{\text{Total Revenue} - \text{Total Operate Expenses}}{\text{Total Assets}} \\ &= \frac{228,692,667,000 - 191,907,654,000}{214,075,018,000} = \frac{36,785,013,000}{214,075,018,000} \\ &= 17.1\% \end{aligned}$$

**Interpretation:**

It means that ROI return 17.1% . So for every 100\$ returns 17.1 \$.

### *Return on equity*

**Formula:**

$$\begin{aligned} \text{ROE} &= \frac{\text{Net Income}}{\text{Shareholder's Equity}} = \frac{\text{Net Income}}{\text{Total assets} - \text{Total liabilities}} \\ &= \frac{29,821,215,000}{214,075,018,000 - 64,059,008,000} = \frac{29,821,215,000}{150,016,010,000} \\ &= 19.8\% \end{aligned}$$

**Interpretation:**

The calculated ROE 19.8% shows that during 2013 year company Samsung earned 19.8 cents on each dollar.

**Earnings her Share****Formula:**

$$\begin{aligned} EPS &= \frac{\text{Earnings}}{\text{Total Shares Outstanding}} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Total Shares Outstanding}} \\ &= \frac{29.82T - 3.93T}{0,00013091} = 197,769.4599 \text{ KRW} = \$188 \end{aligned}$$

**Interpretation:**

The higher the EPS figure, the better it is for Company. As in our case higher EPS is the sign of higher earnings also strong financial position and a reliable company to invest money.

**Price to Earnings ratio****Formula:**

$$PE = \frac{\text{Share Price}}{\text{Earning Per Share}} = \frac{1,351,701.25}{197,769.4599} = \frac{1285}{188} = \$ 6.83$$

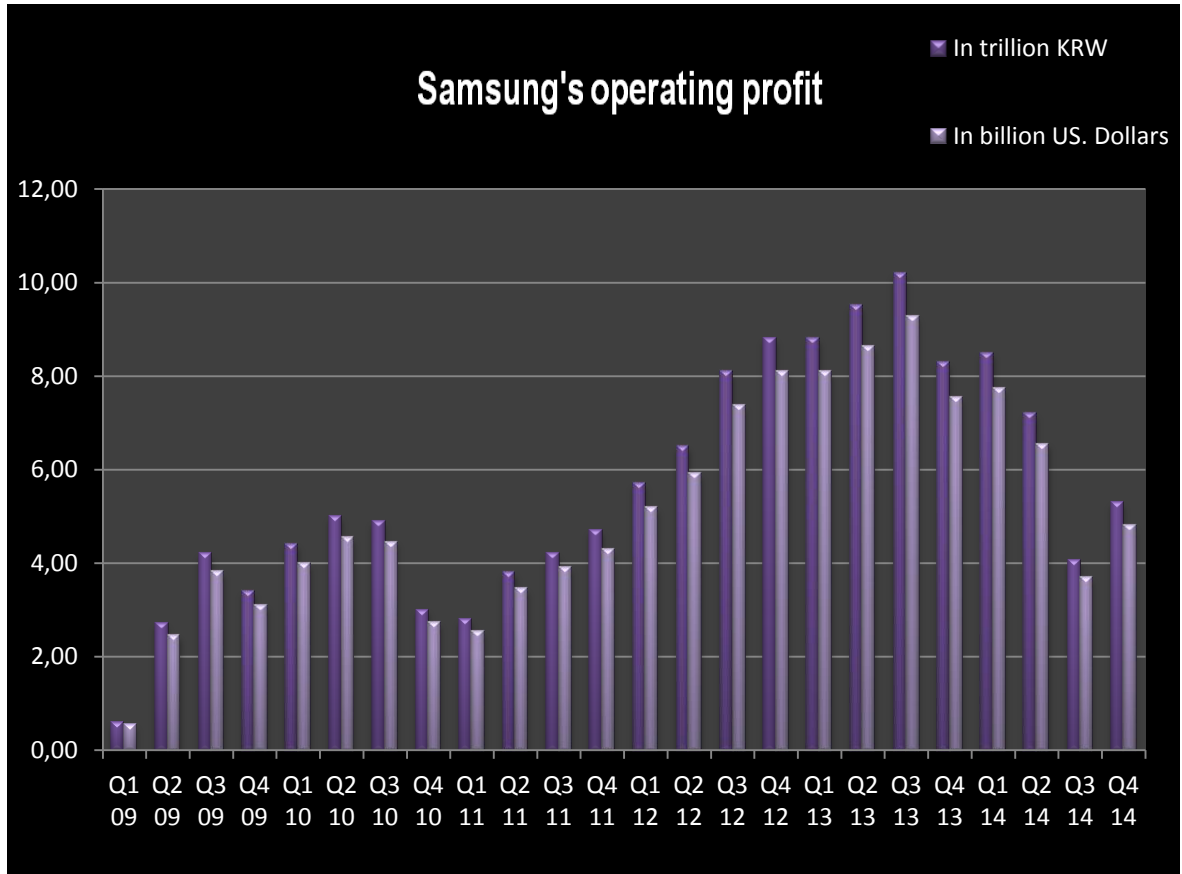
**Interpretation:**

The result means that PE value indicates that investors were paying \$ 6.83 for each \$1.

## 4.2 Technical analysis

### 4.2.1 Operating Profit Analysis

Graph 3: Operating profit quarterly report (Source: own processing based on SAMSUNG, Statistics 2015)

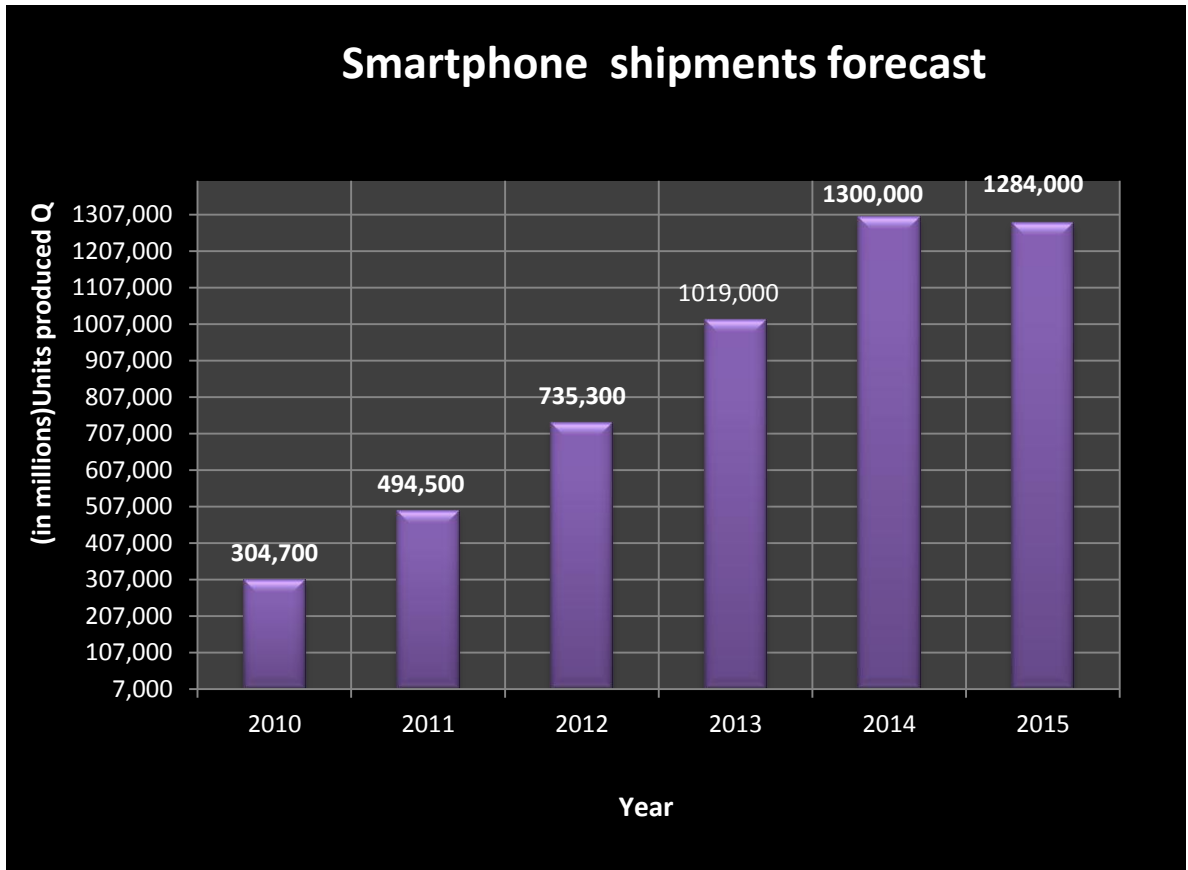


#### Interpretation:

This graph represents the quarterly operating profit made by Samsung from 2009 to 2014. The results are displayed in trillion South Korean Won and billion US dollar amounts. The company has seen a steady increase in profits in the last 4 years and as of the first quarter of 2013, the operating profit stood at 8.01 billion US dollars.

## 4.2.2 Shipments Forecast Analysis

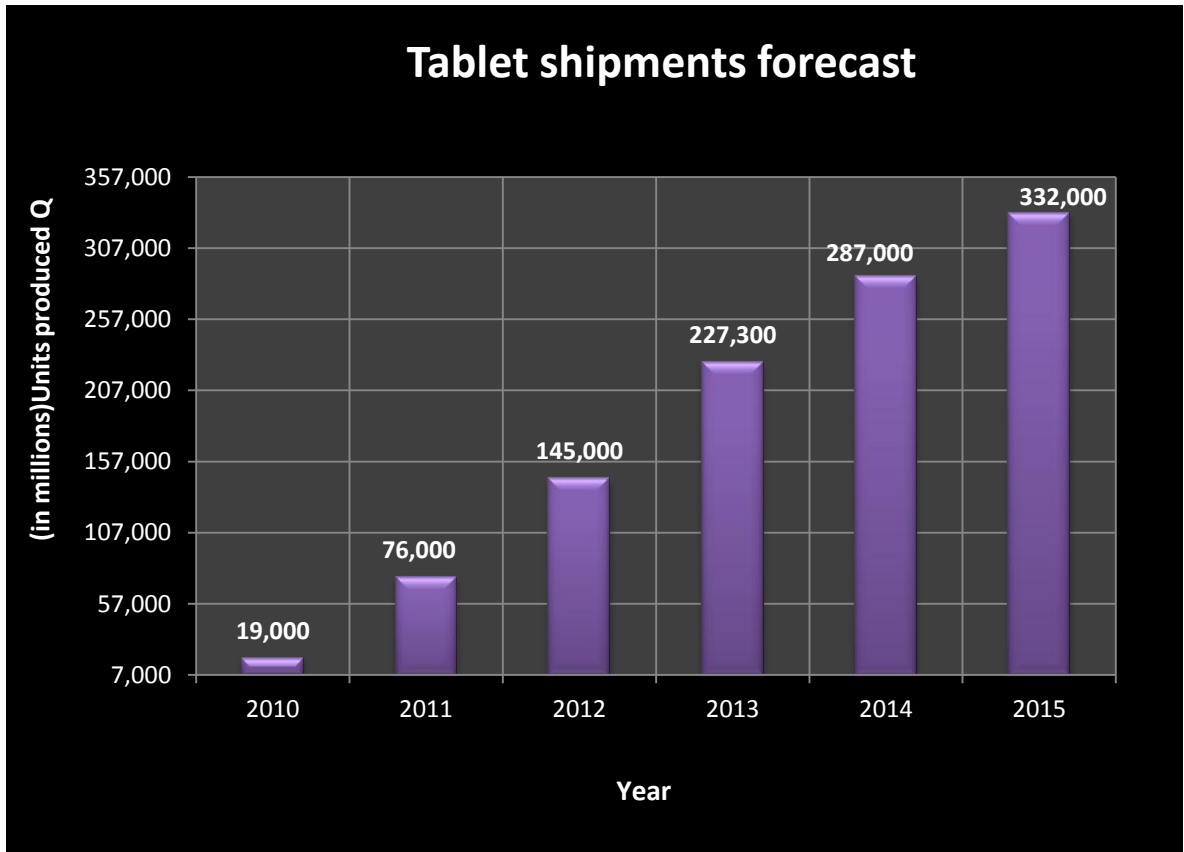
Graph 4: Smartphone shipments forecast from 2010-2015 (Source: own processing based on SAMSUNG, Facts & Figures 2015)



### Interpretation:

This graph shows Smartphone shipments forecast from 2010 till 2015. The results are represented in millions units produced by company. Using this graph it is clearly understood that producing Smartphone increase from 304,700 million to 1300,000 billion for four years.

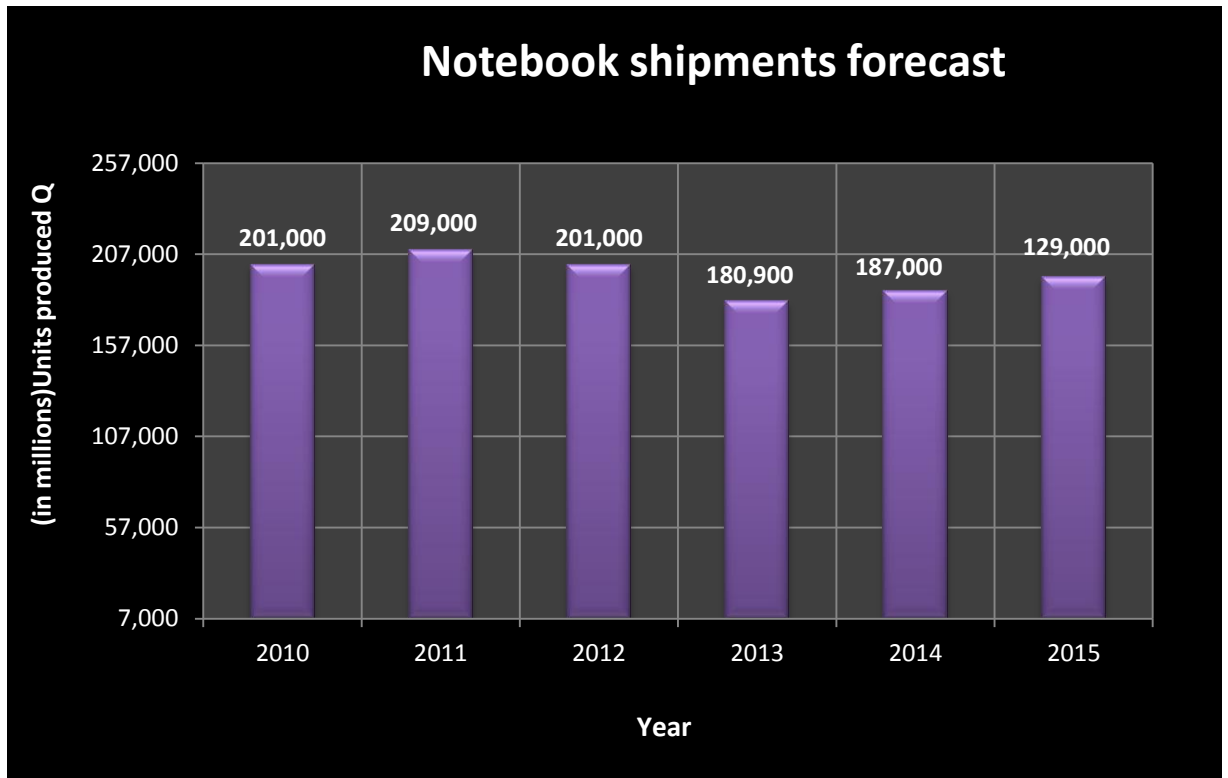
**Graph 5:** Tablet shipments forecast from 2010-2015 (Source: own processing based on SAMSUNG, Facts & Figures 20



**Interpretation:**

This graph explains Tablet shipments forecast for 6 years. The results determine that in year 2010 company produced 19,000 million of tablets. From this year it seems that produce of Tablets going up till 2015 for 332,000 million.

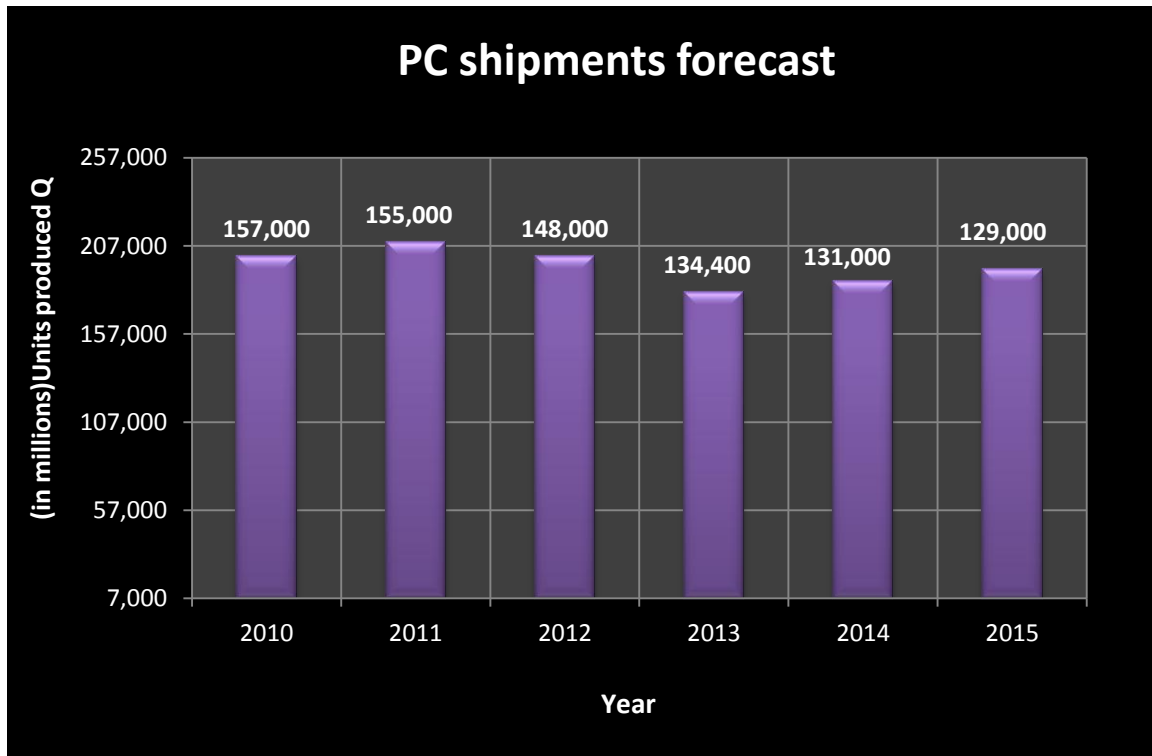
**Graph 6:** Notebook shipments forecast from 2010-2015 (Source: own processing based on SAMSUNG, Facts & Figures 2015)



**Interpretation:**

Shipment forecast Notebook graph shows more stable situation of producing with comparing to graphs before. It seems that in year 2010 Samsung Electronics Co., Ltd. produced 201,000 million of notebooks. From 2010 till 2011 producing increase by 8,000 million and then decrease by same amount in 2012. Later from 2013 till 2015 it growth from 180,000 to 129,000 million of tablets.

**Graph 7:** PC shipments forecast from 2010-2015 (Source: own processing based on SAMSUNG, Facts & Figures 2015)



**Interpretation:**

Last one forecast graph shows PC shipments represented in million units. In year 2010 amount of produced PC's was 157,000 millions. The higher position was in 2011 by 155,000 million and the lowest amount of producing PC's in 2013, just 134,400.

## 4.2.3 Oscillator Analysis

### Moving Average Convergence/Divergence

*Graph 8: Moving Average Convergence/Divergence 2014-2015 (Source: own processing based on investing.com, Real Time Stock Charts 2015)*



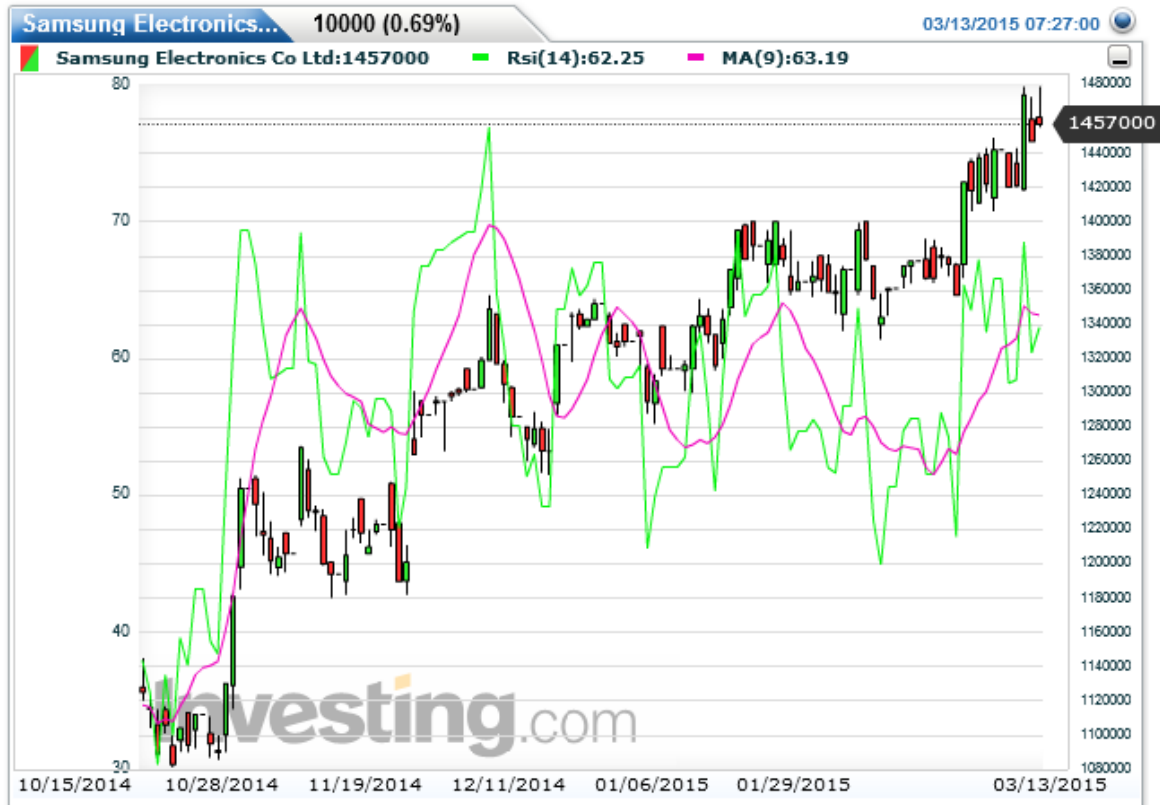
#### Interpretation:

This graph represents daily Moving Average Convergence/Divergence 12 and 26, with data collection Moving average 9. Red line represents Moving Average as well blue line means Moving Average Convergence/Divergence. In this graph seems that on date 23/10/14 we are buying shares, when price per share is 1094000 KRW, then on date 14/11/2014 we should sell shares for 1194000 per share. As line Moving Average increasing we should buy shares from lower point to the higher one. Otherwise when we have on the top line and it decreasing to zero and more we should sell shares.



## Relative Strength Index

**Graph 9:** Relative Strength Index 2014-2015 (Source: own processing based on investing.com, Real Time Stock Charts 2015)



### Interpretation:

This graph represents daily Relative Strength Index with value 12 and with data collection Moving average 9. Pink line represents Moving Average as well green line Relative Strength Index. In this graph seems that on date 17/10/2014 line RSI takes to lower line 30 in means than it is oversold, so we opening position and buy shares (189000 KRW per share) till RSI is growing to upper line 70 on date 10/10/2014 and in this point it is overbought, so we close the position (140000 KRW) close the position, then on date 31/10/2014.

## 4.2.4 Technical Indicator Analysis

### Bollinger Bands

**Graph 10:** Bollinger Bands 2014-2015 (Source: own processing based on investing.com, Real Time Stock Charts 2015)



#### Interpretation:

This graph represents daily Bollinger Bands with the upper band (20:2) that represents by yellow line, middle band (20:2) that is black and lower band (20:2) that is blue. It is represents that on date 13/10/2014 Candlestick touched the lower band we should open buying position and buy shares (1108000 KRW per share). Then on date 31/10/2014 (1244000 KRW per share) and also 09/12/2014 (1349000 KRW per share) in this cases Candlestick touches upper band that means we should open selling position and sell shares.

## **5. CONCLUSION AND INVESTMENT RECOMMENDATION**

The main objective of this thesis was to familiarize the reader with the concept of fundamental economic analysis and technical analysis was provided. By technical analysis it is clearly seems that Samsung corporation occupies an important position in comparing with relative companies. These days it is proved that Samsung Co. Ltd is popular company among its competitors, by producing a big variety of different kinds of products with new designs and its innovations. Thus, it leads to huge amount of customers and high profit.

All calculations were provided using data collection from past years to estimate market position of Samsung nowadays. From technical results it is understood that from years and years Samsung Co.Ltd. growing in all aspects, as we can observe from chart Samsung's Operating Profit. As well by another charts that representing Samsung Shipment forecast, in which obtained that volume of products is increasing.

According to recent figures, the main competitor Samsung, Apple Inc., has surpassed its sales of Smartphone's and took the lead in the fourth quarter of 2014. But still Samsung is not losing its position. Company plans to invest near \$3,6 billion into development Organic light-emitting diode, OLED in next few years. It is good opportunity for company to produce something innovative that don't have other companies. Analysis said the new facility will create bendable displays, such as on a Smartphone Galaxy Note Edge and eventually, it will win the battle for the consumer, which is crucial for the growth of future income from the sale of Samsung Electronics Smartphone's. So, my suggestion is to invest into a company, as it is a profitable company with improving itself now and promisingly future market position.

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## 7. LIST OF VISUALS

### 7.1 List of tables

**Table 1:** Estimated Value and Market Price (Source: own processing based on Equity Valuation: Concepts and Basic Tools).....22

**Table 2:** Characteristics of competition (Source: own processing based on: Economics Online).....23

**Table 3:** Characteristics of Market Structure (Source: own processing based on: Economics (B.S.) October 15, 2013).....23

**Table 4:** Worldwide sales by region expressed in trillion KRW (Source: own processing based on SAMSUNG, Facts & Figures 2015).....25

### 7.2 List of graphs

**Graph 1:** Proportion of sales by region in 2011 (Source: own processing based on SAMSUNG, F& F 2015).....26

**Graph 2:** Smartphone market share (Source: own processing based on SAMSUNG, Facts & Figures 2015).....39

**Graph 3:** Operating profit quarterly report (Source: own processing based on SAMSUNG, Statistics 2015).....43

**Graph 4:** Smartphone shipments forecast from 2010-2015 (Source: own processing based on SAMSUNG, Facts & Figures 2015).....44

**Graph 5:** Tablet shipments forecast from 2010-2015 (Source: own processing based on SAMSUNG, Facts & Figures 20).....45

**Graph 6:** Notebook shipments forecast from 2010-2015 (Source: own processing based on SAMSUNG, Facts & Figures 2015).....46

**Graph 7:** PC shipments forecast from 2010-2015 (Source: own processing based on SAMSUNG, Facts & Figures 2015).....47

**Graph 8:** Moving Average Convergence/Divergence 2014-2015 (Source: own processing based on investing.com, Real Time Stock Charts 2015).....48

**Graph 9:** Relative Strength Index 2014-2015 (Source: own processing based on investing.com, Real Time Stock Charts 2015).....49



**Graph 10:** Bollinger Bands 2014-2015 (Source: own processing based on investing.com, Real Time Stock Charts 2015).....50

*Own computation from sources: Yahoo.finance.com, Bloomberg.com and marketwatch.com.*

## 8. APPENDIX

### Samsung Electronics Co. Ltd. (005930.KS)

#### Income Statement

Period Ending

Dec 31, 2013

Total Revenue 228,692,667,000

Cost of Revenue 137,696,309,000

Gross Profit 90,996,358,000

Operating Expenses

Total Operating Expenses 191,907,654,000

Operating Income or Loss 36,785,013,000

Income from Continuing  
Operations

Earnings Before Interest And

Taxes 36,785,013,000

Interest Expense -509 658 000

Income Tax Expense 7,889,515,000

Minority Interest -653 549 000

Net Income From Continuing

Ops 30 474 764 000

Net Income 29,821,215,000

Pretax Profit 36,785,013,000

#### Balance Sheet

**Period Ending****Dec 31, 2013****Assets**

## Current Assets

Cash And Cash Equivalents	16,284,780,000
Short Term Investments	38,171,930,000
Net Receivables	27,891,383,000
Inventory	19 134 868 000
Other Current Assets	6 804 360 000

**Total Current Assets 110,760,271,000**

Long Term Investments	12,654,995,000
Goodwill	560,534,000
Deferred Long Term Asset Charges	4,621,780,000

**Total Assets 214,075,018,000****Liabilities**

## Current Liabilities

Accounts Payable	17,633,705,000
Short/Current Long Term Debt	11,160,533,000
Other Current Liabilities	13,472,826,000

**Total Current Liabilities 51,315,409,000**

Long Term Debt	2,213,783,000
Deferred Long Term Liability Charges	752,669,000

**Total Liabilities 64,059,008,000****Stockholders' Equity**

Common Stock	5,301,407,000
Retained Earnings	148 600 282 000
Treasury Stock	-9 459 073 000
Capital Surplus	82,402,000

## Cash Flow

<b>Period Ending</b>	<b>Dec 31, 2013</b>
<b>Net Income</b>	<b>29,821,215,000</b>
<b>Operating Activities, Cash Flows Provided By or Used In</b>	
Depreciation	16,134,778,000
Changes In Accounts Receivables	-1 993 705 000
Changes In Inventories	-3 097 762 000
Changes In Other Operating Activities	4,743,899,000
<b>Total Cash Flow From Operating Activities</b>	
	<b>46,707,440,000</b>
<b>Investing Activities, Cash Flows Provided By or Used In</b>	
Capital Expenditures	-23 157 587 000
<b>Total Cash Flows From Investing Activities</b>	
	<b>-44 747 019 000</b>
<b>Financing Activities, Cash Flows Provided By or Used In</b>	
Other Cash Flows from Financing Activities	-21 799 722 000
<b>Total Cash Flows From Financing Activities</b>	
	<b>-4 137 031 000</b>
Effect Of Exchange Rate Changes	-330 070 000
<b>Change In Cash and Cash Equivalents</b>	
	<b>-2 506 680 000</b>