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Valuation of the Boeing Company

By

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Abstract-

In this paper I have conducted a comprehensive analysis of the Boeing Company based on popular valuation methods to determine if the share price of Boeing is undervalued, overvalued, or correctly valued. My initial finding is that, the equity price of Boeing differs slightly from the current market price. According to the discounted cash flow analysis, a fair price of Boeing is USD 101.893 which is approximately 26 % lower than the current market price (USD 128,358 as per 31/12/2014). Rather than employing perpetuity method, if instead EBITDA multiple is used as terminal value, then the results shows that the current market price is lower than what it should be. However, comparable company analysis indicates that the price of Boeing is either about right or slightly overvalued. This thesis paper considered the price of Boeing as slightly over-priced.

Introduction

According to a report from the Bloomberg Business by Verhage (2015), Goldman Sachs asks two economists; Noble laureate Robert Shiller and Wharton professor Jeremy Sigel if the United States stocks markets are in a bubble. Unfortunately they answer very differently. Shiller's analysis find symptom of Bubble, on the other hand, Sigel finds the value of stock market is completely justified given the lower interest rate. To conclude, Shiller is bearish and Sigel is bullish about the United States Stock Market. Hence it is understood that valuation is not absolute but relative and here lies the function of the market. Bearish investors might go short whereas bullish investors might go long! Furthermore, a study finds that a wine bidding price was higher based on the last two digits security number. Hence our choice of pricing and valuation varies!

This paper aims to find the fair value of the Boeing Company (hereafter referred to as Boeing) by employing different existing models and relative valuation principles. To determine the fair share price of Boeing, The paper follows the following structure-

The development of the paper is divided into five sections-

Section 1: an overview of the paper- motivation, problem statement, methodology etcetera.

Section 2: Strategic analysis- based on SWOT and Michael Porter's five forces

Section 3- Financial statement analysis

Section 4- Forecasting free cash flow based on historical and assumptions based parameters

Section 5- Valuation-DCF, comparable company analysis

Section-1

1.1. Motivation-

I started trading in the financial market for about two years ago. In the beginning I mainly bought and sold different leading future indices like FTSE100, Standard and Poor's (S&P) 500. However, within a short period of time, I lost all my initial investment. However, I still trade and most of my trades are now winner.

Due to having a great zeal in the financial market, my friend (a NHH student) and I choose to write master thesis on the momentum (buying winners and selling losers). Unfortunately, I could not continue with that topic as my friend suddenly left me in the middle of thesis. Then I changed my mind to write about something common but interesting.

While studying corporate finance, it was taught about mergers and acquisition. In addition, in the valuation course, lectures were provided about valuing company. In the practical class, our lecturer valued a company. However, the share price we found was very different from the market price! Even then, universal bank, mainly investment bank engage in valuing companies and it is a crucial business for them.

Provided that investment bank focuses on the fundamental valuation, as an individual I might not have the advantage over them, however, I find it fun of valuing company! To sum up, a strong zeal in the financial market has obliged me to take this topic as my master thesis.

1.2. Problem statement

In the starting of the paper, the paper points about two economists who have distinct views on the value of U.S. equity. The paper concerns here to find the fair market value of Boeing equity by analyzing the company.

1.3. Research questions

Research questions lie in finding the fair value of Boeing. Fair value simply can be defined as the present value of all the discounted cash flows that Boeing generates. To find the fair value, the paper makes several assumptions about the future free cash flow. The paper specifically studies-

What is the fair value of Boeing as per 31st December 2014?

Is the market overpricing or underpricing the Boeing equity?

The paper thoroughly investigates above questions and attempts to answer using popular valuation methods.

1.4. Research Purpose

This research investigates Boeing and its' competitor primarily based on the financial data to estimate the fair value of Boeing. The research should give a clear insight about the valuation of firms and enhance the understanding of the valuation at least in three aspects.

(1)From an academic perspective, this paper deepens understanding of valuation with existing models that better generalize the reality. This study makes an integrated and clear effort to explain the model parameters easiest possible way.

(2)For the managers of the companies, the findings of this study might guide if share buyback is value increasing as the company increasingly purchasing shares from the market.

(3)To the general public and the individual investors, this research should guide if they should buy or sell Boeing share!

1.6. Methodology

1.6.1. Research design

This paper deploys a descriptive design in order to study the value of Boeing equity. Primarily this research is based on case study of Boeing and its competitors.

1.6.2. Data collection

This research collects data of Boeing and its competitors from 2010 to 2014. Furthermore, any data collected any other time frame is well documented.

Data is collected from two types of sources of evidence: (1) the official financial reports of the companies from investor relations and also from (2) financial databases such as, MarketLine and Hoover, yahoo finance. Hence, the majority of data is quantitative in nature. This data collection technique provides access to rich data of multiple companies. Collected data should be credible due to third-party audition and also due to regulation, such as Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS). Collected data have strong consistency across companies; making comparisons between different companies are feasible and reliable. However, using financial report as the main data collection source indicates that this research is mainly based on secondary data.

1.7. Boeing Company

1.7.1. Introduction-

Origin of Boeing dates backs to 15 July 1916 when William E. Boeing founded 'Pacific Aero Products Co'. William Boeing along with Conrad Westervelt developed the single engine, two seats B & W seaplane. After that, in 1917, the company name was changed to 'Boeing Airplane Company'. Initially the company produced flying boats for the US Navy and then it produced pursuit planes, patrol bombers, torpedo planes etcetera. (marketrealist, 2015).

Currently Boeing is known all over the world as one of the leading aerospace companies and the largest manufacturer of commercial jet liners and defense, space and security system. It is listed on the New York Stock Exchange as NYSE: BA

The company's line of business has extended to 150 countries and it has approximately 174000 employees. Boeing offers a wide range of products and services such as commercial and military aircraft, satellite, weapons. Boeing has only two major segments in which circa 60% belong to commercial airplanes and the rest 40% to the defense, space and security. According to Boeing, it has over 12,000 (circa 75% of the world fleet) commercial jetliner in service around the world. Its current product includes 737, 747,767 and 777 families of airplanes and the Boeing business Jet. Its current development includes 787 Dreamliner and the 747-8. 787 Dreamliner is superefficient which saves fuel cost remarkably. Furthermore, it provides better passenger comfort and it is less harmful to the environment.

1.7.2.-Business segments

This write-up is based on 2014 the annual report of Boeing.

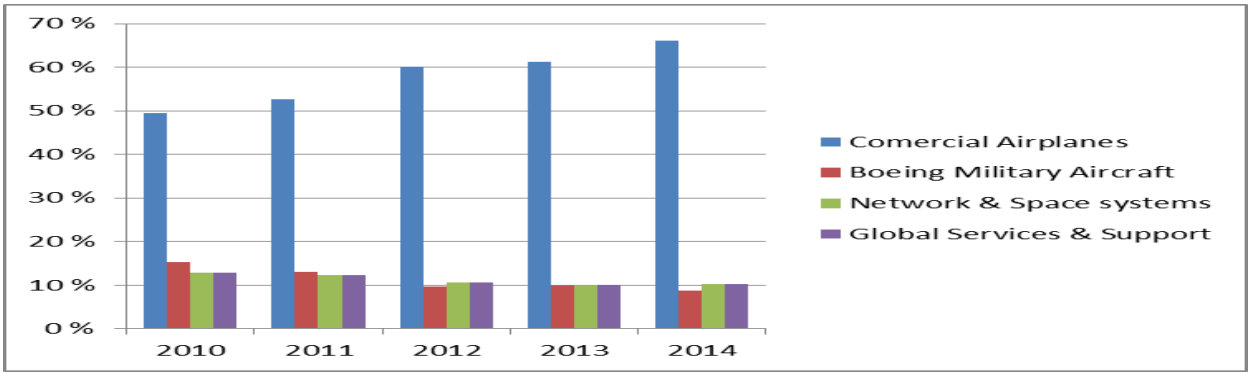


Figure-: Business segments of Boeing based on revenue

Boeing operates in five principal segments. As it is seen from the bar chart, these segments are namely-

-Commercial Airplanes

-Defense, Space and Security consist of three segments, they are-

-Boeing Military Aircraft (BMA)

-Network and Space System (N &SS)

-Global Services and Support Systems (GS&S)

-Boeing Capital (BCC)

Commercial Airplane Segment-

This segment develops, produces and markets commercial jet aircraft and offer services related to basically commercial airlines industries around the world. Boeing is a major producer of commercial aircraft and it offers a family of jetliners to meet the demand and satisfy its customers. Current jetliner in productions includes the 737 narrow body model and 747, 767,777 and 787 wide body models. This segment further provides aviation support service, modification of aircraft etcetera. This segment renders higher revenue than all other segments together.

Defense, Space and Security

-Boeing Military Aircraft Segment

This segment involves in several activities such as research, development, production and modification manned and unmanned military aircraft. Furthermore, it involves in production of weapon systems for global strike. Major programs that include in this segment for global strike are –EA-18G Growler Airborne Electronic Attack, F/A-18E/F etcetera. In terms of revenue, this segment stands after the commercial airplane segment.

Network and Space System Segment

This segment engages in wide range of activities- such as electronics and information solution, including command, control, cyber and information solution. In terms of revenue contribution, this segment contributes one tenth of full revenue.

Global service and support system

This segment offers customer a total support solution. It gives its customer integrated logistics, including supply chain management, engineering support, maintenance, modification and upgrading of aircrafts and so on. However, in relation to revenue contribution, this segment is several times slimmer than commercial airplane segment.

1.7.3. Historical share performance-

The line chart below shows the historical share performance of Boeing. It is seen that the share price of Boeing is cyclical. From early 2000 to 2001, the price increased by more than 50% from previous low. However, it dropped and reached the bottom in 2003 and then from 2003 to the middle of 2007, its price experienced a dramatic growth. After increasing the share price about 200%, it then fell exponentially. What is more? It is observed that the share price of Boeing over the last five years has increased dramatically from 58.85 in 2010 to as high as $140 in 2014.

Figure1.2: Boeing share price growth

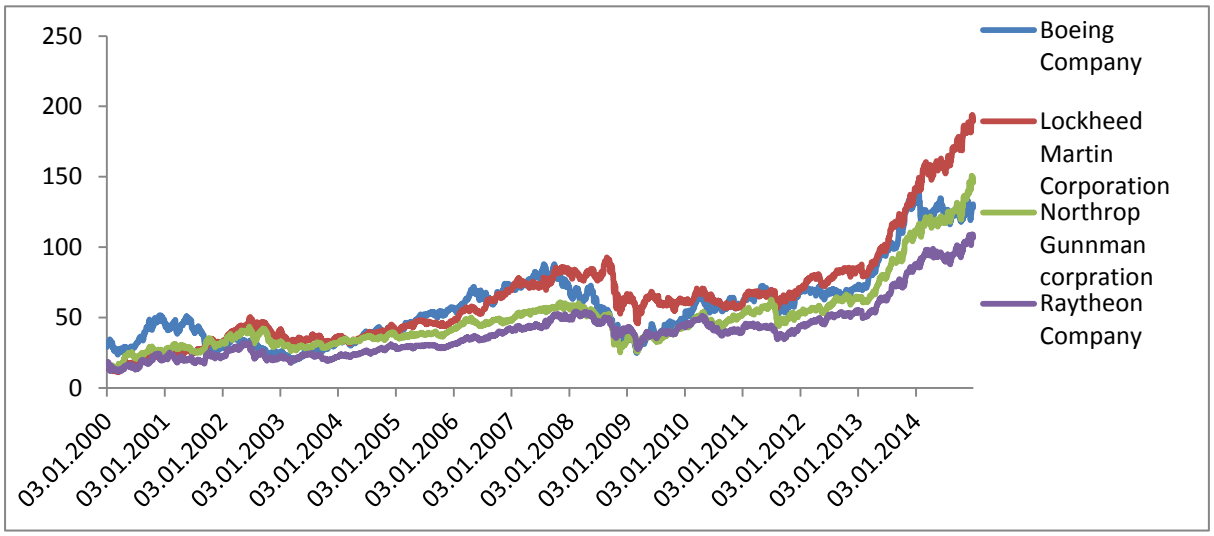


Figure1.3. Boeing and its competitors stock price development

The growth of stock price was steady until 2012. After that, it increased unprecedentedly. However, Boeing share price growth during 2014 was hardly noticed. Like Boeing its main competitor, Airbus share price also grew dramatically over the years. The growth of Lockheed Martin surpassed Boing considerably. Northrop Grumman Corporation share price wasn't much behind. Boeing and its main competitors share price growth, as of 2013 to 2014, were exceedingly high. Unfortunately it is hard to explain why the share increased sharply during 2013 even though adjusted S&P500 growth was approximately 24% for the same period.

Section-2

2.1. Strategic Analysis

Financial analysts mostly focus on the various multiples, ratios, stock return etcetera. However, these are the observable consequence that sources from the firm's previous actions. Hamberg (2013) claims that focusing on consequence without learning the underlying strategic reason why a certain company outperforms other companies; it simply gives a false impression of valuation. Hence, he places the importance on the understanding of the strategy

and feels that it is hardly possible to determine a company value without understanding the current and future strategic position of the firm.

A strategy, in its simplest term, is a plan by upper level management that guides a firm or its management to attain a desired goal. Strategy mainly focuses on the utilization of a firm's unique and key resources. It involves both internal and external analysis of the firm. In this section, this paper first is going to discuss some macro-economic factors and then SWOT and Porter Five forces.

2.2. Macro-economic factors

Oil- and Jet Fuel Price-

Oil price and Jet fuel price is very much correlated. If the oil price goes up, so does the jet fuel price. For the airplanes higher fuel cost means higher operating cost or lower margin. Hence higher fuel cost will result in more pressure from its customer to manufacture fuel-efficient airplanes. Unless it can comply with customers demand, it may lose business to its competitors.

Interest rate

In its simplest terms, increase in interest rate leads to more saving than consuming. Capital intensive firms require large borrowing, hence, if the interest rate increases, interest expense will rise. Eventually it will discourage new investment. Furthermore, higher interest costs will result in the lower profit to residual claimant.

Currency risk

Boeing faces huge currency risk. In 2014, according to Boeing annual report 58% of its revenue comes from outside the United States. Hence any appreciation to the US dollar against foreign currencies negatively impacts the profitability. There is a current Buzz in the

news that recent appreciation of USD has hammered the Standard & Poor's(S&P) 500 profit, (Strumpf, 2015).

2.3. SWOT Analysis of Boeing

According to Fine (2009) - SWOT analysis is tool that allows an organization to better utilize its strengths to overcome weakness and it further allows organizations to take advantages on opportunities to overcome threats.

The abbreviation SWOT stands for Strengths, weaknesses, opportunities and threats. The basic assumption of a SWOT analysis is that to be successful a company must align both internal and external activities (Pahl and Richer, 2007). SWOT analysis is simply a tool that works as framework to review an entity's strength, weakness, opportunity and threat. To mention, strength and weakness are mostly considered as internal factor whereas the opportunity and threat as external factor.

The followings are the SWOT analyses of Boeing-

Strength

Strengths are capabilities that enable a firm to perform well. It usually is built over time. Boeing has a number of strengths-

- Boeing has a world-wide presence. During the last few years most of its revenue generated from outside the home country. Furthermore, it is the second largest defense contractor of the US governments.

- Boeing produces a wide variety of products to meet the demand of the customers, it has earned a global image and it is known all over the world (Hellman, 2013).

- Boeing financial standing is quite sound and it maintains a sound balance sheet. Its profitability, revenue growth, NOPAT, EBITDA multiple are quite strong.

- Boeing has built a strong relationship with its customers and suppliers over the globe that helps Boeing to develop and build advanced technologies over its competitors.

- Boeing is in the front line for advanced airlines. It can produce the best technology aircraft. Boeing 787 Dreamliner is one of latest model of aircraft that gives one of the best flight experiences.

Weakness

Weakness sources itself from company's own action. It is sometimes result from the poor handling of its operations. According to Kotler (2011) sometimes business does poorly because as a team, the team member does not work properly. Furthermore, Boeing works with a huge chain of supplier. Hence, miscommunication and poor dealing will result in delaying in the process of manufacturing.

Boeing has several weaknesses-

- Production delays, technical problems and increasing cost in the 787 Dreamliner has cost the company huge

- Boeing Research and Development spending has been almost identical to its net income which directly affects its net earnings

- Boeing pension scheme is seem too expensive.

- Boeing has a hierarchical management system that might lead to lower productivity.

Opportunity

According to Pahl and Richter (2009) Opportunity is a trend, it is a force and an idea that a company can capitalize on.

- Boeing has received new record high order growth. Boeing current backlog has increased to 502.4 billion in 2014 from 440.9 billion in 2013. Boeing expects the growth to continue.

- Boeing has a good presence in the Asia pacific, Middle East and in the African region, hence, it sees increasing opportunities to capture overall market.

- Middle East or any other area in the globe if there is further escalation, Boeing worldwide presence should give it the first mover advantages to sell more defense and security products.

Threat

As earlier mentioned, threat is an external factor in which a company does not have a direct control. Therefore it can negatively impact the company in terms of profitability, revenue growth, and market share and so on.

Being has several threats such as-

- Boeing faces increasingly high competition both from internal and external market. Airbus, Bombardier and Embraer are trying to capture more market share.

- Boeing defense sectors revenue largely come from the US government, hence, if Defense sectors budget is cut, it will have directly impact on Boeing's revenue.

2.4. The economic structure of the industry- Michael Porter's five forces

According to Henry (2011, p-67), the Porter's five forces framework 'is undertaken from the perspective of an incumbent organization, that is, an organization already operating in the industry'. He further explains that even though each organization in all industry is unique, the forces that drive performance and profitability will not be uncommon to all organization. Furthermore, it is pervasive to catch that these analytical tools (five forces) are indeed helpful in identifying competitive environment, profit potential etcetera. Here a short review of forces is presented:

Figure-2-Source: Strategic Management: An integrated Approach by Hill & Jones, p-45

Threat of new entrants

The threat of new entrants is low because it requires making billions of dollars investment to build operational facilities. Furthermore, fixed, research and development costs are substantial. For example Boeing Company's total research and development expenses during 2011, 2012, 2013 and 2014 were $3.9, $3.3, $3.1 and $3, 04 billion respectively. Hence, to justify such a big investment, new entrant requires receiving a substantial order. As far as the margin is concern, it won't afford new entrants to take such a risk. Fuentes (2011) has studied to learn if Commercial Aircraft Corporation of China (COMAC) attempts to break the Airbus-Boeing Duopoly will be successful. The findings suggest that COMAC faces high barrier of entry from incumbent like Boeing and Airbus. In addition, a new entrant requires building a name to attract customer. Switching companies can also incur considerable cost. Concerning above discussion, it is easy to conclude that the threat of new entrant is significantly low.

Industry rivalry

Even though Boeing has established itself as one of the largest aerospace companies, it does not seem that it has substantial advantage over airbus as a maker of commercial jet engines. It faces aggressive international competitors from airbus Embraer and Bombardier. Airbus is directly competing with Boeing when it comes to commercial airplanes. In addition, in the defense segment, it needs to strongly compete with Lockheed Martin, Northrop Grumman Corporation, Raytheon Company and General Dynamics Corporation. In the USA, both Lockheed Martin and Northrop Grumman Corporation earn more than 80%of their revenue from the USA. Hence, they spend millions of dollars to win defense contract. This rivalry during tough economic time like bank run can result in a catastrophe.

Bargaining power of supplier

Boeing is a wholly diversified company. Almost 60% of its recent year's revenue is from outside the USA. Hence, it has suppliers all over the world and they are mostly fragmented. Therefore, it can negotiate a lower price. To glimpse the number of supplier Boeing has, a report published in the NBCNEWS in early 2010 might reflect it; it reported that for one

Boeing 737 airplane, hundreds of suppliers. In addition, for commercial airlines, Airbus and Boeing Company are in the domination. Hence, it can be said that bargaining power of Boeing supplier is limited.

	2010	2011	2012	2013	2014
Accounts Receivable days	30	30	25	27	31
Accounts Payable days	55	56	51	48	51

Figure-2.1: Accounts receivable and payable days

Bargaining power of Boeing can further be explained by accounts receivable and payable days. It is seen that Boeing has significant power over the supplier. Its accounts payable days are approximately two times higher than its receivable days.

Bargaining power of customer

As Airbus and Boeing are a virtual duopoly, one can expect that there might have an absence of bargaining. However, it does not seem so. The two intensely compete with each other to sell more airlines and capture more market share. When it comes to defense space and security division, major revenue source is US government.To conclude, the bargaining power of customer is intense to moderate.

Threat of substitutes

Threat of substitute is very low because product and services of such an industry are very unique

Section-3

3.1. Financial Statement Analysis

Drake and Fabozzi (2013) put financial analysis as the selection, evaluation and interpretation of companies' financial data and other relevant information that aid in assessing the operating performance and financial stance of a company. Operating performance measures how well a company has utilized its resources to earn a return on its investment. On the other hand, financial position shows how a company meets its short and long term obligations, for example making a payment of interest on debt on a timely manner.

Hence, it can be said that financial statement works like a mirror of a company. Hamberg (2013) coins the objective of accounting information is to make less informed individual more informed about a company's performance, resources and financial position.

However, there are cases like the financial reporting scandal of ENRON which filed for Bankruptacy in 2001(Berk and DeMarzo, 2011).Therefore, to achieve the objective of accounting information, accounting standards, auditors and board of directors are placed as means or the production side of accounting.

The two widely used accounting principles are International Financial Reporting Standards (IFRS) and Generally Accepted Accounting Principles (GAAP). Boeing Company presents its financial statement according to the Generally Accepted Accounting Principles (GAAP). However, during the last few years, as the bar chart shows below, most of its revenue sources form non-US countries. According to the financial reporting of Boeing, it has mentioned that the non-GAAP measures have tendered reconciliations to the most comparable GAAP measures.

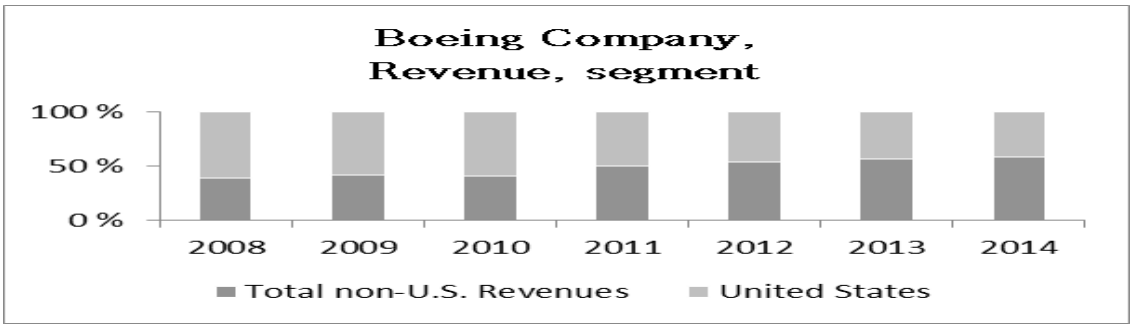


Figure 3.0: Boeing company revenue by segment

The objective of studying financial statement here is to determine the value of Boeing equity from the perspective of investors. Penman (2007) links fundamental analysis to the development of Pro forma financial statement and then uses this pro forma as valuation. Therefore, this paper is going to follow the following framework of financial statement analysis-

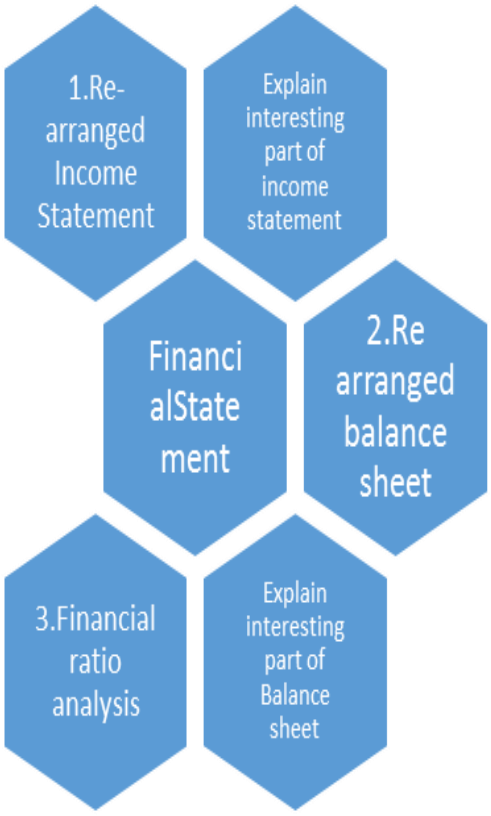


Figure-3.1- Outline

3.1.1. The Income Statement

The income statement displays a company's profit (or loss) over a specific period, usually a twelve month period. According to Pignatro (2013) income statements have become very complex as the revenue and multi-faced cost structures vary from company to company. Therefore, in line with Penman(2007), Pignataro (2013) feels the need to arrange the income statement in order. The table below shows the reformulated income statement of Boeing.

Boeing Company Consolidated Income Statement Reformulated					
FY ending Desember 31,	2010	2011	2012	2013	2014
	$m	$m	$m	$m	$m
Continuing operations					
Revenue	64 306	68 735	81 698	86 623	90 762
Cost of sales	50097	54213	66854	71424	74846
Gross profit	14 209	14 522	14 844	15 199	15 916
Selling general & administrative expenses	3644	3408	3717	3956	3767
Research & development	4 121	3 918	3 298	3 071	3 047
Income from operating investments	267	278	268	214	287
Gain/loss on dispositions	6	24	4	20	10
EBITDA	6 717	7 498	8 101	8 406	9 379
Depreciation and amortization	1746	1675	1811	1844	1906
EBIT	4 971	5 823	6 290	6 562	7 473
Operational tax	1308	1484	2128	1729	1767
NOPAT	3 663	4 339	4 162	4 833	5 706
Interest paid	516	477	442	386	333
Other non-operating income(expence)	52	47	62	56	3
Finanical expense	464	430	380	330	336
Finanical expense after tax	352	328	259	247	260
Tax advange	112	102	121	83	76
Tax paid	1 196	1 382	2 007	1 646	1 691
Tax rate	24,1 %	23,7 %	31,9 %	25,1 %	22,6 %
Net income	3 311	4 011	3 903	4 586	5 446

Figure-3.2: Reformulated consolidated income statement of Boeing

It is seen that the paper has identified and separate operating and financial items to show net Operating profit after Tax (NOPAT). In the NOPAT, only normal operating items for example selling and goods and services are included. Non-normal or non-recurring items are not included.

Revenue-

Boeing earns most of its revenue from selling commercial airplanes and most sales take place outside US. The other three segments (Boeing Military aircraft, network and space system, global service and support) together bring less revenue than commercial airplanes. Furthermore, according to Boeing, in 2014, non-US customers accounted for approximately 58% of revenue.

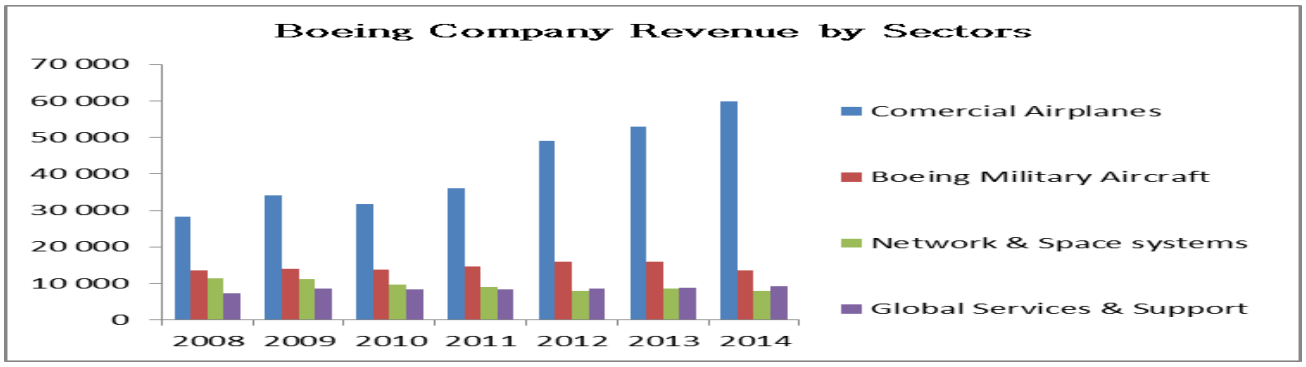


Figure-3.3: Boeing company revenue by sectors

Cost of sales

It is the direct cost arises from the commercial aircraft program, inventories production cost etcetera. In the actual income statement, depreciation was included in the cost of sales, hence it has been taken out to show clear picture of cost of sales. Furthermore, it is important to separate the depreciation to find the EBITDA (earnings before interest, tax, depreciation, and amortization). Over the last five years Boeing cost of sales stood around 80% of its revenue.

Operating expenses are those expenses that companies incur due to the performing of normal operation. Operating expenses such as selling, general, administrative expenses, research and development has been stable or a slightly downward bound. Here an item-gains and loss on disposition is included in this analysis. The reason of taking this item is that it seems recurring.

EBITDA

According to Pignataro(2013), earnings before interest, tax, depreciation and amortization is a very important measure among Wall Street Analysts. As seen on the table, it is first calculated the gross profit (revenue-cost of sales) and then deduct the operating expenses to find EBITDA.

EBIT

Just like the EBITDA, earnings before interest and tax are a very important for valuation. EBIT results by deducting the depreciation and amortization from EBITDA.

Boeing Company					
FY ending Desember 31,	2010	2011	2012	2013	2014
Gross profit margin	22,1 %	21,1 %	18,2 %	17,5 %	17,5 %
EBITDA margin	10,4 %	10,9 %	9,9 %	9,7 %	10,3 %
EBIT margin	7,7 %	8,5 %	7,7 %	7,6 %	8,2 %

Figure-3.4: Important margin calculation

NOPAT

It is the most important item for valuation. It is the after tax operating profit for all investors-equity holders and debt holders. It is commonly practice by analysts as the most common form of profitability measurement.

3.1.2. The Balance Sheet

It is also referred to as the statement of financial position. It measures a firm's financial position at a specific point in time. The three major balance sheet items are Assets, Liabilities and shareholder's equity. The balance sheet always balances- the value of a company's asset must equal the sum of its liabilities and equities.

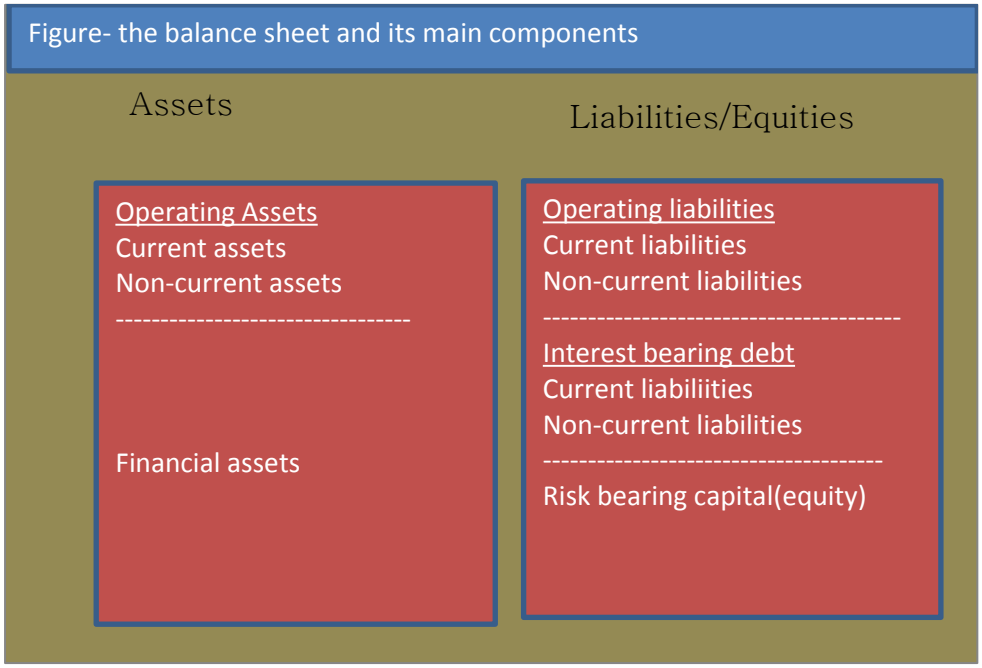


Figure-3.5: The balance sheet and its main components-Source- Hamberg (2013) determining the company value

The following discussion is based on Hamberg (2013), as above figure shows, he has split the Balance sheet items into five main analytical components such as operating assets, financial assets, operating liabilities, interest bearing debt and risk bearing capital.

Assets are resources held by companies from which it expects an inflow of economic benefits. In the financial statements assets are classified as current and non-current. Non-current assets are defined as the assets that last more than one year. All other assets are current assets. However, this distinction does not serve a valuation oriented analysis. Hence, this paper analyses and split the balance sheet according the above figure. In the appendix, the whole classification of every balance sheet items is included. However, here it includes an overview of the statement of financial position.

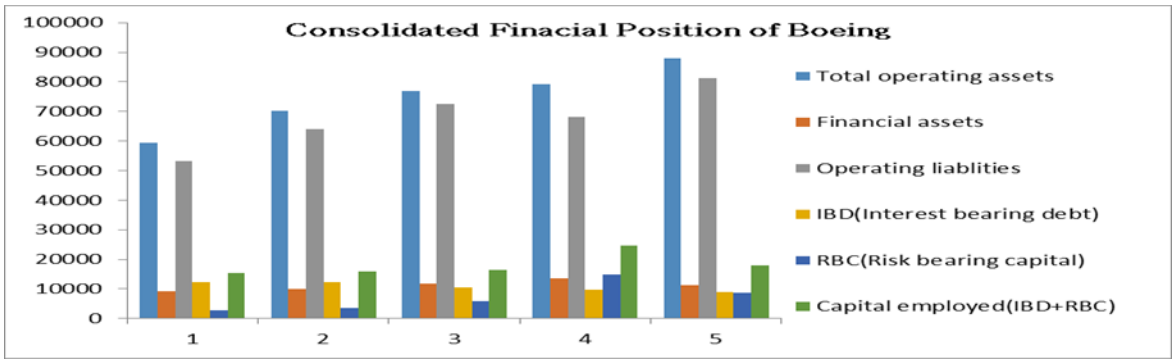


Figure-3.6: consolidated financial position of Boeing

Operating assets

Assets that are used in normal business operations are known as operating assets. This class of assets is more abundant than financial asset. There are three main types of operating assets such as tangible, intangible and monetary assets. Tangible assets as the name suggest it has a physical substance. Common tangible assets include property, plant and equipment (also referred to as fixed assets), inventories. On the other hand, intangible assets are those assets that lack physical substance, due to that it is hard to determine their value (Hamberg 2013).

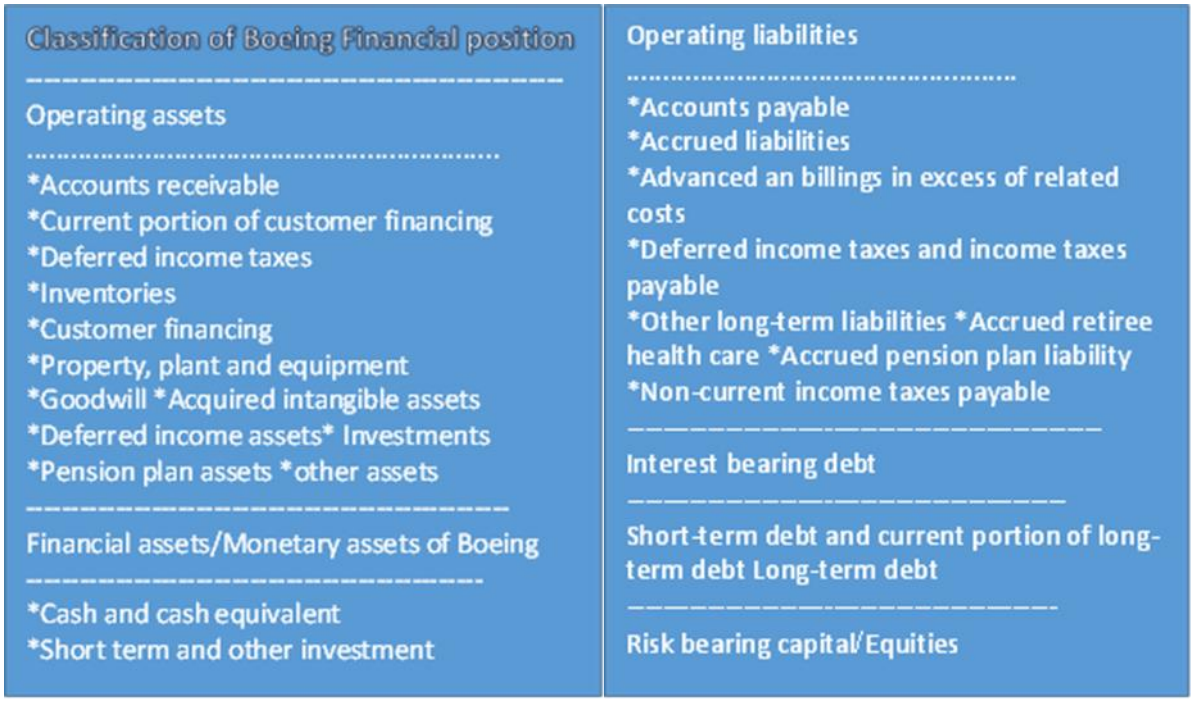


Figure-3.7: Classification of Boeing financial position

There are items like customer financing which sources from operating lease agreement, notes receivable simply considered as operating. Furthermore, the item 'investment' is considered as operating because it arises from strategic reason. Accounts receivable, inventories, fixed assets are automatically considered as operating. Operating assets gives flow of operating income (expense).

Financial assets

Monetary assets that are not required to run the operation of a company are considered as financial asset. Boeing monetary assets have reduced in 2014 from 2013, as it is increasingly buying back share with excess cash. Despite that, it can be said that Boeing has considerable amount of idle cash. Furthermore, a firm needs certain amount of cash to run daily activities. Damodaran (2005) refers this amount of 2% of revenue. Hence, this paper has deducted 2% of revenue from the monetary assets and added this amount back to the operating assets. The rest amount (excess cash) of Boeing is considered as financial assets. As seen from the bar

chart, Boeing's financial assets over the last few years remain stable. Financial assets render financial income.

Operating liabilities

Just like operating assets, operating liabilities come automatically from running business operations. As seen in the above figure, Boeing operating liabilities are accounts payable, accrued liabilities etcetera. Operating liabilities unlike interest bearing debt do not carry explicit interest. Hence, for valuation, it is important to understand every item. However, there are hidden items that might carry some interest; these are basically very hard to split. Hence, these papers intentionally leave that part.

Interest bearing debt (IBD)

Interest bearing debt incurs explicit interest expense. Boeing interest bearing debt over the last few years has experienced a steady fall. However, IBD/RBC (debt to equity ratio) fell dramatically. The fall did not come because the company has paid back its debt. It is simply because of increasing the book value of equity. Furthermore, the interest coverage margin (EBIT/interest expense) has shown that Boeing is very strong.

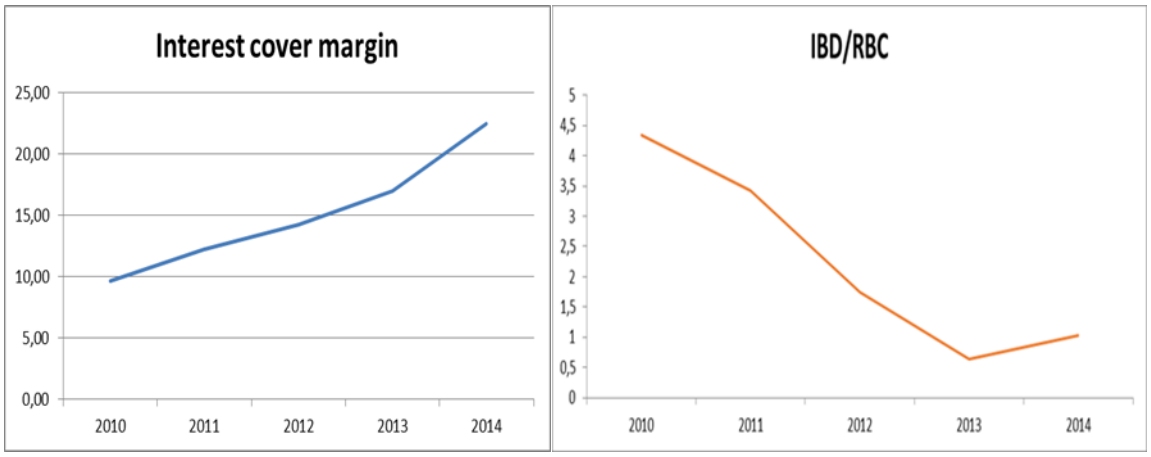


Figure 3.7 &8: Interest coverage ratio and debt to equity ratio

Risk bearing capital

Risk bearing capital is commonly known as equity. Total equity consists of majority and minority shareholders' of a company. Non-controlling interest of Boeing is very slim and over the years remains quite stable.

3.1.3. Ratio analysis

Hamberg (2013) emphasizes that core of understanding a company performance lies in the understanding both the financial statement and its performance in relation to its main competitors. He further regards financial ratios as the back bone of any accounting based valuation. Leach (2010) explains that a ratio by itself is a meaningless number. Furthermore, depending on the company, a profit of $10 million can be both a little and too much. This section however, does not focus on the comparison with other comparable firms, rather the analysis here to assess the trend of Boeing itself.

The analysis of ratios here bases on the adjusted financial statement. The following association is maintained when explaining ratios.

Analyzing some important ratios:-

Profitability analysis

A firm future growth depends on the return of its invested capital. When return on invested capital is higher than cost of capital, it is wise to reinvest, otherwise, payout seems a better choice. How much to pay as a dividend and how much to retain, a choice a manager must make. This ratio can be calculated using the following formula:

Payout ratio= Dividend per share/Earnings per share

And Retention rate= 1-payout ratio

Growth =RR (retention rate) multiplied by ROIC (return on invested capital)

On the one hand if a firm pays out all its earnings, then future growth is zero. On the other hand, if it retains more, then it will be able to pay out less. Should a firm reduce dividend payment and invest more? The answer to this question lies in the profitability of the investment. Here is the DuPont analysis of Boeing

DuPont analysis (ROE) = (Net income/sales) x (Sales/Total assets) x (Total assets/equity)

Payout ratio	38 %	33 %	38 %	46 %	38 %
Retention rate	62 %	67 %	62 %	54 %	62 %
Profit margin	5,1 %	6 %	5 %	5 %	6 %
Asset turnover	**0,94**	**0,86**	**0,92**	**0,93**	**0,91**
Financial leverage	**23,96**	**22,17**	**14,90**	**6,18**	**11,29**
Dupont analysis (ROE)	116 %	111 %	65 %	31 %	62 %

Figure-3.9: DuPont (ROE)

Return on Equity (ROE)

Understanding the profitability ratio is very important in valuation. It measures if a company is able to generate a return.

$$ROE = \frac{Pbt\ 1\ x\ (1 - tax\ rate)}{Average\ (Equity\ t - 1, Equity\ t)}$$

ROE measures what shareholders of a company receive in return for the risk they have taken. The denominator only includes equities. This equity is used to finance both the operating and financial operation. Hence, in the nominator it requires to include both operating and financial income. As this ratio has only included equities in the denominator or excluded operating liabilities and interest bearing liabilities; operating expenses and financial expenses needs to be deducted from the value flow. Furthermore, here it is used average equity rather than single year. It is because an income statement and cash flow statement transaction occurs over a time period whereas balance sheet uses a specific point time. Hence, changing in the resource base may lead to the biasness in profitability.

Even though ROE of Boeing looks quite strong, as the line chart shows, it has been falling dramatically over the years. ROE in 2011 reached as high as 124% and by 2013 it fell by almost 80%. However, over the last two years, it has remained quite stable. The reason of the decreasing trend lies in the increasing equity. Boeing equity also has increased exponentially for the same period.

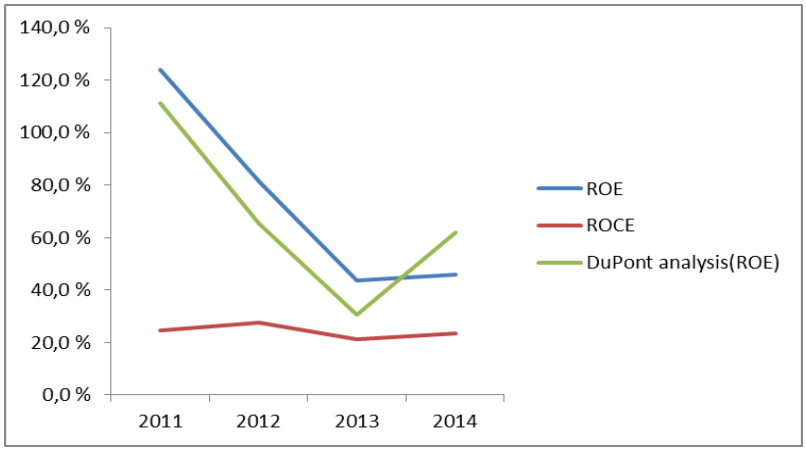


Figure-3.10: ROE, ROCE, DuPont

Market Return on Equity (MORE)

Boeing is a publicly listed company. Therefore, it is easy to find its market value of equity and return. Market value of equity is the number of outstanding shares multiplied by price of the share.

$$MROE = \frac{PBT1\ x(1 - tax\ rate)}{Average(MVE\ t - 1, MVE\ t)}$$

MROE		9%	7%	6%	6%

Figure 3.12

Market Return on equity has hardly reached two digits number during the last few years and it is considerably less than the ROE. As per above table, in 2011 MROE was 9% whereas in 2014 it dropped to 6%. The reason is that most assets are valued at the historical cost rather than current market value. Furthermore, companies especially during economic boom tend to have market value of equity considerably higher than book value of equity.

Return on capital employed (ROCE)

The other two ratios, namely ROE and MORE concentrate on the return on the stock holders of Boeing and have not explicitly shown how profitable Boeing's operations are. A company may increase or decrease its interest bearing debt. Let's assume a company has decreased its interest bearing debt; then, it will result in reduction in the financial expense. Furthermore, decreasing the level of interest bearing debt leads a higher return on equity. Hence, to show the clear picture about the profitability of Boeing and to avoid the changes in the capital structure, ROCE is a very significant ratio.

$$ROCE = \frac{PBTt - Financial\ expense\ t}{((IBD\ t-1 + IBD\ t + Equity\ t-1 + Equity\ t)/2)}$$

This ratio measures the return a firm earns on its externally financed capital. It is seen from the line chart that ROCE of Boeing over the years has been remain stable. A company's survival largely depends on the return on its invested capital. As long as it can generate a higher return than its weighted average cost of capital (WACC), is regarded as profitable. Hence, a company must earn a return above its weighted average cost of capital

If we further analyze and compare this ratio with ROE, we can see that in the ROCE calculation, in the denominator IBD is included and the interest expense associated with IBD is added to the nominator. Logically it explains the matching principle. However, this ratio does not completely remove the capital structure problem as it includes financial assets and financial income. Hence, to understand the precise return on the operating, here it includes Return on net operating assets.

Return on net operating assets (RNOA)

Net operating asset is the difference between operating assets and operating liabilities.

$$RNOA = \frac{NOPATt}{Average(NOAt - 1, NOA\ t)}$$

NOPAT is net operating asset after tax.

Hence we can get return on net operating asset by diving NOPAT with the average net operating asset of t-1 and t. Here is the calculation of NOPAT and RNOA.

(In $ million)	2010	2011	2012	2013	2014
Total operating assets	59334	70089	76972	79137	87921
Total operating liabilities	53282	64007	72520	68031	81338
Net operating assets	6052	6082	4452	11106	6583
RNOA		72 %	82 %	56 %	49 %

Figure-3.12: Return on net operating assets

Boeing Z-score

Z score is often used to measure financial strength of a company. It covers many multiples within one formula, and not applicable to the financial institutions. However, for analyzing Boeing, it might be useful. When Z score is higher than 2.99 it indicates a safe zone, if it ranges between 1.81 and 2.99, then it is in the grey zone. Boing's Z score was highest in 2013 (2, 60) whereas it has dropped slightly in 2014. However, it is seen that over the years, overall Z score has been improving which indicates that Boeing is improving its financial strength.

Section-4-Forecasting

4.1. Forecasting

To assess if the Boeing Company share is fairly priced. First a review of its historical income statement and balance sheet of the last five years has been thoroughly analyzed. Considering revenue as a driver variable, the paper compares all other variables. First a Pro Forma financial statement has been prepared. After that projected model parameters are used to calculate the expected cash flow. %. The projected period is 10 years from 2015 to 2014. In the appendix full attachment of projected parameters are found.

4.2. Model projection-

The projection is based on the historical and current market analysis. Here a description market analysis is presented based on the Boeing web page.

Long term market view

Boeing considers 2014 as an outstanding year for aviation industry. All the key metrics saw a stable growth across the board and it expects this trend to continue. In 2014, passengers traffic (which is measured by revenue passengers kilometers) increased by almost six percent and capacity by about 5.8%. Furthermore, According to Boeing, recent utilization rates of airlines were 15% higher than a decade earlier. Furthermore, Boeing expects this trend of efficiency to continue.

Market forces

In line with international monetary fund economic growth outlook, Boeing thinks even though overall economic outlook is good, there will be some challenges in the regional basis. Unlike the past, emerging markets growth shows some signs of divergence whereas Eurozone is showing sign of strength. Certainly North America is leading the economic global

acceleration. Based on current market analysis, Boeing expects the RPK (revenue passengers' kilometers) to exceed six percent in the near term.

Effects of market forces

Boeing long term outlook is directly linked with the effects of market forces. Based on the historical analyses, world GDP is expected to grow by 3.1% over the next 20 years. Boeing expect during the same period, passenger traffic to grow by 4.9% and air-cargo traffic to grow by 4.7%.

The above discussion has somehow provided a guideline about what to expect when modeling projection.

Some concluding remarks, Boeing mentions that efficiency over the years has increased. If it is put indirectly, greater efficiency should lead to higher profit by reducing cost. Furthermore, Boeing expects the revenue growth in the near term to be higher than 2014!

In the model projections, every individual income statement and balance sheet items from 2010 to 2014 are compared with revenue and then mostly average of these items are considered. When any huge divergence founds are deleted and smoothed.

In terms of importance, revenue comes first in the income statement. Here, to project revenue, it has taken the average revenue growth from 2010 to 2014 which is around 9%. Most of the items of pro forma statement are averaged out to predict the next 10 years cash flows. However, selling general and administrative expenses has seen a downward trend; it is

perhaps due to higher efficiency, hence this expense is only compared with 2014 revenue and projected this ratio to continue.

When it comes to balance sheet items, same rules applies, every item is compared with revenue and then averaged. Balance sheet always balances, to balance the balance sheet, cash and cash equivalent is used as a matching variable. A complete calculation is attached in the appendix.

4.3. FCFF-calculation

Now it is time to find FCFF-

The Discounted Enterprise Cash Flow model (DCF) is a two-periodic model, budget –and terminal-period. The idea behind this model is to calculate the FCFF (=Operating Cash Flow – Expenses – Taxes – ΔNet Working Capital – ΔCapital Expenditures) for each budget-period and the terminal-period, and then discount each FCFF with WACC to find the present value of the enterprise.

$$Enterprise\ value_0 = \sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^t} + \frac{FCFF_{n+1}}{WACC - g} * \frac{1}{(1+WACC)^n}$$

- FCFF = Free Cash Flow to firm
- WACC = Weighted Average Cost of Capital
- g = constant growth in FCFF in terminal period
- n = numbers of years with growth in budget period

The table below shows FCF without terminal value.

Boeing Company Free Cashflow & Valuation										
		Projected								
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
		$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
EBIT		8 489,05	9 264,81	10 111,46	11 035,47	12 043,93	13 144,54	14 345,73	15 656,69	17 087,45	18 648,95
Operating profit after tax		6 325,83	6 903,90	7 534,80	8 223,35	8 974,83	9 794,98	10 690,07	11 666,97	12 733,13	13 896,72
Change in Net Working Capital		825,65	192,88	210,50	229,74	250,73	273,65	298,65	325,95	355,73	388,24
Changes in Capital expenditue		3 809,65	3 651,60	3 985,29	4 349,48	4 746,95	5 180,74	5 654,17	6 170,87	6 734,78	7 350,23
FCF		1 690,53	3 059,42	3 339,00	3 644,13	3 977,15	4 340,59	4 737,25	5 170,15	5 642,61	6 158,25

Figure-4.0: Boeing FCF

4.4. Terminal value

As this paper has already found the projected cash flow, it is now left with the terminal value. So how can we calculate the terminal value? There are, according to Pignataro (2013) two methods for calculating the terminal value-

1. Multiple method
2. Perpetuity method

Multiple method

This method uses a multiple to the final projected financials. Usually an EBITDA multiple is applied to a firm's final year EBITDA. The multiple can come from either Boeing or comparable firms. According to Pignataro (2013), applying Boeing EBITDA is a conservative approach as long as it is not extremely over-valued. This paper has used average EBITDA multiple of comparable companies which is about eight times of Being 2014 EBITDA.

Boeing current (2014) EBITDA multiple $= \frac{Enterprise\ value}{2014\ EBITDA}$

EBITDA Method	
Exit year EBITDA	23696,38615
Multiple	8,04
Terminal value	190617,108

Figure-4.1: EBITDA method

Perpetuity method

It takes the projected final year cash flow and then applies the following formula.

$$\frac{UFCF\ x\ (1+g)}{WACC-g}$$

Constant terminal growth

As previously presented, in the next 20 years, it is expected that world GDP growth will be approximately 3.1% and Boeing expects its business to grow even faster than GDP growth. However, Pignataro (2013) suggests using something low, close 1 percent or 2 percent. This paper has used 2% to find the terminal value.

So long, the thesis paper has calculated FFCF and terminal value based on EBITDA multiple. It is now required to find WACC to find the fair value of Boeing. Next chapter is going to present the discussion on Weighted Average Cost of Capital.

Section-5

5.1. Valuation

The art of valuation lies in the infrastructure of parameters such as finding the precise cost of equity, precise cost of debt, expected long run growth , terminal value and so on.

According to Pignataro(2013), there are three core methods of valuation, namely-

1. Comparable company analysis
2. Precedent transaction analysis
3. Discounted cash flow analysis

5.2. Comparable company analysis

This method of analysis compares a company with other companies based on similar size, product and geography. This type of analysis bases itself on the utilization of multiples for measuring comparison. From the perspective of this thesis, if it is found that Boeings' multiples are consistently higher than the multiple of peers, it suggests that Boeing equity is over-valued. On the other hand, if peers multiples are considerably higher than the Boeing, then Boeing is under-valued. Provided that Boeing and its peers have about the same multiples, then it can be said that Boeing stock is appropriately priced.

Among three methods of analyses, it is most current and reflects the true market perspective as this analysis uses most recent stock prices and the financial information of a company.

However, there exist several drawbacks in this type of analyses-

-When this paper started to find its competitors, it was not easy to choose the right one as there are many competitors in the market. Furthermore, it is hard to understand the true business model of every firm as it is time consuming and hard to acquire substantial information.

-In the beginning of this thesis, this paper presented the view of two economists. One of them finds symptom of bubble in the current market, on the other hand, another one does not find such a thing and he feels current market price is completely justified. Hence, the market, this paper analyses it may completely over-valued or undervalued! Furthermore, it cannot completely be ignored that an entire industry can be over-valued or under-valued in a market environment. Provided that we are analyzing in a market environment in which an entire industry is over-valued or undervalued, then for certain, the analysis of ours will be unsound.

5.3. Precedent transactions analysis

This method of analyses bases on the multiples of historical transactions to determine the relative value of company's equity. Here to determine the value of Boeing, it requires finding a similar size of company which is acquired by others. Hence, by finding the acquired price, we can compare the purchase multiple with the Boeing to find the approximate Boeing price.

5.4. Discounted cash flow analysis

This method is based on the analyses of company's cash flow and regarded as the most technical among three widely used methods. This method discounts the projected unlevered cash flow back to the present value. Pignataro(2013) mentions that usually company's cash flow is projected for five to seven years. However, to mention, this paper has used ten years projected cash flow. It is because the cost of equity, Treasury bond yield, beta and almost all the important parameters used here is based on ten years.

-The major advantage of discounted cash flow is that it is the most technical and based on the cash flow of a company's model projections unlike the comparable company analysis which mainly focus on the market data.

However, this analysis has several drawbacks

-Calculation of terminal value- Even though first few years of cash flows are projected based on the model parameters, in this analysis, significant portion of cash flow comes from terminal value. Furthermore, this value can vary significantly counting on the terminal growth we choose.

- Model projection- we use several parameters to understand what the cash flow will be in the coming years. How about if our model parameters do not reflect the true nature of our analysis? Then, it can render a misleading value!

-Discount rate- analysts use standard methods to find an accurate discount rate. However, these standard techniques do not always give the accurate result.

To conclude, no methodology of valuation is totally perfect. They do have strength and weakness. As long as we are consistent and know how to use them properly, we can get best out of every methodology. This paper will only employ discounted cash flow analysis and the comparable company analysis-

Discounted cash flow analysis-

In the forecasting cash flow analysis, this paper has projected what the next ten years cash flow will be. Furthermore, terminal value is based on multiple method and perpetuity method. Now it is time to find the exact cost of capital so that we can find the value of Boeing share price.

5.5. Weighted Average Cost of Capital

Many financial analysts show only a strong zeal in determining the cost of capital. Pereiro(2002) summarizes their attitude with the following statement: 'the discount rate is very important'. He explains that discount rate is important as small changes in the discount rate can result in the large value change. Simultaneously, he poses the question if discount rate parameter is more important than other parameters. He answers it as 'emphatically no'. He mentions that unit price, sales volume and its cost are very sensitive to NPV and he places discount rate as the number seven in ranking of importance. Whatsoever, it is perceivable that finding the precise cost of capital is rarely an easy task.

Koller et all (2010) pointed out that to find the enterprise value using the DCF, one must use WACC as discount factor, because it is blended with all the elements of levered firm

To find the NPV of the enterprise, WACC is widely used. According to Pereiro(2002), it is a popular metric, whereas Benninga (2008) says that "*computing the WACC is equal parts of science and arts*" because it demands an adequate judgment. To find the cost of capital of Boeing, here in this paper WACC is used.

$$WACC = \frac{E}{E+D} r_e + \frac{D}{E+D} r_d(1 - Tc)$$

E denotes the market value of the firm's equity and D is the Market value of the firm's debt whereas $Tc\ represents$ the corporate tax rate of the firm. $rE\ and\ rD\ are$ the firm's equity and debt cost.

So as to find the WACC, it requires finding the value of all the parameters of the model. Based on Benninga(2008), this paper has considered two models to calculate the cost of equity, rE.

5.5.1. The Gordon Dividend Model – DDM

This model states that the value of a share results from the present value of the stream of future expected dividend from a share. The formula becomes simple when expected dividend growth is constant. Then the model is reduced to the following;

$$P_0 = \frac{Div0(1+g)}{rE-g} \; if \; g < r_e$$

Hence, $r_e = \frac{Div0(1+g)}{P0} + g$

Po	128,36
div0	2,92
Dividend growth	9,4 %
Re	11,9 %

Figure-5.0: Cost of equity of Boeing

$Po = market\ price\ of\ a\ share\ of\ Boeing$

$divo = dvidend\ paid\ per\ share$

$dvidend\ growth = historical\ average\ \ dividend\ growth$

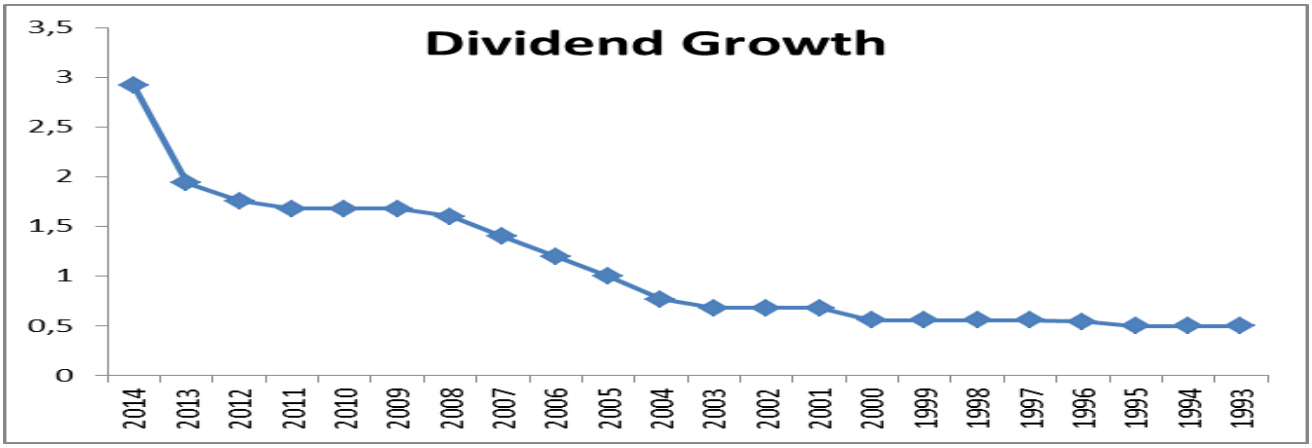


Figure-5.1: Dividend growth of Boeing of based on data from yahoo finance

It seen from the line chart, dividend growth until 2003 remains very slim. However, as of 2003 to 2008, growths were very significant. After that Boeing dividend growth were stagnant except 2013 and 2014. However, in 2014, Boeing dividend grew by approximately 50%. Hence, it is important to understand that this varying degree of dividend growth gives significantly different cost of equity. This paper, therefore, has taken the average dividend growth from 1993 to 2014. The average growth rate for this period is circa 9.5%.

So, to find the cost of equity, first it is required to find the current dividend and then we need to multiply current dividend with the dividend growth rate. Afterwards, this value is divided by current share price and then we add the dividend growth rate. The above table shows that the cost of equity is equal to 12%. However, the costs of equity would be a lot lower provided that dividend growth period changed. For example, if Boeing dividend growth from 2013 to

2014 only grew by the same amount as the growth from 2012 to 2013 which were around 10% and then we took the average dividend growth from 2010 to 2014, we could see a completely different cost of equity. The table below shows that, the cost of equity, then, would be around 7.4% which is a little less than the aerospace/defense industry average cost of equity (8.84%) (Damodaran, 2015).

Po	128,36
div0	2,134
Dividend growth	5,0 %
Re	7,4 %

Figure-5.2: Cost of equity of Boeing

5.5.2. Capital Asset Pricing Model – CAPM

CAPM is the most widely used capital asset pricing model. This model assumes that every individual is rational. Hence their investment decision is based on the rational selection. Furthermore, this model assumes that there is always a risk free asset available. It means that an investment will give a risk free return. Hence, if a risk free return is available in the market, a rational investor will only invest in the risky asset if he receives a risk premium.

CAPM is used to calculate the Boeing Cost of equity:

$$r_e = r_f + \beta(mrp)$$

r_f is the risk free interest in the economy, whereas β is the expected changes in the security given a change in the broader market return. The market risk premium (mrp) is the difference between the market return and risk free return.

The model looks quite simple and is easy to achieve. However, there requires a good deal of adjustment. The insight of this model according to Bodie, Cane & Marcus (2009) is that 'the appropriate risk premium on an asset will be determined by its contribution to the risk of investors' overall portfolio.

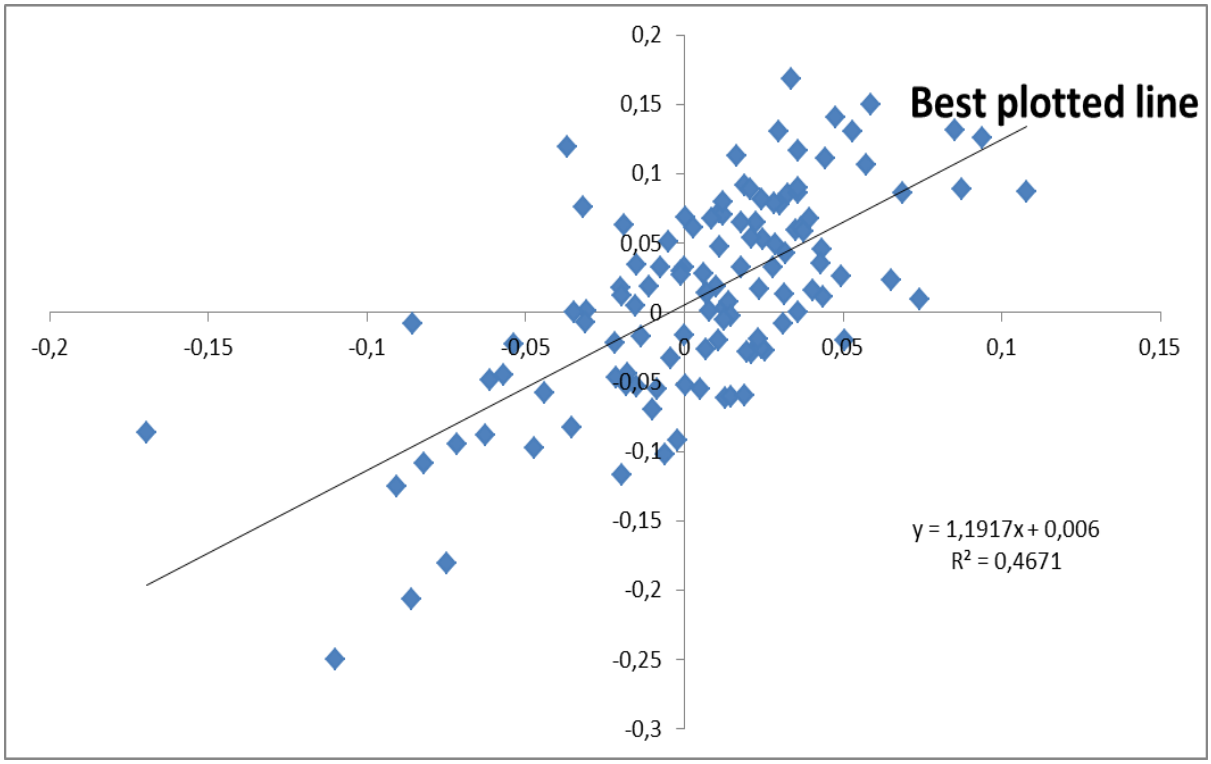
Here to calculater_{BA}, 10 year U.S Treasury bonds yield is used as proxy. After that, monthly S&P500 Index for the same period was downloaded from yahoo finance to find the simple Market return. And then, MRP $(rm - rf)$ is calculated. However, this paper has used MRP based on Damodaran, (Damodaran, 2015).

So far all the parameters except β are calculated. β is ' a correlation coefficient that represents how closely one set of historical returns correlates or moves with another' (Pignataro,p-307). To further clarify, as this paper has compared the historical returns of Boeing with S&P500, it has found that based on 10 year daily return its beta is 0,9832…. It means that the return of Boeing and S&P is closely connected. However, it is observed that β varies depending on the horizon and the market index. This paper has used ten years daily return data to find the beta and then it is adjusted by this formula (1/3+2/3 x raw beta).

Based on 10 year monthly data		Based on daily
Covariance between Boeing and Marekt index	0,002149	0,000162884
Market index variance	0,001803	0,000165662
Systemetic risk(β)	1,191681	0,983227024
Using slope function	1,191681	0,983227024
Adjusted β	1,127787	0,988818016

Figure-5.3: Beta

Furthermore, it has also used excel trend line to find the best fitted line to find the beta. It is seen that both manually calculated beta and excel one is the same.



So, Capital asset pricing model = risk free rate + Boeing beta X market risk premium.

Damodaran (2015) has great resources of data about the market return and risk premium. He finds that the arithmetic market risk premium from 2005 to 2014 was around 4% and the coupon adjusted 10 year Treasury bond yield for the same period was 5.31%. This paper has used 4% MRP and employed 10 year Treasury bond yield and an adjusted beta to find the cost of equity which is circa 9%.

LT (10 year treasury bond)				5,31 %
S&P500				9,37 %
MRP				4,06 %
Adjusted β				0,9888
CAPM=	9,32 %			

Figure-5.5: CAPM

5.5.3. Debt cost of capital-

It is the expected return to the debt holders.

$$Interest\ cover\ rato = \frac{EBIT}{Interest\ expense}$$

This ratio explains how easily a company is able to make payment on its outstanding debt. To further clarify, we can calculate the interest cover ratio by dividing EBIT with the interest expense. The table below shows the historical interest coverage ratio of Boeing. It is seen that Boeing has improved its interest coverage ratio dramatically over the last few years. A ratio as per the table of interest coverage ratios and default spread, it is seen that a firm with 8. 5 and greater interest coverage ratio enjoys the highest rating, so does the Boeing. According to Damodaran (2015), the link between interest coverage ratio and ratings were developed based on all the rated companies in the United States and spread of default is obtained from the traded bonds. He adds that adding the spread to a risk-free rate should give the pre-tax borrowing cost of a company. According to this calculation, if we use ten years Treasury bond yield plus the spread of 0.40%, we get the debt cost of Boeing. However, to calculate the cost of debt of Boeing, this paper has taken a different approach. First it finds the total outstanding debt from Boeing annual report of 2014 and then it finds every individual debt item and the cost of debt.

FY ending Desember 31,	2010	2011	2012	2013	2014
Interest cover rato	9,63	12,21	14,23	17,00	22,44

Figure-5.6: Interest cover ratio

Table of Interest Coverage Ratios and Default Spread

If interest coverage ratio is			
>	≤ to	Rating is	Spread is
8,5	100000	AAA	0.40%
6,5	8,499999	AA	0.70%
5,5	6,499999	A+	0.90%
4,25	5,499999	A	1.00%
3	4,249999	A-	1.20%
2,5	2,999999	BBB	1.75%
2,25	2,49999	BB+	2.75%
2	2,25	BB	3.25%
1,75	1,999999	B+	4.00%
1,5	1,749999	B	5.00%
1,25	1,499999	B-	6.00%
0,8	1,249999	CCC	7.00%
0,65	0,799999	CC	8.00%
0,2	0,649999	C	10.00%
-100000	0,199999	D	12.00%

Figure- 5.7-Sources: http://people.stern.nyu.edu/adamodar/

The table below shows the weighted average debt cost capital of Boeing. The debt cost is calculated multiplying every individual debt to the respective interest rate. For example, the debt cost of Boeing 25O million debts is 3 months USD LIBOR plus 12.5 basis points. To calculate this cost, first it has found the 3 months USD LIBOR (which is as per June first 2015, 0.28250%) and then 12.5 basis points have been added and annualized.

Figure-5.7: Weighted average cost of interest

Debt cost of capital	2014	2014
Interest rate	Debt	debt X interest
3 month USD LIBOR plus 12,5 basis point	250	4,112629847
5 %	4223	211,15
6,88 %	2394	164,7072
8,75 %	1657	144,9875
7,38 %	201	14,8338
Total	8725	539,7911298
Weighted average cost of interest		**6,19 %**

So far, this paper has calculated both debt and equity cost of capital. However, to calculate WACC, it further requires finding the market value of debt and equity and the tax rate. Market value of equity is simply the number of outstanding shares multiplied by each share price.

Market value of equity

As per 31, 2014, Boeing number of outstanding share is 704, 39 million and the price is 128.358. So, by multiplying them with each other, we get the market value of equity which is 90414 million.

Market value debt

This information is taken from the 2014 annual report of Boeing. The table below shows the market value of debt.

	Carrying amount 2014	Fair value 2014
Debt excluding capital lease obligations	**8909**	**10686**
Capital lease obigation	**161**	**161**
Total debt fair value	**9070**	**10847**
Source-Boeing annual report		

Figure-5.8: Market value of debt

Tax

To calculate tax, this paper has taken the average tax rate as of 2010 to 2014 which is approximately 25.5%. However, during the last two years, Boeing performance was really good and it paid an average tax of around 24%. Hence, this paper has used 24% tax rate.

Now we have all the parameters to calculate the WACC-

WACC calculation	(E/E+D) X RE +(D/E+D)x RD*(1-T)				
					in $ Million
Market value of equity	Number of shares outstaning X Share price (31/12/2014)				
	704,3876		X	128,358432	90414
Debt (fair value)					10847
Tax rate					25,48 %
E/(E+D)					0,8928809
Debt/(E+D)					0,1071191
Required rate of return					9,32 %
Weighted average debt cost					6,19 %
True cost of debt					4,61 %
WACC					8,82 %

Figure-5.9: WACC

As per above table, it is seen that WACC of Boeing is 8.82%. By using this rate as discount, we can find the enterprise value of Boeing. Now it is time to turn back to the projected cash flow of Boeing to find the value of Boeing.

5.6. Enterprise value based on EBITDA method

After the calculation of enterprise value, one needs to add cash and subtract debt (interest bearing debt) to find Net Present Value of equity. The following table shows the value of

Boeing Company based on EBITDA multiple. (A complete calculation is attached in the appendix).

$ in million	2014
Enterprise value	**106 943,79**
Equity value	**110 965,79**
Market value	**90 414,09**
Number of outstanding shares	**704,39**
Calculated share price	**157,54**
Actual share price	**128,36**

Figure-5.10: Enterprise value based on EBITDA

The share price found in this paper is calculated by dividing the fair value of equity with the number of shares outstanding. It is seen that calculated share price is higher than actual share price. It should be mentioned that EBITDA multiple in 2014 was extraordinarily higher than 2010. Rather than taking the 2014 EBITDA, if it was taken average EBITA of comparable firms from 2010 to 2014, calculated share price of Boeing would be a lot lower.

5.7. Enterprise value based on the perpetuity method- terminal value

This method is more fundamentally dependent on the financials than the EBITDA method, because EBITDA method considerably counts on the market multiples.

$ in million	2014
Enterprise value	**67 750,46**
Equity value	**71 772,46**
Market value	**90 414,09**
Number of outstanding shares	**704,39**
Calculated share price	**101,89**
Actual share price	**128,36**

Figure-5.11: Enterprise value based on perpetuity

It is interesting to see that calculated share price differs between the perpetuity method and the EBITDA method. As earlier discussed, choosing an average EBITDA multiple from 2010 to 2014 EBITDA would give a lower share price. However, no method is perfect. Hence, this paper is further going to adopt scenario Analysis.

5.8. Scenario Analysis

To show the uncertainty of the future, one can calculate the fair value of Boeing`s equity using different scenarios. For example, if the revenue increases by 2% or cost of goods decreases how it will change the value of equity. The following discussion is based on the assumptions of three future states:

1. Base case: here assumption is based on the present situation. If the world remains the same in the future, what the value of the company and its price is.

2. Optimistic case: the assumption here is that future will be better in the days ahead.

3. Pessimistic case: as the future is uncertain, anything can happen. Provided that any hazardous economy shocks take place what the share price is in such a condition.

2. Optimistic case:

As the future is uncertain anything can happen. If the economy changes its current course and becomes a lot stronger than today, the fair value of equity should perhaps be higher. In the Optimistic Case, due to the better economy, it should as per assumption render a higher profit/margin than the Base Case. Following tables reflect the optimistic value of the equity:

$ in million		2014
Enterprise value		95 925,79
Equity value		100 016,79
Market value		90 414,09
Number of outstanding shares		704,39
Calculated share price		134,54
Actual share price		128,36

Figure-5.12: Boeing share price in the Optimistic case

Pessimistic case

The Pessimistic Case is the complete opposite from the Optimistic Case. Hence it is expected that in such a scenario the economic activities of Boeing will either be stagnant or growth will stay minimum. Therefor it should result in a lower margin and the share price should go down. The following table sums up what the fair value of equity is in such a case:

$ in million		2014
Enterprise value		32 970,95
Equity value		37 061,95
Market value		90 414,09
Number of outstanding shares		704,39
Calculated share price		52,62
Actual share price		128,36

Figure-5.13: Boeing share price in the pessimistic case

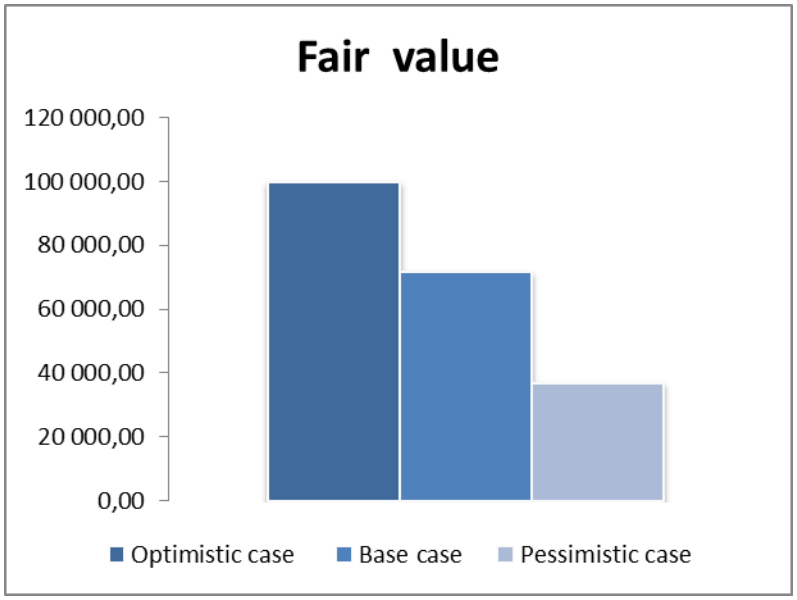


Figure-5.14: Fair value of Boeing in different cases

5.9. Comparable company analysis

As earlier discussed, comparable companies compares companies based on similar size, product and geography. However, Boeing is known all over the world as one of the leading aerospace companies and the largest manufacturer of commercial jet liners and defense, space and security system. Hence, it has competitors all over the world. According to Boeing, it faces aggressive competition from international competitors who want to increase their market share. The main competitors in the commercial jet aircrafts are Airbus, Embraer and Bombardier.

Boeing Defense, Space and Security System face competition from all segments. Boeing mentions that in the BDS, its main competitors are Lockheed Martin Corporation, Northrop Grumman Corporation, Rytheon Group etcetera.

Due to the limited scope of this paper, this paper has made comparison with four of the main competitors, namely-

1. Airbus
2. Lockheed Martin Corporation
3. Northrop Grumman Corporation

4. Raytheon Company

Rather than discussing about the history of its competitors, this paper is going to focus on the key ratio. To find the key ratio, this paper has downloaded the financial statements of each company and then they are regrouped. All calculation is attached in the appendix.

Common stock valuation ratio

Price multiples-

A price multiple has no meaning unless it is compared with its competitors. If a company's price multiple is higher than the price multiples of benchmark (here it is competitors) then the company stock is relatively overvalued (Leach, 2010).

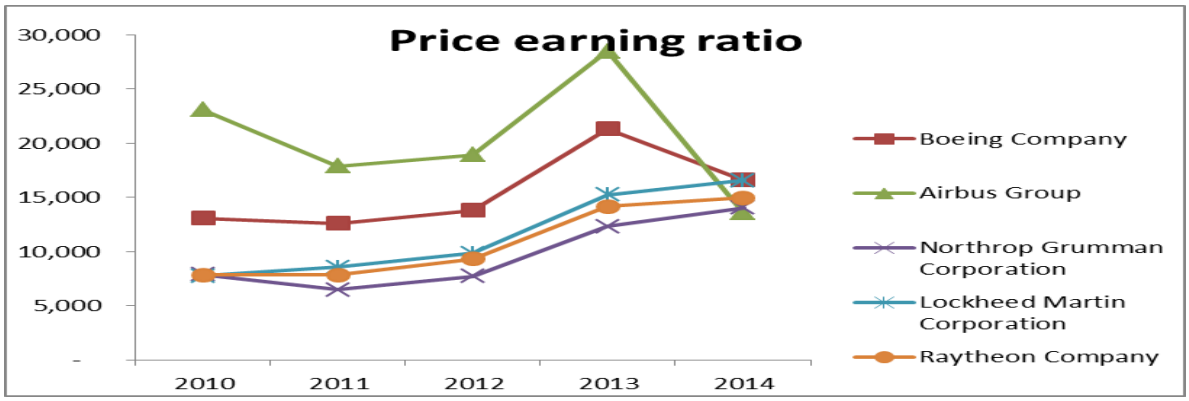


Figure-5.15: Price to earnings ratio

Price to earnings ratios (P/E) = $\frac{Share\ price}{Earnings\ per\ share}$

It is according to (Leach,) the most common ratio. To calculate the P/E ratio, it is required to divide the share price by earnings per share. When a stock has price earnings ratio between18 and 30, it suggests that market expects the company to do extremely well. If it is between 10 and18, the company perhaps is fairly valued. Above 30 is suspicious, (Leach). Among its competitors, according to price earnings ratios, Boeing seems fairly valued. Its price earnings ratios over the years were above Boeing Defense and space system Competitors.

Price to sales ratio

Figure-5.16: Price to sales ratio

Price to sales ratio=Price/ Sales.

This ratio is calculated by taking the market capitalization and then divided it by the sales revenue. A rational for price to sales is that being on the top of the list, it is less distorted or manipulated and perhaps gives a good pictures. As a general rule, a lower price to sales ratio is preferred. Except Airbus (Paris based company), price to sales ratios of all US based companies seen in the line chart are very close. However, Price to sales ratio of Boeing is about right.

Price to Book ratio

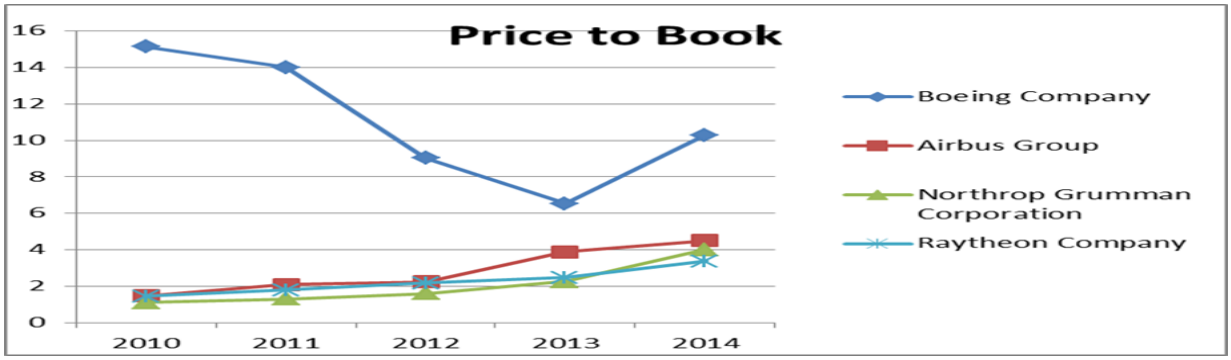


Figure-5.16: Price to book ratio

Price to book ratio also known as market to book ratio. It is calculated dividing the company's market capitalization by the book value of equity. A lower price to book indicates that a stock is undervalued. However, it can mean something else as well. It might be there are fundamentals problem with the stock. Here it is seen that over the years Boeing price to book value remain considerable ahead of its competitors. Here Lockheed Martin Corporation is not shown because its price to book ratio is unimaginably high.

EV/EBITDA

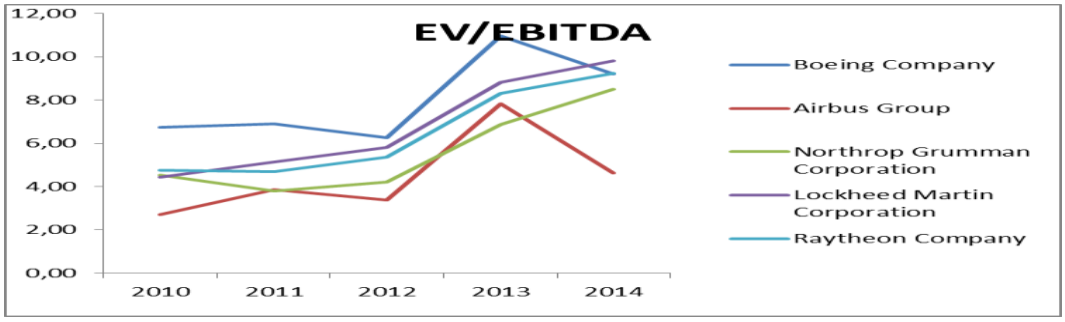
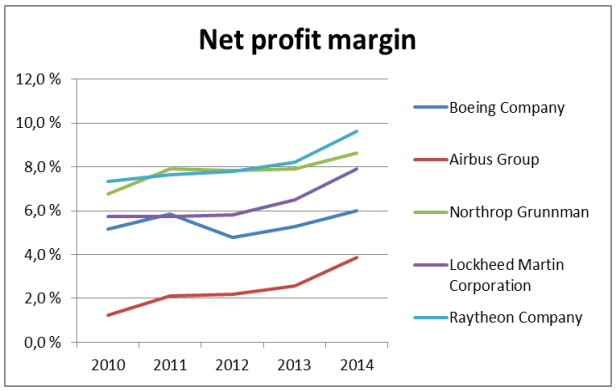


Figure-5.17: EV/EVIDA

In the price earnings ratio, only equity holders are taken into account and it does not take the perspective debt holder. EV/EBITDA is the enterprise value divided by Earnings before interest tax and depreciation. It is much better to capture debt and net cash. It is in theory used as a proxy for operating cash flow. Furthermore, O'Shaughnessy (2011) finds that EV/EBITDA is one of the strongest single factors, much better than P/B and P/E. A low ratio probably indicates a company is undervalued. According to this multiple Boeing equity seems somewhat overvalued.

Profitability analyses



As the line chart shows, net profit margin of Airbus is significantly lower than all other companies. Raytheon Company during the last few years has been outperforming. To mention, even though Raytheon company net profit margins are higher than others. It is only Boeing and Airbus that have experienced a constant revenue growth. On the other hand, average revenue growth for the rest three from 2010 to 2014 stayed near zero. In terms net profit margin, Boeing is lagging behind its key competitors in the USA. However, in comparison to Airbus group, Boeing's profitability ratio is quite satisfactory.

There are many other ratios and methods I have worked with. Due to the time constraint, I could not explain them all. However, I have included some of them in the appendix. I consider this as the limitation of this thesis paper.

6.0. Conclusion

This thesis paper started with the distinct views of two great economists about the value of current U.S. equity price. After that it has presented about the strategic positioning of the Boeing Company based on SWOT and Michael Porter's five forces. Strategically the Boeing Company is in the forefront and overall second to none. Then, it discussed about the financial statements in the perspective of valuation and investor. Afterwards, the paper wrote about

forecasting the cash flows based on historical, current and future growth outlook. Finally it did the valuation part based on discounted cash flow analysis and comparable company analysis.

Stock market is overall a volatile market. During economic boom, share price mostly tends to go higher and the opposite is true when the economic growth becomes stagnant. To put simply, it is cyclic in nature. Furthermore, as per overall growth outlook of the Boeing Company, it is seen that it is strongly correlated with the development of the economy. Even then, as an analyst, one needs to make seasonal adjustments and predict the possible outcomes. Therefore, this paper, in the valuation part, has done scenario analyses based on base case, optimistic case and the worst case. The equity price ranges between USD 52.616 and USD 134.539. Provided that the economic growth remains the same as today, then it is considered as base case and the share price in this case is USD 101.893. On the other hand, if the economy grows faster than today, then it is considered as optimistic case and the share is USD 134.539. Worst case is the complete opposite of the optimistic case and the share price in such a case is USD 52.616. As per overall analysis, this paper considers the share price of Boeing Company as slightly over-priced!

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8.0. Appendix

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1: Boeing Company consolidated reformulated income statement

Boeing Company Consolidated Income Statement Reformulated					
FY ending Desember 31,	2010	2011	2012	2013	2014
	$m	$m	$m	$m	$m
Continuing operations					
Revenue	64 306	68 735	81 698	86 623	90 762
Cost of sales	50097	54213	66854	71424	74846
Gross profit	14 209	14 522	14 844	15 199	15 916
Selling general & administrative expenses	3644	3408	3717	3956	3767
Research & development	4 121	3 918	3 298	3 071	3 047
Income from operating investments	267	278	268	214	287
Gain/loss on dispositions	6	24	4	20	10
EBITDA	6 717	7 498	8 101	8 406	9 379
Depreciation and amortization	1746	1675	1811	1844	1906
EBIT	4 971	5 823	6 290	6 562	7 473
Operational tax	1308	1484	2128	1729	1767
NOPAT	3 663	4 339	4 162	4 833	5 706
Interest paid	516	477	442	386	333
Other non-operating income(expence)	52	47	62	56	3
Finanical expense	464	430	380	330	336
Finanical expense after tax	352	328	259	247	260
Tax advange	112	102	121	83	76
Tax paid	1 196	1 382	2 007	1 646	1 691
Tax rate	24,1 %	23,7 %	31,9 %	25,1 %	22,6 %
Net income	3 311	4 011	3 903	4 586	5 446
Net income	3 311	4 011	3 903	4 586	5 446

2: Airbus Group consolidated income statement

Airbus Group- consolidated income statement (Reformulated)					
	2010	2011	2012	2013	2014
	€m	€m	€m	€m	€m
Continuing operations					
Revenue	45752	49128	56480	57567	60713
Cost of sales	37946	40401	46492	47686	49626
Gross profit	7806	8727	9988	9881	11087
Selling general & administrative ex	2312	2408	2864	2762	2601
Research and development	2939	3152	3142	3118	3391
Income/loss from operating investr	145	192	247	483	895
Other income/expense	69	138	-45	13	151
EBITDA	2769	3497	4184	4497	6141
Depreciation and amortization	1582	1884	2053	1927	2150
EBIT	1187	1613	2131	2570	3991
Operational tax	244	356	449	477	863
NOPAT	943	1257	1682	2093	3128
Interest paid	99	-13	285	332	320
Other non-operating income(exper	272	233	168	278	458
Finanical expense	**371**	**220**	**453**	**610**	**778**
Finanical expense after tax	295	171	358	497	610
Tax advange	76	49	95	113	168
Tax paid	244	356	449	477	863
Tax rate	21 %	22 %	21 %	19 %	22 %
Net income	572	1037	1229	1483	2350
Net income	572	1037	1229	1483	2350

3: Northrop Grumman Corporation reformulated income statement

Northrop Grumman Corporation income statement (Reformulated)					
FY ending Desember 31,	2010	2011	2012	2013	2014
	$m	$m	$m	$m	$m
Continuing operations					
Revenue	28143	26412	25218	24661	23979
Cost of sales	24761	22592	21578	21043	20321
Gross profit	3382	3820	3640	3618	3658
Selling general & administrative expenses					
Research & development					
Income from operating investments					
Gain/loss on dispositions					
EBITDA	3382	3820	3640	3618	3658
Depreciation and amortization	555	544	510	495	462
EBIT	2827	3276	3130	3123	3196
Operational tax	462	997	987	911	868
NOPAT	2365	2279	2143	2212	2328
Interest paid	269	221	212	257	282
Other non-operating income(exp	-192	28	47	-3	23
Finanical expense	461	193	165	260	259
Finanical expense after tax	386	134	113	184	189
Tax advange	75	59	52	76	70
Tax paid	462	997	987	911	868
Tax rate	16 %	30 %	32 %	29 %	27 %
Net income	1904	2086	1978	1952	2069
Net income	1904	2086	1978	1952	2069

4: Lockheed Martin Corporation consolidated income statement reformulated

Lockheed Martin Corporation consolidated statements of earnings (Reformulated)					
FY ending Desember 31,	2010	2011	2012	2013	2014
	$m	$m	$m	$m	$m
Continuing operations					
Revenue	45671	46499	47182	45358	45600
Cost of sales	40831	41787	41998	40181	39351
Gross profit	4840	4712	5184	5177	6249
Selling general & administrative expenses					
Research & development					
Income from operating investments	261	276	238	318	337
Gain/loss on dispositions					
EBITDA	5101	4988	5422	5495	6586
Depreciation and amortization	1052	1008	988	990	994
EBIT	4049	3980	4434	4505	5592
Operational tax	1164	964	1327	1205	1644
NOPAT	2885	3016	3107	3300	3948
Interest paid	345	354	383	350	340
Other non-operating income(expence)	74	5	21	0	6
Finanical expense	271	349	362	350	334
Finanical expense after tax	193	264	254	256	236
Tax advange	78	85	108	94	98
Tax paid	1164	964	1327	1205	1644
Tax rate	29 %	24 %	30 %	27 %	29 %
Net income	2614	2667	2745	2950	3614
Net income	2614	2667	2745	2950	3614

5: Raytheon Company consolidated income statement

Raytheon Company Consolidated statements of operation(Reformulated)					
FY ending Desember 31,	2010	2011	2012	2013	2014
	$m	$m	$m	$m	$m
Continuing operations					
Revenue	25183	24857	24414	23706	22826
Cost of sales	19883	19250	18637	18087	16856
Gross profit	5300	5607	5777	5619	5970
Selling general & administrative expens	1648	1678	2333	2236	2352
Research & development	625	625	0	0	0
Income from operating investments					
Gain/loss on dispositions					
EBITDA	3027	3304	3444	3383	3618
Depreciation and amortization	420	447	455	445	439
EBIT	2607	2857	2989	2938	3179
Operational tax	589	793	878	808	790
NOPAT	2018	2064	2111	2130	2389
Interest paid	110	155	192	198	203
Other non-operating income(expence)	-65	-12	-18	17	7
Finanical expense	175	167	210	181	196
Finanical expense after tax	135	121	148	131	147
Tax advange					
Tax paid	589	793	878	808	790
Tax rate	23 %	28 %	29 %	28 %	25 %
Net income	1843	1897	1901	1949	2193
Net income	1843	1897	1901	1949	2193

6: Important ratios Boeing and its competitors

Boeing Company					
FY ending Desember 31,	2010	2011	2012	2013	2014
Gross profit margin	22,1 %	21,1 %	18,2 %	17,5 %	17,5 %
EBITDA margin	10,4 %	10,9 %	9,9 %	9,7 %	10,3 %
EBIT margin	7,7 %	8,5 %	7,7 %	7,6 %	8,2 %
Net profit margin	5,1 %	5,8 %	4,8 %	5,3 %	6,0 %
Revenue growth		6,9 %	18,9 %	6,0 %	4,8 %
ROE		124,0 %	81,5 %	43,8 %	45,8 %
ROCE		24,5 %	27,7 %	21,2 %	23,4 %
ROA	4,8 %	5,0 %	4,4 %	4,9 %	5,5 %
OPM	5,7 %	6,3 %	5,1 %	5,6 %	6,3 %
NPM	5,1 %	5,8 %	4,8 %	5,3 %	6,0 %
Financial leverage	23,96	22,17	14,90	6,18	11,29
Asset turnover	0,94	0,86	0,92	0,93	0,91
DuPont analysis(ROE)	1,16	1,11	0,65	0,31	0,62

Airbus Group					
	2010	2011	2012	2013	2014
	€m	€m	€m	€m	€m
Gross profit margin	17,1 %	17,8 %	17,7 %	17,2 %	18,3 %
EBITDA margin	6,1 %	7,1 %	7,4 %	7,8 %	10,1 %
EBIT margin	2,6 %	3,3 %	3,8 %	4,5 %	6,6 %
Net profit margin	1,3 %	2,1 %	2,2 %	2,6 %	3,9 %
Revenue growth		7,4 %	15,0 %	1,9 %	5,5 %
ROE		11,7 %	12,7 %	13,9 %	26,1 %
ROCE		11,9 %	14,6 %	16,2 %	25,8 %
ROA	0,7 %	1,2 %	1,3 %	1,6 %	2,4 %
OPM	2,1 %	2,6 %	3,0 %	3,6 %	5,2 %
NPM	1,3 %	2,1 %	2,2 %	2,6 %	3,9 %
FLEV	9,31	9,98	8,83	8,28	13,58
Asset turnover	0,55	0,56	0,61	0,64	0,63
Dupont analysis(ROE)	0,06	0,12	0,12	0,14	0,33

Northrop Grunnman					
FY ending Desember 31,	2010	2011	2012	2013	2014
	$m	$m	$m	$m	$m
Gross profit margin	12,0 %	14,5 %	14,4 %	14,7 %	15,3 %
EBITDA margin	12,0 %	14,5 %	14,4 %	14,7 %	15,3 %
EBIT margin	10,0 %	12,4 %	12,4 %	12,7 %	13,3 %
Net profit margin	6,8 %	7,9 %	7,8 %	7,9 %	8,6 %
Revenue growth		-6,2 %	-4,5 %	-2,2 %	-2,8 %
ROE		17,5 %	19,9 %	19,4 %	23,2 %
ROCE		20,6 %	22,6 %	20,8 %	21,5 %
ROA	6,1 %	8,2 %	7,5 %	7,4 %	7,8 %
OPM	8,4 %	8,6 %	8,5 %	9,0 %	9,7 %
NPM	6,8 %	7,9 %	7,8 %	7,9 %	8,6 %
FLEV	2,32	2,46	2,79	2,48	3,67
Asset turnover	0,90	1,04	0,95	0,93	0,90
Dupont analysis(ROE)	0,14	0,20	0,21	0,18	0,29

Lockheed Martin Corporation					
FY ending Desember 31,	2010	2011	2012	2013	2014
	$m	$m	$m	$m	$m
Gross profit margin	10,6 %	10,1 %	11,0 %	11,4 %	13,7 %
EBITDA margin	11,2 %	10,7 %	11,5 %	12,1 %	14,4 %
EBIT margin	8,9 %	8,6 %	9,4 %	9,9 %	12,3 %
Net profit margin	5,7 %	5,7 %	5,8 %	6,5 %	7,9 %
Revenue growth		1,8 %	1,5 %	-3,9 %	0,5 %
ROE		118,6 %	527,9 %	119,0 %	86,9 %
ROCE		49,8 %	64,2 %	51,7 %	54,2 %
ROA	7,4 %	7,0 %	7,1 %	8,2 %	9,7 %
OPM	6,3 %	6,5 %	6,6 %	7,3 %	8,7 %
NPM	5,7 %	5,7 %	5,8 %	6,5 %	7,9 %
FLEV	10,04	37,87	991,21	7,36	10,90
Asset turnover	1,30	1,23	1,22	1,25	1,23
Dupont analysis(ROE)	75 %	266 %	7038 %	60 %	106 %

Raytheon Company					
FY ending Desember 31,	2010	2011	2012	2013	2014
	$m	$m	$m	$m	$m
Gross profit margin	21,0 %	22,6 %	23,7 %	23,7 %	26,2 %
EBITDA margin	12,0 %	13,3 %	14,1 %	14,3 %	15,9 %
EBIT margin	10,4 %	11,5 %	12,2 %	12,4 %	13,9 %
Net profit margin	7,3 %	7,6 %	7,8 %	8,2 %	9,6 %
Revenue growth		-1,3 %	-1,8 %	-2,9 %	-3,7 %
ROE		20,8 %	23,0 %	20,1 %	21,0 %
ROCE		21,6 %	23,1 %	20,4 %	20,5 %
ROA	7,5 %	7,3 %	7,1 %	7,5 %	7,9 %
OPM	8,0 %	8,3 %	8,6 %	9,0 %	10,5 %
NPM	7,3 %	7,6 %	7,8 %	8,2 %	9,6 %
FLEV	2,47	3,10	3,26	2,32	2,87
Asset turnover	1,03	0,96	0,91	0,91	0,82
Dupont analysis(ROE)	19 %	23 %	23 %	17 %	23 %

7: Important financial items of Boeing and its competitors

Important financial items of Being Company					
	2010	2011	2012	2013	2014
Number of share outstandings (in million)	736,296	745,721	756,166	743,405	704,39
Price per share(31/12)	58,852	67,767	71,303	131,713	128,358
Market value of equity	43333	50535	53917	97916	90414
Book value of equity	2862	3608	5967	14997	8790
IBD(debt)	12421	12371	10409	9635	9070
IBD+RBC(debt+equity)	55754	62906	64326	107551	99484
Cash and cash equivalent	5359	10049	10341	9088	11733
Shor term and other investment	5158	1223	3217	6170	1359
Monetary assets	10517	11272	13558	15258	13092
Enterprise value	45237	51634	50768	92293	86392
EV/EBITDA	6,73	6,89	6,27	10,98	9,21
EV/EBIT	9,10	8,87	8,07	14,06	11,56
D/E	4,339972048	3,4287694	1,74442769	0,64246183	1,03185438
MROE		9 %	7 %	6 %	6 %

Important financial items of Airbus Group					
	2010	2011	2012	2013	2014
Number of share outstandings (i	816,403	820,483	827,368	783,158	787,520
Price per share(31/12)	16,19	22,64	28,13	53,96	40,55
Market value of equity	13 218	18 576	23 274	42 259	31 934
Book value of equity	8936	8865	10434	10906	7079
IBD(debt)	4278	5104	4779	5630	7351
IBD+RBC(debt+equity)	17496	23680	28053	47889	39285
Cash and cash equivalent					
Shor term and other investment					
Monetary assets	9973	10178	13992	12756	10957
Enterprise value	7523	13502	14061	35133	28328
EV/EBITDA	2,7	3,9	3,4	7,8	4,6
EV/EBIT	6,3	8,4	6,6	13,7	7,1
D/E	0,478738	0,575747	0,458022	0,516230	1,038424

Important financial items of Northrop grumman Corpration					
	2010	2011	2012	2013	2014
Number of share outstandings (in million)	290,96	253,89	239,21	217,6	198,93
Price per share(31/12)	51,576607	53,291419	63,731649	110,492213	146,041219
Market value of equity	15 007	13 530	15 245	24 043	29 052
Book value of equity	13557	10336	9514	10620	7235
IBD(debt)	4045	3935	3930	5928	5925
IBD+RBC(debt+equity)	19052	17465	19175	29971	34977
Cash and cash equivalent					
Shor term and other investment					
Monetary assets	3701	3002	3862	5150	3863
Enterprise value	15351	14463	15313	24821	31114
EV/EBITDA	4,5	3,8	4,2	6,9	8,5
EV/EBIT	5,4	4,4	4,9	7,9	9,7
D/E	0,298370	0,380708	0,413075	0,558192	0,818936

Important financial items of Lockheed Martin Corporation					
	2010	2011	2012	2013	2014
Number of share outstandings (in million)	348,00	323,00	321	321	316,00
Price per share(31/12)	58,464954	70,569696	84,342266	140,188744	189,661488
Market value of equity	20 346	22 794	27 074	45 001	59 933
Book value of equity	3497	1001	39	4918	3400
IBD(debt)	5019	6460	6308	6152	6169
IBD+RBC(debt+equity)	25365	29254	33382	51153	66102
Cash and cash equivalent					
Shor term and other investment					
Monetary assets	2777	3585	1898	2617	1446
Enterprise value	22588	25669	31484	48536	64656
EV/EBITDA	4,4	5,1	5,8	8,8	9,8
EV/EBIT	5,6	6,4	7,1	10,8	11,6
D/E	1,435230	6,453546	161,743590	1,250915	1,814412

Important financial items of Raytheon Company					
	2010	2011	2012	2013	2014
Number of share outstandings (in million)	359,00	339,00	328	315	307,00
Price per share(31/12)	40,22332	43,909348	54,148803	87,734766	106,911846
Market value of equity	14 440	14 885	17 761	27 636	32 822
Book value of equity	9890	8340	8190	11197	9721
IBD(debt)	3610	4605	4731	4734	5330
IBD+RBC(debt+equity)	18050	19490	22492	32370	38152
Cash and cash equivalent					
Shor term and other investment					
Monetary assets	3638	4000	4044	4297	4719
Enterprise value	14412	15490	18448	28073	33433
EV/EBITDA	4,8	4,7	5,4	8,3	9,2
EV/EBIT	5,5	5,4	6,2	9,6	10,5
D/E	0,365015	0,552158	0,577656	0,422792	0,548298

8. Functional parameters

Boeing Co. Functional Relationships								
	2010	2011	2012	2013	2014	Average	Best case	Worst case
Income Statement								
Revenue growth		6,9 %	18,9 %	6,0 %	4,8 %	9,14 %	11,14 %	8,14 %
COS/revenue	77,90 %	78,87 %	81,83 %	82,45 %	82,46 %	80,71 %	78,71 %	80,71 %
Deprecation/revenue	2,72 %	2,44 %	2,22 %	2,13 %	2,10 %	2,32 %	2,32 %	2,32 %
G&D/revenue	5,67 %	4,96 %	4,55 %	4,57 %	4,15 %	4,15 %	4,15 %	4,78 %
R&D/revenue	6,41 %	5,70 %	4,04 %	3,55 %	3,36 %	4,61 %	4,61 %	4,61 %
Income from operating investments/rever	0,42 %	0,40 %	0,33 %	0,25 %	0,32 %	0,34 %	0,34 %	0,34 %
Gain(loss) on dispositions/revenue	0,01 %	0,03 %	0,00 %	0,02 %	-0,01 %	0,01 %	0,01 %	0,01 %
Other non-operating income(expence)/re	0,08 %	0,07 %	0,08 %	0,06 %	0,00 %	0,06 %	0,06 %	0,06 %
Loss(gain) for the period/year from discou	-0,01 %	0,01 %	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %
Extraordinary items	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %
ETR	24,06 %	23,73 %	31,91 %	25,08 %	22,63 %	23,86 %	25,48 %	25,48 %
Financial expense	0,72 %	0,63 %	0,47 %	0,38 %	0,37 %	0,59 %	0,59 %	0,59 %
Payout ratio	37,84 %	31,01 %	33,87 %	31,99 %	38,84 %	34,71 %	34,71 %	34,71 %

Balance sheet	2010	2011	2012	2013	2014	Average
Short-term and other investments/revenue	8,02 %	1,78 %	3,94 %	7,12 %	1,50 %	4,47 %
Accounts receivable/revenue	8,43 %	8,43 %	6,86 %	7,56 %	8,52 %	7,96 %
Current portion of customer financing/revenue	0,44 %	0,69 %	0,45 %	0,40 %	0,21 %	0,44 %
Defferd income taxes/revenue	0,05 %	0,04 %	0,03 %	0,02 %	0,02 %	0,03 %
Inventories/revenue	37,81 %	46,90 %	46,21 %	49,54 %	51,51 %	46,40 %
Customer financing/revenue	6,83 %	6,25 %	4,96 %	4,19 %	3,71 %	5,19 %
Property, plant and equipment/revenue	13,89 %	13,55 %	11,82 %	11,80 %	12,13 %	12,64 %
Goodwill/revenue	7,68 %	7,19 %	6,16 %	5,82 %	5,64 %	6,50 %
Acquired intangible assets/revenue	4,63 %	4,43 %	3,81 %	3,52 %	3,16 %	3,91 %
Deferred income assets/revenue	6,27 %	8,57 %	8,27 %	3,39 %	7,25 %	6,75 %
Investments/revenue	1,73 %	1,52 %	1,44 %	1,39 %	1,27 %	1,47 %
Other assets/revenue	2,50 %	2,39 %	2,19 %	1,73 %	1,45 %	2,05 %
Accounts payable/revenue	12,00 %	12,23 %	11,50 %	10,96 %	11,75 %	11,69 %
Accrued liabilities/revenue	21,46 %	17,81 %	15,91 %	16,31 %	14,70 %	17,24 %
Advanced an billings in excess of related costs/revenue	19,16 %	22,54 %	20,41 %	23,12 %	25,53 %	22,15 %
Deferred income taxes and income taxes payable/revenue	0,94 %	4,04 %	5,49 %	7,23 %	9,48 %	5,44 %
Short-term debt and current portion of long-term debt/rever	1,47 %	3,42 %	1,76 %	1,80 %	1,02 %	1,90 %
Accrued retiree health care/revenue	12,48 %	10,94 %	9,21 %	7,54 %	7,49 %	9,53 %
Accrued pension plan liability/revenue	15,24 %	24,06 %	24,05 %	12,09 %	18,93 %	18,87 %
Non-current income taxes payable/revenue	0,65 %	0,18 %	0,45 %	0,18 %	0,39 %	0,37 %
Other long-term liabilitises/revenue	0,92 %	1,32 %	1,75 %	1,10 %	1,33 %	1,28 %
Noncontrolling interest	0,15 %	0,14 %	0,12 %	0,14 %	0,14 %	0,14 %

9: Other important ratios

BA	2010	2011	2012	2013	2014	AIR.PA	2010	2011	2012	2013	2014
Accounts receivable days		29,36932	25,1191	25,25565	28,31031	Accounts receivable days		47,72594	42,017	41,95529	39,80498
Accounts payable days		53,52554	47,92533	47,61089	48,49558	Accounts payable days		80,98017	75,67883	73,92736	72,00218
Inventory days		187,7826	188,4462	203,2838	215,646	Inventory days		193,4729	177,2395	178,3127	179,1005
Asset turnover	0,937884	0,859338	0,919029	0,934818	0,914958	Asset turnover	0,54999	0,555232	0,613233	0,637692	0,631756
Operating cycle		217,152	213,5653	228,5394	243,9563	Operating cycle		241,1989	219,2565	220,268	218,9055
Cash conversion cycle		163,6264	165,6399	180,9285	195,4607	Cash conversion cycle		160,2187	143,5777	146,3406	146,9033

NOC	2010	2011	2012	2013	2014	LMT	2010	2011	2012	2013	2014
Accounts receivable days		51,03913	46,38633	46,23876	46,96954	Accounts receivable days		45,50808	48,17218	49,19661	46,25526
Accounts payable days		26,58729	23,96608	22,41981	22,44575	Accounts payable days		16,78225	18,45945	15,38787	13,5717
Inventory days		16,39695	13,9392	12,79665	12,75528	Inventory days		20,86582	23,22111	26,49312	26,80034
Asset turnover	0,895675	1,039392	0,950081	0,934802	0,902416	Asset turnover	1,300686	1,226628	1,220529	1,253399	1,230006
Operating cycle		67,43609	60,32553	59,03542	59,72482	Operating cycle		66,37389	71,39329	75,68973	73,0556
Cash conversion cycle		40,8488	36,35945	36,61561	37,27907	Cash conversion cycle		49,59164	52,93384	60,30186	59,4839

RTN	2010	2011	2012	2013	2014
Accounts receivable days		64,7383	66,86409	71,47304	77,71401
Accounts payable days		28,47273	27,57418	25,1385	25,92786
Inventory days		6,536104	6,924934	7,404213	8,297342
Asset turnover	1,03116	0,961437	0,914862	0,912928	0,818136
Operating cycle		71,27441	73,78903	78,87726	86,01135
Cash conversion cycle		42,80168	46,21485	53,73876	60,08349

10: Scenario analysis

Base case									
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
99056,1142	108108,2	117987,4	128769,5	140536,8	153379,5	167395,8	182693	199388,05	217608,75
79943,2544	87248,72	95221,78	103923,4	113420,3	123785	135096,8	147442,4	160916,16	175621,18
19 113	20 859	22 766	24 846	27 117	29 595	32 299	35 251	38 472	41 988
4111,24019	4486,938	4896,969	5344,469	5832,863	6365,888	6947,623	7582,518	8275,4323	9031,6671
4566,05	4983,31	5438,70	5935,70	6478,12	7070,11	7716,20	8421,33	9190,90	10030,79
338,960272	369,9355	403,7414	440,6365	480,9033	524,8497	572,8121	625,1575	682,28628	744,63573
12,1272238	13,23545	14,44494	15,76497	17,20562	18,77792	20,49391	22,3667	24,410644	26,641364
10 787	11 772	12 848	14 022	15 304	16 702	18 228	19 894	21 712	23 696
2297,60692	2507,569	2736,719	2986,809	3259,753	3557,639	3882,747	4237,565	4624,8065	5047,4358
8 489	9 265	10 111	11 035	12 044	13 145	14 346	15 657	17 087	18 649
2025,15	2210,21	2412,19	2632,62	2873,20	3135,76	3422,31	3735,06	4076,38	4448,89
6 464	7 055	7 699	8 403	9 171	10 009	10 923	11 922	13 011	14 200
645,87	704,89	769,31	839,61	916,34	1 000,08	1 091,47	1 191,21	1 300,06	1 418,87
56,75	61,94	67,60	73,78	80,52	87,88	95,91	104,67	114,24	124,68
589	643	702	766	836	912	996	1 087	1 186	1 294
449	490	534	583	636	695	758	827	903	985
140,54	153,38	167,40	182,70	199,39	217,61	237,50	259,20	282,89	308,74
1884,61	2056,83	2244,79	2449,92	2673,80	2918,14	3184,81	3475,85	3793,49	4140,15
22,2 %	22,2 %	22,2 %	22,2 %	22,2 %	22,2 %	22,2 %	22,2 %	22,2 %	22,2 %
6 015	6 565	7 165	7 820	8 534	9 314	10 165	11 094	12 108	13 215
2087,97063	2278,776	2487,018	2714,289	2962,329	3233,036	3528,481	3850,924	4202,8339	4586,902
3 927	4 286	4 678	5 105	5 572	6 081	6 637	7 243	7 905	8 628

Optimistic case									
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
100871,35	110089,29	120149,60	131129,24	143112,24	156190,28	170463,43	186040,91	203041,91	221596,51
79390,82	86645,80	94563,76	103205,29	112636,51	122929,59	134163,28	146423,53	159804,17	174407,57
21480,54	23443,50	25585,84	27923,95	30475,73	33260,69	36300,16	39617,38	43237,74	47188,94
4186,58	4569,16	4986,71	5442,41	5939,75	6482,55	7074,94	7721,47	8427,08	9197,18
4649,72	5074,63	5538,36	6044,47	6596,84	7199,68	7857,61	8575,66	9359,33	10214,61
345,17	376,71	411,14	448,71	489,72	534,47	583,31	636,61	694,79	758,28
12,35	13,48	14,71	16,05	17,52	19,12	20,87	22,78	24,86	27,13
13 002	14 190	15 487	16 902	18 446	20 132	21 972	23 980	26 171	28 563
2339,71	2553,52	2786,87	3041,54	3319,49	3622,83	3953,90	4315,22	4709,56	5139,93
10 662	11 636	12 700	13 860	15 127	16 509	18 018	19 664	21 461	23 423
2716,96	2965,25	3236,22	3531,95	3854,72	4206,97	4591,42	5011,00	5468,92	5968,68
7 945	8 671	9 464	10 328	11 272	12 302	13 426	14 653	15 993	17 454
657,71	717,81	783,41	855,00	933,13	1 018,40	1 111,47	1 213,04	1 323,89	1 444,87
57,79	63,08	68,84	75,13	82,00	89,49	97,67	106,59	116,33	126,96
599,91	654,74	714,57	779,87	851,14	928,91	1013,80	1106,45	1207,56	1317,91
447	488	532	581	634	692	755	824	900	982
152,87	166,84	182,09	198,73	216,89	236,71	258,34	281,95	307,72	335,84
2564,09	2798,40	3054,13	3333,22	3637,83	3970,26	4333,08	4729,05	5161,20	5632,85
24,0 %	24,0 %	24,0 %	24,0 %	24,0 %	24,0 %	24,0 %	24,0 %	24,0 %	24,0 %
7 498	8 183	8 931	9 747	10 638	11 610	12 671	13 829	15 093	16 472
2602,6333	2840,47	3100,04102	3383,33242	3692,5119	4029,9451	4398,214	4800,13655	5238,78797	5717,5247
4 895	5 343	5 831	6 364	6 945	7 580	8 273	9 029	9 854	10 754

Pesimistic case									
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
98148,49	107117,6	116906,4	127589,6	139249,2	151974,2	165862	181019	197561,1	215614,9
79210,76	86449,29	94349,29	102971,2	112381,1	122650,8	133859	146091,4	159441,7	174012
18937,73	20668,32	22557,06	24618,39	26868,10	29323,39	32003,05	34927,59	38119,38	41602,85
4689,90	5118,47	5586,22	6096,70	6653,84	7261,89	7925,50	8649,76	9440,20	10302,87
4524,21	4937,64	5388,86	5881,31	6418,77	7005,33	7645,50	8344,17	9106,69	9938,89
335,85	366,55	400,04	436,60	476,50	520,04	567,56	619,43	676,03	737,81
12,02	13,11	14,31	15,62	17,05	18,61	20,31	22,16	24,19	26,40
10 071	10 992	11 996	13 093	14 289	15 595	17 020	18 575	20 273	22 125
2276,55	2484,59	2711,64	2959,44	3229,88	3525,04	3847,17	4198,74	4582,43	5001,19
7 795	8 507	9 285	10 133	11 059	12 070	13 173	14 377	15 690	17 124
1986,35	2167,87	2365,98	2582,19	2818,15	3075,69	3356,75	3663,50	3998,29	4363,66
5 809	6 339	6 919	7 551	8 241	8 994	9 816	10 713	11 692	12 760
639,95	698,44	762,26	831,92	907,94	990,91	1 081,47	1 180,29	1 288,15	1 405,87
56,23	61,37	66,98	73,10	79,78	87,07	95,03	103,71	113,19	123,54
583,72	637,06	695,28	758,82	828,16	903,84	986,44	1076,58	1174,96	1282,33
435	475	518	565	617	674	735	802	876	956
148,75	162,34	177,18	193,37	211,04	230,32	251,37	274,34	299,41	326,77
1837,60	2005,53	2188,80	2388,82	2607,12	2845,37	3105,38	3389,16	3698,88	4036,89
23,6 %	23,6 %	23,6 %	23,6 %	23,6 %	23,6 %	23,6 %	23,6 %	23,6 %	23,6 %
5 374	5 865	6 401	6 986	7 624	8 321	9 081	9 911	10 816	11 805
1865,228	2035,679	2221,705	2424,732	2646,311	2888,139	3152,066	3440,112	3754,48	4097,576
3 508	3 829	4 179	4 561	4 978	5 432	5 929	6 471	7 062	7 707

11: Being Company consolidated balance sheet

Boeing Company Consolidated Balance Sheet					
FY ending Desember 31,	2010	2011	2012	2013	2014
	$m	$m	$m	$m	$m
Assets					
Cash and cash equivalents	5 359	10 049	10 341	9 088	11 733
Short-term and other investments	5 158	1 223	3 217	6 170	1 359
Accounts receivable	5 422	5 793	5 608	6 546	7 729
Current portion of customer financing	285	476	364	344	190
Defferd income taxes	31	29	28	14	18
Inventories	24 317	32 240	37 751	42 912	46 756
Total current assets	**40 572**	**49 810**	**57 309**	**65 074**	**67 785**
Customer financing	4 395	4 296	4 056	3 627	3 371
Property, plant and equipment	8 931	9 313	9 660	10 224	11 007
Goodwill	4 937	4 945	5 035	5 043	5 119
Acquired intangible assets	2 979	3 044	3 111	3 052	2 869
Deferred income assets	4 031	5 892	6 753	2 939	6 576
Investments	1 111	1 043	1 180	1 204	1 154
Pension plan assets					
Other assets	1 609	1 643	1 792	1 500	1 317
Total assets	**68 565**	**79 986**	**88 896**	**92 663**	**99 198**
Liabilities and equity					
Accounts payable	7 715	8 406	9 394	9 498	10 667
Accrued liabilities	13 802	12 239	12 995	14 131	13 343
Advanced an billings in excess of related costs	12 323	15 496	16 672	20 027	23 175
Deferred income taxes and income taxes payable	607	2 780	4 485	6 267	8 603
Short-term debt and current portion of long-term debt	948	2 353	1 436	1 563	929
Total current liabilities	**35 395**	**41 274**	**44 982**	**51 486**	**56 717**
Accrued retiree health care	8 025	7 520	7 528	6 528	6 802
Accrued pension plan liability	9 800	16 537	19 651	10 474	17 182
Non-current income taxes payable	418	122	366	156	358
Other long-term liabilitises	592	907	1 429	950	1 208
Long-term debt	11 473	10 018	8 973	8 072	8 141
Sharedholders equity:					
Common stock	5 061	5 061	5 061	5 061	5 061
Additional paid-in capital	3 866	4 033	4 122	4 415	4 625
Treasury stock	17 187	16 603	15 937	17 671	23 298
Accumulated other comprehensive loss	13 758	16 500	17 416	9 894	13 903
ShareVale Trust shares					
Stocks	22 018	24 009	24 170	18 089	27 515
Retained earnings	24 784	27 524	30 037	32 964	36 180
Total sharedholders`equity	**2 766**	**3 515**	**5 867**	**14 875**	**8 665**
Noncontrolling interest	96	93	100	122	125
Total equity	**2 862**	**3 608**	**5 967**	**14 997**	**8 790**
Total liabilitises and equity	**68 565**	**79 986**	**88 896**	**92 663**	**99 198**

12. Consolidated financial position of Boeing and its competitors

Consolidated financial position of Boeing company and its components					
(In $ million)	2010	2011	2012	2013	2014
Operating assets	58048	68714	75338	77405	86106
Operating cash	1286,12	1374,7	1633,96	1732,46	1815,24
Total operating assets	59334,12	70088,7	76971,96	79137,46	87921,24
Monetary asset	10517	11272	13558	15258	13092
(-)2% of revenue	1286,12	1374,7	1633,96	1732,46	1815,24
Financial assets	9230,88	9897,3	11924,04	13525,54	11276,76
Total assets (OA+FA)	68565	79986	88896	92663	99198
Operating liablities	53282	64007	72520	68031	81338
IBD(Interest bearing debt)	12421	12371	10409	9635	9070
RBC(Risk bearing capital)	2862	3608	5967	14997	8790
Total liablities and equities	68565	79986	88896	92663	99198
Capital employed(IBD+RBC)	15283	15979	16376	24632	17860
(In $ million)	2010	2011	2012	2013	2014
Total operating assets	59334	70089	76972	79137	87921
Total operating liabilities	53282	64007	72520	68031	81338
Net operating assets	6052	6082	4452	11106	6583
RNOA		72 %	82 %	56 %	49 %

Airbus-Group- consolidated rearranged finanical position					
In€ milliom	2010	2011	2012	2013	2014
Operating assets	73214	78304	78110	77518	85145
Operating cash	915,04	982,56	1129,6	1151,34	1214,26
Total operating assets	74129	79287	79240	78669	86359
Monetary assets	9973	10178	13992	12756	10957
(-) 2% of revenue	915,04	982,56	1129,6	1151,34	1214,26
Financial assets	9057,96	9195,44	12862,4	11604,66	9742,74
Total assets (OA+FA)	83187	88482	92102	90274	96102
Operating liablities	69973	74513	76889	73738	81672
IBD(Interest bearing debt)	4278	5104	4779	5630	7351
RBC(Risk bearing capital)	8936	8865	10434	10906	7079
Total liablities and equities	83187	88482	92102	90274	96102
Capital employed(IBD+RBC)	13214	13969	15213	16536	14430

Northrop Grunnman Corporation arranged financial psition					
(In $ million)	2010	2011	2012	2013	2014
Operating assets	27720	22409	22681	21231	22709
Operating cash	562,86	528,24	504,36	493,22	479,58
Total operating assets	28283	22937	23185	21724	23189
Monetary asset	3701	3002	3862	5150	3863
(-)2% of revenue	562,86	528,24	504,36	493,22	479,58
Financial assets	3138,14	2473,76	3357,64	4656,78	3383,42
Total assets (OA+FA)	31421	25411	26543	26381	26572
Operating liablities	13819	11140	13099	9833	13412
IBD(Interest bearing debt)	4045	3935	3930	5928	5925
RBC(Risk bearing capital)	13557	10336	9514	10620	7235
Total liablities and equities	31421	25411	26543	26381	26572
Capital employed(IBD+RBC)	17602	14271	13444	16548	13160

13. Enterprise value of Boeing

Boeing Company Free Cashflow & Valuation											
		Base case									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
		$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
EBIT		8 489,05	9 264,81	10 111,46	11 035,47	12 043,93	13 144,54	14 345,73	15 656,69	17 087,45	18 648,95
Operating profit after tax		6 463,91	7 054,60	7 699,27	8 402,85	9 170,73	10 008,78	10 923,42	11 921,63	13 011,07	14 200,06
Change in Net Working Capital		825,65	192,88	210,50	229,74	250,73	273,65	298,65	325,95	355,73	388,24
Changes in Capital expenditue		3 809,65	3 651,60	3 985,29	4 349,48	4 746,95	5 180,74	5 654,17	6 170,87	6 734,78	7 350,23
FCF		1 828,61	3 210,12	3 503,48	3 823,63	4 173,05	4 554,40	4 970,59	5 424,82	5 920,55	6 461,59
Terminal value											96 492,86
FCF		1 828,61	3 210,12	3 503,48	3 823,63	4 173,05	4 554,40	4 970,59	5 424,82	5 920,55	102 954,45
Discounted FCF		1 680,24	2 710,33	2 717,99	2 725,69	2 733,40	2 741,13	2 748,89	2 756,67	2 764,47	44 171,67

$ in million	2014
Enterprise value	**67 750,46**
Equity value	**71 772,46**
Market value	**90 414,09**
Number of outstanding shares	**704,39**
Calculated share price	**101,89**
Actual share price	**128,36**

Free Cashflow & Valuation											
		Optimistic case									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
		$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
EBIT		10 662,05	11 636,38	12 699,75	13 860,29	15 126,88	16 509,23	18 017,89	19 664,42	21 461,42	23 422,63
Operating profit after tax		7 945,09	8 671,13	9 463,53	10 328,33	11 272,17	12 302,25	13 426,47	14 653,43	15 992,50	17 453,95
Change in Net Working Capital		864,33	196,41	214,36	233,95	255,33	278,66	304,13	331,92	362,25	395,35
Change in fixed assets at cost		4 081,17	3 947,93	4 308,71	4 702,45	5 132,17	5 601,17	6 113,02	6 671,65	7 281,32	7 946,71
FCF		2 999,59	4 526,79	4 940,46	5 391,94	5 884,67	6 422,43	7 009,33	7 649,86	8 348,93	9 111,88
Terminal value											136 070,37
Total FCF		2 999,59	4 526,79	4 940,46	5 391,94	5 884,67	6 422,43	7 009,33	7 649,86	8 348,93	145 182,25
Discounted FCF		2 756,21	3 821,99	3 832,81	3 843,65	3 854,53	3 865,43	3 876,37	3 887,34	3 898,34	62 289,12

$ in million	2014
Enterprise value	95 925,79
Equity value	100 016,79
Market value	90 414,09
Number of outstanding shares	704,39
Calculated share price	134,54
Actual share price	128,36

Boeing Company Free Cashflow & Valuation											
		Pessimistic case									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
		$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
EBIT		7 794,95	8 507,27	9 284,69	10 133,16	11 059,16	12 069,78	13 172,75	14 376,52	15 690,29	17 124,12
Operating profit after tax		5 808,59	6 339,40	6 918,72	7 550,97	8 241,00	8 994,09	9 816,00	10 713,01	11 692,00	12 760,45
Change in Net Working Capital		806,31	191,11	208,58	227,64	248,44	271,14	295,92	322,96	352,47	384,68
Change in fixed assets at cost		4 456,89	5 015,47	4 967,61	5 421,57	5 917,01	6 457,73	7 047,85	7 691,91	8 394,82	9 161,96
FCF		545,40	1 132,82	1 742,53	1 901,76	2 075,55	2 265,22	2 472,23	2 698,15	2 944,71	3 213,81
Terminal value											47 992,73
Total FCF		545,40	1 132,82	1 742,53	1 901,76	2 075,55	2 265,22	2 472,23	2 698,15	2 944,71	51 206,54
Discounted FCF		501,14	956,45	1 351,85	1 355,68	1 359,51	1 363,36	1 367,22	1 371,09	1 374,96	21 969,70

$ in million	2014
Enterprise value	32 970,95
Equity value	37 061,95
Market value	90 414,09
Number of outstanding shares	704,39
Calculated share price	52,62
Actual share price	128,36