

**Czech University of Life Sciences Prague**

**Faculty of Economics and Management**

**Department of Economics**



**Bachelor Thesis**

**Economic analysis of Apple Inc.**

**Lubor Blažek**

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# CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

## BACHELOR THESIS ASSIGNMENT

Lubor Blažek

Business Administration

Thesis title

**Economic analysis of Apple Inc.**

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### **Objectives of thesis**

To provide information about financial analysis with emphasis on Apple Inc. Give information about supply and demand and brief history of company. Access information about the financial flow in the company. To compare product line and give information about market.

### **Methodology**

Bachelor thesis is divided into two main parts theoretical and practical part.

For the theoretical part are used methods such as extraction of information, synthesis, induction and also deduction is used.

For the practical part are used basic statistical method such as average, median, minimum and maximum. Also are employed methods of financial analysis, analysis of market and product analysis. These include probability indicators.

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**Keywords**

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### **Declaration**

I declare that I have worked on my bachelor thesis titled "Economic analysis of Apple Inc." by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on

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**Lubor Blažek**

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# Ekonomická analýza společnosti Apple Inc.

## Souhrn

Bakalářská práce se zabývá ekonomickou analýzou společnosti Apple. Teoretická část podává přehled o finanční analýze, nabídce, poptávce a tržní rovnováze. Finanční analýza je popsána ze tří úhlů pohledu. První část je věnována účetním výkazům a jejich částem. Druhá část vysvětluje rozdíly mezi interní a externí analýzou s důrazem na horizontální a vertikální metodu. Poslední sekce rozlišuje uživatele finanční analýzy.

Praktická část je zaměřena na finanční analýzu společnosti Apple. Analýza je uskutečněna externě z finančních výkazů jako jsou rozvaha a výkaz zisků a ztrát. Analýza společnosti je provedena jak horizontálně tak vertikálně. Hlavní část analýzy je věnována ohodnocení akcií a používá modely jako volný cash flow společnosti, vážený průměr nákladů na kapitál a cena za akcii. Následující část je věnována kvalifikaci rizik spojených s investováním do akcií společnosti Apple. Rizika jsou rozdělena do skupin provozních a investičních rizik. Poslední část práce poukazuje na nejpravděpodobnější příčiny, které povedou ke změnám v cenách produktů společnosti Apple.

**Klíčová slova:** nabídka, poptávka, finanční analýza, produkt, akcie, společnost, koeficient, investice, risk, Apple Inc.

# Economic analysis of Apple Inc.

## Summary

This bachelor thesis deals with economic analysis of Apple Inc. Theoretical part provides an overview of financial analysis, supply, demand and market equilibrium. The financial analysis is described from three different points of view. First part is dedicated to financial statements and their components. Second part explains the differences between internal and external analysis with the emphasis on horizontal and vertical method. Last section distinguishes users of financial analysis.

Practical part is focused on financial analysis of Apple Inc. Analysis is done externally from financial statements such as Balance Sheet and Income Statement and is conducted both horizontally and vertically. Main part of analysis is dedicated to stock evaluation and uses models such as Free Cash Flow for Firm, Weighted Average Cost of Capital and Price per Share. Following part is dedicated to qualification of risks connected with the investment to Apple Inc. shares. Risks are distributed into groups of operational and investment risks. Last section shows the most probable reasons of changes in prices of Apple products.

**Keywords:** supply, demand, financial analysis, product, share, company, ratio, investment, risk, Apple Inc.

# Table of content

<b>1 Introduction</b> .....	<b>12</b>
<b>2 Objectives and Methodology</b> .....	<b>13</b>
2.1 Objectives.....	13
2.2 Methodology .....	13
<b>3 Theoretical part</b> .....	<b>14</b>
3.1 Financial analysis .....	14
3.1.1 Financial Statements .....	15
3.1.1.1 The Balance Sheet .....	15
3.1.1.2 The Income Statement .....	17
3.1.2 Internal and External Analysis.....	18
3.1.2.1 Horizontal and Vertical Analysis .....	19
3.1.3 Users of financial analysis .....	22
3.2 Demand .....	23
3.2.1 Changes in Demand .....	23
3.2.2 Factors influencing changes in demand.....	24
3.2.2.1 Changes in Income .....	24
3.2.2.2 Changes in prices of related goods .....	25
3.2.2.3 Changes in consumer preferences .....	26
3.2.2.4 Changes in consumer expectations.....	26
3.2.2.5 Changes in number of customers .....	26
3.3 Supply .....	27
3.3.1 Changes in Supply .....	27
3.3.2 Factors influencing changes in supply.....	28
3.3.2.1 Changes in production cost .....	28
3.3.2.2 Changes in technology .....	28
3.3.2.3 Changes in expectations .....	28
3.3.2.4 Changes in the number of producers .....	29
3.4 Equilibrium .....	30
3.4.1 Price below the equilibrium.....	30
3.4.2 Price above the equilibrium .....	30
<b>4 Practical Part</b> .....	<b>31</b>
4.1 History of Apple Inc.....	31



4.2	Financial analysis of Apple Inc.....	32
4.2.1	Vertical analysis of Apple Inc. ....	32
4.2.1.1	Liquidity ratios .....	33
4.2.1.2	Solvency ratios .....	34
4.2.1.3	Market value ratios .....	35
4.2.1.4	Profitability Ratios.....	36
4.2.2	Horizontal analysis of Apple Inc. ....	36
4.2.2.1	Liquidity ratios .....	37
4.2.2.2	Solvency Ratios .....	38
4.2.2.3	Market Value Ratio .....	39
4.2.2.4	Profitability Ratios.....	40
4.3	Qualification of risk connected with investment in Apple Inc. stocks .....	41
4.3.1	Operational risks .....	41
4.3.1.1	Execution risk.....	41
4.3.1.2	Management risk .....	41
4.3.1.3	Systematic risk.....	41
4.3.2	Investment risks .....	42
4.3.2.1	Company specific risk .....	42
4.3.2.2	Economic and political risk.....	42
4.3.2.3	Corporate and Governance regulatory risk.....	43
4.3.2.4	Currency risk .....	43
4.3.2.5	Correlation risk.....	43
4.3.2.6	Systemic risk .....	43
4.4	Changes in supply of Apple Inc. ....	44
<b>5</b>	<b>Results of Stock Evaluation.....</b>	<b>46</b>
5.1	Free Cash Flow for the Firm – FCF model.....	46
5.2	Weighted Average Cost of Capital – WACC model .....	47
5.3	Company Value.....	48
5.4	Price per share .....	49
<b>6</b>	<b>Conclusion.....</b>	<b>50</b>
<b>7</b>	<b>References .....</b>	<b>51</b>

## List of figures

Figure 1 Classification of Financial Analysis .....	19
Figure 2 Demand Curve.....	23
Figure 3 Changes in Demand.....	24
Figure 4 Indifference curves .....	25
Figure 5 Supply Curve .....	27
Figure 6 Changes in Supply.....	28
Figure 7 Equilibrium.....	30
Figure 8 Liquidity Ratios .....	37
Figure 9 Debt to Equity Ratio.....	38
Figure 10 Solvency Ratios .....	38
Figure 11 Earnings per Share.....	39
Figure 12 Gross Profit Margin.....	40
Figure 13 Gross Margin Ratio .....	40
Figure 14 Decrease in supply.....	44
Figure 15 Increase in supply .....	44

## List of tables

Table 1 Balance Sheet.....	17
Table 2 Income Statement .....	18
Table 3 Comparative Balance Sheet .....	20
Table 4 Apple Inc. Balance Sheet.....	32
Table 5 Apple Inc. Income Statement .....	35
Table 6 Apple Inc. Annual Balance Sheet.....	36
Table 7 Apple Inc. Annual Income Statement.....	39

# 1 Introduction

The aim of bachelor thesis is to provide information about Apple Inc. perform financial analysis, describe the company using financial ratios and evaluate stock using various models.

Theoretical part is divided into three main sections financial statements, internal and external analysis and last one users of financial analysis. First section is called „Financial Statements“ which describes Apple Inc. through basic financial statements such as The Balance Sheet and The Income Statement. This section gives an overview about the company's assets, equity, liabilities, revenues and expenditures. Section of „Internal and External Analysis“ show the main difference between these two analysis. In this part are also presented various methods such as Horizontal and Vertical analysis with basic statements and financial ratios. Third section is called „Users of financial analysis“ and describes different users. This part shows their diverse interests, various sources of their information and methods of financial analysis in which they are interested. Investors and suppliers stand out of the company, they have same source of information, use different method of analysis, their interest is different, suppliers want receive their expected payment but investors want valorize their money.

Other goal of the bachelor thesis is to access information about the demand and supply. Show the moves of the demand curve and explain an economic behavior of the consumers. Interpret the main factors which influence changes in demand with the emphasis on indifference curve and the changes in demand caused by complementary effect and by substitutes. On the other hand, explain an economic behavior of suppliers. Show the changes of supply curve and present the main factors influencing the changes in supply. Using these two curve show the creation of market equilibrium, market price and market quantity. Describe the situation of the surplus and shortage with the effect on the market price.

Practical part provides brief history of the company and mainly deals with financial analysis. Analysis is done externally using horizontal and vertical methods. Financial analysis uses stock evaluation models such as Free Cash Flow for Firm, Weighted Average Cost of Capital and Price per Share.

## **2 Objectives and Methodology**

### **2.1 Objectives**

To provide information about financial analysis with emphasis on Apple Inc. Give information about supply, demand and brief history of company. Access information about the financial flow in the company. Using various models evaluate shares of Apple Inc. Qualify risks connected with the investment to Apple Inc. shares.

### **2.2 Methodology**

Bachelor thesis is divided into two main parts theoretical and practical part.

For the theoretical part are used methods such as extraction of information, synthesis, induction and also deduction is used.

For the practical part are used basic statistical method such as an average, median, minimum and maximum. Also are employed methods of financial analysis, analysis of market and product analysis. These include probability indicators.

## **3 Theoretical part**

### **3.1 Financial analysis**

Financial analysis is conducted from the selection of appropriate data, evaluation and interpretation of results of financial analysis and other relevant information in order to measure the operating performance and the financial condition of the company. These two measurements are considered to be important. The operating performance represents the ability of the company to use its resources - its assets, both tangible and intangible, to produce a return on its investment. The financial condition is a measure of how well the company meets obligations, for example the payment of interest on its debt in regular manner. (Peterson Drake and Fabozzi, 2012)

For financial analysis and planning we use different kinds of sources. Basic inputs are accounting information, market information or overall economic data. Tools for creation of financial planning and forecasting are statistical methods and computer knowledge. (Lee, Lee and Lee, 2009)

Financial reporting demonstrates the way a corporation's financial results and positions are reported to its owners and other stakeholders (such as customers, suppliers, employees and lenders). (Kwok, 2008)

Financial analysis consists of three main sections - selection, evaluation and interpretation of financial data.

Financial data can be selected from various resources. The most easily accessible information can be found in four basic financial statements. These include Balance Sheet, which has the purpose to report the financial position at the particular point in time. The Income Statement, also called Statement of Earnings, reports the performance of the business. Statement of Retained Earnings points how the payment of dividends affects the financial position of the company and the Statement of Cash Flows which shows inflows and outflows of cash into three main categories: Cash Flows from Operating Activities, Cash Flows from Investing Activities and Cash Flows from Financing Activities. These statements can be prepared at any point in time, but usually are presented quarterly or at the end of the year. (Lörinczová, 2016)

Second step of financial analysis is processing or evaluation of available financial data. We can classify Financial Analysis into two different categories. The distribution between them is very simple. The first category is based on which kind of material is used, we can have different sources of material: External sources, which are easily accessible and provide clear information for investors or creditors; Internal sources, which provide information for management of the company to help them in managerial decision making process. Other group is not based on the origin of material but on the method used for operation. (Chowdhury, 2007) Into this group fall Horizontal and Vertical analysis. Difference among Horizontal and Vertical analysis is mainly in the period of time. Horizontal Analysis is an analysis that contains more than one year's data. In the case of Vertical Analysis, we are not interested in data from previous years, but we are trying to find relations between the changes in Assets, Equity and Liabilities in the period of one year. (Sarngadharan and Kumar, 2011)

Last section of Financial Analysis is interpretation of results. There are two groups of people interested in different information. Among External users of Financial Analysis belong current and potential investors, bank and creditors, State and State authorities, Business Partners and competition. On the other hand, there are internal users of Financial Analysis including managers, employees and unionists. (Pandey, 1995)

### **3.1.1 Financial Statements**

#### 3.1.1.1 The Balance Sheet

The balance sheet consists of two major parts. The first section (the left side) describes the assets. The second (the right hand side) section represents the liabilities and the owner's equity, which together represents the claims against the assets. The total assets always equal the combined total of the liabilities and the owner's equity – that is why this financial statement is called a balance sheet. (Spurga, 2004)

**Basic accounting equation:**  $\text{Assets} = \text{Liabilities} + \text{Owner's equity}$

##### 3.1.1.1.1 Assets

The assets can be classified into three group Long-term assets also called fixed assets, Current assets also known as short-term assets and other assets. These the groups

include everything what is owned by company or business and has money value. Other possible division of assets can be into tangible or intangible assets. (Stárová, 2015)

- A) Long-term assets (Fixed assets) – Fixed assets are not acquired for resale but company intends to own them more than one year. Fixed assets are usually very important for the company because they are one of the factors of production. In the case that the company sells them or lose them is no more possible to produce new products or services. Fixed assets are depreciated during the working life and lose their value. Long-term assets include land, buildings, equipment, software, animals, Shares of ownership interest and so on. (Stárová, 2015)
- B) Current assets (Short-term assets) – Current assets are cash and assets that are expected to be converted into cash during the normal operating cycle of the business generally, within a year. (Spurga, 2004) The Balance sheet of a production company usually shows three basic types of inventories. Material is used for production of goods, Work in progress represents products, which are not yet completed and products or merchandise are final goods ready to sale. Current assets also comprise customers, Shares, bank account, cash etc. (Stárová, 2015)
- C) Other assets – These assets may include goodwill or patents of the company.

#### 3.1.1.1.2 Liabilities

Liabilities are the claims of creditors against the assets of the business – in other words, debts owned by the business. They do not include owner's claims. (Spurga, 2004) Liabilities can be also distributed into current and long-term liabilities. Current liabilities represent obligations that have to be paid within one year. There belong wages that have to be paid to our employees, invoices from our suppliers and short-term bank loans. On the other hand are long-term liabilities it can be for example bank loan, which is repaid for several years. (Stárová, 2015)

#### 3.1.1.1.3 Owner's Equity

Owner's Equity is the investment of the owner or owners plus any profits that have been left to accumulate in the business (or minus any losses). (Spurga, 2004)



**Table 1 Balance Sheet**

<b>CORPORATION NAME</b>			
<b>Balance Sheet</b>			
<b>December 31, 20XX</b>			
<b>Assets</b>		<b>Liabilities</b>	
Cash	\$ 25,000	Accounts payable	\$ 50,000
Accounts receivable	50,000	Loans payable	<u>125,000</u>
Inventories	35,000	<b>Total liabilities</b>	<b>\$175,000</b>
Land	125,000	<b>Stockholders' equity</b>	
Buildings	400,000	Capital stock	\$120,000
Equipment	250,000	Retained earnings	<u>600,000</u>
Other assets	<u>10,000</u>	<b>Total stockholders' equity</b>	<b><u>720,000</u></b>
<b>Total assets</b>	<b><u>\$895,000</u></b>	<b>Total liabilities and equity</b>	<b><u>\$895,000</u></b>

Source: (MyKomms.com, 2017)

$$\begin{aligned} \text{Total Assets} &= \text{Total Liabilities} + \text{Total Equity} \\ \$895,000 &= \$175,000 + \$720,000 \end{aligned}$$

### 3.1.1.2 The Income Statement

The Income Statement reports the financial results of a company's operations for the current reporting period. (Taparia, 2004) Income Statement has three basic elements Revenues, Expenses and Net income, their relation can be described by equation:

$$\text{Net Income} = \text{Revenues} - \text{Expenses}$$

#### 3.1.1.2.1 Expenses

Expenses can be distinguished into Operating Expenses, Financial Expenses and Tax Expenses. Operating Expenses arise when the resources of the company are consumed in order to create new products. Operating Expenses cover consumption of material and energy, wages, amortization and depreciation of machinery, taxes, charges etc. Financial Expenses appear when the company has to pay interest from their bank loan or in the case of exchange losses. (Lörinczová, 2016)

### 3.1.1.2.2 Revenues

Revenues are also created in Operation and Financial section. Among Operating Revenues belong Revenues from product, services, dividends or income from investment, merchandise and so on. (Lörinczová, 2016)

### 3.1.1.2.3 Net Income

Taxable income minus income tax expense. This is considered the company's "bottom line" as it represents how much the business made. Net income has lots of other names, including "net profit," "earnings" or "net profit from continuing operations." (Taparia, 2004)

**Table 2 Income Statement**

CORPORATION NAME Income Statement For the Year Ending December 31, 20XX		
<b>Revenues</b>		
Net sales		\$653,000
<b>Expenses and losses</b>		
Cost of goods sold	\$283,000	
Selling expenses	142,000	
General & administrative	170,000	
Loss on sale of land	2,000	
Interest expense	7,000	<u>604,000</u>
<b>Income before tax</b>		\$ 49,000
Income tax expense		<u>10,000</u>
<b>Net income</b>		<u>\$ 39,000</u>

Source: (Anon, 2016, A)

$$\begin{aligned}\text{Net Income} &= \text{Revenues} - \text{Expenses} \\ \$39,000 &= \$653,000 - \$614,000\end{aligned}$$

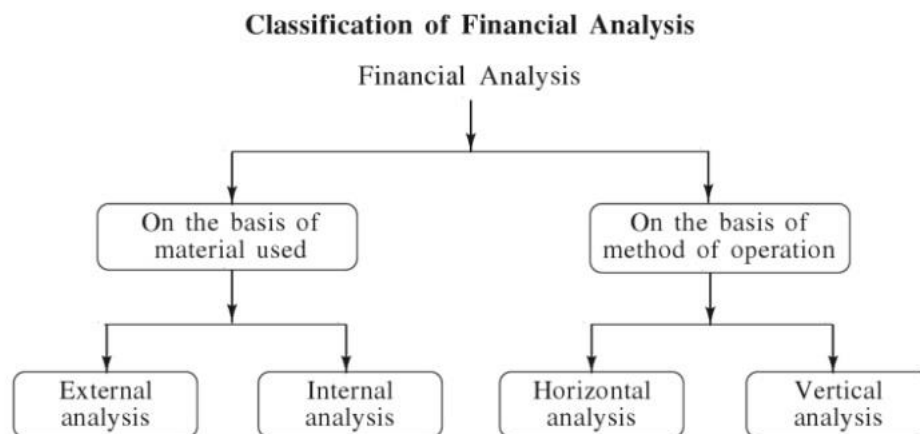
## 3.1.2 Internal and External Analysis

Analysis of any kind of business may be done in two various ways internally or externally. In the case of internal analysis, users have free access to the accounting books and have enough information about the business. While for an external analysis, analyst is not connected with the enterprise and the only data available are the statements and such information as the business is willing to disclose. (Chowdhury, 2007)

External analysis is done by people or companies who have no direct access to information about the company. They have to follow annual reports or information which are generally known. This analysis is usually made by investors, creditors, financial institutions or by government. In these days it is much easier for them to complete their analysis. Companies are obligated to publish more detailed information according to government regulations which help them to conduct a detailed analysis. (Sarngadharan and Kumar, 2011)

Internal analysis is more accurate. Management of the company or analysts have more detailed and more accurate information, they can use accounting books and documents which are not published. Results of internal analysis are used to improve the decision making. Internal analysis can also be conducted by the government or court in the case of uncertainties or litigation. They have the power to authorize person who will perform this internal analysis from them. (Sarngadharan and Kumar, 2011)

**Figure 1 Classification of Financial Analysis**



Source: (Sarngadharan and Kumar, 2011)

### 3.1.2.1 Horizontal and Vertical Analysis

Horizontal analysis contains data of more than one year or more than one accounting period and measure the changes. That is why is also called dynamic analysis. Tools of dynamic analysis are comparative financial statements and trend analysis. Comparative financial statements compare figures of the current year with figures of the previous year or to the base year. (Sarngadharan and Kumar, 2011)

### 3.1.2.1.1 Comparative financial statements

For creating comparative financial statement we can use three different resource The Income Statement, The Balance Sheet and the Statement of Cash Flows. Comparative statements are useful for many reasons they can indicate trends or reveal the presence of accounting errors. Provides comparison of expenses to revenues and changes of different items which can be useful for lowering of costs. This comparison may be also useful for creation of prediction of future performance of the company.

**Table 3 Comparative Balance Sheet**

CORPORATION NAME Comparative Balance Sheet December 31, 20X5 and 20X4		
Assets	20X5	20X4
<b>Current assets</b>		
Cash	\$ 700,000	\$ 170,000
Accounts receivable	850,000	600,000
Inventory	180,000	220,000
Total current assets	<u>\$1,730,000</u>	<u>\$ 990,000</u>
<b>Property, plant, &amp; equipment</b>		
Land	\$ 800,000	\$1,400,000
Building	1,000,000	700,000
Equipment	<u>1,050,000</u>	<u>900,000</u>
	\$2,850,000	\$3,000,000
Less: Accumulated depreciation	<u>(480,000)</u>	<u>(360,000)</u>
Total property, plant, & equipment	<u>\$2,370,000</u>	<u>\$2,640,000</u>
Total assets	<u>\$4,100,000</u>	<u>\$3,630,000</u>
<b>Liabilities</b>		
<b>Current liabilities</b>		
Accounts payable	\$ 270,000	\$ 200,000
Wages payable	<u>20,000</u>	<u>50,000</u>
Total current liabilities	\$ 290,000	\$ 250,000
<b>Long-term liabilities</b>		
Long-term loan payable	<u>900,000</u>	<u>1,800,000</u>
Total liabilities	<u>\$1,190,000</u>	<u>\$2,050,000</u>
<b>Stockholders' equity</b>		
Preferred stock	\$ 300,000	\$ -
Common stock (\$1 par)	910,000	900,000
Paid-in capital in excess of par	370,000	300,000
Retained earnings	<u>1,330,000</u>	<u>380,000</u>
Total stockholders' equity	<u>\$2,910,000</u>	<u>\$1,580,000</u>
Total liabilities and equity	<u>\$4,100,000</u>	<u>\$3,630,000</u>

Source: (Principlesofaccounting.com, 2016, A)

Vertical analysis is interested relationship of different items in the financial statements of one accounting period. This analysis is also called static analysis, reveals the quantitative relationships of figures on a particular date. Common-size financial statements and ratio analysis are the tools used for vertical analysis. (Sarngadharan and Kumar, 2011)

### 3.1.2.1.2 Financial ratios

Financial ratios are mathematical comparisons of financial statements accounts or categories. These relationships between the financial statements accounts help investors, creditors, and internal company management understand how well a business is performing and areas of needing improvement. (My Accounting Course, 2016, F)

- A) Liquidity ratios – We use Liquidity ratios to measure the ability of a firm to meet its short-term liabilities. The higher the ratio the better is the ability of the company to turn its assets to money and pay its obligations. In this case investors are able to extend short-term credit to a firm. On the other hand, lower Liquidity ratios point to the possibility that the company will not be able to pay its short-term liabilities on time (Gallagher and Andrew, 1997) Between liquidity ratios fall Quick Ratio, Current Ratio, Working Capital Ratio or Times Interest Earned Ratio.
- B) Solvency Ratios – Solvency ratios are used to measure the relative size of a firm's debt loan. Financial analysis uses Solvency ratios to see a firm's ability to pay off the debt. (Gallagher and Andrew, 1997)
- C) Activity Ratios – Financial analysis uses activity ratios also called Efficiency ratios to measure effectiveness of a firm to use its assets. (Gallagher and Andrew, 1997) In the group of activity ratios we include Total Asset Turnover Ratio, Inventory Turnover, Accounts Receivable Turnover or Working Capital Ratio.
- D) Market value ratios – These ratios are hardly created from financial statements. Market value ratio depends on marketplace data, such as the market price of a company's common stock. Market value ratios measure the market's perception of the future earning power of a company. (Gallagher and Andrew, 1997) Between market value ratios are Earnings per Share, Price Earnings Ratio, Dividend Payout Ratio or Dividend Yield Ratio.

### 3.1.3 Users of financial analysis

**Trade creditors** are mainly interested in firm's liquidity position. They want to be sure about the ability of the company to meet claims over a very short period of time. (Pandey, 1995)

**Suppliers of long term debt**, on the other hand, are concerned with the firm's long-term solvency and survival. They analyze the firm's profitability over time, its ability to generate cash. (Pandey, 1995)

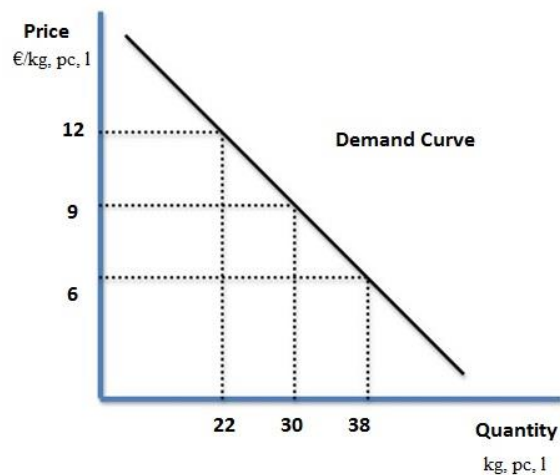
**Investors**, who have invested their money in the firm's shares, are most concerned about the firm's earnings because they are paid out of dividends. They prefer to invest their money into firms that show steady growth in earnings. (Pandey, 1995)

**Management of the company** would be interested in every aspect. It is their overall responsibility to see that the sources of the firm are used most effectively. (Pandey, 1995)

## 3.2 Demand

Demand describes an economic behavior of consumer and his or her willingness to pay specific amount of money for specific amount of goods or services. The quantity of goods or services which consumer wants to purchase depends on the price. The higher the price, the less of the goods or services consumer wants to buy. On the other hand, the lower the price, the more of the goods or services consumer wants to purchase. The relation between quantity demanded and the price which consumer is willing to pay is generally described by using demand curve. (Procházka, 2015)

Figure 2 Demand Curve



Source: (Economicshelp.org, 2016, A)

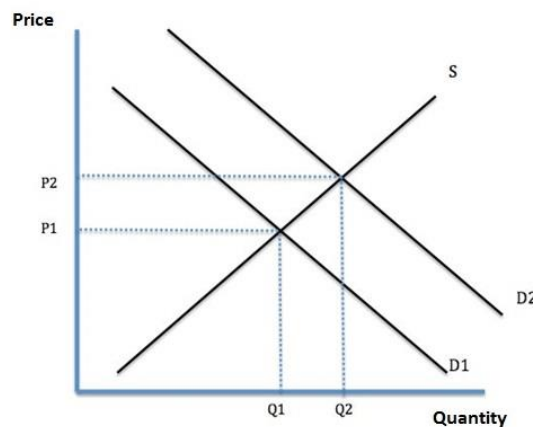
The price of the goods or services is shown on the vertical axis, also called „Y“ axis and the quantity of the goods or services is displayed on the horizontal, also called „X“ axis. The relation between price and quantity is visible on the demand curve, the demand curve is almost always downward sloping. It is called the law of the demand, the higher price for a good or service leads consumers to demand smaller quantity.

### 3.2.1 Changes in Demand

Changes in demand become under several reasons such as changes in income of consumers, changes in prices of related goods, changes in preferences of consumers, changes in expectations or changes in number of customers. These are the reasons which

can influence the change in demand. The basic movement of the demand curve is called shifting of demand. Demand curve can be shifted in two possible ways. Shifting of the curve to the right side means increase of the demand, it may happen for example in the case of increasing prices of substitutes, people will buy more Apple iPhones when the other producers will increase their prices. The opposite view is shifting of the demand curve to the left side, it means the decrease of the demand. In the case of changing of the preferences of consumers, they will not demand for our Apple iPhones but they will prefer competitive phones produced by Samsung, demand curve will be shifted to the left side. Besides of the shifting of the demand curve we can see the movement along the demand curve. The change happens due to a changes in price of your product. Quantity demanded rises due to a fall in prices and vice versa. (Procházka, 2015)

**Figure 3 Changes in Demand**



Source: (Economicshelp.org, 2016, A)

### **3.2.2 Factors influencing changes in demand**

#### **3.2.2.1 Changes in Income**

Change in income is probably the most important factor. When the consumer has the higher income, he/she tends to spend to more money and purchase more goods and services than before. It is clear to say that the increase in income will cause the increase of the demand. However, we have to take account which type of goods do we talk about. In the case of „normal goods“ the demand for them will increase with the rise of income, but when we talk about „inferior goods“ the demand will be lower when the income increases. In this group of goods we included goods of low quality, fast-food chains or public



transport. When the income increases consumers will start to prefer goods of high quality, eat in top restaurants and will prefer to travel by taxi or in their own car. The demand for „inferior goods“ will decrease. (Procházka, 2015)

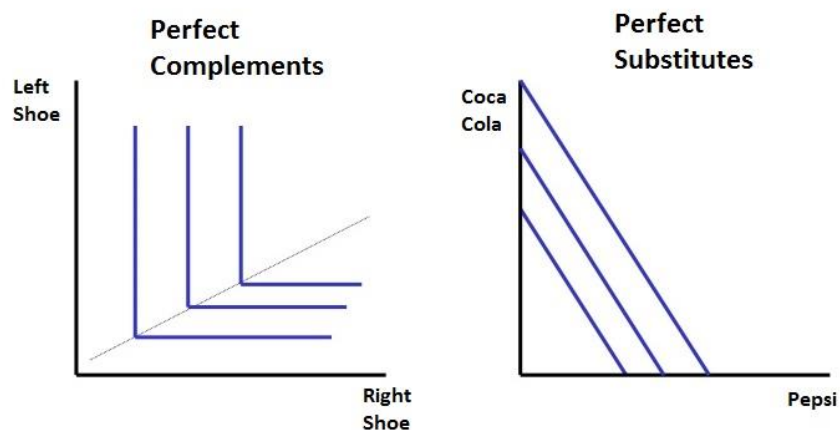
### 3.2.2.2 Changes in prices of related goods

A commodity is deemed to be a complement of another when it complements the use of the other. For example, petrol is a complement to motor vehicles; milk and sugar are complement to tea and coffee. (Dwivedi, 2006) Increase in the price of one good will decrease the demand for another.

Goods are substitutes when the rise in prices of one goods will persuade consumers to buy another goods. For example, in the market with phone devices all the mobile phones are substitutes. In the case when some of the producers will higher the prices, this step will make consumers to buy mobile phones of another brand and the demand for these mobiles will increase. Vice versa, when some of the producers will lower the prices the demand for the rest of mobile phones will decrease.

#### Indifference curves: Perfect complements and Perfect substitutes

**Figure 4 Indifference curves**



Source: (Slideshare.net, 2017)

Perfect complements describe situation when two goods bring the utility to the consumer only in the case when are consumed together. This situation can be displayed using indifference curve, perfect complements will be shown as right angle. Only few goods in the real world are perfect complements, in can be left and right shoe. In the area

of mobile devices it can be an application and mobile phone. Consumer needs both of them to satisfy its needs. (Procházka, 2015)

Perfect substitutes are also displayed using indifference curve, they are shown as straight lines. In the picture above we can see Coca Cola and Pepsi. At the any point of the curve the utility of the consumer will be the same. Let's imagine the situation that the consumer will buy in total four cans. Consumption of one can of Coca Cola and three cans of Pepsi brings the same utility as the consumption of two cans of Coca Cola and two cans of Pepsi.

### 3.2.2.3 Changes in consumer preferences

Taste and preferences depend, generally, on the social customs, religious values, habits of the people, the general life-style of the society and also the age and sex of the consumers. (Dwivedi, 2006) Changes in these factors will affect the demand curve and will change the quantity demanded.

### 3.2.2.4 Changes in consumer expectations

Consumer's expectations regarding the future course of economic events, particularly regarding changes in prices, income, and supply position of goods, play an important role in determining the demand for goods and services in the short run. If consumers expect a rise in the price of a commodity, they would buy more of it at its current price. (Dwivedi, 2006) If the consumer expects lower prices of certain good in the future, he/she will postpone the purchase of the good, to get the advantage price.

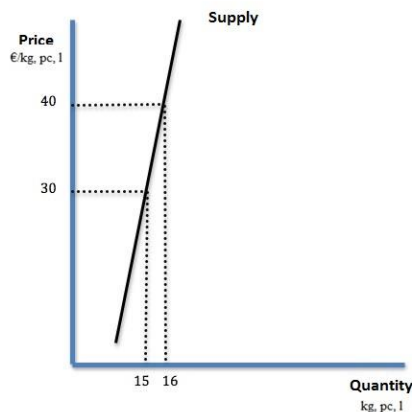
### 3.2.2.5 Changes in number of customers

The growth of population has large impact on the global demand. In these days many people live in the scarcity and the demand for some kinds of goods is higher than the supply. This situation is also called shortage. (Procházka, 2015)

### 3.3 Supply

On the other hand of demand stands supply. Supply describes economic behavior of suppliers generally known as producers. Supply curve represents willingness of producers to sell their goods or services on the market for specific amount of money. The willingness of supplier depends on the price. The higher the price, the more of the goods or services producers want to supply. Vice versa, the lower the price, then less of the goods or services they want to supply because they lose their revenues. (Procházka, 2015)

Figure 5 Supply Curve

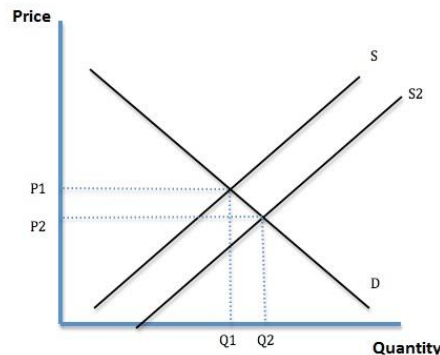


Source: (Economicshelp.org, 2016, B)

#### 3.3.1 Changes in Supply

We can notice two basic moves of the supply curve. Shifting in supply and movement along the supply curve. The movement along the supply curve is due to a rise in price. With the increasing prices producers are willing to supply bigger amount of goods and service. Vice versa, when the price falls, producers are not willing to supply their goods and service and supply lower quantities. Second basic change in supply is called shifting. When the supply curve is shifted to the right side, we can see it the following picture, the supply increases. Producers supply higher quantities of goods and service for smaller amount of money. On the other hand, the supply curve can be shifted to the left side, it means decrease in supply. Consumers can buy goods or services for smaller amount of money. (Procházka, 2015)

**Figure 6 Changes in Supply**



Source: (Economicshelp.org, 2016, B)

### **3.3.2 Factors influencing changes in supply**

#### **3.3.2.1 Changes in production cost**

Production costs play the most important role in the formation of the final price of the product. Into production prices we include materials, energy, labor and other factors.

When input prices decrease, the use of inputs increases. As a result, product supply increases and the supply curve shifts to the right side. (Dwivedi, 2006) Generally, when the prices of inputs increase, producers are less willing to supply the goods or services because these goods or services will be more costly for consumers.

#### **3.3.2.2 Changes in technology**

Technological changes that reduce cost of production or increase efficiency cause increase in product supply. (Dwivedi, 2006)

If Apple Company finds new technology for production of Iphone screens, it will lower the production costs and the new Iphones will be sold for lower price.

#### **3.3.2.3 Changes in expectations**

As well as demand curve also supply curve can be changed thanks to expectations. For example, before Christmas supplier keep their products in the stock, supply decreases and the prices are lower. During the Christmas time producers supply higher quantities and the overall prices are higher than before.

#### 3.3.2.4 Changes in the number of producers

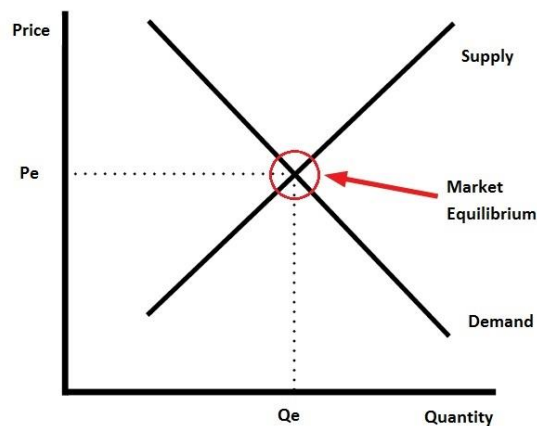
The supply of a commodity depends also on whether an industry is monopolized or competitive. Under monopoly, supply is fixed. When a monopolized industry is made competitive, the total supply increases. Besides, if size of an industry increases due to new firms joining the industry, the total supply increases and supply curve shifts rightward.

(Dwivedi, 2006)

### 3.4 Equilibrium

Market equilibrium occurs where supply = demand. At this point, there is no tendency for prices to change. We say the market clearing price has been achieved. (Economicshelp.org, 2016, B)

Figure 7 Equilibrium



Source: (Economicshelp.org, 2016, B)

The easiest way how to find market equilibrium is to put supply and demand curve together. Supply curve shows the quantity supplied and the demand curve shows the quantity demanded at any given price. The point at which these two curve cross is called market equilibrium. Thanks to this point we can find equilibrium price on the vertical axis and the equilibrium quantity on the horizontal axis. (Procházka, 2015)

#### 3.4.1 Price below the equilibrium

Shortage occurs when the demand is higher than the supply. Consumer would like to purchase products from the producers but cannot find willing sellers at the price. Firm can afford to put up their prices and supply more of goods or service. Price will rise till the point of the equilibrium when the supply will be equal to demand. (Procházka, 2015)

#### 3.4.2 Price above the equilibrium

Situation when the supply is bigger than demand is called surplus. Sellers cannot find any consumers willing to purchase their products at this price. Firms have to decrease the prices till the point of the equilibrium when the supply will be equal to demand. (Procházka, 2015)

## **4 Practical Part**

### **4.1 History of Apple Inc.**

#### **Foundation of Company**

Apple was founded by Steve Jobs, Steve Wozniak and Ronald Wayne on April 1, 1976. In the beginning they focused on production and sale of motherboards.

After a few days of action Ronald Wayne sold his share for \$800 back to Jobs and Wozniak. (Luo, 2017)

One of the first milestones for Apple was the financial injection which provided Mike Markkula. Markkula agreed to invest \$250,000 in order to get one-third share of the Apple company. (Money.cnn.com, 2017)

Between the years 1977 and 1980 revenues and sales grew rapidly, an average annual growth rate was 533%. In the beginning of the eighties Apple went public, shares of Apple were sold for \$22 per share. It was the most successful initial public offering since the IPO of Ford Company. (Apple, 2017, A)

#### **Success and downfall**

Technological and commercial breakthrough in the area of personal computers represents Macintosh. Apple was too proud of Macintosh that even in these days they use shorter version Mac. In 1985, Jobs resigned from the company mainly because of the discords with John Sculley new CEO of Apple. (Low End Mac, 2017)

In the nineties the company began to decline thanks to the main rival Microsoft. Situation on the market was changed, expensive Apple computers were replaced by cheaper Microsoft computers with functional operating system Windows.

#### **Era of media players**

In 1997, Apple made the decision to buy NeXT and bring Steve Jobs back to Apple and in the same year Jobs became the new CEO of Apple Company.

The new millennium was the boom of Apple technologies and electronic devices. Mac OS X based on the NeXT's technologies was presented to the world on March, 2001. (Brand, 2017)

During the same year in May, Apple opened its first two certificated retail stores in

Virginia and California. (Web.archive.org, 2017)

In October was introduced iPod portable media player. With iPod began new phenomena, first product was sold on November, 2001 and over six years were sold more than 100 million pieces. (News.bbc.co.uk, 2017)

Two years later in 2003, iTunes media store which offers to the users downloading of songs for \$1 per record. In the 2008 number of downloads reached 5 billion, the iTunes became very quickly the leader of online music services. (Apple.com, 2017, B)

### **Boom of mobile devices**

During the Macworld Expo was announced new name of the company because of the wider range of the products. Company was renamed from „Apple Computer, Inc.“ to „Apple Inc.“ This event also presented to the people iPhone and iPod Touch.(The Economist, 2017)

In May of the same year share reached the value of \$100. In 2011 Jobs left the position of CEO and was replaces by Tim Cook.

## **4.2 Financial analysis of Apple Inc.**

Financial Analysis of Apple Inc. will be conducted externally from annual reports. In the first part of Analysis will be used Vertical method and in the second part Horizontal method. Analysis will be based on two financial statements Balance Sheet and Income Statement.

### **4.2.1 Vertical analysis of Apple Inc.**

**Table 4 Apple Inc. Balance Sheet**

<b>Apple Inc.</b>			
<b>Balance Sheet</b>			
September 24, 2016 (values in 000's)			
<b>Current Assets</b>		<b>Current Liabilities</b>	
<b>Cash and Cash Equivalents</b>	\$20,484,000	<b>Accounts Payable</b>	\$59,321,000
<b>Short-Term Investments</b>	\$46,671,000	<b>Short-Term Debt</b>	\$11,605,000
<b>Net Receivables</b>	\$29,299,000	<b>Other Current Liabilities</b>	\$8,080,000
<b>Inventory</b>	\$2,132,000	<b>Total Current Liabilities</b>	<b>\$79,006,000</b>
<b>Other Current Assets</b>	\$8,283,000	<b>Long-Term Debt</b>	\$75,427,000
		<b>Other Liabilities</b>	\$36,074,000
		<b>Deferred Liability Charges</b>	\$2,930,000
<b>Total Current Assets</b>	<b>\$106,869,000</b>	<b>Total Liabilities</b>	<b>\$193,437,000</b>



Long-Term Assets		Stock Holder's Equity	
Long-Term Investments	\$170,430,000	Common Stocks	\$31,251,000
Fixed Assets	\$27,010,000	Retained Earnings	\$96,364,000
Goodwill	\$5,414,000	Treasury Stock	\$0
Intangible Assets	\$3,206,000	Other Equity	\$634,000
Other Assets	\$8,757,000	Total Equity	\$128,249,000
Total Assets	\$321,686,000	Total Liabilities & Equity	\$321,686,000

Source: (NASDAQ.com, 2016, A)

#### 4.2.1.1 Liquidity ratios

**Quick Ratio** - This ratio is very important for suppliers or short term creditors. Ratio represents the ability of the company to turn its current assets into cash within limited amount of time, usually in ninety days. The higher the ratio is, the better is the ability to pay its debts on time. (My Accounting Course, 2016, I)

$$QR = \frac{\text{Cash} + \text{Short Term Investments} + \text{Current Receivables}}{\text{Total Current Liabilities}} = \frac{20,484,000 + 46,671,000 + 29,299,000}{79,006,000} \doteq 1.22$$

Quick Ratio is higher than 1, Apple Company has the ability to pay its short term liabilities on due date. Short term creditors and suppliers need not to be worry about receiving their cash on time.

**Cash Ratio** – Also called coverage ratio is much more restrictive than Quick Ratio. Ratio represents the ability to pay its current liabilities only with cash. (My Accounting Course, 2016, A)

$$\text{Cash Ratio} = \frac{\text{Cash} + \text{Cash Equivalent}}{\text{Total Current Liabilities}} = \frac{20,484,000}{79,006,000} \doteq 0.26$$

In this case we can see that Cash Ratio is lower than 1, it means inability to pay all short term liabilities. Apple Inc. has enough cash to pay only 26% of its short term debt. However, Apple Inc. is one of the most profitable companies and almost everyone believes in this brand. It is easy to interpret Cash Ratio wrongly, for wider perspective is better to use also other ratios such as Quick Ratio.

**Debt to Equity Ratio** – Ratio compares total value of company's debt with total value of Equity. This Ratio shows the percentage of financing coming from shareholders or

creditors. Ratio equal to 1 means that fund coming from investors are in the same amount as cash receiving form creditors. When the number is higher than one, business is based on cash from creditors than on investments from shareholders. (My Accounting Course, 2016, C)

$$\text{Debt to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Equity}} = \frac{193,437,000}{128,249,000} \doteq 1.51$$

Result 1,51 means that Apple Company's business is mainly based of cash from creditors. In other words, the share of creditors to shareholders is 2:1. Any dollar of the company is owned from 66.6 cents by creditors and by 33.3 cents by shareholders. Higher Debt to Equity Ratio points on potential risk for creditors because Shareholders did not invest their funds into this business.

#### 4.2.1.2 Solvency ratios

**Debt Ratio** – Debt Ratio measures the portion of assets with is financed by liabilities. From the different point of view, it represents the percentage of assets to sale to cover total liabilities. Companies with higher Debt Ratios are considered to be more risky for lenders. (My Accounting Course, 2016, B)

$$\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}} = \frac{193,437,000}{321,686,000} \doteq 0.6$$

In the case of Apple Inc. Debt Ratio is equal to 0,6. If Apple Company wants to pay all of its obligations, it will have to sell 60% of all assets. Debt Ratio around 0.5 is considered to less risky, companies usually do not have any problem to extend their loans.

**Equity Ratio** – On the opposite side from Debt Ratio stands Equity Ratio. It measures the sum of assets that are owned by Shareholders. Higher Equity Ratio are usually better for the companies. It shows to the potential Investors good health of the company and tells them that other Investors are willing to finance the company. (My Accounting Course, 2016, E)

$$\text{Equity Ratio} = \frac{\text{Total Equity}}{\text{Total Assets}} = \frac{128,249,000}{321,686,000} \doteq 0.4$$

Shareholders own 40% of total assets of Company. It is better for Company to have higher Equity Ratio than 0,4. Equity financing is cheaper from creditors financing because of the interest expenses.

**Table 5 Apple Inc. Income Statement**

<b>Apple Inc.</b>	
Income Statement	
September 24, 2016 (values in 000's)	
<b>Total Revenue</b>	\$215,639,000
<b>Cost of Revenue</b>	\$131,376,000
<b>Gross Profit</b>	<b>\$84,263,000</b>
<b>Operating Expenses</b>	
<b>Research and Develop.</b>	\$10,045,000
<b>Sales and Admin.</b>	\$14,194,000
<b>Operating Income</b>	<b>\$60,024,000</b>
<b>Expense items</b>	\$1,348,000
<b>Interest Expense</b>	\$0
<b>Earnings Before Tax</b>	\$61,372,000
<b>Income Tax</b>	\$15,685,000
<b>Net Income</b>	<b>\$45,687,000</b>

Source: (NASDAQ.com, 2016, B)

#### 4.2.1.3 Market value ratios

**Earnings per share** – This measure shows amount of cash earned per one outstanding share. In other words, it shows how much profitable the company is. Higher earnings per share usually influence the price of outstanding share and make them to rise. (My Accounting Course, 2016, D)

$$EPS = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted Average Outstanding Shares}} = \frac{45,687,000 - 0}{5,495,000} \doteq 8.31$$

During the year 2016 Apple should pay to Shareholders \$8.31 per one outstanding share. However, Apple does not have to use Net Income only on dividends, Apple can invest money or buy back outstanding shares. These decisions will affect real amount of dividends payout. Earnings per share differ from year to year. In the case of Apple, the highest influence has Net Income of the Company. (My Accounting Course, 2016, D)

#### 4.2.1.4 Profitability Ratios

**Gross Profit Margin** – This equation counts the amount of money which exceeds the Cost of Goods Sold. Even that the company's Gross Profit has positive value and looks healthy company should be actually dying. That is why Shareholders should use Gross Margin Ratio and not to look only for Gross Margin Profit. (My Accounting Course, 2016, H)

$$GPM = Total\ Sales - Cost\ of\ Goods\ Sold = 215,639,000 - 131,376,000 = 84,263,000$$

Result shows positive value of \$ 84 billion.

**Gross Margin Ratio** – Gross Margin Ratio measures the efficiency of Company in the way of selling its inventory. Higher ratios are more favorable, there are two ways how to increase them. One way is to purchase the inventory in large quantities and get discount price, second is to sell goods at a higher price. (My Accounting Course, 2016, G)

$$Gross\ Margin\ Ratio = \frac{Gross\ Profit}{Net\ Sales} = \frac{84,263,000}{215,639,000} \doteq 0.39$$

Apple's Gross Margin Ratio is 39%. It means that after Apple pays its inventory costs, it will still have 39% of its revenues to cover operating expenses.

#### 4.2.2 Horizontal analysis of Apple Inc.

**Table 6 Apple Inc. Annual Balance Sheet**

Annual Balance Sheet in 000's				
Period Ending:	9/24/2016	9/26/2015	9/27/2014	9/28/2013
<b>Current Assets</b>				
Cash and Cash Equivalents	\$20,484,000	\$21,120,000	\$13,844,000	\$14,259,000
Short-Term Investments	\$46,671,000	\$20,481,000	\$11,233,000	\$26,287,000
Net Receivables	\$29,299,000	\$30,343,000	\$31,537,000	\$24,094,000
Inventory	\$2,132,000	\$2,349,000	\$2,111,000	\$1,764,000
Other Current Assets	\$8,283,000	\$15,085,000	\$9,806,000	\$6,882,000
<b>Total Current Assets</b>	<b>\$106,869,000</b>	<b>\$89,378,000</b>	<b>\$68,531,000</b>	<b>\$73,286,000</b>
<b>Long-Term Assets</b>				
Long-Term Investments	\$170,430,000	\$164,065,000	\$130,162,000	\$106,215,000
Fixed Assets	\$27,010,000	\$22,471,000	\$20,624,000	\$16,597,000
Goodwill	\$5,414,000	\$5,116,000	\$4,616,000	\$1,577,000
Intangible Assets	\$3,206,000	\$3,893,000	\$4,142,000	\$4,179,000
Other Assets	\$8,757,000	\$5,422,000	\$3,764,000	\$5,146,000
<b>Total Assets</b>	<b>\$321,686,000</b>	<b>\$290,345,000</b>	<b>\$231,839,000</b>	<b>\$207,000,000</b>

Current Liabilities				
Accounts Payable	\$59,321,000	\$60,671,000	\$48,649,000	\$36,223,000
Short-Term Debt	\$11,605,000	\$10,999,000	\$6,308,000	\$0
Other Current Liabilities	\$8,080,000	\$8,940,000	\$8,491,000	\$7,435,000
<b>Total Current Liabilities</b>	<b>\$79,006,000</b>	<b>\$80,610,000</b>	<b>\$63,448,000</b>	<b>\$43,658,000</b>
Long-Term Debt	\$75,427,000	\$53,329,000	\$28,987,000	\$16,960,000
Other Liabilities	\$36,074,000	\$33,427,000	\$24,826,000	\$20,208,000
Deferred Liability Charges	\$2,930,000	\$3,624,000	\$3,031,000	\$2,625,000
<b>Total Liabilities</b>	<b>\$193,437,000</b>	<b>\$170,990,000</b>	<b>\$120,292,000</b>	<b>\$83,451,000</b>
Stock Holder's Equity				
Common Stocks	\$31,251,000	\$27,416,000	\$23,313,000	\$19,764,000
Retained Earnings	\$96,364,000	\$92,284,000	\$87,152,000	\$104,256,000
Treasury Stock	\$0	\$0	\$0	\$0
Other Equity	\$634,000	(\$345,000)	\$1,082,000	(\$471,000)
<b>Total Equity</b>	<b>\$128,249,000</b>	<b>\$119,355,000</b>	<b>\$111,547,000</b>	<b>\$123,549,000</b>
<b>Total Liabilities &amp; Equity</b>	<b>\$321,686,000</b>	<b>\$290,345,000</b>	<b>\$231,839,000</b>	<b>\$207,000,000</b>

Source: (NASDAQ.com, 2016, A)

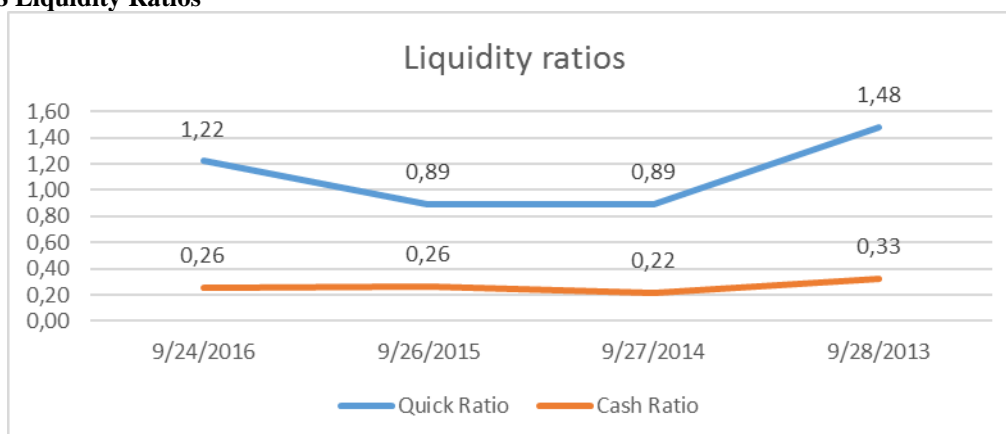
#### 4.2.2.1 Liquidity ratios

$$\begin{aligned}
 \text{Quick Ratio}_{2016} &= 1.22 & \text{QR}_{2015} &= 0.89 & \text{QR}_{2014} &= 0.89 & \text{QR}_{2013} &= 1.48 \\
 \text{Cash Ratio}_{2016} &= 0.26 & \text{CR}_{2015} &= 0.26 & \text{CR}_{2014} &= 0.22 & \text{CR}_{2013} &= 0.33
 \end{aligned}$$

The higher is the ratio the better it is for short-term creditors. Highest ratio is in 2013, mainly thanks to the lower value of Total Liabilities. We can see that during 2015 and 2014 Quick Ratios were lower than 1 which means that there might be problems with paying back to suppliers.

Cash Ratio is stricter than Quick Ratio because it excludes short-term investments and current receivables. Diagram show changes in ability of paying current debt. Best ratio was in 2013 when Apple was able to pay 33% of its debt immediately.

Figure 8 Liquidity Ratios

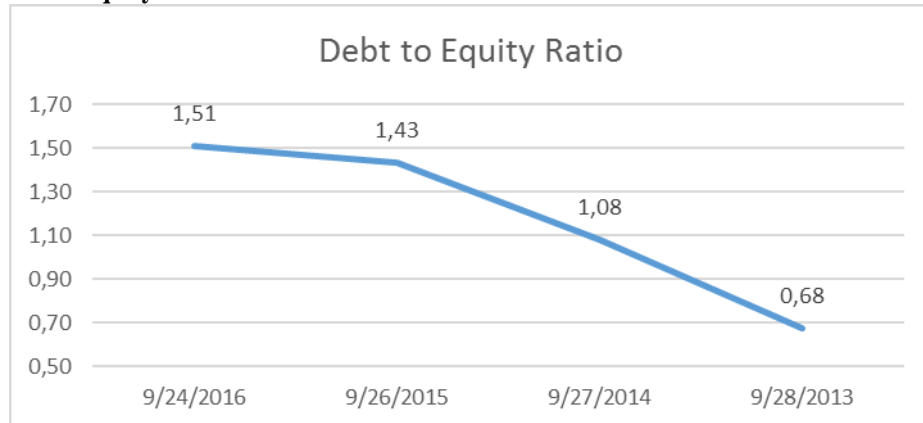


Source: own data, own presentation

$Debt\ to\ Equity\ Ratio_{2016} = 1.51$        $DER_{2015} = 1.43$      $DER_{2014} = 1.08$      $DER_{2013} = 0.68$

Ratio is increasing year by year. In 2013 company was financed mainly by shareholders. The proportion of stockholders to investors was 2:1. After three-year period the share of stockholders to investors is 1:2 This trend is related to increasing value of Total Liabilities.

**Figure 9 Debt to Equity Ratio**

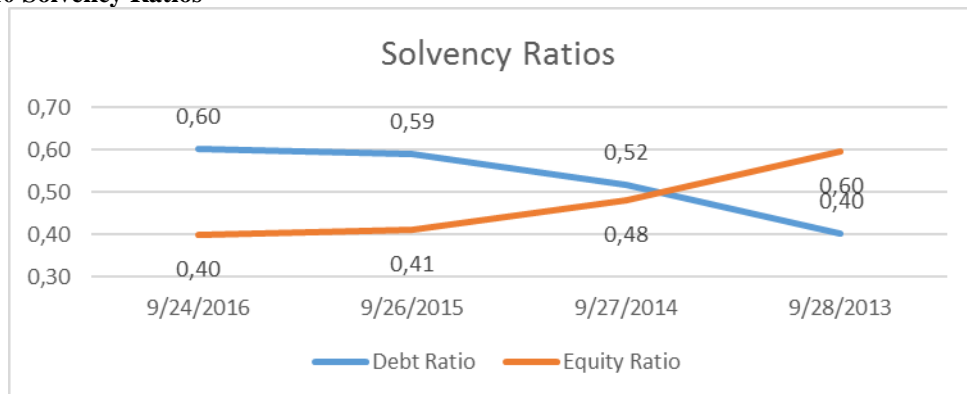


Source: own data, own presentation

#### 4.2.2.2 Solvency Ratios

$Debt\ Ratio_{2016} = 1.22$        $DR_{2015} = 0.89$        $DR_{2014} = 0.89$        $DR_{2013} = 1.48$   
 $Equity\ Ratio_{2016} = 0.26$        $ER_{2015} = 0.26$        $ER_{2014} = 0.22$        $ER_{2013} = 0.33$

**Figure 10 Solvency Ratios**



Source: own data, own presentation

Debt and Equity Ratios are closely related because measure the proportion of assets financed by Liabilities and Equity. We can see that since 2013 Equity Ratio is decreasing and Debt Ratio is increasing. At any point of time the sum of Debt Ratio and Equity Ratio

has to be equal to one. These changes from 2013 to 2016 are caused by still increasing value of Total Liabilities.

**Table 7 Apple Inc. Annual Income Statement**

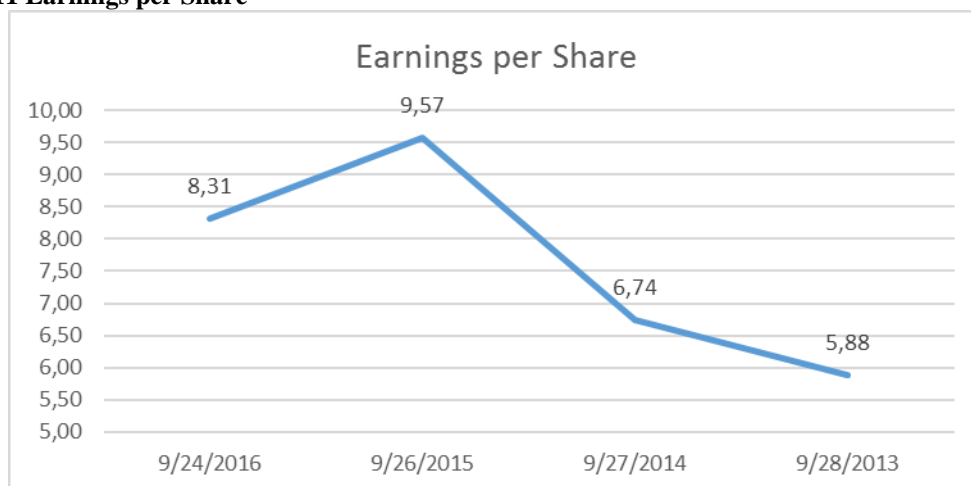
Annual Income Statement 000's				
Period Ending:	9/24/2016	9/26/2015	9/27/2014	9/28/2013
<b>Total Revenue</b>	\$215,639,000	\$233,715,000	\$182,795,000	\$170,910,000
<b>Cost of Revenue</b>	\$131,376,000	\$140,089,000	\$112,258,000	\$106,606,000
<b>Gross Profit</b>	<b>\$84,263,000</b>	<b>\$93,626,000</b>	<b>\$70,537,000</b>	<b>\$64,304,000</b>
<b>Operating Expenses</b>				
<b>Research and Develop.</b>	\$10,045,000	\$8,067,000	\$6,041,000	\$4,475,000
<b>Sales and Admin.</b>	\$14,194,000	\$14,329,000	\$11,993,000	\$10,830,000
<b>Operating Income</b>	<b>\$60,024,000</b>	<b>\$71,230,000</b>	<b>\$52,503,000</b>	<b>\$48,999,000</b>
<b>Expense items</b>	\$1,348,000	\$1,285,000	\$980,000	\$1,156,000
<b>Interest Expense</b>	\$0	\$0	\$0	\$0
<b>Earnings Before Tax</b>	\$61,372,000	\$72,515,000	\$53,483,000	\$50,155,000
<b>Income Tax</b>	\$15,685,000	\$19,121,000	\$13,973,000	\$13,118,000
<b>Net Income</b>	<b>\$45,687,000</b>	<b>\$53,394,000</b>	<b>\$39,510,000</b>	<b>\$37,037,000</b>

Source: (NASDAQ.com, 2016, B)

#### 4.2.2.3 Market Value Ratio

$$\text{Earnings per Share}_{2016} = 8.31 \quad \text{EPS}_{2015} = 9.57 \quad \text{EPS}_{2014} = 6.74 \quad \text{EPS}_{2013} = 5.88$$

**Figure 11 Earnings per Share**



Source: own data, own presentation

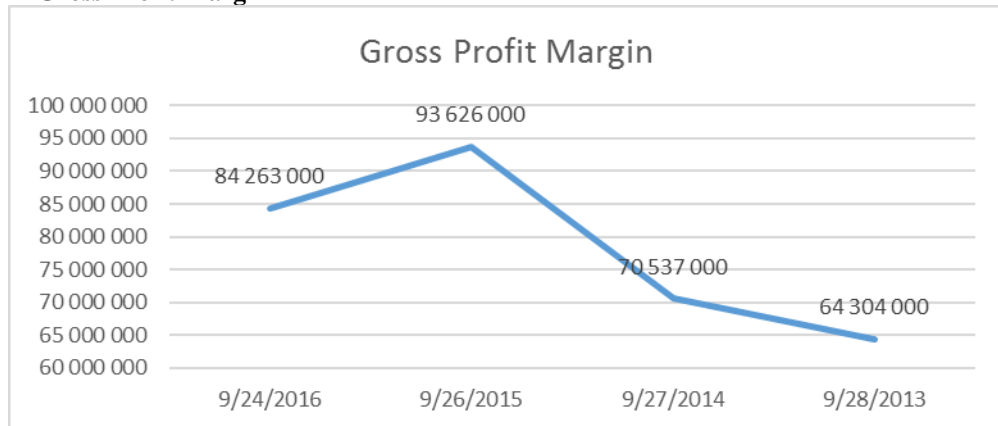
Earnings per Share vary from year to year. It is based on number of outstanding shares and Net Income of the company. In the case of Apple Earnings per Share were highest in 2015, in this year Net Income reached 53,394 million. On the other hand, in 2013 there was the highest number of Outstanding Shares and lowest Net Income.

Company can use Net Income to pay dividends, reinvest or buy back outstanding shares.

#### 4.2.2.4 Profitability Ratios

$Gross\ Profit\ Margin_{2016} = 84bill.$   $GPM_{2015} = 93$   $GPM_{2014} = 70$   $GPM_{2013} = 64$

**Figure 12 Gross Profit Margin**

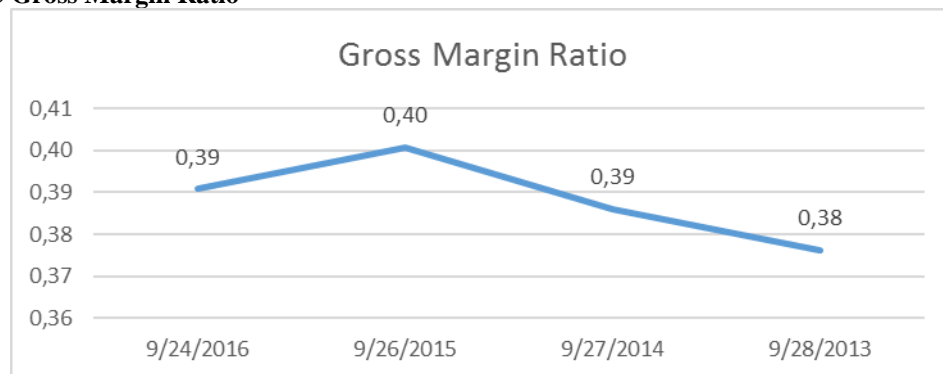


Source: own data, own presentation

This Ratio counts the amount of money which exceeds the Cost of Goods Sold. According to Gross Profit Margin investors of shareholder should not make any decisions. It is only profit after deduction of Cost of Goods Sold, there are also operational and other expenses that have to be taken in account. It is better to use Gross Margin Ratio.

$Gross\ Margin\ Ratio_{2016} = 0.39$   $GMR_{2015} = 0.4$   $GMR_{2014} = 0.39$   $GMR_{2013} = 0.38$

**Figure 13 Gross Margin Ratio**



Source: own data, own presentation

Gross Margin Ratio is during years almost similar but more favorable are higher ratios. In 2015 Apple had 40% of its revenues to cover its operating expenses.



### **4.3 Qualification of risk connected with investment in Apple Inc. stocks**

Each investment is associated with risk. The higher is the risk of an investment the higher is the return we expect. There is always positive relation between risk and return. In other words, investors are paid for risk which are able to accept. Amount of risk differ from investment to investment, the least risky investment are government bonds followed by real estate. In Europe and mainly in Czech Republic people believe that real estate is the best investment. More risky investments are investments into Blue Chips or Small Caps. Risk can be classified into two categories operational and investments risks. (Vigne, 2016)

#### **4.3.1 Operational risks**

##### 4.3.1.1 Execution risk

Risk which is also called human risk, it is of failure due to human mistake. Investors do not have direct access to the stock market, transfers and purchases are conducted by broker. Even broker can make a mistake and instead of AAPL, which is indication of shares of Apple Inc. can buy APLE, shares of Apple Hospitality REIT Inc.

##### 4.3.1.2 Management risk

This risk is connected with unprofitable investment, hazard portfolios or wrong management decisions. We could see many bad decisions in the history of Apple Inc. which affected prices of shares dramatically. In 1996 company was on the verge of bankruptcy thanks to the overpriced computers. In 2015 Apple invested 1.7 billion euros to data centers in Ireland and Denmark. This is the biggest investment of Apple in Europe but who knows whether it will be profitable?

##### 4.3.1.3 Systematic risk

Systematic risk always occurs and can't be taken away. Headquarters of Apple Inc. is in California which is place also famous for earthquakes. We will never influence these disasters. Other example of systematic risk is world crisis in 2008. Anyone who has participated in stock market saw huge decline in share prices.

## 4.3.2 Investment risks

### 4.3.2.1 Company specific risk

Company specific risk is closely related to the company and its business activities. In September last year there was great example of company specific risk in the case of Samsung. Samsung revealed new mobile phone Note 7 in the end of August. Due to lack of time and insufficient testing phones were sold with defective batteries all over the world. Samsung globally register 35 cases when it caught fire while charging, or exploded. Samsung confirmed that batteries made by one of the two suppliers are faulty. Apple's list of suppliers is very long, there are more than 200 companies in the supply chain located throughout the world. For example, displays are made by Japan Display and Sharp, touch sensors made by TSMC in Taiwan and chipsets by Samsung. The assembly of Apple's devices takes place in China and that is why we will still continue to see "Made in China" instead of "Made in United States". Company specific risk is connected with suppliers and their wrong or lately delivered products, with employees who may strike, with management decisions and mainly with the own product of the company.

### 4.3.2.2 Economic and political risk

This part of risks covers factors and regulations which cannot be influenced by the company itself. Economic and political risk include: political changes or instability in a country, changes in legislative bodies, tax regulations, trade policies, local labor laws or environmental laws. Apple is global company dealing with different laws in different countries. The advantage of manufacturing in Asia is cheap labor cost but what would happen in rising prices of labor?

In November, Donald Trump spoke directly to Tim Cook, CEO of Apple, to discuss bringing the manufacturing back to the USA. Trump is looking to provide „very large tax cuts for corporations“. As reported by our US colleagues at Macworld the Mac Pro is already assembled in the USA, but that is also the least-selling product that Apple make. We don't see Apple moving all its manufacturing to the USA, but might have to move a part of it during Trump's presidential reign. (Anon, 2017, B) What will happen with Apple after moving to United States, will it be still profitable company? Will Trump keep his promise in the case of "very large tax cuts" for corporations?

#### 4.3.2.3 Corporate and Governance regulatory risk

Risks linked to the possibility that a company does not act according to its shareholders best interest. Example of Enron in the United States or Parmalat in Italy.

#### 4.3.2.4 Currency risk

This risk is linked to a specific currency. People from United States they do not face this risk. However, in countries where people do not pay with Dollars they do. Czech investor faces this risk when he has to exchange Czech currency to Dollars to buy Apple shares and then again when he receives dividends in Dollars.

#### 4.3.2.5 Correlation risk

Appears when the return of one investment depend on the performance of another security.

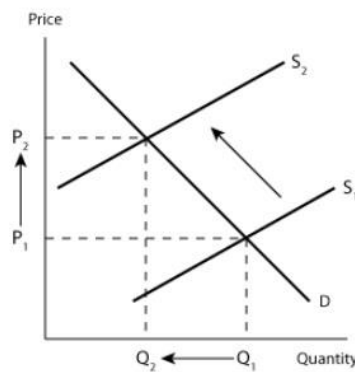
#### 4.3.2.6 Systemic risk

Collapse of entire financial market.

#### 4.4 Changes in supply of Apple Inc.

One of the possible changes in supply is the effect of moving production back to United States. In these days most of the Apple products are manufactured in Asia with minimum production costs. According to Time magazine, Apple Iphone 6 was sold for \$649 but the cost of components and manufacturing costs Apple only \$200.1 which is profit margin of about 69%. (Time.com, 2017)

**Figure 14 Decrease in supply**

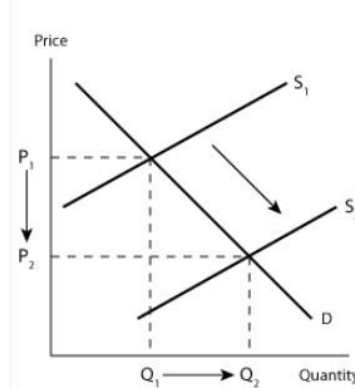


Source: (Bubble, 2017)

Picture above represents the situation of moving the production back to United States. Prices of products will be higher thanks to the higher prices of labor, the quantity supplied will decrease.

Mobile phones are considered to be heterogeneous products, the consumer makes the decision, whether to buy or not, based on the quality, technology, design etc. Its decision is not based just on the price which is the only one aspect in the case of homogeneous products.

**Figure 15 Increase in supply**



Source: (Bubble, 2017)

Rising prices of substitutes will lead to rising prices of our goods. The biggest competitors of Apple are Samsung and Huawei. If Samsung and Huawei rise the prices, Apple will do the same. Picture above represents this situation.

## 5 Results of Stock Evaluation

### 5.1 Free Cash Flow for the Firm – FCFF model

Free Cash Flow for the Firm is one of the most frequently used models to analyze financial health of the company. FCFF measures amount of money which is generated from the business after deduction of expenses, taxes, changes in net working capital and investments in property, plant and equipment. (All numbers in thousands)

EBIT...taken from Income Statement

Taxes...taken form Income Statement

Depreciation...taken from Cash Flow Statement

Amortization...taken from Cash Flow Statement

Changes in Net Working Capital...will be calculated

Capital Expenditures...will be calculated

FCFF...will be calculated

$$FCFF = EBIT - TAXES + DEPRECIATION + AMORTIZATION - CHANGES IN NWC - CAPEX$$

$$EBIT = \$61,372,000 \quad TAXES = \$15,685,000 \quad DEPRECIATION = \$34,240,000$$

$$AMORTIZATION = \$0 \quad \Delta NWC = \$19,195,000 \quad CAPEX = \$4,539,000$$

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$$\Delta NET WORKING CAPITAL = NWC_{2016} - NWC_{2015}$$

$$NWC = CURRENT ASSETS - CURRENT LIABILITIES$$

$$NWC_{2016} = \$106,969,000 - \$79,006,000 = \$27,963,000$$

$$NWC_{2015} = \$89,378,000 - \$80,610,000 = \$8,768,000$$

$$\Delta NWC = NWC_{2016} - NWC_{2015} = \$27,963,000 - \$8,768,000 = \$19,195,000$$

---

$$CAPITAL EXPENDITURES = PPE_{2016} - PPE_{2015}$$

$$CAPEX = \$27,010,000 - \$22,471,000 = \$4,539,000$$

---

$$FCFF = \$61,372,000 - \$15,685,000 + \$34,240,000 - \$19,195,000 - \$4,539,000 = \$56,193,000$$

FCFF shows excellent performance, company has to make the decision how to use free resources of. Apple can reinvest this money to extend the company. Second possibility is to pay out higher dividends which is not the most popular step to do because it reduces the value of company. Other possibility is to buy back outstanding shares and become step by step majority owner.

According to (Stock Analysis on Net, 2017), Free Cash Flow for firm is **\$53,255,000**. By the analysis of (Gurufocus.com, 2017), FCFF is **\$52,276,000** and (Marketwatch.com, 2017) presents the value of **\$53,090,000**.

## 5.2 Weighted Average Cost of Capital – WACC model

The capital funding can be provided in two different ways. First inflow of cash represents shareholders, they buy shares and expect to receive their dividends. The cost of capital is expected return to equity owners. Second inflow represents lenders their return is represented by the cost of debt. WACC measures the average cost of these two components or it shows investor's opportunity cost of taking on the risk of putting money into company. For the example if lenders require 15% return on their investment and stockholders 10% return, the average cost of capital will be 12.5%. (McClure, 2016)

Debt, Equity...taken from Balance Sheet

Cost of Debt...presented in annual report by Apple

Cost of Equity...will be calculated

WACC...will be calculated

$$WACC = \frac{DEBT}{DEBT + EQUITY} K_D + \frac{EQUITY}{DEBT + EQUITY} K_E$$

*DEBT* = \$193,437,000

*EQUITY* = \$128,249,000

*COST OF DEBT* = 2.5%

*COST OF EQUITY* = 9%

---

$$K_E = R_f + \beta_i(R_m - R_f)$$

$$R_f = 2\%$$

$$\beta_i = 1.28$$

$$R_m = 7.52\%$$

$$K_E = 0.02 + 1.28(0.0752 - 0.02)$$

$$K_E = 9\%$$


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$$WACC = \frac{\$193,437,000}{\$193,437,000 + \$128,249,000} 0.025 + \frac{\$128,249,000}{\$193,437,000 + \$128,249,000} 0.09 = 5.1\%$$

$R_f$  - Risk free rate – The cost of equity is the return that shareholders get for their investment and the risk free rate is risk that shareholders are taking by investing their money. In every case risk free rate should be lower than cost of equity because investors are not willing to accept additional risk unless the potential rate of return is greater than the risk free rate. In the case of Apple Inc. the risk free rate will be established according to 10 year United States bonds. United States bonds or Treasury bill are considered to be low risk investments. Yield of United States 10 year bonds which represents our risk free rate or opportunity cost is equal to 2%. (Investopedia, 2016, B)

$\beta_i$  – Beta measures the volatility or systematic risk of shares or portfolio in comparison to the whole market. We can observe three different values of beta. Beta equals to 1 indicates that the price of security is moving strictly according to the performance of the market in which the company is operating in. Beta higher than one, which is our case, means that securities of Apple are more volatile than the rest of the market. Value less than one signifies lower changes in prices than the rest of the market. (Investopedia, 2016, A)

$R_m$  – Return of market – Return of market will be based on Dow Jones Industrial Index. The market return is 7,52% per last year.

According to (Stock Researching, 2017), Weighted Average Cost of Capital is 6,92%.

### 5.3 Company Value

$$CV = FCFF_{t=0} + \frac{FCFF_{t=0}(1 + Growth\ Rate)}{1 + WACC} + \frac{FCFF_{t=0}(1 + Growth\ Rate)^2}{(1 + WACC)^2} + \frac{FCFF_{t=0}(1 + Growth\ Rate)^3}{(1 + WACC)^3}$$

$$CV = 56,193,000 + \frac{56,193,000(1 + 0.05)}{(1 + 0.051)} + \frac{56,193,000(1 + 0.05)^2}{(1 + 0.051)^2} + \frac{56,193,000(1 + 0.05)^3}{(1 + 0.051)^3}$$

$$= 1,289,073,730$$

**Company value = \$1,289,073,730,000**



## 5.4 Price per share

*Number of outstanding shares* = 5,332,313,000

$$\textit{Price per share} = \frac{\textit{Company Value}}{\textit{Number of outstanding shares}} = \frac{\$1,289,073,730,000}{5,332,313,000} = \$241.75$$

The market value of share is \$110.86, calculated value is higher than real value. According to the model I would recommend to buy shares of Apple Inc.

The differences between real and calculated value arise from the lack of the skills and knowledges of researcher. Other possibility is the usage of different methods and concepts.

## 6 Conclusion

The main goal of the bachelor thesis is to evaluate Apple Inc. using economic analysis. Theoretical part gives the overview of financial analysis, supply, demand and market equilibrium. Financial analysis is divided into three parts. First section is called financial statements, this part describes Income Statement, Balance Sheet and their parts such as assets, equity and liabilities. Second section internal and external analysis shows various sources of information and methods of vertical and horizontal analysis are presented there. Last part provides information about users of financial analysis. Theoretical part also cover theory of demand, supply and market equilibrium. Changes of curves and also factors influencing these movements are described there.

Practical part utilizes the theory explained in the Theoretical part. Vertical analysis describes the company using financial ratios. These ratios are divided into liquidity, solvency, profitability and market value ratios. Also horizontal analysis is done there. This analysis uses comparative financial statement and provides information about changes in ratios. These changes are illustrated with well-arranged graphs. Main section of Practical part is dedicated to stock evaluation. As well as financial ratios and comparative statements also stock evaluation gives important information about the performance of the company. Models such as Free Cash Flow for Firm, Weighted Average Cost of Capital, Company Value and Price per Share are used there. The ultimate aim of these models is to bring evaluate share of Apple Inc.

These models were based on financial statements from September 24<sup>th</sup>, 2016 and the analysis itself was done in November 2016. The result of analysis tells us that shares were traded undervalued, it means that investors should invest and buy these shares. Since November, when the value was about \$111 till today March 1<sup>st</sup>, 2017 share are traded for \$140. It means that, if any investor, according to my prediction, had invested into Apple shares, he would have earned \$29 per share.

In the case of any investment, investors have to count with possible risk connected with the investment. These risk are mentioned in the final part of Practical section.

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