

**Czech University of Life Sciences Prague**  
**Faculty of Economics and Management**  
**Department of Economics and Management**



## **Bachelor Thesis**

**Approaches to common stock valuation**

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# CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

## BACHELOR THESIS ASSIGNMENT

Yernur Kaparov

Economics and Management

Thesis title

**Approaches to common stock valuation**

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### Objectives of thesis

The aim of the research work is to understand the differences and similarities of common stock valuation methods from the two major groups of absolute and relative valuation. The objective of the literature review is to identify and assess each of the absolute and relative valuation approaches. Meanwhile, the practical part aims to apply the previously studied techniques onto examining the stock value of a selected publicly traded company, to compare the differing results of each approach.

### Methodology

The theoretical part of the thesis consists of detailed interpretation and comparison of absolute and relative stock valuation methods. The practical part utilises data obtained from the financial statements of a selected publicly listed company, to apply the valuation techniques in order to derive different common stock values.

**The proposed extent of the thesis**

30-40

**Keywords**

common stock, absolute stock valuation, relative stock valuation, equity valuation, market value, intrinsic value

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**Recommended information sources**

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## **Declaration**

I declare that I have worked on my bachelor thesis titled "The common stock valuation " 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 any copyrights.

In Prague on \_\_\_\_\_

Yernur Kaparov \_\_\_\_\_

## **Acknowledgement:**

I would like to thank my thesis supervisor for his advice and support. I appreciate the time of **Ing. Jana Kalabisová** spent correcting my work and directing my thoughts back on track. I am happy to study from such a great teacher, and qualified specialist as **Ing. Jana Kalabisová**.

# **Approaches to common stock valuation**

## **Abstract**

In this thesis, the author has focused on the valuation methods of shares for the Apple Incorporation company. The company is deeply involved in the production of electrical devices and works quite efficiently for the past 11 years. Thus, it will be interesting to evaluate and make a projection for the year of 2026.

The author relies on the theoretical and literature review of financial analysts and famous economists. The theoretical part also covers the valuation models and methods which are eventually applied within the practical part. There are many determinants to consider, such as macroeconomic factors of a chosen company and where it operates, however, the author has projected the valuation based on the three basic financial statements, such as: Balance Sheet statement, Income Statement and Cash Flow Statement. The valuation models which were considered were: Free Cash Flow to Firm, Free Cash Flow to Equity and Discounted Dividend Model. The rest of the variables such as: Net Working Capital, Net Debt, CAPEX was either calculated or retrieved from the above-mentioned financial statements.

**Keywords:** Common stock, absolute stock valuation, relative stock valuation, equity valuation, market value, intrinsic value.

# Přístupy k oceňování kmenových akcií

## Abstrakt

V této práci se autor zaměřil na metody oceňování akcií společnosti Apple Incorporation. Společnost je hluboce zapojena do výroby elektronických zařízení a posledních 11 let funguje poměrně efektivně. Bude tedy zajímavé zhodnotit a udělat projekci na rok 2026.

Autor se opírá o teoretický a literární přehled finančních analytiků a slavných ekonomů. Teoretická část také zahrnuje oceňovací modely a metody, které jsou případně aplikovány v praktické části. Je třeba vzít v úvahu mnoho determinantů, takové makroekonomické faktory vybrané společnosti a místa, kde působí, však autor navrhl ocenění na základě tří základních finančních výkazů, jako jsou: Rozvaha, Výkaz zisku a ztráty a Výkaz peněžních toků. Modely oceňování, které byly zvažovány, byly: Free Cash Flow to Firm, Free Cash Flow to Equity a Discounted Dividend Model. Zbývající proměnné jako: Čistý pracovní kapitál, Čistý dluh, CAPEX byly buď vypočteny nebo získány z výše uvedených finančních výkazů.

**Klíčová slova:** Kmenové akcie, absolutní ocenění akcií, relativní ocenění akcií, ocenění akcií, tržní hodnota, vnitřní hodnota.

# Table of Content

- 1 Introduction ..... 11**
- 2 Objectives and Methodology ..... 13**
  - 2.1 Objective ..... 13
  - 2.2 Methodology ..... 13
- 3 Theoretical Part..... 14**
  - 3.1 Valuation concept ..... 17
    - 3.1.1 Discounted cash flow model (DCF) ..... 18
    - 3.1.2 Free Cash Flow Model (FCF)..... 19
    - 3.1.3 Calculation FCFF ..... 21
    - 3.1.4 Calculation of FCFE..... 23
    - 3.1.5 WACC or Weighted Average Cost of Capital ..... 24
    - 3.1.6 The Capital Asset Pricing Model (CAMP) ..... 26
  - 3.2 Analysis of profitability..... 26
- 4 Practical Part..... 28**
  - 4.1 Profitability analysis of the Apple Inc for the period of 2019 to 2021 ..... 29
  - 4.3 Corporate Valuation ..... 32
    - 4.3.1 Discounted Cash Flow Model ..... 32
    - 4.3.2 Obstacles of the valuation and projection ..... 39
- 5 Conclusion ..... 40**
- 6 BIBLIOGRAPHY ..... 41**
- APPENDIX – 1. .... 42**
  - Cash Flow Statement..... 42
  - Balance Sheet Statement ..... 43
  - Income Statement ..... 45
- APPENDIX – 2. .... 47**
- APPENDIX – 3. .... 48**
- APPENDIX – 4. .... 49**



## List of Figures:

Figure 1: Reaction of stock prices to new information .....	15
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## List of Formulas:

Formula 1: DCF – Discounted Cash Flow .....	18
Formula 2: Present Value of FCF .....	20
Formula 3: Equity Value .....	20
Formula 4: Single Stage FCF <sub>t</sub> .....	20
Formula 5: Firm Value .....	21
Formula 6: Equity Value .....	21
Formula 7: FCF based on the Statement of Cash Flows .....	22
Formula 8: FCF based on Earnings Before Interest and Tax .....	22
Formula 9: FCF based on Earnings before Interest, Tax, Depreciation and Amortization. ....	22
Formula 10: FCFE from FCF .....	23
Formula 11: from Cash Flow from Operations .....	23
Formula 12: Based on Net Income .....	24
Formula 13: Weighted Average Cost of Capital .....	24
Formula 14: Debt cost .....	25
Formula 15: CAPM .....	26
Formula 16: ROE .....	27
Formula 17: ROA .....	27

## List of Tables:

Table 1: Income Statement Analysis .....	28
Table 2: Net Income Growth .....	29
Table 3: Change in 2019 .....	32
Table 4: Change in 2020 .....	32
Table 5: Change in 2021 .....	33

Table 6: Change in Net Debt 2019.....	33
Table 7: Change in Net Debt 2020.....	33
Table 8: Change in Net Debt 2021.....	34
Table 9: Free Cash Flow to Firm .....	34
Table 10: Free Cash Flow to Equity .....	34
Table 11: Ratios of Total Revenue.....	35
Table 12: Forecast based on the Total Revenue .....	36
Table 13: Forecast based on the Total Revenue .....	36
Table 14: CAPM calculation.....	37
Table 15: Projection of Discounted Rate.....	37
Table 16: Results of forecasting .....	38

# 1 Introduction

Stock evaluation is considered to be one of the complexes yet important processes in the stock exchange market. Thousands of companies enter the stock market by issuing stocks for the first time to raise the required capital and expand their businesses. It is highly important for companies to keep a track of true assets value and set the price of stocks accordingly.

The most important topic for an investor is a change of stock prices. Investors who plan to invest into the long-term prospects, are very sensitive to changes of stock price and react to them very differently. Changes in prices is an effective and important source of information for evaluating the firm's situation on a market, their further development and compare the situation with other organizations and probably the most influential factor of investment decisions.

Fluctuation of stock prices on the stock exchange is an ordinary and necessary factor. However, the price could be affected by many factors including internal and external factors within organizations, and each of these factors might affect the price differently, either decrease or increase it. The prediction of price and its changes requires behavioral patterns of stock prices. If the behavioral patterns are predictable and clear, shareholders could assess their stocks and other stocks. Based on their assessment, they can either sell, keep and replace their stocks with other stocks. Investors should receive relevant and effective information within the market. Changes in stock prices are relevant source of information which helps investors to evaluate the price change in the future.

In today's world, the financial theorists state that the value of stock is equal to the present value and its expected earnings . To fully grasp the system of stock pricing is barely impossible. The lack of information and different set of variables can turn the price of a certain stock into the different direction, thus, many economists with the financial background, came up with different valuation models. The market is not perfectly efficient and nor efficient, rather, it is very unpredictable and hard-to-analyze. The behavior of stock prices is an issue for buyers, stock managers, brokers and government. Therefore, there is an urgent need to understand the factors explaining the price of these assets. As a result, stock prices face significant rise or fall in the market due to inconsistency of valuation models which are used in

the pricing committee of stock exchange with governing thought and market conditions. Thus, the government is one of the main beneficiaries for privatizing and transferring the state-owned shares need a model to rely on, which determines the price of the stock in a way that benefits both sides, buyer and government. Investors buy stocks to achieve the highest rate of return and other investment opportunities.

This research, such variables as: earnings per share, net profit margin, the percentage of dividend, beta rate, dividend growth rate, benefits paid, and economic macro variables are tested.

## **2 Objectives and Methodology**

### **2.1 Objective**

The objective of the thesis was to understand the valuation concepts which are generally used to identify the approximate projection of a future price per share. The objective of the theoretical part is to describe the valuation models its main indicators and prognosis. For the valuation model, the author has considered the Cash Flow to Firm, Cash Flow to Equity and DDM mode.

### **2.2 Methodology**

The main methodological tools for the projection calculation of price per share was the three financial statements of the Apple Incorporation. The author has worked with the Balance Sheet Statement, Income Statement and Cash Flow statements to project the Cash Flow to Firm and Cash Flow to Equity. The CAPEX data was given in the BS statements, and the rest of the indicators were calculated with the help of the theoretical part. The market growth rate was taken as an average prediction of 2.5 % per year. All the data was retrieved from Yahoo, finance sector. All calculations were made in Excel File, where each transaction was sampled. As a part of the Bachelor thesis, the author attached the Excel File with the necessary material.

The author has been inspired by the work of (M.G. Tiku., 2016) and the whole theoretical review is based on his work and the way (M.G. Tiku., 2016) and Duwal (2016) calculated the intrinsic values to the firm with the help of Balance Sheet Statement (hereafter BS), Profit and Loss Statement (hereafter, P&L's) and Cash flow statement (hereafter CF's). The author adopted the same approach in the practical part.

The empirical part of the thesis is available in additional section of is.czu.cz system, in the section "Appendices".

### 3 Theoretical Part

In this theoretical part, I will give a short and concise description of a valuation and stocks, why is it used and what is the purpose of it.

Valuation process is the process of setting the price of a certain asset of a company, or company in general. Based on Lee, C.M. (1999) valuation models are mainly based on numbers and numeric matters and accounting system helps to determine the financial assessment of any organization, there are two standards which help to construct the financial statements, there are IFRS, IASB and GAAP US principles. However, Barker (2001) claims that, in order to evaluate the model properly, there is an analytical knowledge needed and also the data, which is required for computing, based on a certain model. Evaluation model is also based on different forecasts and observations for a certain time period. Economic variables are highly considered when applying any model, as eventually, economic determinants might influence the outcome of an eventual price of share.

Quantitative data are mostly used to in such models to evaluate the price properly, however, the inputs give much room for subjective judgements. Damodaran (2012) claimed that the final value obtained from models are colored by bias that we bring into the process. Indeed, in many valuations, the price gets set first and the valuation model is the following step. He also describes “valuation” as the estimation of an asset’s value based on variables perceived to be related to future investments returns, in comparison with the similar assets.

Casti. J (1998) mentions that the information is not processed as easily as it is written in most of the academic papers. Arthur & Holland made a conclusion<sup>1</sup>, however, in reality there are many different technical analyses, which are based on reasonable assumptions, which leads to divergent price forecasts.

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<sup>1</sup> Arthur and Holland knew the conventional economist’s view that today’s stock price is simply the discounted expectation of tomorrow’s price plus dividend, given the information available about the stock today. This theoretical price-setting procedure is based on the assumption that there is a shared optimal method of processing the vast array of available information, such as past prices, trading volumes, and economic indicators.

Firstly, it is very relevant to consider that any valuation model should include the timeframe, which is presented as a set of historical variables to determine the present value of a corporate stock. However, the crisis of 2008 doubted all the models, as no one was able to predict the recovery of stocks, and additionally, the “Bias information” such as rumors of internal corporations and misleading human interpretations, which eventually have created obstacles to compute the stock prices. Although, as it has been mentioned before, any models need quantitative inputs of data, and the more the better, which seem to be logically, however, a basic statistic can prove that the reverse could be true as well, as more inputs of data might lead to a complex model where a risk input error increases and magnifies the misunderstood variables within the model. At some point, it could reach the “black box” when analysis would rather blame the model and not the valuation data, which shouldn’t have been ever considered (Damodaran, 2012).

**Figure 1: Reaction of stock prices to new information**



Source: Ross, Westerfield and Jaffe (2008).

The Figure above depicts the fact that the price is fully determined by all available information, such as cost of acquiring, trading etc., and the cost of that information is usually zero (Elton, 2011). It also demonstrates the reaction to new good information in an efficient market and in an inefficient market. The figure also describes the information and how two market react on such information, the case shows the efficient market an inefficient market. Hence, there are two different reactions to a new information and on each, the reaction is different. The efficient market instantly adjusts the information and there is no over and under evaluations, whereas, the inefficient market takes its time to adopt for such information, and most probably, an overreaction might occur, however, it still takes time to settle the right price (Ross, et., al. 2008).

**Rationality** is a decision-making process, where making choices might either result in prosperous matters of a firm and benefit it for such decisions. Rationality itself is important factor, especially when a new information is released, and investors try to approach it with a rational point of view. The theory and reality slightly differentiate between each other, as when the theory sounds good, all investors behave the same, which raises the questions whether all investors should be rational (Howard S Marks, 2018).

**Independent deviations from rationality** considers the fact that many individuals would be optimistic and pessimistic in regards of a certain price stock. Deviation in this case could happen when new information is released and people cannot fully understand and interpret the outcome, which might affect a stock price eventually, leaving a room and time to think. Which creates positive emotions for some investors and quite opposite. As long as irrationalities compensate each other, the market is efficient, due to balanced irrationalities, however, it is arguable that irrationalities compensate each other immediately, instead, it might be more rational to argue that if there is the “good” news, most investors might be carried away and overreact to the news, just as **Figure – 1** demonstrates.



There are three different hypotheses of efficient degrees:

1. The weak degree is when security prices already include historical prices and the most recent information, if this is true, a technical analysis cannot be used to predict and beat a market.
2. The semi-strong degree means that a current price stock is calculated with all public information, which rejects the fundamental and technical analysis.
3. The strong degree of market efficiency is the strongest out of all. It is believed that any types of information within the market, private or public, will affect the stock price.

Financial market efficiency is the most discussed topic of a stock valuation. However, most financial analysis believe that the market is either 100% efficient or oppositely. In reality, it could be argued that financial market cannot be fully efficient or inefficient, it is a mixture of both. Sometimes, the market returns an equal rate of investments for everybody, however, there are time when investors gain an above average return of investments.

### **3.1 Valuation concept**

As it has been mentioned above, the valuation is a method which estimates an asset's value. Its approaches are dependent on a firm's position, whether the firm is in a going – concern stage<sup>2</sup>. The liquidation approach is understood as if the company's ability to obtains money from all its assets sold within a short period of time and cover (payout) its liabilities to workers, suppliers and investors. However, this method is only used if the company is about to liquidate soon, which is not the case of Apple. Inc. Therefore, this approach will not be considered in the practical part.

The “**Relative model of valuation**” falls into the going – concern models, which estimates the values of assets based on the values of the same assets, meaning that, the estimation should

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<sup>2</sup> Going Concern – financial term which means that one of the key accounting and auditing assumptions[1]. That assumes that an entity will continue to operate for the foreseeable future and has no intention or need to liquidate or cease operations.

be equal, with a permissible (Materiality<sup>3</sup>). The main idea behind this model is that the assets which are alike, should be sold at the same price. Since, the scope of the thesis is to evaluate the future stock price, this model is not used in the further research.

The “**Valuation of an absolute model**” is strictly focused on an intrinsic value of an asset. The model is applied to estimate the value which cannot be compared with the market price of a certain asset (Soros, G., 2003). The present value models are considered as a common model to establish an estimation of an equity. It is considered as a fundamental approach to equity calculation. The idea behind that model is that an investor expects to receive a return from firm’s assets, where he/she invests. Those returns are termed as “Asset’s cash flow”.

### 3.1.1 Discounted cash flow model (DCF)

The intrinsic value of a company, meaning the real value is usually defined by the Discounted cash flow model. There are two different methods which are applied for a calculation of DFC, those are the FCFF and FCFE. These models will explained later, in the following chapters. Those two methods are not parts of the financial statements and hence, it is very important to understand the cash flow of a chosen company. Free cash flow is the amount of cash which is available after all planned investments are made, such as investments in goods, inventories, tangible assets and also all operating expenses are paid out (Elton, E. J., 2011). (See, Formula – 1).

#### Formula 1: DCF – Discounted Cash Flow

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \dots + \frac{CF_n}{(1+r)^n}$$

$$FV = DCF \cdot (1+r)^n$$

Whereas:

---

<sup>3</sup> Materiality – is an audit term, which allows the mistakes to happen to some extent or limit.

*DFC* – Discounted Cash Flow.

*CF* – Cash flow

*n* – asset's life span

*r* – discounted rate with the involvement of estimated cash flow risk

Cash Flows could be different and is usually based on the type of an asset, the discount rate is a function which considers the riskiness of an estimated cashflow, hence, the riskier the asset there is a more higher rate of a risk and controversially (Pinto, J., E., Henry, E., Robinson, T., R. & Stowe, J. D., 2010).

### **3.1.2 Free Cash Flow Model (FCF)**

The FCF model can be split into two different approaches, based on the definition of the free cash flow. The first approach is considered as the free cash flow for firms (FCFF). It is a free cash flow available after all expenses and reinvestments are paid out. However, the second approach estimates the free cash flow in relation to equity (FCFE), which is a free cash flow available for investors only when all expenses such as taxes, interest expenses and investments are paid. The demonstration of those two formulas will be described below. Analysis should estimate and understand the company's numbers, its operations, sources of financing. Free cash flow provides a basic step to evaluate a company's performance. For analysts, it is very important to forecast the future cash flow and it is quite a task to do it properly. Yet, many financial analysts heavily rely on a few criteria, to know exactly what method fits better, either FCFF or FCFE, if:

- The company is not able to pay-out its dividends to shareholders
- The company pays dividends, but those dividends are paid in different amount, in comparison to company's capacity.
- Free cash flow is similar to the profitability of a company within a forecasted period.
- Investor controls over the company and the dividends payouts. If an investor is able to control the dividends could be changed drastically.

### Formula 2: Present Value of FCF

$$\text{Firm Value} = \sum_{t=1}^{\infty} \frac{\text{FCFF}_t}{(1 + \text{WACC})^t}$$

Where:

*FCFF* – Free Cash Flow to Firm

*WACC* – Weighted Average Cost of Capital

The FCFF is applicable for two, debt and equity owners, with the discounted WACC and FCFF, it represents the total capital's value of a firm. If an analyst uses a Free cash flow to the firm model, he/she should consider the discounted rate which consider a risk of a company. **(This method will be used in practical part to determine the price per share).** Controversially, if the valuation is based on Free cash flow to firm, the discount rate consists of a return which is demanded by a shareholder who usually bears the risk of equity.

### Formula 3: Equity Value

$$\text{Equity Value} = \sum_{t=1}^{\infty} \frac{\text{FCFE}_t}{(1 + r)^t}$$

Where:

*FCFE* – free Cash Flow to Equity

*r* – equity rate of return.

The value is considered to be a company's value of equity's value on the second stage is called terminal value. The DCF model includes a calculation of present value based on terminal value with a discounted expected cash flow. Terminal growth rate is the rate at which the company is going to grow continuously. The terminal growth rate usually considers the fact of inflation (CPI – Consumer Price Index) of 2 -3 %, and an annual GDP growth of 3 – 5 %. If the company's terminal value is higher than the GDP growth, it means that the company is outperforms the economy (Elton, E. J., 2011).

### Formula 4: Single Stage FCFF<sub>t</sub>

$$\text{FCFF}_t = \text{FCFF}_{t-1} (1 + g)$$

Note: Only if FCFF grows at a constant rate.

**Formula 5: Firm Value**

$$\text{Firm Value} = \frac{\text{FCFF}_1}{\text{WACC} - g} = \frac{\text{FCFF}_0 (1 + g)}{\text{WACC} - g}$$

To calculate the firm's value, the variables are the same:

*FCFF* – free cash flow to firm,

*WACC* – weighted average cost of capital

*g* – growth rate,

In case of direct calculation of equity value, at a constant *g*,  $FCFE_t = FCFE_{t-1} * (1 + g)$ .  
Eventually, the same approach could be used for a calculation of two-stage model.

**Formula 6: Equity Value**

$$\text{Equity Value} = \frac{\text{FCFE}_1}{r - g} = \frac{\text{FCFE}_0 (1 + g)}{r - g}$$

Variables are the following:

*FCFE* – Free Cash flow to Equity

*r* – required rate of return of equity

*g* – growth rate,

Note: Instead of WACC, there is an “r” in the denominator, as a subject to equity valuation.

**3.1.3 Calculation FCFF**

**The calculation shown below is based on the Net Income**

$$\text{FCFF} = \text{NI} + \text{NCC} + \text{Int} (1 - \text{T}) - \text{FCInv} - \text{WCInv}$$

Where:

*NI* = Net Income

*NCC* – Net Non-Cash Charge (depreciation, provisions)

*Int* – Interest Expenses

*T* – Tax rate

*FCInv* – Fixed Capital Investment

*WCInv* – Working capital Investment.

**The calculation shown below are based on the Cash Flows**

**Formula 7: FCFF based on the Statement of Cash Flows**

$$\text{FCFF} = \text{CFO} + \text{Int} ( 1 - \text{T} ) - \text{FCInv}$$

Where:

*CFO* – Cash Flow from Operations.

**The calculation shown below is based on Earnings Before Interest and Tax**

**Formula 8: FCFF based on Earnings Before Interest and Tax**

$$\text{FCFF} = \text{EBIT} ( 1 - \text{T} ) + \text{Dep} - \text{FCInv} - \text{WCInv}$$

Where:

*EBIT* – Earnings Before Interest and Tax

*Dep* – Depreciation

*FCInv* – Fixed Capital Investment

*WCInv* – Working capital Investment

**Formula 9: FCFF based on Earnings before Interest, Tax, Depreciation and Amortization.**

$$\text{EBITDA} ( 1 - \text{T} ) + \text{Dep(T)} - \text{FCInv} - \text{WCInv}$$

Where:

*EBITDA* – Earnings Before Interest, Tax, Depreciation and Amortization

*FCInv* – Fixed Capital Investment

*WCInv* – Working capital Investment.

### **3.1.4 Calculation of FCFE**

The author demonstrates various options on how to calculate the FCFE

#### **Formula 10: FCFE from FCFF**

$$\mathbf{FCFE = FCFF - Int (1 - Tax rate) - Net borrowing}$$

Where:

*FCFE* – Free Cash flow to Equity

*FCFF* – Free Cash Flow to Firm

*Int* – Interest Expenses

*T* – Tax rate.

#### **Formula 11: from Cash Flow from Operations**

$$\mathbf{FCFE = CFO - FCInv + Net borrowing}$$

Where:

*FCFE* – Free Cash flow to Equity

*CFO* – Cash Flow from Operations

*FCInv* - Fixed Capital Investment

### Formula 12: Based on Net Income

$$\text{FCFE} = \text{NI} + \text{NCC} - \text{FCInv} - \text{WCInv} + \text{Net borrowing}$$

Where:

*NI* – Net Income

*NCC* – Non – Cash Charges

*FCFE* – Free Cash Flow to Equity

*FCInv* – Fixed Capital Investment

*WCInv* – Working capital Investment

### 3.1.5 WACC or Weighted Average Cost of Capital

The structure of company's capital is based on the decision of a company about its main source of financing. It sorts out the certain mixtures of debt and equity together and what types of financing methods is chosen by a company. WACC is the determinant of the mandatory return or another word rate of return which company is obliged to pay to its stakeholders, shareholders and creditors.

### Formula 13: Weighted Average Cost of Capital

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

Where:

*D* – debt value

*E* – Equity Value

*r<sub>d</sub>* – Debt cost

*T* – Tax

*r<sub>e</sub>* – Equity Cost.

Where: Cost of equity is the complex task, the calculation could be performed by using the CAPM model, followed by the next calculation of *r<sub>e</sub>* – Cost of Equity.



Where, Cost of debt Capital ( $r_d$ ) is calculated by (Petersen & Plenborg, 2012). Simply stated, it is an amount of money which a creditor expects to receive from the borrowed amount to the company or a firm. Hence, the interest rate based on of the borrowed amount is the company's cost of debt.

**Formula 14: Debt cost**

$$r_d = (R_f + r_s) \times (1 - T)$$

Where:

$R_f$  – Risk Free,

$r_s$  – Spread default,

$T$  – Tax.

**Tax Shield**

The interest rate which are caused by the debt financing are tax free or another word are tax deductible. Because of this, the value of debt in WACC calculation is adjusted for taxes. Thus, in case of debt credits, the company make a tax shield which eventually lowers the company's cost of debt and increases the value of a company.

Based on Koller et al. (2010) there two different approaches that might be applicable to estimate the cost of capital debt to firm. In case if the firms regularly trade with its bonds. As an estimate, the yield to maturity of the outstanding bonds could be calculated as the firm's pre-tax cost of debt capital.

The second approach to estimate the cost of debt capital to the firm as proposed by Killer et al. (2010) is by looking at the firm's credit rating. The idea behind that is that the company's chance to default is determined by the size of the loan and its premium risk, which is needed by creditors to cover that risk, in case if default happens.

Equity risk premium, as it is mentioned above is needed to be estimated, with the following procedures:

- CAPM – Capital Asset Pricing Model.
- Fama – Model.
- A build – up method.

### 3.1.6 The Capital Asset Pricing Model (CAMP)

The CAPM model provides the valuation of an equity which considers risk. The risky investment has the expected rate of return and affected by 3 different factors, such as: risk free rate, market risk premium and beta coefficient that overlooks the investment risk. The CAPM model is perfect because it involves the factor of risk thus the risk rate should be estimated very carefully. If it isn't, then, the cost of equity might be overestimated or underestimated, however, again, with the consideration of a certain materiality, which allows a small deviation in calculation (Myron J. Gordon & E. Shapiro, 1956).

#### Formula 15: CAPM

$$r = R_f + B (ERP), \text{ where } ERP = R_m - R_f$$

Where:

$r$  – Expected return on equity

$R_f$  – risk free rate of return,

$B$  – coefficient beta,

$ERP$  – Equity risk premium,

$R_m$  – Return from market.

## 3.2 Analysis of profitability

The chapter describes the profitability analysis of a firm and what indicators are considered to evaluate the profitability. Mostly, there are certain numeric transactions which are taken for calculation, from Balance Sheet Statement, Profit and Loss statement and Cash Flow Statement.

The author considers the following indicators to run an analysis of Apple Inc. Return on Equity, Net Profit Margin, Total Asset Turnover.

**Return on Equity** measures the company's net income divided by its shareholders equity. It is expressed as a percentage and calculated as below:

**Formula 16: ROE**

$$\text{ROE} = \frac{\text{Net income}}{\text{Shareholders' equity}}$$

Source: (Soros, G., 2003, p.220)

**Return of Assets** is abbreviated as ROI measures the profitability of a company in relation to total assets. It expresses the profitability of a firm which is generated from investments which have made into assets of a company or a firm. The higher the rate the more productive and effective the management uses its assets. It is also expressed in the percentage ration and the calculation is seen below:

**Formula 17: ROA**

$$\text{ROA} = \frac{\text{Net income}}{\text{Total assets}}$$

Source: (Soros, G., 2003, p.215)

**Net profit margin** is known as a part of revenue left after deducting all expenses, taxes and interests. It is expressed in the percentage and the formula is attached below:

$$\text{Net profit margin} = \frac{\text{Net income}}{\text{Revenue}}$$

Source: (Soros, G., 2003, p.219)

## 4 Practical Part

In this chapter, the author describes the Apple Inc company, its main operations, products and analyses the Future Stock Price, with a prediction for 5 years. The author has used Balance Sheet Statement, Profit and Loss statement and Cash Flow Statement for calculations.

The company was built by Steve Jobs, Steve Wozniak and Ronald Wayne in 1976. The company has got a market capitalization of 2,2 billion USD, its current Share price is 138,38 USD, dated for 06.11.2022. Its main operation is to produce media devices such as (computers, phones, tablets, watches) and accessories to those media devices, such as (headphones, power banks, pencils etc.). The company is also focused on selling software, networking solutions, and digital content applications.

**Table 1: Income Statement Analysis**

<b>Period</b>	<b>9/29/2021</b>	<b>9/29/2020</b>	<b>9/29/2019</b>
Total Revenue	365 817,00	274 515,00	260 174,00
<b>Growth Y-o-Y</b>	25%	5%	
Operating Revenue	365 817,00	274 515,00	260 174,00
Cost of Revenue	212 981,00	169 559,00	161 782,00
<b>Gross Profit</b>	152 836,00	104 956,00	98 392,00
<b>Gross Margin</b>	0,42	0,38	0,38
Selling General and Administrative	21 973,00	19 916,00	18 245,00
Operating Income	108 949,00	66 288,00	63 930,00
<b>Operating Margin</b>	0,30	0,24	0,25
Interest Income	2 843,00	3 763,00	4 961,00
Interest Expense	2 645,00	2 873,00	3 576,00
Other Income Expense	60,00	-87,00	422,00
<b>Pretax Income</b>	109 207,00	67 091,00	65 737,00
<b>Net Income</b>	94 680,00	57 411,00	55 256,00
<b>Net Minority Interest</b>	94 680,00	57 411,00	55 256,00

Source: Own processing, Excel.

The company's year to year change in the total revenue is seen in the **Table – 1**. There is a small increase of total revenue between 2019 and 2020 (5 % increase), however followed by 25 % of an increase in the year of 2022. However, its Net Income based on yearly change,

is the following, See, **Table – 2**. The Net income increase is almost minor in comparison of 2019 and 2020 and its relative change equals to 3,90 %. However, the Net Income has increased by 65 % in relative change, in comparison of 2021 and 2020.

**Table 2: Net Income Growth**

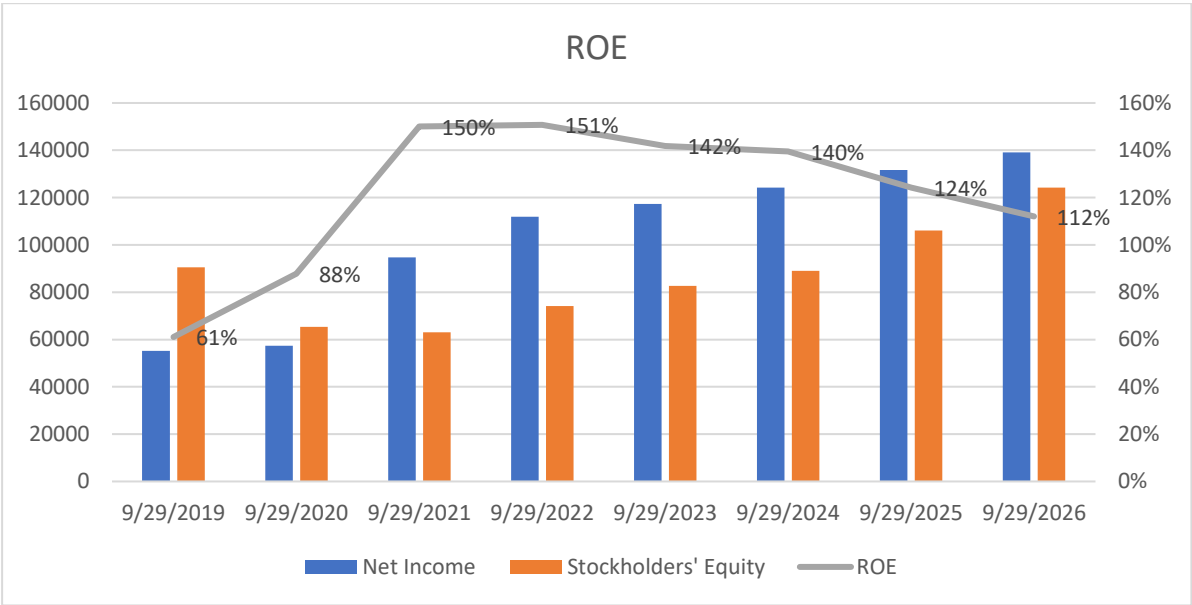
<i>Period</i>	<i>9/29/2021</i>	<i>9/29/2020</i>	<i>9/29/2019</i>
<i>Net Income</i>	94 680,00	57 411,00	55 256,00
<i>Growth Y-o-Y</i>	64,92%	3,90%	N/A

Source: Own processing, Excel.

**4.1 Profitability analysis of the Apple Inc for the period of 2019 to 2021**

Based on the balance sheet statement, the author was able to compute the profitability analysis of Apple Inc.

**Figure 2: ROE**



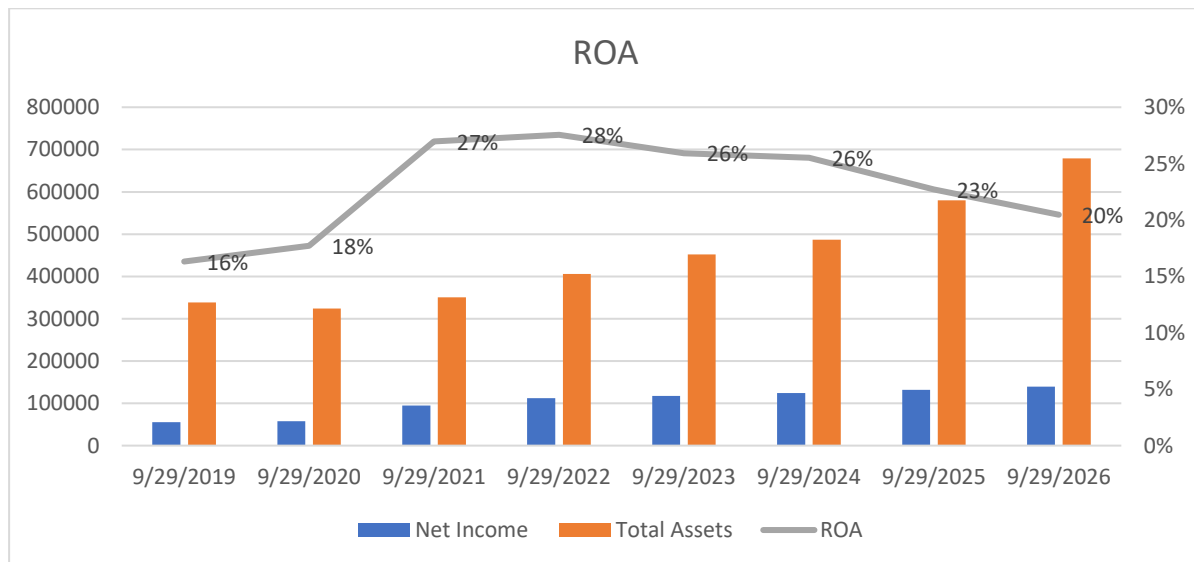
Source: Own processing, Excel.

<b>Period</b>	<b>9/29/2021</b>	<b>9/29/2020</b>	<b>9/29/2019</b>
<b>Net Income</b>	94680	57411	55256
<b>Stockholders' Equity</b>	63090	65339	90488
<b>ROE</b>	150%	88%	61%

Source: Own processing, Excel.

The above-mentioned table depicts the ration from 2019 up to 2021, in the **Table – 3**, it is seen that the ROE indicator was 61 %, which isn't the ration which potential investors want to see. However, in the following years, the Apple Inc haven't really increased its net income but rather decreased its liabilities to payout dividends to the shareholders, to make the ROE measure look better. With the closing year of 2021, the Net Income has increase almost by 65 %, See, **Table – 2**. The calculation was based on the balance sheet statement of Apple Inc, however only for 2019 up to 2021. Many investors seek for at least 15 % of ROE, however, even during the pandemic, the Apple Inc proved to generate more than the average expectancy. The ROE indicator shows that the Apple Inc, is a healthy and financial stable company which generates sufficient amount of money. However, after the 2021, the author has prognosed an relatively stable increase of assets, averaged by 15-20 % annually, but the Net Income was generated by the annual change in Total Revenues/ Total Net Income, and average for the year 2019,2020,2021, See **Appendix – 2**.

**Figure 3: ROA**

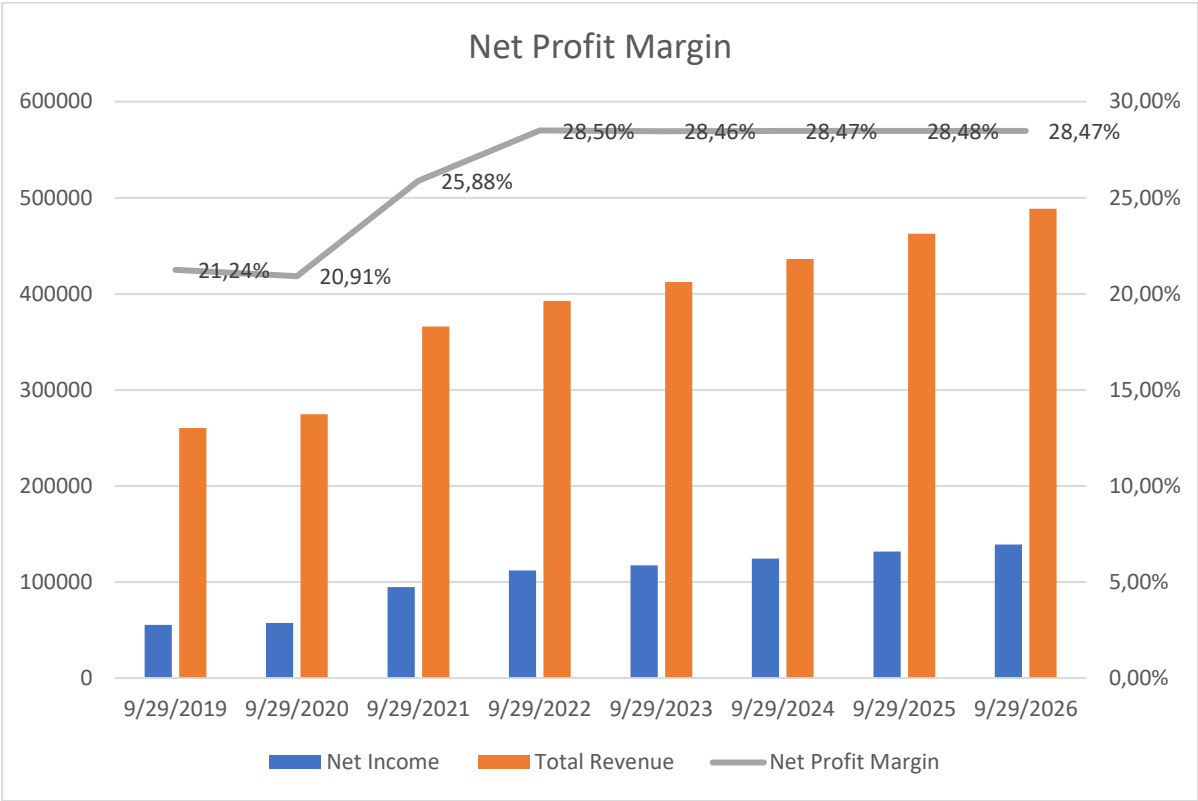


Source: Own processing, Excel.

**The Figure – 3**, depicts the Return on assets and how productive and efficient the management of Apple Inc uses its own assets to generate the profit, based on its investments

into the assets. The Figure depicts the causes of COVID-19 between 2019 and 2020, the rate was relatively low however, after the pandemic the production of Apple reappeared and by the end of 2021, the ROA measurement was accounted for 27 %. In indicates that every dollar invested into Apple Inc, the generation of profit on each dollar is 1,27 USD.

**Figure 4: Net Profit Margin**



Source: Own processing, Excel.

The indicator measures how much of a dollar is transferred into the net profit by an Apple Inc. Based on the calculation, the profitability ranges from 20,9 % up to 28,5 %, which means that every dollar made by Apple Inc, 0,20 USD up to 0,28 USD that the company makes on top of each. This indicator is demonstrates that Apple’s sales are easily transferred into the actual profit.

### 4.3 Corporate Valuation

The company's valuation is strictly based on the assumption that the company will keep on its operations and remain profitable in its business field. Taking this fact into consideration and also those human beings will buy and consume apple products. Thus, the author decided to make 5 years forecast projection with the recent three years recorded on Balance Sheet Statement, Income Statement and Cash Flow Statement.

#### 4.3.1 Discounted Cash Flow Model

Discounted Cash Flow Model as mentioned earlier is the most classical valuation method which will be applied in this section. There will be Free Cash Flow to the Firm applied and Free Cash Flow to the Equity. The following criteria such as CAPEX and Operating Cash Flow will be given by the company's Income Statement. Where Operating Cash Flow is calculated as the Net Income + Depreciation – Change in Net Working Capital, whereas: NWC was calculated based on the Balance Sheet Statement. The NWC indicator was calculated for the consequent years of 2019, 2020 and 2021. The author has taken the Current Assets of the year 2019 and Current Liabilities of 2019 to calculate the change in NWC. All the mentioned tables below and its amounts will be represented in USD.

**Table 3: Change in 2019**

Change in NWC			
Current Assets (Current Year)	162 819,00	Current Liabilities (Current Year)	105 718,00
Current Assets (Prior Year)	0,00	Current Liabilities (Prior Year)	0,00
<b>Change in Current Assets</b>	<b>162 819,00</b>	<b>Change in Current Liabilities</b>	105 718,00
<b>Change in NWC</b>	<b>57 101,00</b>		

Source: Own processing, Excel.

**Table 4: Change in 2020**

Change in NWC			
Current Assets (Current Year)	143 713,00	Current Liabilities (Current Year)	105 392,00
Current Assets (Prior Year)	162 819,00	Current Liabilities (Prior Year)	105 718,00
<b>Change in Current Assets</b>	<b>-19 106,00</b>	<b>Change in Current Liabilities</b>	-326,00
<b>Change in NWC</b>	<b>-18 780,00</b>		

Source: Own processing, Excel.



**Table 5: Change in 2021**

Change in NWC			
Current Assets (Current Year)	134 836,00	Current Liabilities (Current Year)	125 481,00
Current Assets (Prior Year)	143 713,00	Current Liabilities (Prior Year)	105 392,00
<b>Change in Current Assets</b>	<b>-8 877,00</b>	<b>Change in Current Liabilities</b>	20 089,00
<b>Change in NWC</b>	<b>-28 966,00</b>		

Source: Own processing, Excel.

The following indicators are needed for projection of Free Cash Flow to Equity, and that is the Change in Net Debt, which measures the liquidity of a company to meet its obligations of long – term and short – term. However, in further calculation the author took the data for the total debt. Due to the fact that the author only considers three years, the Change in Net Debt in 2019 was negative, however it will slightly decrease the future projection but not much.

**Table 6: Change in Net Debt 2019**

Change in Net Debt			
Cash (Current)	48 844,00	Cash (Prior)	0,00
Short Term Debt (Current Year)	0,00	Short Term Debt (Prior Year)	74 420,00
Long Term Debt (Current Year)	108 047,00	Long Term Debt (Prior Year)	0,00
<b>Current Year Net Debt</b>	<b>59 203,00</b>	<b>Prior Year Net Debt</b>	<b>74 420,00</b>
<b>Change in Net Debt</b>	<b>-15 217,00</b>		

Source: Own processing, Excel.

**Table 7: Change in Net Debt 2020**

Change in Net Debt			
Cash (Current)	38 016,00	Cash (Prior)	48 844,00
Short Term Debt (Current Year)	112 436,00	Short Term Debt (Prior Year)	108 047,00
Long Term Debt (Current Year)	0,00	Long Term Debt (Prior Year)	0,00
<b>Current Year Net Debt</b>	<b>74 420,00</b>	<b>Prior Year Net Debt</b>	<b>59 203,00</b>
<b>Change in Net Debt</b>	<b>15 217,00</b>		

Source: Own processing, Excel.

**Table 8: Change in Net Debt 2021**

Change in Net Debt			
Cash (Current)	34 940,00	Cash (Prior)	38 016,00
Short Term Debt (Current Year)	15 613,00	Short Term Debt (Prior Year)	13 769,00
Long Term Debt (Current Year)	109 106,00	Long Term Debt (Prior Year)	98 667,00
<b>Current Year Net Debt</b>	<b>89 779,00</b>	<b>Prior Year Net Debt</b>	<b>74 420,00</b>
<b>Change in Net Debt</b>	<b>15 359,00</b>		

Source: Own processing, Excel.

Further, the author takes a ration of annual change in Net Debt to Total Revenue, which will be shown further, **See – Appendix 4.**

**Table 9: Free Cash Flow to Firm**

Period	9/29/2021	9/29/2020	9/29/2019
<b>Operating Cash Flow</b>	134 930,00	87 247,00	10 702,00
<b>CAPEX</b>	-11 085,00	-7 309,00	-10 495,00
<b>FCFF</b>	146 015,00	94 556,00	21 197,00

Source: Own processing, Excel.

Further the author takes the FCFF was calculated based on the ratio of Total Revenue to CAPEX. The following step was the calculation of Free Cash Flow to Equity, which was already calculated above and that is  $FCFE = FCFF + \text{Change in Net Debt}$ , which is seen in the **Table – 10.**

**Table 10: Free Cash Flow to Equity**

Period	9/29/2021	9/29/2020	9/29/2019
<b>FCFF</b>	123 845,00	79 938,00	207,00
<b>Change in Net Debt</b>	15 359,00	15 217,00	-15 217,00
<b>FCFE</b>	139 204,00	95 155,00	-15 010,00

Source: Own processing, Excel.

**Table 11: Ratios of Total Revenue**

Period	2019	2020	2021
Revenue Growth forecast	n/a	5,51%	33,26%
CoGS as a % of Revenue	62,18%	61,77%	58,22%
S&GA as a % of Revenue	7,01%	7,25%	6,01%
Interest Income as a % of Revenue	1,91%	1,37%	0,78%
Interest Expense as a % of Revenue	1,37%	1,05%	0,72%
Normalized EBITDA	31,46%	29,51%	33,66%
Other Expense or Income	0,16%	-0,03%	0,02%
Effective Tax Rate	15,94%	14,43%	13,30%
Minority Interest as a % of Revenue	21,24%	20,91%	25,88%
D&A as a % of Revenue	4,82%	4,03%	3,08%
Change in NWC as a % of Revenue	21,95%	4,03%	-7,92%
Capex as a % of Revenue	-4,03%	-2,66%	-3,03%
Change in net Debt as a % of Revenue	-5,54%	5,54%	4,20%

Source: Own processing, Excel.

The **Table – 11**, illustrates the ratios of all necessary indicators to calculate the future projection. The revenue growth between 2019 and 2018 is detected as **n/a** , because of unavailability of the data prior to 2019. The following table are also based on the projected Total Revenue, See the **Appendix – 2**.

The prognosis percentage for the year of 2022 and 2023, were 7,30 % and 5 % respectively. Afterwards, the author took an average for the 2021,2022 and 2023 and kept prognosing an average for the past 3 years to the following year.

**Table 12: Forecast based on the Total Revenue**

Period	2022 (F)	2023 (F)	2024 (F)	2025 (F)	2026 (F)
Revenue Growth forecast	7,30%	5,00%	15,19%	9,16%	9,78%
CoGS as a % of Revenue	60,72%	60,72%	60,72%	60,72%	60,72%
S&GA as a % of Revenue	6,76%	6,76%	6,76%	6,76%	6,76%
Interest Income as a % of Revenue	1,35%	1,35%	1,35%	1,35%	1,35%
Interest Expense as a % of Revenue	1,05%	1,05%	1,05%	1,05%	1,05%
Normalized EBITDA	31,55%	31,57%	32,26%	31,79%	31,88%
Other Expense or Income	0,05%	0,01%	0,03%	0,03%	0,02%
Effective Tax Rate	13,30%	13,30%	13,30%	13,30%	13,30%
Minority Interest as a % of Revenue	22,68%	23,16%	23,91%	23,25%	23,44%
D&A as a % of Revenue	3,98%	3,70%	3,59%	3,75%	3,68%
Change in NWC as a % of Revenue	6,02%	6,02%	6,02%	6,02%	6,02%
Capex as a % of Revenue	-3,24%	-2,98%	-3,08%	-3,10%	-3,05%
Change in net Debt as a % of Revenue	1,40%	3,71%	3,10%	2,74%	3,19%

Source: Own processing, Excel.

**Table 13: Forecast based on the Total Revenue**

Period	2022 (F)	2023 (F)	2024 (F)	2025 (F)	2026 (F)
Net Income Common Stockholders	n/a	n/a	n/a	n/a	n/a
Depreciation & amortization	15 615,31	15 236,10	15 645,22	17 365,27	17 977,38
Change in NWC	23 625,27	24 811,29	26 260,61	27 848,63	29 416,36
Operating Cash Flow	14 840,91	12 285,73	9 313,47	13 709,84	13 160,10
CAPEX	-12 726,28	-12 275,00	-13 451,21	-14 346,90	-14 925,16
FCFF	2 114,63	10,73	-4 137,74	-637,06	-1 765,06
Change in Net Debt	5 493,40	15 306,20	13 540,11	12 671,01	15 566,21
FCFE	7 608,04	15 316,92	9 402,37	12 033,95	13 801,15

Source: Own processing, Excel.

In order to calculate the relative number, the author considered the percentage ration of a certain indicator for the projected year multiplied by the forecasted total revenue for the projected year, See, **Appendix – 2**. The Income Common Stockholder has not been calculated for the projected years, due to its irrelevance. The following step was the calculation of  $r$  and  $g$  was taken as an average growth rate.

**Table 14: CAPM calculation**

CAPM		Comments
Risk - Free Rate	3,7%	Apple's risk free rate
Beta	1,23	Yaahhoo
Market Return	8,51%	average, based on S&P 500
r	9,6%	
g	2,40%	an average growth rate

Source: Own processing, Excel.

Further the author had to calculate the Terminal Value for the year 2026, the value taken from the **Table – 13**, 13 801,15.

The Terminal Value for the year of 2026, was the calculated in the following way:

$$\text{Terminal Value} = 13\,801,15 * ((1 + 2,40\%) / (9,6\% - 2,4\%)) = 196\,120,98$$

$$\text{The Total Value} = 13\,801,15 + 196\,120,98 = 209\,902,13.$$

The projected equity value was calculated by the NPV formula, where the author needed to calculate the stream of terminal values and rate of return of 9,6 % from the **Table – 14**. The results turned out to be the following, however if the discounted factors change by +1/ -1 %, the results of price per share move by +/- 7 USD.

**Table 15: Projection of Discounted Rate**

Indicators	Apple Inc		
	Discounted factor	9,61%	8,61%
g	2,40%	2,40%	2,40%
Price per Share	200,56	207,63	193,95

Source: Own processing, Excel.

**Table 16: Results of forecasting**

<b>Indicators</b>	<b>Value</b>	<b>Comment</b>
Equity Value of 2026	322 303,87	Projected equity value for 2026.
Share Outstanding	1 607,00	Available Stocks for 2022
Price Per Share	200,56	Intrinsic value for 2026.
Current Price	145,45	value for now, 2022.
Buy / Sell	Buy	Buy at this point.
Upside	38%	Growth for the period of 5 years.

Source: Own processing, Excel.

Based on the author's prediction, the value per price is going to be increasing year by year, but for the year 2026, the author would recommend buying stocks at this point for 145,45 and hold them up to 2026. The predicted growth rate is expected to be by 38 %.

However, this is just a prognosis of the author, and some certain external effects might come along this selected time period, such as Inflation which wasn't considered as a factor that might devalue the eventual price of the stock. Some other factors which might either decrease the sales of the company or other reasons such as its main competitor "Samsung" might become much stronger on the market. It really depends on different criteria, and it is a good thing to keep a track of the market and the company, its future plans and follow the trends of electronic development.

The fundamental evaluation is based on these two models FCF and DDM model. However, every model needs a projection of a future cash flows. However, the models are not able to predict the exact price per ratio when the free cash flow or dividends are volatile. Fortunately, the Apple Inc. corporation is the company which pays dividends out to its investors and for the past 10 years, the company didn't have a negative cash flow.

It is very important to consider all the factors of external and internal matters to better project the future price of stock for Apple Inc. Prior to company's presentations, the stock prices tend to rise and after the release of a new product, the price seem to go up, however, in short – term.

It should be said that competitors of Apple Inc, who are involved in the production of electronic devices are also engaged in developing new products and devices.

#### **4.3.2 Obstacles of the valuation and projection**

The main obstacle of the valuation and modelling in general is that even if the model it-self is projected on a good level, it still might not reflect the actual cash amount that will be available for the further returns of investors. The management might decide to invest into its own assets or further industries to increase its own capital, which says that even with the correct calculation of discounted rate, the output still might not be realistic, and investors should consider that factor.

## **5 Conclusion**

In this thesis, the author has focused on the Common Stock Valuation of an Apple Incorporation company. Within the theoretical part, the author has covered different literature review and topics which are strictly related to the valuation methods, modeling and projection of a future price of stock. The author has mainly used the DDM method, FCFF method and FCFE method to calculate the price of stock for the 5 years. In this matter, the author has used the financial statements of Apple Inc for the past three year, ranged from 2019 up to 2021. Mainly, the author has worked with the Balance Sheet Statement, Income Statement and slightly with a Cash Flow Statement. The rest of the indicators were either calculated or taken from the literature perspective of market growth etc. The author has also worked with an analysis profitability to better understand the development of company's ratios and predict the future ratios based on the current data. Since the fact that the market is not always predictable, it is better to understand the industry for investors and all its supply chains and logistics. Due to the recent pandemic situation, the Apple Inc. has decreased in its total revenue for the period of 2019 and 2020, due to the global lockdown, stoppage of supply chain and logistics in general. People tend to stay at home and barely made it outside, meanwhile, when all the electronic shops and other shops were absolutely closed, it is obvious to expect that the sales of Apple have drastically decreased in its shops, however, it was compensated by online sales. Understanding the general market is an important task for investor, to prevents the downs in the stock prices. Yet, it is very important to understand the behavior of the market and its psychology.

All the calculation were made by the author with the help of all three financial statements of the firm. All calculations are made in Excel Software. Parts of it are available for a look at Appendix part.



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## Appendix – 1.

### Cash Flow Statement

<u>Name</u>	<u>9/29/2021</u>	<u>9/29/2020</u>	<u>9/29/2019</u>
Operating Cash Flow	104038	80674	69391
Cash Flow from Continuing Operating Activities	104038	80674	69391
Net Income from Continuing Operations	94680	57411	55256
Depreciation Amortization Depletion	11284	11056	12547
Depreciation & amortization	11284	11056	12547
Deferred Tax	-4774	-215	-340
Deferred Income Tax	-4774	-215	-340
Stock based compensation	7906	6829	6068
Other non-cash items	-147	-97	-652
Change in working capital	-4911	5690	-3488
Change in Receivables	-14028	8470	3176
Changes in Account Receivables	-10125	6917	245
Change in Inventory	-2642	-127	-289
Change in Payables and Accrued Expense	12326	-4062	-1923
Change in Payable	12326	-4062	-1923
Change in Account Payable	12326	-4062	-1923
Change in Other Current Assets	-8042	-9588	873
Change in Other Current Liabilities	5799	8916	-4700
Change in Other Working Capital	1676	2081	-625
Investing Cash Flow	-14545	-4289	45896
Cash Flow from Continuing Investing Activities	-14545	-4289	45896
Net PPE Purchase and Sale	-11085	-7309	-10495
Purchase of PPE	-11085	-7309	-10495
Net Business Purchase and Sale	-33	-1524	-624
Purchase of Business	-33	-1524	-624
Net Investment Purchase and Sale	-2819	5335	58093
Purchase of Investment	-109689	-115148	-40631
Sale of Investment	106870	120483	98724
Net Other Investing Changes	-0,608	-0,791	-1078
Financing Cash Flow	-93353	-86820	-90976

Cash Flow from Continuing Financing Activities	-93353	-86820	-90976
Net Issuance Payments of Debt	12665	2499	-7819
Net Long Term Debt Issuance	11643	3462	-1842
Long Term Debt Issuance	20393	16091	6963
Long Term Debt Payments	-8750	-12629	-8805
Net Short Term Debt Issuance	1022	-963	-5977
Short Term Debt Payments		-963	
Net Common Stock Issuance	-84866	-71478	-66116
Common Stock Issuance	1105	880	781
Common Stock Payments	-85971	-72358	-66897
Cash Dividends Paid	-14467	-14081	-14119
Common Stock Dividend Paid	-14467	-14081	-14119
Net Other Financing Charges	-6685	-3760	-2922
End Cash Position	35929	39789	50224
Changes in Cash	-3860	-10435	24311
Beginning Cash Position	39789	50224	25913
Income Tax Paid Supplemental Data	25385	9501	15263
Interest Paid Supplemental Data	2687	3002	3423
Capital Expenditure	-11085	-7309	-10495
Issuance of Capital Stock	1105	880	781
Issuance of Debt	20393	16091	6963
Repayment of Debt	-8750	-12629	-8805
Repurchase of Capital Stock	-85971	-72358	-66897
Free Cash Flow	92953	73365	58896

Source: Yahoo (2022)

### Balance Sheet Statement

<u>Period</u>	<u>9/29/2021</u>	<u>9/29/2020</u>	<u>9/29/2019</u>
Total Assets	351002	323888	338516
<i>Current Assets</i>	<i>134836</i>	<i>143713</i>	<i>162819</i>
Cash Equivalents & Short-Term Investments	62639	90943	100557
Cash And Cash Equivalents	34940	38016	48844
Cash	17305	17773	12204
Cash Equivalents	17635	20243	36640
Other Short-Term Investments	27699	52927	51713
Receivables	51506	37445	45804
Accounts receivable	26278	16120	22926
Other Receivables	25228	21325	22878

Inventory	6580	4061	4106
Other Current Assets	14111	11264	12352
Total non-current assets	216166	180175	175697
Net PPE	39440	36766	37378
Gross PPE	109723	103526	95957
Properties	0	0	0
Land And Improvements	20041	17952	17085
Machinery Furniture Equipment	78659	75291	69797
Leases	11023	10283	9075
Accumulated Depreciation	-70283	-66760	-58579
Investments And Advances	127877	100887	105341
Investment in Financial Assets	127877	100887	105341
Available for Sale Securities	127877	100887	105341
Other Non-Current Assets	48849	42522	32978
Total Liabilities Net Minority Interest	287912	258549	248028
Current Liabilities	125481	105392	105718
Payables And Accrued Expenses	54763	42296	46236
Payables	54763	42296	46236
Accounts Payable	54763	42296	46236
Current Debt and Capital Lease Obligation	15613	13769	16240
Current Debt	15613	13769	16240
Commercial Paper	6000	4996	5980
Other Current Borrowings	9613	8773	10260
Current Deferred Liabilities	7612	6643	5522
Current Deferred Revenue	7612	6643	5522
Other Current Liabilities	47493	42684	37720
Total Non-Current Liabilities Net Minority Interest	162431	153157	142310
Long Term Debt Capital Lease Obligation	109106	98667	91807
Long Term Debt	109106	98667	91807
Trade and Other Payables Non-Current	24689	28170	29545
Other Non-Current Liabilities	28636	26320	20958
Total Equity Gross Minority Interest	63090	65339	90488
Stockholders' Equity	63090	65339	90488
Capital Stock	57365	50779	45174
Common Stock	57365	50779	45174
Retained Earnings	5562	14966	45898
Gains Losses Not Affecting Retained Earnings	0,163	-0,406	-0,584
Total Capitalization	172196	164006	182295

Common Stock Equity	63090	65339	90488
Net Tangible Assets	63090	65339	90488
Working Capital	9355	38321	57101
Invested Capital	187809	177775	198535
Tangible Book Value	63090	65339	90488
Total Debt	124719	112436	108047
Net Debt	89779	74420	59203
Share Issued	16426,786	16976,763	17772,944
Ordinary Shares Number	16426,786	16976,763	17772,944

Source: Yahoo (2022)

### Income Statement

<b>Period</b>	<b>9/29/2021</b>	<b>9/29/2020</b>	<b>9/29/2019</b>
Total Revenue	365817	274515	260174
<i>Growth Y-o-Y</i>		24,96%	5,22%
Operating Revenue	365817	274515	260174
Cost of Revenue	212981	169559	161782
<i>Gross Profit</i>	152836	104956	98392
<i>Gross Margin</i>	42%	38%	38%
Operating Expense	43887	38668	34462
Selling General and Administrative	21973	19916	18245
Research & Development	21914	18752	16217
Operating Income	108949	66288	63930
<i>Operating Margin</i>	30%	24%	25%
Net Non-Operating Interest Income Expense	0	1	1385
Interest Income	2843	3763	4961
Interest Expense	2645	2873	3576
Other Income Expense	60	-87	422
Other Non-Operating Income Expenses	60	-87	422
<i>Pretax Income</i>	109207	67091	65737
Tax Provision	14527	9680	10481
Net Income Common Stockholders	94680	57411	55256
<i>Net Income</i>	94680	57411	55256
Net Income Including Non-Controlling Interests	94680	57411	55256
Net Income Continuous Operations	94680	57411	55256
Diluted NI Available to Com Stockholders	94680	57411	55256
Basic EPS	6	3	3
Diluted EPS	6	3	3
Basic Average Shares	16701	17352	18471

Diluted Average Shares	16865	17528	18596
Total Operating Income as Reported	108949	66288	63930
Total Expenses	256868	208227	196244
Net Income from Continuing & Discontinued Operation	94680	57411	55256
Normalized Income	94680	57411	55256
Interest Income	2843	3763	4961
Interest Expense	2645	2873	3576
Net Interest Income	198	890	1385
EBIT	111852	69964	69313
EBITDA	-	-	-
Reconciled Cost of Revenue	212981	169559	161782
Reconciled Depreciation	11284	11056	12547
Net Minority Interest	94680	57411	55256
Normalized EBITDA	123136	81020	81860

Source: Yahoo (2022)

## Appendix – 2.

				<i>Forecasted</i>				
<i>Period</i>	<i>9/29/2021</i>	<i>9/29/2020</i>	<i>9/29/2019</i>	<i>9/29/2022</i>	<i>9/29/2023</i>	<i>9/29/2024</i>	<i>9/29/2025</i>	<i>9/29/2026</i>
Total Revenue	365 817,00	274 515,00	260 174,00	392 521,64	412 147,72	436 222,81	462 601,75	488 643,92
<b>Growth Y-o-Y</b>		25%	5%	7%	5%	6%	6%	6%
Operating Revenue	365 817,00	274 515,00	260 174,00	238 351,73	250 269,32	264 888,49	280 906,62	296 720,26
Cost of Revenue	212 981,00	169 559,00	161 782,00	84 181,83	88 390,92	93 554,16	99 211,50	104 796,61
<b>Gross Profit</b>	152 836,00	104 956,00	98 392,00	154 169,91	161 878,40	171 334,33	181 695,13	191 923,65
<b>Gross Margin</b>	0,42	0,38	0,38	0,39	0,39	0,39	0,39	0,39
Selling General and Administrative	21 973,00	19 916,00	18 245,00	26 526,80	27 861,19	29 488,66	31 271,88	33 032,33
Operating Income	108 949,00	66 288,00	63 930,00	127 643,10	134 017,22	141 845,66	150 423,25	158 891,32
<b>Operating Margin</b>	0,30	0,24	0,25	0,33	0,33	0,33	0,33	0,33
Interest Income	2 843,00	3 763,00	4 961,00	5 305,25	5 563,99	5 889,01	6 245,12	6 596,69
Interest Expense	2 645,00	2 873,00	3 576,00	4 113,73	4 327,55	4 580,34	4 857,32	5 130,76
Other Income Expense	60,00	-87,00	422,00	192,22	46,27	111,38	132,19	106,42
<b>Pretax Income</b>	109 207,00	67 091,00	65 737,00	129 026,84	135 299,93	143 265,71	151 943,25	160 463,67
<b>Net Income</b>	94 680,00	57 411,00	55 256,00	22 850,87	23 829,94	25 276,04	26 816,72	28 297,57
<b>Growth Y-o-Y</b>	64,92%	3,90%	141,81%	-75,87%	4,28%	6,07%	6,10%	5,52%
<b>Net Minority Interest</b>	94 680,00	57 411,00	55 256,00	89 015,40	93 475,10	98 935,33	104 918,08	110 824,44

Source: Own processing, Excel.

### Appendix – 3.

<i>Period</i>	<b>9/29/2021</b>	<b>9/29/2020</b>	<b>9/29/2019</b>	<b>9/29/2022</b>	<b>9/29/2023</b>	<b>9/29/2024</b>	<b>9/29/2025</b>	<b>9/29/2026</b>
Net Income Common Stockholders	94 680,00	57 411,00	55 256,00	n/a	n/a	n/a	n/a	n/a
Depreciation & amortization	11 284,00	11 056,00	12 547,00	15 615,31	15 236,10	15 645,22	17 365,27	17 977,38
<b>Change in NWC</b>	-28 966,00	-18 780,00	57 101,00	23 625,27	24 811,29	26 260,61	27 848,63	29 416,36
Operating Cash Flow	134 930,00	87 247,00	10 702,00	14 840,91	12 285,73	9 313,47	13 709,84	13 160,10
<b>CAPEX</b>	-11 085,00	-7 309,00	-10 495,00	-12 726,28	-12 275,00	-13 451,21	-14 346,90	-14 925,16
<b>FCFF</b>	123 845,00	79 938,00	207,00	2 114,63	10,73	-4 137,74	-637,06	-1 765,06
<b>Change in Net Debt</b>	15 359,00	15 217,00	-15 217,00	5 493,40	15 306,20	13 540,11	12 671,01	15 566,21
<b>FCFE</b>	139 204,00	95 155,00	-15 010,00	7 608,04	15 316,92	9 402,37	12 033,95	13 801,15
<b>Terminal Value</b>								196 120,98
<b>Total</b>	139 204,00	95 155,00	-15 010,00	7 608,04	15 316,92	9 402,37	12 033,95	209 922,13

Source: Own processing, Excel.



## Appendix – 4.

<b>Forecast</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022 (F)</b>	<b>2023 (F)</b>	<b>2024 (F)</b>	<b>2025 (F)</b>	<b>2026 (F)</b>
Revenue Growth forecast	n/a	5,51%	33,26%	7,30%	5,00%	15,19%	9,16%	9,78%
CoGS as a % of Revenue	62,18%	61,77%	58,22%	60,72%	60,72%	60,72%	60,72%	60,72%
S&GA as a % of Revenue	7,01%	7,25%	6,01%	6,76%	6,76%	6,76%	6,76%	6,76%
Interest Income as a % of Revenue	1,91%	1,37%	0,78%	1,35%	1,35%	1,35%	1,35%	1,35%
Interest Expense as a % of Revenue	1,37%	1,05%	0,72%	1,05%	1,05%	1,05%	1,05%	1,05%
Normalized EBITDA	31,46%	29,51%	33,66%	31,55%	31,57%	32,26%	31,79%	31,88%
Other Expense or Income	0,16%	-0,03%	0,02%	0,05%	0,01%	0,03%	0,03%	0,02%
Effective Tax Rate	15,94%	14,43%	13,30%	13,30%	13,30%	13,30%	13,30%	13,30%
Minority Interest as a % of Revenue	21,24%	20,91%	25,88%	22,68%	23,16%	23,91%	23,25%	23,44%
D&A as a % of Revenue	4,82%	4,03%	3,08%	3,98%	3,70%	3,59%	3,75%	3,68%
Change in NWC as a % of Revenue	21,95%	4,03%	-7,92%	6,02%	6,02%	6,02%	6,02%	6,02%
Capex as a % of Revenue	-4,03%	-2,66%	-3,03%	-3,24%	-2,98%	-3,08%	-3,10%	-3,05%
Change in net Debt as a % of Revenue	-5,54%	5,54%	4,20%	1,40%	3,71%	3,10%	2,74%	3,19%

Source: Own processing, Excel.