Economic Profit – Application at a Given Firm

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Abstract

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The bachelor thesis focuses on the research of whether the firm Kovář Plus s.r.o has reached an economic profit over the observed period, which is from 2011 to 2015. The first part of the thesis is strictly theoretical. In this part, there are different methods evaluating the company. The economic and accounting profit are described as well as market and book values.

The second part of the thesis is practical. In this part, data is processed and subsequently calculated. The method used for the calculation is called EVA (economic value added) and the results are interpreted in the results section.

The thesis ends with a conclusion where the research question is answered and the sources used for the research are listed.

Keywords

Economic profit, accounting profit, NOA (net operating assets), NOPAT (net operating profit after taxes), WACC (weighted average cost of capital), EVA (economic value added), Kovář Plus s.r.o, food wholesale

Abstrakt

Cerula, M., Ekonomický zisk – aplikácia na danej firme. Bakalárska práca. Mendelová Univerzita v Brne 2017.

Bakalárska práca sa zameriava na zistenie, či firma Kovář Plus s.r.o dosiahla ekonomický zisk počas skúmaného obdobia od roku 2011 do roku 2015. Prvá čast práce je striktne teoretická. V tejto časti sú popísané odlišné metódy výpočtu ekonomického zisku, ekonomický a účtovný zisk, taktiež aj tržné a účtovné hodnoty.

Druhá časť bakalárskej práce je praktická.V tejto časti su data spracované a následne su z nich vypočítané hodnoty. Metoda použitá pre kalkuláciu sa nazýva EVA (ekonomická pridaná hodnota). Všetky data su spracované a výsledky su interpretované v záverečnej časti.

Práca končí záverom, kde je výzkumná otázka zodpovedaná. Za záverom sa nachádza zoznam použitých zdrojov.

Kľúčové slová

Ekonomický zisk, účtovný zisk, NOA (čisté operatívne aktíva), NOPAT (výsledok hospodárenia po zdanení), WACC (váženené priemerné náklady na kapitál), EVA (ekonomická pridaná hodnota), Kovář Plus s.r.o, velkoobchod s mrazenými výrobkami

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1 Introduction

1.1 Introduction

Economic profit is one of the pointers that shows the owner of the company how the firm is doing.

The thesis starts with a theoretical section, describing different methods of a business valuation. After the theory about valuation methods, the theory moves to describing accouting profit, economic profit and the difference between them. At the end of the theoretical part, book values and market values are described too. The method used for calculating economic profit is called EVA (economic value added). To do the calculation, there are some sub-calculations required. NOA (net operating assets), NOPAT (net operating profit after taxes) and WACC (weighted average cost of capital) are all needed components to calculate EVA. For WACC, there are more sub-calculations required, to calculate the firm´s cost of equity, CAPM (capital asset pricing model) is used. The other method used during WACC calculation is the Iteration process. It is a process of multiple calculations achieving market values in WACC calculation. Once the theory is done, I shall proceed with second part of the thesis. First comes the year 2011, then 2012 until all years are calculated. After all years are processed, graphs and tables are drawn to show the results. Once this is done, results will be analyzed and described. At the end of the thesis, results are summarized and commented.

The beginning of the firm dates back to 1990. After ten years, in 2000, the firm became a limited liability company. In twenty-seven years of existence, the firm became the second largest company on the market in food wholesales. The firm is located in Podolí , Czech Republic, located near the city Uherské Hradiště. The name of the company is Kovář Plus s.r.o. The company focuses on food wholesale and retail.

1.2 Aim of the thesis

The aim of the thesis is to calculate the economic position of the chosen firm. Tested hypothesis is „Firm Kovař plus s.r.o has reached an economic profit between years 2011 and 2015“. If there is an economic profit, it will be examined as to why and what is the cause. The same applies with the economic loss.

Structure of the thesis consists of two parts. First part focuses on theory and methodology, especially on different valuation methods, the difference between accounting and economic profit, opportunity cost and market values. Economic value added gets the special attention, as it is a modern method used often in the business and in the thesis. The methodology section describes EVA method into details and shows exactly how to calculate economic profit. The second part of the thesis consist of calculation and results. Calculation consists of tables and formulas showing the results, which are described in the last part of the thisis.

2 Review

The review section contains all theoretical information and knowledge needed for the purpose of this thesis. It starts with different approaches to financial evaluation of the company. After that, it moves to describing the difference between economic and accounting profit. Once that is done, opportunity cost are described as well. The crucial thing at the end of the theoretical part is difference between book values and market values. The review part ends up with the description of the firm.

2.1 Methods calculating economic profit

Financial valuation of the company is an expression of its value expressed in exact terms. The potential of the company is valued by its financial equivalent. More than just one method for financial valuation of the company exists. The main methods for company's valuation are as follows:

1.Valuation based on analysis of the return (return methods)
- Discounted cash flow (DCF)
- Capitalization of earnings method
- Combined yield method
- Economic value added (EVA)

2.Valuation based on analysis of the market (market methods)
- Valuation based on market's capitalization
- Valuation based on similar companies
- Valuation based on the information of the firms which are going on stock exchange
- Valuation based on comparable transactions
- Valuation based on sector multiplicator

3.Valuation based on equity analysis (equity methods)
- book values of the equity based on historical prices
- substantial value based on replacement cost
- substantial value based on cost savings
- liquidation value
- equity valuation based on market values
(Mařík, 2011)

Information given by the firm is connected to return, and therefore return methods are further described, as one of them is used for calculation of the firm's economic profit.

2.1.1   Discounted cash flow (DCF)

DCF is a model which is used quite often among all business valuation methods. Discounted cash flow can be differentiated into two methods: free cash flow to the business (FCFF) and free cash flow to equity (FCFE). Many economists and investors are using DCF method, because it shows very precisely the expectations of investors and stakeholder on firm's growth and profit. The advantage of this model is its complexity of evaluation, which is based on financial, operational and investment activity of the firm, also financial statement analysis, research of various markets and more factors influencing the development of the firm, further shown in the generated cash flows (Patrice, 2013).

Two major concepts are contained within DCF method. The first concept is time value of money and the other one is net present value theory (NPV). According to these methods, the current value of the company is calculated in the future, also the justification of investments is determined. According to the concept of time value of money, DCF method considers that any estimated firm today or any kind of investment being realized today will change in the future to a different value and buying capability, which is linked to the inflation rate and the assumptions of the firm's profitability in terms of actual risks (French, 2013).

The theory of time value of money lets shareholders analyze the future benefits, and the concept of net present value (NPV) lets investors understand the benefits of the investments, such as projects and business. Therefore, NPV shows the value of discounted FCF (future cash flows) minus the original investment (e.g. capital investment). Based on the NPV concept, the worthwhile investment is the one in which during the projected duration and established on different risk factors, generates cash flows higher than the original level of investment. Only in such a situation the firm will be able to accomplish its duty towards the shareholders and raise the value of company throughout the stock price increase to improve investment atractivity and to make stronger its financial and economic environment.
    According to these essential principles, which are founded on the basics of the business valuation DCF model, the conclusion is made that the firm's value will be the value of predicted net cash flows. These cash flows will generate business as a result of financial, economic, operational and other activities taking into consideration the time factor and various systematic risks in the firm's environment, measured at a discount rate.

$$Value\ of\ the\ company = \frac{\sum FCFF_t}{(1 + WACC)^t}$$

where :

FCFF$_t$ is expected free cash flows to the business during the period of time (t).
WACC is weighted average cost of capital, which is in %.

t is a period of projected time.

The DCF model is a very complex method, which in practice is very difficult to execute properly and can be taken as a disadvantage. Probably the most difficult is to predict and measure the free cash flows (FCF) that are expected to be producing during the time (t). Therefore, this requires a precise approach to the analysis of financial, operational and investment activities of the firm and analysis of various risks to which company will face during the period of time. Generally, forecast of the cash flows is taking into consideration these factors:

- forecast period
- the firm's strategic objectives for the future development (for example, buying capabilities and sale capabilities)
- firm' size (if the firm is of a smaller size, then it has more space for financial 'maneuvers' and greater potential on market, however at the same time if faces higher existential risks and lower competitive capabilities)
- the firm's growth rates and life cycle
- competitive advantage and the firm's market share at the moment (Bilych, 2013).

WACC will be described in details further in the thesis.

2.1.2   Capitalization of earnings method ('pure earnings')

The advantage of this method is that it is the simplest way to directly calculate the value of the firm. In practice, there is a whole spectrum of difficulties for which it is necessary to be adjusted and to make it correct. Capitalization of earning method is based on previous efficiency of the firm –- based on historical level of profit. According to this method, it is possible to deduce the value of the firm by so-called sustainable profit level. The point is that the market value of the firm is obtained based on discounted differences between revenues and expenses, i.e. profit on the valuation date (Hrdy, 2005).

Using this method requires these assumptions:

- precise knowledge of the firm's results from previous years, i.e. information which are at least 3-5 years old
- principle of 'going concern' (forever lasting firm)
- firm invests up to the amount of depreciation –- simple reproduction of the firm

To use this method, it is crucial to analyze profit and loss account. Used data should be from at least the previous three years. The historical timeline of financial results is adjusted to comparable realistic levels, so that it is possible to achieve everlasting profit. The most important attribute which is needed to adjust is

depreciation. The difference from real depreciation should be minimal. Any possible fluctuation should be tactically excluded. Due to inflation, depreciation should be calculated from reproduction prices to valuation date.

Expenses and gains, which come from operating assets but are not necessary for the firm's fundamental activity, must be excluded. The same applies for extraordinary expenses and gains, which are probably never going to repeat again. It is also recommended to average irregularly repeating expenses and gains. Special attention is needed to all effects, which are realized due to using accounting methods. It is essential to exclude hidden reserves. For adjusted economic results according to the points above, it is necessary to calculate and adjust taxes. Adjusted economic results are reviewed, based on tax recognition (Lee, Pandit, & Willis, 2013).

Adjusted economic results must be recalculated to the comparable prices, which are valid to the date of valuation. The basics for calculation of earnings method is adjusted economic result after tax and after deducting paid interest. Economic results which are adjusted in this fashion are called 'pure earnings' (Epstein, Jermakowicz, 2008)

2.1.3   Combined revenue method

This method combines income and capital appreciation and sometimes it is referred to as a corrected yield method. It uses mean values (Schmalenbach's method) and the method of capitalized extraordinary net income.

Schmalenbach's method was created by practice, which makes her very popular with practical people. On the other hand, this method has no theoretical background, therefore, it must be manipulated with very carefully. Calculation uses the firm's mean values calculated by yield method (usually it is capitalization of earnings method) and assets valuation:

$$FV = \frac{V + S}{2}$$

where FV is firm's value, V is the value of the firm calculated by yield method, S is the value of the firm calculated by assets valuation (Schmalenbach business review, 2000).

It is important for yield value and assets valuation to be similar. The difference can be around 5% and up to 10%. This way the inaccuracies made during calculation are minimalized. If the difference between those two is large, then it's considered only to yield value. If the yield value is significantly bigger than assets value, then it shows the existence of goodwill. Therefore, it is better to take into consideration for yield method also a goodwill.

assets value < yield value = value of the difference = value of the goodwill

The method of capitalized extraordinary net income is sometimes called the method of extra profit. The whole value of the firm is composed of the value of substance and the value of the firm. The value of the firm is the difference between yield value and substance value, which is just another name for goodwill. Fundamental to this method is the thought that the firm must produce greater profit (extraordinary net profit) than the profit, which is made on the level of zero risk. For the purpose of calculation, extraordinary net profit is calculated as the difference between planned net profit and usual net profit (no risk profit). When the firm is able to achieve consistent net profit, the value of the firm is calculated:

$$V_n = S_n + \frac{\text{NP} - i_k * S_n}{i_{k^z}}$$

where V_n is the value of the firm, NP is planned net profit of the firm, i_k is calculated non-risk profit and i_{k^z} is rate of return (Kislingerova, 2001).

2.1.4   Economic value added (EVA)

EVA has become very popular recently and is used in economic theory, but it is also used in economic practice. This method is mostly used in countries with a developed market economy. The authors of the EVA method are Americans Stewart and Stern, who elaborated the details of this method.

Economic value added is a value, which can be used as a tool for financial analysis, managing business and valuating a company. It is an indicator of return/revenue, surpassing imperfections of previous methods that were used for this purpose. Standard indicators for measuring the yield of the company are various indicators of profitability (ROE, ROA and so on), based on the book values. These indicators suffer from well-known imperfections, such as the possibility of influencing the amount of reported net profit even with the help of legal accounting methods or book values that do not take into a consideration time value of money and risk of the investors.

Due to these flaws, indicators of profitability usually do not correlate with values of the share on capital markets. The solution for the mentioned imperfections was found in the 80s in using free cash flows. Free cash flows reduce the possibility of accounting manipulations. It is possible to project factors of time and risk into the valuation. However, disadvantage of DCF method is that even though it's suitable for return business valuation, it is not suitable as a part of regular control of management (Bharata, Alok, 2016).

Many authors are convinced that it is a step back to just look at a firm through the cash flows. Concepts and values needed for DCF calculation are difficult and not particularly related to the regular practice because this method is using regular

accrual accounting DCF method, which is not very usable as a tool of business control. It is not possible to show the indicators of tangible involvement of managers.

The introduction of economic value added was invoked by the need of the economic indicator, which would:

- show the closest relation to shareholder value
- enable it to use as much information as possible, using values provided by accountants, which are book based
- overcome current complaints about book values related to the financial efficiency. Mainly it is needed to include calculation of risk.
- enable valuation of the performance and at the same time also enable business valuation (Salaga, Bartosova, Kicova, 2015)

The fundamental principle of economic value added is that it measures economic profit. Economic profit in this matter is when not only ordinary costs are paid, but cost of capital is also paid, unlike the accounting profit. Therefore, if the company is showing positive accounting profit, then the company might be also showing an economic profit in the case that the accounting profit is bigger than the cost of capital. In other words, when a company reaches a positive accounting profit, but this profit is not big enough to compensate for all the risks which appears for shareholders, then the business is in economic loss (Rylkova, 2016).

It is necessary to mention that the idea of economic profit is not a whole new thing. It already is discussed by older English authors like Marshall, and since then it can be found in many modifications of other authors. It was also used by the State planning committee in the 70s and it has been used for a long time as a valuation of the business, where it forms a base for extraordinary profit methods (for example German Ubergewinnverfahren). Companies like General Motors and General Electronics already used analogical index in the first half of the last century.

Until now, it was mostly only theoretical matter. However, recent events in history created conditions also for the practice. Development of capital market and the victory of the concept of free entrepreneurship gave the space for business control based on maximization of shareholder value. Maximization of shareholder value means that business management must strive for the maximum gain for shareholders in the form of dividends and mainly as a yield from share growth. This situation created the need for practical indicators, which would be possible to observe during the time and at the same time they would be connected with the events happening on the capital markets (Sichigea, Vasilescu, 2015).

The EVA indicator together with some other indicators (for example, CF ROI, CVA and so on) were created in recent times as a reaction to new demands. From these indicators, particularly EVA was the fastest introduced indicator in foreign

countries. Even though this indicator and the methods evolved from it are quite new, it is considered that the use of EVA should be a basic tool of every person who is trying to calculate the value of the business. It is important to mention that other indicators and methods derived from them are not as popular as EVA (Escalera-Chávez, Rojas-Kramer, Garcia-Santillán, 2015).

The EVA indicator is understood as a net profit from operating activities of the company minus the cost of capital (own capital and liabilities). The general form of EVA is as following:

$$EVA = NOPAT – Capital \; x \; WACC$$

where:

NOPAT = net operating profit after taxes, which means it is the profit from operating activities of the firm after tax
Capital = capital tied up in assets, which serves for operating activities of the firm, i.e. assets needed for main operations of the company, it is usually substituted with special term NOA (net operating assets)
WACC = weighted average cost of capital

NOPAT in principle is the result of operating activities, but it is not entirely possible to identify it with net operating results. In this context, net operating profit corresponds with American NOPAT in EVA. Adjusted taxes are characterized by:

-   not including costs and revenue which are not related with main operations of the firm
-   are calculated only in case that the company is financed only by the own capital (i.e. they are not lowered by the interest of liabilities)
-   not including latent taxes, if they are accounted on the concern level

Capital is understood as a value tied in assets needed for achieving operating profit. This value is labelled as NOA – net operating assets. It is necessary to preserve the relationship between operating assets and the results of the profit and loss from operating activity, i.e. NOPAT should include the same profit and loss, which are connected to the activity of the firm as NOA (Shah, Rao, Haldar, 2014).

The exact calculation of economic value added for year t is possible to calculate in two ways, which give the same result.

Capital Charge

Operating economic profit = Operating profit – Total cost of capital

$$EVA_t = NOPAT_t - NOA_{t-1} \text{ x } WACC_t$$

Value Spread

Operating economic profit = (Operating rentability – WACC) x Operating assets

$$EVA_t = (\frac{NOPAT_t}{NOA_{t-1}} - WACC_t) \text{ x } NOA_{t-1}$$

During this calculation, two interesting partial results are calculated. Operating profitability, i.e. profitability of the net operating needed assets (NOPAT/NOA), and value span. Value span is the difference between this operating profitability and the cost of capital. It can be said that it is an expression of economic value added in percentage.

In both cases, NOA is calculated with the values at the start of the year, from which EVA is calculated. The starting point for calculating NOA is adjusted balance sheet, therefore values from the end of the previous year are used (that is why the index is t-1). Sometime if the change in assets is enormous, it is possible to average the values of adjusted assets from the start and from the end of the year (Xin´e, Ting, Yuan, 2012).

2.2   Accounting vs Economic profit

Financial statement contains a profit and a loss account that shows expenses, revenues and financial business results which occurred during a particular extent of time. It shows the accomplishment of running a business in terms of costs, revenue and financial results. Costs and revenue are evaluated on a regular basis that commonly correspond to cash flow or money expenditures and money receipts. Financial results appear as a consequence of encountering expenses and revenue, depending on declared expenses and revenue where profit or loss can be developed. The calculation is as follows:

Expenses > Revenue = GROSS LOSS
Expenses < Revenue = GROSS PROFIT

The difference between total revenue and total cost is profit or loss. A negative financial result reduces the equity, however, a positive financial result raises the equity of the firm. The connection between balance and profit/loss account is represented by financial statement of the firm (Krstanović, Buljan, 2016).

To understand accounting profit, it is needed to present another point of view.

The accounting profit, unlike economic profit, belongs to a company's entity and its meaning is to measure consecutive financial performance of the company. The accounting profit is calculated for an exact period of time as an excess of the firm's business cycle. The calculation of accounting profit shows that it focuses to measure the economic performance from the past throughout a particular time interval. The accounting profit can fulfill other functions in the economic activity of the business as well. For example: counseling for the dividend and earning policy of the company; predicting the method for the future revenue in disinvestment and investment process of decision making; providing a method for estimating the manager's capability of running business; and instrumentation of the management in a different key fields outside and inside of the business (regulations, credibility to borrowers, salary negotiations, pricing policy) (Tulvinschi, 2013).

The definition of the profit differs when it comes to economic and accounting points of view. Accounting profit is the surplus of the revenue over the taxes and costs, but it does not include very important expense component, the implicit cost of the equity committed by the shareholders of the company. A company is able to reach an economic profit only to the point where its earnings surpass the total opportunity costs, including both explicit and implicit costs.

The difference in the concept of accounting and economic profit has important practical impact. If the manager wants to maximize earnings (or increase earnings) rather than economic profit, it is better to invest into additional units of equity for so long, that the marginal contribution to the earnings becomes positive. If done, the marginal contribution for the last unit of equity capital is zero and lower than its opportunity cost. The average return on equity could be bigger or lower, depends on how much equity is used. On the other hand, a manager who is trying to maximize economic profit will be adding units of equity only to the point where the marginal contribution of capital is equal to its implicit costs. The average return on equity will exceed or will be equal to its opportunity cost. As a result, companies which make business decisions without particularly including implicit cost will not be as efficient in using equity of capital. These companies then have a high probability in engaging in an investment or a project, which have low returns to the shareholders (Kimball, 1998).

The difference between accounting profit and economic profit provides briefly Matthew Hollian, who sees it as follows. The accounting profit, also called net income, is not taking into consideration implicit costs. However, economic profit does take into consideration implicit costs. Economic profit tells how well is the firm operating and how well is the firm using its resources. It is also influencing the decision making of the owner or management because it shows what the firm is losing in order to achieve the number one choice. Therefore, once the economic profit is calculated, the firm can make a decision about future investments and spendings. He considers EVA as the best method for calculating opportunity cost and economic profit (Holian, Reza, 2011).

2.3   Opportunity cost

To properly understand what opportunity cost is, Buchanan offers a good explanation (Buchanan, 1969).

"You face a choice. You must now decide whether to read this [article], to read something else, to think silent thoughts, or perhaps to write a bit for yourself. The value that you place on the most attractive of these several alternatives is the cost you must pay if you choose to read this [article] now."

If the calculation of the benefit from reading this thesis should be made, other available opportunities should be taken into consideration as well. The most valuable alternative represents the cost of reading this thesis. This idea of opportunity cost has been created, or rather developed, by the Austrian economist Ludwig von Mises. However other economists from London School of Economics came up with the same idea, namely Hayek, Schackle, Thirbly, Coase.

When someone says that a specific action is not worth it, this means that the opportunity cost, which must be sacrificed, is too significant in comparison with original course of actions. In this light, money is not the only thing sacrificed, but also the value from the second best available option. This value exists only in the head of the action taker, therefore it's subjective. Also, it depends on every person, every company, how much value is put into particular things and actions (Magni, 2009).

To understand opportunity costs, it is better to look at it from another point of view. Opportunity cost is described as a sacrifice which occurrs due to choosing one alternative over another one. If a businessman chooses alternative A, he must sacrifice the estimated revenue R_B from the alternative B. Therefore, the opportunity cost of choosing alternative A is the revenue of alternative B. In some sense, all costs are a kind of opportunity costs. In a famous analogy of Bismarck, he referred to a choice of Germans. They had to choose guns or butter. If people were to choose butter, it would be at the cost of not having as much guns. If people were to sacrifice butter, then the amount of guns would increase, and the amount of sacrificed butter would be the opportunity cost of purchasing more guns, and the cost of guns would be measured in the kilograms of butter, which was given up (Steiner, 1973).

To sum opportunity costs up, the definition by Gregory Mankiw should be used as well. Mankiw sees the opportunity costs as the value which the firm has lost by choosing number one option. It can be said that opportunity cost of a specific item refers to every single thing which must be forgone to acquire that specific item.

Opportunity cost are divided into implicit and explicit costs. Explicit costs are input costs which require an outlay of financial resoures by the firm. Implicit costs are input costs which do not require an outlay of financial resoures by the firm. For example, explicit costs are money which must be paid to workers, for material and

so on. In other words, explicit costs represents money that the firm must pay out. However, the implicit costs are the opposite of explicit ones. Implicit costs represent possibilities which might have been done if the number one option had not been chosen, for example, running a business instead of being a teacher. In that case, income from being a teacher is the implicit cost for the business owner (Mankiw, 2013).

2.4   Book values vs Market values

2.4.1   Book values

The difference between market values and book values is crucial and a fundamentally critical element of analysis of a company. Book value is a value of the business in accordance with its accounting books or financial statements. The book value is calculated from the balance sheet as the difference between firm's total assets and firm' s total liabilities. (Gad, 2016)

Another look at book values provides Essential Investment. According to that, book values are a part of firm's assets that belongs to the shareholders, or simply known as net assets. The accounting valuation takes the gross assets of the firm as they are shown in the balance sheet and subtracts all claims on the business, for example payables, allowances for future claims, bank debt, and so on. There is also an alternative, which is represented by the sum of retained earnings, shares outstanding and additional paid-in capital. For an easy comparison with the market price of the shares, book values are usually expressed in per share terms (Essential Investment, 2003).

2.4.2   Market values

How much is an average person on the market willing to pay? This question is based on the assumption that a market with companies exists. On this market are buyers and sellers, which gives conditions for creating market price. The subject of approximation of the market price is market value (Gad, 2011).

International Valuation Standards Committee (IVSC) is an organization which was based in 1981 and creates international valuation standards. According to IVSC, market value can be defined as follows:

"Market value is the estimated amount for which an asset should be exchanged on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion."

The market's value definition shall be used in accordance with the notional framework:

- *The amount that is estimated.* This refers to a price, which would be used for an asset in a transaction between two independent and autonomous partners.
- *Exchange of an asset.* The value of an asset is estimated not predetermined.
- *To the valuation date.* The valuation requires to be given at a specific time period.
- *Between a willing seller and a buyer.* Both seller and buyer are not forced to buy or sell, rather they are willing to realize the transaction.
- *Transaction between separate and independent partners.* It is a transaction between unrelated parties.
- *After appropriate marketing.* It means that an asset should be placed on the market in a most appropriate manner to achieve the best possible price.
- *Where both parties act informed and prudently.* Both seller and buyer are informed about the nature and the characteristics of the asset, its potential use and the state of the market to the valuation date.
- *With no compulsion.* Both parties are willing to trade, but neither of them is forced to complete the transaction (ISV, 2011).

Another point of view on the market values shall be presented. Market value does not have to be just a value directly derived from the prices of an asset on the market. It can be calculated by many methods, however there is information which should be at least market based. From the definition of market value, it is clear that it can not be one and truly objective value. According to the definition, it is just a mere approximation of the price. In addition, the definition assumes a perfectly functioning market. The market value should be the approximation of the equilibrium value, i.e. where prices of demand and supply meet. This assumption is possible on transparent and functional market, where sufficient amount of parties trade more less homogenous product.

Overall, if the market is not sufficiently working, it is problematic to calculate the market value as an exact real number. Then the market value can be understood as an estimation expressed as an approximation of the interval. It is expected that the interval may be wide, which then better applies to companies and firms (Campos, Lamounier, Bressan 2015).

2.4.3   Book values vs Market values

Book values just simply involve the value of the firm on its books. Whether the book value is correct or accurate is determined by the stock market investors who sell and buy the stock. Implication of market value is more meaningful in the sense that the price which has to be paid to own a part of the business is stated by market value, not the book value. The difference between book value and market value depends on different factors, for example the nature of a firm's liabilities and assets, the firm's industry and the firm's specific attributes. There are three

fundamental generalizations which describe the relationship between book and market value (Gad, 2016).

Book value > Market value

This means that the financial market values the firm for less than its net worth or stated value. This usually happens when the market loses confidence in the firm's assets to create future profits and cash flows (i.e. market doesn't believe that the firm is worth the value which is on its books). This case often attracts investors, who believe that the market perception of the company is incorrect and thus buys a company for less than its stated net worth.

Market value > Book value

The financial market gives a higher value to the firm than its book value. This is due to the earning's power of the firm's assets.

Market value = Book value

The financial market has no reason to believe that the firm's assets are worse or better than what is shown on the balance sheet (Gad, 2016).

2.5   Kovář plus s.r.o.

The firm is located in Czech Republic and has the economic activity there as well. Main purpose of the firm is a food wholesale, where the firm buys the goods and then sell it to the smaller businesses. The firm mostly trades frozen goods, meat, cheese, fish, and so on.

The firm was created in 1990 by the original owner. After a decade, the owner's sons took over the firm and were able to establish the firm´s place on the wholesale market. When the third decade of the firm´s life began, the firm became the second largest company in the industry, allowing them expanding the firm to even bigger proportions. The firm is a limited liability company with around 100 employees, which places it on the upper limit of the medium-sized enterprise. The firm Kovář plus s.r.o. provided the information directly for the purpose of this thesis.

The firm buys food, mostly frozen, (e.g. sausages, chicken, cheese, ducks, fish, beef, wild animals and so on) from the producers and storing them in the warehouse. From this point, three options of distribution are possible. The firm itself distributes goods to the stores, merchants take the goods with their own trucks (or any other kind of transportation) or the goods can be purchased in the firm´s store (which is situated near the warehouse) directly by customers. Goods are mostly imported from Poland and Slovakia (together around 75%); however, the firm buys goods from the Czech Republic as well. The firm distributes to a

different locations and countries, such as Czech Republic, Slovakia, Croatia, Serbia, Bulgaria, Hungary and Austria.

Food wholesale has a broad wide target group. Their customers are mostly adults. The food is a necessary component in a man´s life, and so the customers will always be there to buy it. The sale of the firm´s goods is led by the specialists who know exactly their target group and adjust the sales techinque according to them. They provide special care for regular customers, for new customers and for potential customers.

Customers cannot buy the goods via e-shop. It is impractical to sell frozen food online because it would cost the company a lot of money distributing goods to each one of the customers, due to the fact that frozen food can't be just sent by the post office. They can only check on the internet what the firm has to offer, but they have to buy it themselves in the local store.

The research question of the thesis is to find out if the firm has reached an economic profit. The five years period from 2011 to 2015 should be sufficient for this purpose.

3   Methodology

3.1   EVA

EVA as a method for calculating economic profit seems as a good option. Even though it's an approximation of economic profit rather than the exact calculation, the method itself is very popular and is considered as one of the best methods for valuating company. Formula for calculating EVA is as following:

$$EVA = NOPAT - NOA \times WACC$$

3.1.1   WACC

Calculating WACC (Weighted Average Cost of debt and equity Capital) is a bit more difficult than NOA and NOPAT as it is more complex and needs more data. To calculate WACC these data are needed:

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

where:
r_d is cost of debt (cost of the firm's borrowed capital)
t is a corporate tax rate for the firm
D is the market value of the firm's debt
r_e is cost of equity (cost of the firm's own capital)
E is market value of the firm's equity
C is total market value of the invested capital (must apply C = D + E)

Market value of the firm´s equity and debt must be calculated, as they differ from book values. Tax rate is given by the government, so there is no need for further calculations. Cost of debt is given by the company, or bank, or any other subject landing the capital. However in the WACC calculation, only the debt which has interest connected to it can be used. Therefore, the debt of the firm, which has no interest binded to it, cannot be used in WACC calculation. Cost of equity is more complicated than other values. To calculate cost of equity, a method called CAPM (Capital Asset Pricing Model) is used. CAPM uses the „risk free" rate of return, the firm´s „beta" which is the correlation between the firm´s returns and the market, and the historical market returns (Balvers, Dayong, 2009). Historical risk premium adjusted for European market is taken from the dataset provided by New York University Stern School of Business (Damodaran, 2011).

To understand the capital asset pricing model, the variables shall be described as well. Rf is the „risk free" rate of return , which can be determined as the yield on the short term government securities. As for the Czech Republic, a three month

treasury bill issued by Czech National Bank (Zucchi, 2016). β (beta) indicates whether the investment is more or less volatile than the market. Generally, a beta less than 1 shows that the investment is less volatile than the market and vice versa. β equals to 1 shows that the investment is as volatile as the market. Rm-Rf is the historical risk premium calculated according to previous years (Kurach, 2013).

$$CAPM = rf + \beta(rm\text{-}rf\,)$$

Calculation of the capital structure is based on market values, not book values. This might bring some issues as sometimes market value is difficult to calculate. These problems can be solved by two possible options:

- Orientational approximations (e.g. targeted structure)
- Iteration process

Targeted structure is basically an approximation of the capital structure in market values for the future. It can be approximated by various ways:

- Approximating the current capital structure in market values with the help of market capitalization.
- Finding out the capital structure of the similar or comparable companies calculated in market values.
- Finding out the capital structure that is desired by the firm's management.
- Trying to come as close as possible to optimal capital structure of the firm.

It is important to say that targeted structure is just an approximation and can lead to false valuation (especially if it is valuated as managements' „wish").

Iteration process is a step following the targeted structure. First, the starting structure is approximated, then this value is used to calculate the market value of the firm. The process is repeated until the final value is stable. Targeted structure could be used as a starting structure, but also accounting structure is suitable because with use of iterations, the result should be the same for both options. The iteration process is viewed as the most precise way to find out the values for WACC. If the input values are set correctly, then the output is the real market structure of the capital, e.g. market values. As iteration process is believed to be the most precise, the scheme of iterations is showed below (Mařík, 2011).

To calculate WACC with market structure of capital, following calculations will be needed.

$$V_b = \sum_{t=1}^{T} \left(\frac{FCFF_t}{(1 + WACC)^t} \right) + \frac{CV}{(1 + WACC)^T}$$

where :

V_b = firm´s brutto (brutto value of the market structure of the capital)
$FCFF_t$ = Free cash flow to firm
WACC = Weighted average cost of capital
CV = Continual value
T = length of the period

$$CV = \frac{FCFF_t * (1 + g)}{i_k - g}$$

where :

CV = Continual value
$FCFF_t$ = Free cash flow to firm
g = growth rate
i_k = discount rate (for this purpose, WACC with accounting values is considered as discount rate)

$$FCFF = \text{Corrected operating profit after tax} - I_n$$

where :

$FCFF$ = Free cash flow to firm
Corrected operating profit after tax = NOPAT
I_n = Investment´s netto

$$I_n = K_t - K_{t-1}$$

where :

K_t = Operation necessary invested capital
K_{t-1} = Operation necessary invested capital for t-1 year

$$K_t = Operation\ tangible\ and\ intangible\ assets + Operation\ necessary\ capital$$

$$Operation\ necessary\ capital = Inventory + Current\ receivables + Operation\ assets$$
$$+ Accruals(active) - Short\ term\ payables - Accruals(passive)$$

where all needed information to calculate K_t is in the balance sheet. Picture bellow shows the whole iteration process (Mellen, Evans, 2010).

Approximation of the starting capital structure
(targeted or accounting)

⬇

WACC is calculated according to capital structure.

⬇

WACC is used as a discount rate and the total value
of the firm (Vb) is calculated. The value of the firm's
capital (Vn) is then calculated as the total value of the
firm minus the debt (liabilities).

⬇

Find out the new capital structure from the calculated
market values brutto and netto.

⬇

Is Vb / Vn equal to capital structure, which was used
for calculation WACC, or at least very similar ?

⬇

YES

⬇

Netto value, which is calculated, is the final value of
the firm. Final capital structure is the "real" market
structure, e.g market value.

The whole process of
calculation is repeated
for the newly found
structure.

NO ⬅

⬆

⬆ ➡

Graph n.1 Iteration process

3.1.2   NOA

The balance sheet is core for calculating NOA. Adjustments of NOA are related to
these circles:

- the need of separating non-operating assets out of total assets
- decrease total assets by non-interest foreign capital, to avoid issues with es-
  timating the cost of this capital while determining the discount rate
- exclude extraordinary items
- transfer accounting assets to "real" assets

It is clear, that the net operating assets (NOA) for this method is the same as the
operation-demanding invested capital for the method DCF. However, the differ-

ence is that the EVA method requires transfer from accounting values to economic values. Therefore, these accounting values need to be adjusted.

NOA includes all assets that are used by company, but are not displayed in the accounting. It is important to know what assets are. These assets are as follows:

-   Assets are the consequence of previous transactions or any other previous events.
-   Assets represent a potential of utility, which consists of indirect or direct impact on the cash flow in favor of the company, and thus these assets can be the source of the economic utility in the future
-   The probability of this utilization is high in the future.
-   It is not important if the company has the ownership over the particular asset. The important thing is if the company has the utility from that asset.
-   The asset can be reliably valuated.
-   Assets should be expressed by their real value. The problem of accounting pricing is that the values are often not accurate and do not correspond with reality.
-   Necessity of adjusting liabilities. Every change in assets causes the change in liabilities. This is usually in form of the change of own capital (Baran, Hrotko, Olejník, 2007).

Most common adjustments of accounting values are these:

Goodwill
If the goodwill is reported in the balance sheet, it should be a part of NOA. If the goodwill was depreciated, but consists of the aspects of the firm, that are not losing their value, then the goodwill should be reported in the original non-depreciated form.

Leasing
Property purchased on leasing is an example of an item, which is defined as an asset and should be reported as the part of NOA, but this item is not a property of the firm from the legal aspects, therefore item purchased on leasing is not a part of the balance sheet according to the Czech accounting standards. However, adjusting accounting data should rise the assets for the value of purchased item via leasing, and also increase interest-bearing liabilities for the value of the purchased item.

Costs activation with the long-term estimated effects
The company can spend money on purchasing particular items, which are then reported as liabilities of the reporting period, but they will have long-term effect, similarly like investments. Most common examples are:

-   costs connected with entrance to new markets

- big part of marketing costs, especially commercials, creating new sales paths and so on
- costs connected with workers' education
- costs connected with company's reconstruction

Re-estimation of the property
This is another type of adjustment, whose goal is to transform accounting assets to real assets. Intangible and tangible long-term assets should be reported as reproductive costs lowered by corresponding depreciation (Mařík, 2011).

$$NOA = \text{fixed assets + current assets + inventory + receivables + short term financial assets + accruals – non interest payables}$$

3.1.3   NOPAT

Reaching the symmetry between NOPAT and NOA is the first rule. If certain activities and assets corresponding to them are included in NOA, then it is necessary to include them in NOPAT as well. NOPAT should be also adjusted by using the "economically correct data" rather than accounting data. It is also important to establish what to consider as a baseline for calculating NOPAT. It could be:

- economic outcome which is from the current activity
- economic outcome which is from operations

Both are correct and the result should be the same. However, the more general approach is economic outcome from the current activity, which in the Czech Republic includes the financial economic outcome and the economic outcome from operations. Here are adjustments as well; however, they are similar to ones made in NOA. They are as follows:

- Excluding the paid interest from financial costs, including implicit interest paid in leasing payments.
- Extraordinary items need to be excluded from economic outcome. Also, it is possible to exclude extraordinary costs and return, which are not going to repeat in the future. For example:

  a) Selling long-term property (tangible and intangible)
  b) Releasing unutilized reserves and revenue resulting from it
  c) Extraordinary property amortization (Baran, Hrotko, Olejník, 2007)

NOPAT should include changes in the structure of own capital. Mainly it is the cost of development and research. Amortization is adjusted according to the way of how goodwill is shown in the balance sheet. The increase or decrease of rectifying items must be included in the economic outcome. It is necessary to exclude latent

reserves if they influenced the economic outcome (for example, insanely high amortization, excessive creation of rectifying items and so on). Revenues from assets that are operationally unnecessary need to be excluded from economic outcome.

An important element is adjusting taxes. It is needed to find out the "adjusted tax" which would be paid from operational economic outcome. It is usually calculated by multiplying NOPBT and tax rate, which gives NOPAT (Stewart, 1991).

In case, that economic outcome from the current activity is used, process is as follows:

1	Economic outcome from the current activity
2	(+) interest expenses
3	(-) revenues from non-operational assets (especially financial revenues) (+) non-operational assets costs
4	(+) goodwill amortization, if it is permanent
5	(+) original costs with investment character (-) amortization of intangible assets created by activation of these costs
6	(+) leasing payment (original leasing cost) (-) amortization of assets leased on leasing (part of leasing payment that represents implicit interest is not subtracted)
7	(-) uncommon/ extraordinary profit (+) uncommon/ extraordinary loss
8	Eliminating creation and cancellation of costs reserves
9	Adjusting taxes to NOPAT level

Tab. 1   NOPAT

4 Calculation

In this section, the calculation is executed, starting with sorting all needed data, then calculating NOA , NOPAT and WACC. At the end of the section, EVA and opportunity cost are calculated.

4.1 Assets

Calculation needs to start with sorting all the data, starting with assets and liabilities for each calculated year.

ASSETS	2011	2012	2013	2014	2015
ASSETS TOTAL	238 359	264 842	314 402	322 455	343 300
B. FIXED ASSETS	8 180	11 942	11 057	18 062	24 913
B.I Intangible fixed assets	100	65	30	12	12
1. Software	0	0	0	0	0
2. Other intangible fixed assets	100	65	30	12	12
B.II Tangible fixed assets	8 080	11 877	11 027	18 050	24 901
1. Lands	1 086	0	0	0	0
2. Individual movable assets	5 820	10 356	9 860	15 031	21 728
3. Other tangible fixed assets	1 174	1 521	1 167	3 019	3 173
C. Current assets	230 088	252 771	303 136	304 216	318 203
C.I Inventory	76 022	83 697	65 724	81 136	164 744
2. Merchandise	76 022	83 697	65 724	81 136	164 744
C.III Current receivables	103 927	87 006	88 439	102 755	118 704
1. Trade receivables	101 814	87 062	88 414	94 876	106 242
2. Due from state - tax receivables	104	12	102	7 819	7 027
3. Short-term deposit given	2 168	186	187	60	5 435
4. Estimated receivables	-167	-254	-267	0	0
5. Other receivables	8	0	3	0	0
C.IV Short-term financial assets	50 139	82 068	148 973	120 325	34 755
1. Cash	6 797	11 926	9 031	11 173	4 111
2. Bank accounts	43 342	70 142	139 942	109 152	30 644
D.I Accruals	91	129	209	177	184
1. Deferred expenses	91	129	209	177	184

Tab. 2   Assets (in thousands of CZK)

4.2 Liabilities

LIABILITIES	2011	2012	2013	2014	2015
LIABILITIES TOTAL	*238 359*	*264 842*	*314 402*	*322 455*	*343 300*
A. Equity	226 925	258 040	291 628	312 274	336 250
A.I Registered capital	100	100	100	100	100
1. Registered capital	100	100	100	100	100
A.IV Profit/loss - previous years	194 190	226 826	257 940	291 527	312 175
1. Retained earning from previosu years	194 190	226 826	257 940	291 527	312 175
A.V Profit/loss - current year	32 635	31 114	33 588	20 647	23 975
B. Other sources	11 434	6 802	22 774	10 181	7 050
B.III Short-term payables	11 434	6 802	22 774	10 181	7 050
1. Trade payables	5541	1 734	18 923	8 147	4 520
2. Payroll	676	710	728	739	807
3. Payables to social and health insurance	373	404	412	406	448
4. Due to state - tax liabilities and subsidies	4187	3 431	957	55	61
6. Short-term deposits received	0	0	1 287	20	0
5. Estimated payables	657	523	467	814	1 214

Tab. 3   Liabilities (in thousands of CZK)

4.3 NOA

According to methodology, assets and liabilities used for NOA must be adjusted. As for the firm Kovář plus s.r.o, marketing costs are calculated. However, the company has no records of the amortization itself. As a result, the amortization is not taken into account. For the purpose of the thesis, calculation below is made.

Years	2011	2012	2013	2014	2015
Annual marketing costs	1 530	2 750	1 740	0	0
Linear amortization year 2011	510	510	510	0	0
Linear amortization year 2012		917	917	917	
Linear amortization year 2013			580	580	580
Annual amortization total	510	1427	2007	1 496	580
Cumulated costs	1 530	4 280	6 020	6 020	6 020
Cumulated amortization	510	1 937	3 944	5 440	6 020
Residual value of marketing costs to 31.12	**1 020**	**2 343**	**2 076**	**580**	**0**

Tab. 4   Marketing amortization (in thousands of CZK)

Assets for the purpose of NOA consist of accounting fixed assets, activated marketing, working capital and cash. These values are added together, which in result gives the adjusted amount of assets.

Assets	2011	2012	2013	2014	2015
Accounting fixed assets	8 180	11 942	11 057	18 062	24 913
Activated marketing	1 020	2 343	2 076	580	0
Working capital	183913	203057	237952	262393	283250
Cash	6 797	11 926	9 031	11 173	4 111
Total	**199 910**	**229 268**	**260 116**	**292 208**	**312 274**

Tab. 5   Assets for NOA (in thousands of CZK)

Liabilities, as well as assets, are adjusted. Adding accounting equity, equity equivalent and interest from other sources build the ground for the next calculation.

Liabilities	2011	2012	2013	2014	2015
Accounting Equity	198 890	226 925	258 040	291 628	312 274
Equity equivalent	1 020	2 343	2 076	580	0
Interest from other sources	0	0	0	0	0
Total	**199 910**	**229 268**	**260 116**	**292 208**	**312 274**

Tab. 6   Liabilities for NOA (in thousands of CZK)

To properly calculate NOA, non-operation assets need to be excluded. The table below shows the items which are non-operation property. These items are added together and result in operation not necessary property total.

	2011	2012	2013	2014	2015
Operational amount of financial resources	5 717	3 401	9 007	5 090	3 525
Excessive amount of financial resources	1080	8525	24	6083	586
Other property,which is not necessary for business	0	0	0	0	0
Non-interest firm's debt	11 434	6 802	22 774	10 181	7 050
Operational not necessary property total	**12 514**	**15 327**	**22 798**	**16 264**	**7 636**

Tab. 7   Operation not necessasry assets (in thousands of CZK)

Once non – operation property is calculated, it can be substracted from adjusted assets calculated earlier. Table below shows the NOA results after being adjusted.

	2011	2012	2013	2014	2015
NOA	**187 396**	**213 941**	**237 318**	**275 944**	**304 638**

Tab. 8   NOA (in thousands of CZK)

4.4   NOPAT

NOPAT, as well as NOA needs to be adjusted before its final form. Economic outturn, which was provided by the firm´s accountant, is the baseline for the calculation. Adjusting economic outturn by marketing cost, marketing amortization and change in reservers gives the NOPBT, which is NOPAT before tax. Tax according to Czech law is 19% (Financial administration, Czech Republic, 2016).

	2011	2012	2013	2014	2015
Economic outturn	35 596	31 487	33 688	20 647	50 254
Marketing - return costs	1 530	2 750	1 740	0	0
Marketing - adding amortization	-510	-1427	-2007	-1496	-580
Elimination of the change in cost reserves	0	0	0	0	0
NOPBT	36 616	32 810	33 421	19 151	49 674
TAX	0,19	0,19	0,19	0,19	0,19
NOPAT	**29 659**	**26 578**	**27 071**	**15 512**	**40 235**

Tab. 9   NOPAT (in thousands of CZK)

4.5   WACC

WACC itself is a complicated calculation consisting of many sub-calculations. Calculation of WACC starts with calculating CAPM, accounting value WACC, sub-calculations required to calculate brutto value of the equity (FCFF, continual value, investments netto etc.) and then finally market value WACC.

4.5.1   CAPM

As presented in the methodology, the formula for CAPM is as follows :

$$CAPM = rf + \beta(rm\text{-}rf)$$

Data for rf (risk free rate) is taken from the Czech Nation Bank database. As shown in the table below, rf fluctuates around 2,6 % each year (CNB, 2015). β remains still for all calculated years on the level of 0,87, which means that the company is less volatile than the market (Damodaran, 2016). The Czech Republic´s total risk premium, rm – rf, is set on the level of 8,28 % and it stays the same for all years (Damodaran, 2016). Values are added to the formula and results are shown in the table below.

	2011	2012	2013	2014	2015
rf	2,95	2,62	2,4	2,72	2,59
β	0,87	0,87	0,87	0,87	0,87
(rm-rf)	8,28	8,28	8,28	8,28	8,28
CAPM (re) %	**10,154**	**9,8236**	**9,6036**	**9,9236**	**9,7936**

Tab. 10   CAPM

4.5.2   Accounting value WACC

WACC is calculated with accounting values as the starting point for iteration process. Data used for this calculation are rd, which is the cost of debt, t is a tax rate, re is cost of equity. E is the firm´s capital, D is the firm´s debt (only interest-paid debt) and C is the total capital of the firm. The formula is as follows:

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

	2011	2012	2013	2014	2015
R_d	0,0063	0,0044	0,0005	0,0005	0,0005
(1-t)	0,81	0,81	0,81	0,81	0,81
R_e	10,15	9,82	9,6	9,92	9,8
E (in thousands of CZK)	198 890	258 040	291 628	312 274	336 250
D	0	0	0	0	0
C (in thousands of CZK)	198 890	258 040	291 628	312 274	336 250
WACC %	**10,15**	**9,82**	**9,60**	**9,92**	**9,80**

Tab. 11   WACC

4.5.3   Total operation necessary working capital

The next step towards calculating firm´s brutto value is to calculate total operation necessary working capital. All data needed for this calculation can be found in the balance sheet.

	2011	2012	2013	2014	2015
Inventory	76 022	83 697	65 724	81 136	120 744
Current receivables	105 935	87 983	89 100	101 011	119 960
Operation assets	6 797	11 926	9 031	11 173	4 111
Accruals (active)	91	129	209	177	184
(-) Short-term payables	11 434	6 802	22 774	10 181	7 050
(-) Accruals (pasive)	0	0	0	0	0
Operation necessary capital	**177 411**	**176 933**	**141 290**	**183 316**	**237 949**

Tab. 12   Total operation necess. work. capital (in thousands of CZK)

4.5.4   Operation necessary investment capital (K_t)

Once operation necessary working capital is done, K_t can be calculated. Operation of tangible and intangible fixed assets can be found in the balance sheet. It is proceeded with the calculation and these two values are added together.

	2011	2012	2013	2014	2015
Operation tangible and intangible fixed assets	8 180	11 942	11 057	18 062	24 913
Operation necessary capital	177 411	176 933	141 290	183 316	237 949
K_t	**185 591**	**188 875**	**152 347**	**201 378**	**262 862**

Tab. 13   Operation necess. invest. capital (in thousands of CZK)

4.5.5   Investment´s netto

Values are added into the formula and then calculated. Results are as follows :

$$I_n = K_t - K_{t-1}$$

	2011	2012	2013	2014	2015
K_t	185 591 000	188 875 000	152 347 000	201 378 000	262 862 000
K_{t-1}	180 000 000	185 591 000	188 875 000	152 347 000	204 378 000
Investments netto	**5 591 000**	**3 284 000**	**-36 528 000**	**49 031 000**	**58 484 000**

Tab. 14   Investment´s netto (CZK)

4.5.6   Free cash flow to firm (FCFF)

After investment´s netto is calculated, free cash flow to the firm is next. Both values needed for calculation are already calculated, therefore adding them in the formula will bring the results. Formula for calculating FCFF is as follows :

$$FCFF = \text{Corrected operating profit after tax} - I_n$$

	2011	2012	2013	2014	2015
NOPAT	29 659	26 578	27 071	15 512	40 235
Investments netto	5 591	3 284	- 36 528	49 031	58 484
FCFF	**24 068**	**23 294**	**63 599**	**-33 519**	**-18 249**

Tab. 15   FCFF (in thousands of CZK)

4.5.7   Continual value

Continual value is the last piece needed for brutto value. FCFF for every year is calculated, i_k is discount rate (in this case, accounting value WACC is used as a baseline) and g is a growth rate (Kurzy, 2017). The formula is as follows :

$$CV = \frac{FCFF_t * (1 + g)}{i_k - g}$$

	2011	2012	2013	2014	2015
FCFF$_t$	24 068	23 294	63 599	-33 519	-18 249
i$_k$	0,1015	0,0982	0,096	0,0992	0,098
g	0,01	-0,01	0,005	0,01	0,022
Continual value (CV)	**265 668**	**213 133**	**702 384**	**-379 531**	**-245 401**

Tab. 16   Continual value (in thousands of CZK)

4.5.8   Brutto value

All sub-calculations are done, so the firm´s brutto value can be calculated. Continual value needs to be averaged and used for each of the calculated years. Average CV value is 111 250 000 CZK. Results are in the table below. Formula for calculation firm´s brutto is as follows :

$$V_b = \sum_{t=1}^{T} \left(\frac{FCFF_t}{(1+WACC)^t} \right) + \frac{CV}{(1+WACC)^T}$$

	2011	2012	2013	2014	2015
FCFF$_t$	24 068	23 294	63 599	-33 519	-18 249
WACC	0,1015	0,0982	0,096	0,0992	0,098
CV	111 250	111 250	111 250	111 250	111 250
BRUTTO VALUE	**111 281**	**113 443**	**100 600**	**46 022**	**82 508**

Tab. 17   Brutto value (in thousands of CZK)

4.5.9   Market value WACC

After firm´s brutto is calculated and the iteration process is done, it is necessary to subtract the cost of debt from it. However, since the firm does not have any interest-paid debt, this step is skipped and the brutto value is considered as a firm´s market value. The next calculation is WACC, calculated with the market value of the firm´s equity. As in the WACC calculation earlier, firm´s debt is non-interest paid, and therefore is not included in this calculation. Results are in the table below.

	2011	2012	2013	2014	2015
R_d	0,0063	0,0044	0,0005	0,0005	0,0005
(1-t)	0,81	0,81	0,81	0,81	0,81
R_e (%)	10,15	9,82	9,6	9,92	9,8
E	111 281 186	113 443 463	100 600 850	46 022 146	82 508 098
D	0	0	0	0	0
C	111 281 186	113 443 463	100 600 850	46 022 146	82 508 098
WACC %	**10,15**	**9,82**	**9,6**	**9,92**	**9,8**

Tab. 18   Market value WACC

4.6 EVA

All needed values are calculated and now it can be proceeded with the calculation of EVA. The formula for EVA is as follows :

$$EVA = NOPAT – NOA \times WACC$$

	2011	2012	2013	2014	2015
NOA	187 396 000	213 941 000	23 7318 000	275 944 000	304 638 000
NOPAT	29 659 000	26 578 000	27 071 000	15 512 000	40 235 000
WACC	0,1015	0,0982	0,096	0,092	0,098
EVA (CZK)	**10 638 306**	**5 568 993**	**4 288 472**	**- 9 874 848**	**10 380 476**

Tab. 19   EVA

4.7 Opportunity cost

Once EVA is calculated, it is possible to calculate opportunity cost. Substracting EVA from NOPAT provides sufficient results, as opportunity cost are the difference between accounting profit and economic profit.
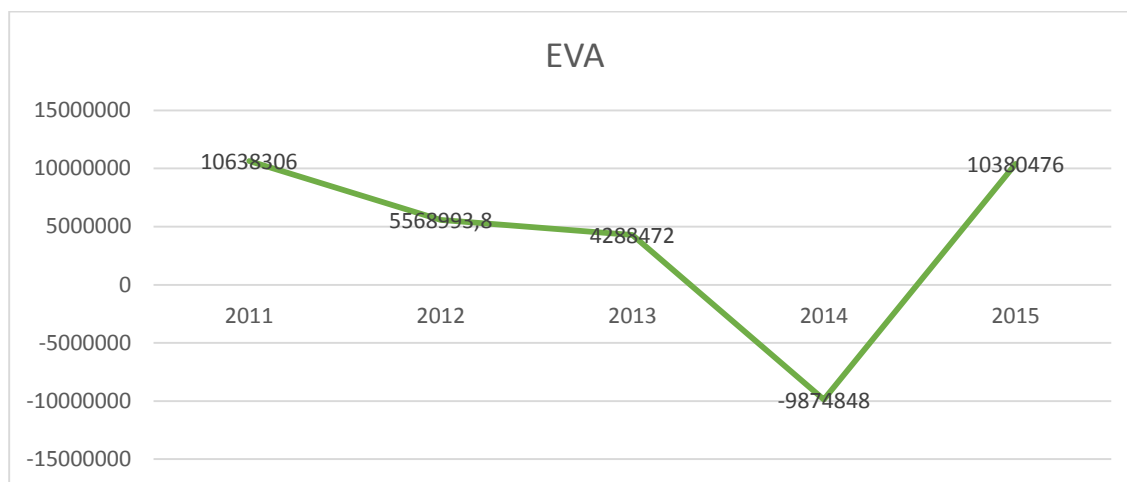
$$Opportunity\ cost = NOPAT – EVA$$

	2011	2012	2013	2014	2015
Opportunity cost CZK	**19 206 940**	**21 009 006**	**22 782 528**	**25 386 848**	**29 854 524**

Tab. 20   Opportunity cost

5 Results

5.1 EVA

Graph n.2 EVA

As it can be seen on the graph, the firm has reached an economic profit in most observed years except the year 2014. The firm reached the lowest value of economic loss in year 2014, which was – 9 874 848 CZK. The highest value of economic profit was reached in 2011, which was 10 638 306 CZK.

From year 2011 to 2013 everything seems normal, with no drastic changes and just small change in the results. However, year 2014 and 2015 are completely different. Change in economic profit over 2 years was dramatic, from economic loss – 9 874 848 CZK to economic profit 10 380 476 CZK. This can be explained by the change in the property structure and by the change in investments. In year 2013 the firm had 139 942 000 CZK in their bank account, however these money were used to build the new warehouse, parking lots and all necessary accessories tied to it. Based on discussion with the company owner, it was confirmed that these money were used for the expansion of the warehouse. In year 2015, the bank account shows only 30 644 000 CZK. There is over 100 000 000 CZK invested in the expansion of the firm, which greatly impacted the economic profit in year 2014. However, in year 2015, when there were no other investments, the firm reached an economic profit. Reaching an economic profit means that the firm is operating on the level where alternatives are no better than the actual choice to run the business.

The economic crisis in 2008 does not seem to have influenced the company negatively, but quite the opposite. At that time, most firms were closing business or making cuts in order to survive. The firm Kovář plus s.r.o not just survived, but reached an economic profit after a short period of time (as can be seen in year 2011). This can be explained by the position of the firm on the good wholesale market. The firm became the second largest company in the industry thanks to the

crisis in 2008, which allowed the firm to thrive afterwards. Most competitors were either closed or were not able to compete properly. This gave birth to an oligopoly structure of the market with two big firms running among small businesses.

5.2 NOPAT
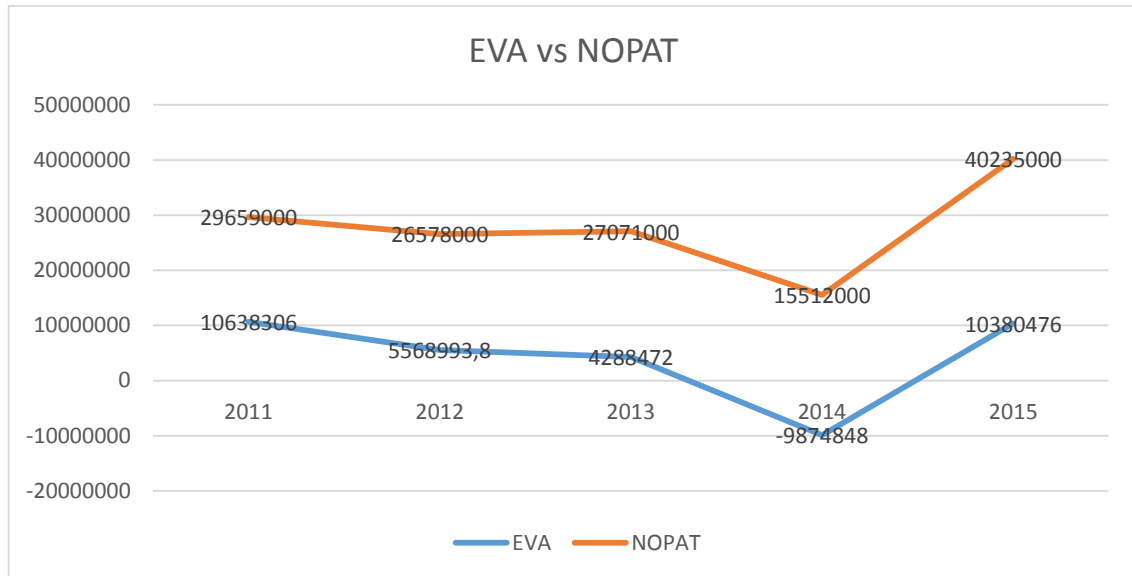
Graph n.3 EVA vs NOPAT

	2011	2012	2013	2014	2015
EVA	10 638 306	5 568 993	4 288 472	-9 874 848	10 380 476
NOPAT	29 659 000	26 578 000	27 071 000	15 512 000	40 235 000

Tab. 21   EVA vs NOPAT

NOPAT shows that the firm has not reached accounting loss during observed period. Obviously, investments made in 2014 were a good decision. Despite the drastic drop in economic profit in 2014 the firm was able to rise back in 2015 and prepare for the future years. However, comparing NOPAT to EVA shows some more facts. From year 2012 to 2015 both NOPAT and EVA correlates together. In year 2011, the firm was able to do the business most effectively. When compared to year 2015, the firm had lower NOPAT but still had higher EVA. The year 2011 is very shortly after the crisis in 2008 and the firm seems to operate as efficiently as possible, minimalizing costs and maximizing the profit. However, over the course of the years, the firm has increased the amount of assets, which also has lead to rising opportunity cost.
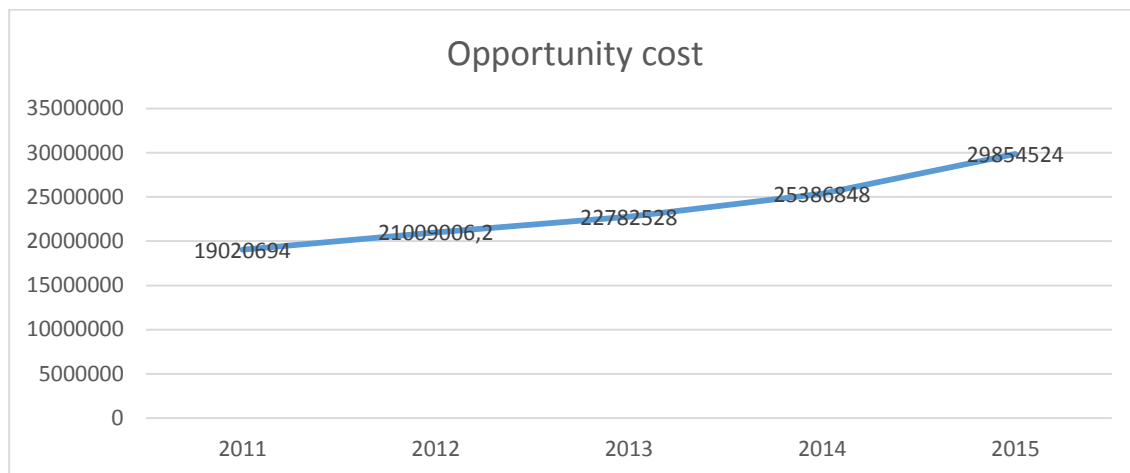
Graph n.4 Opportunity cost

This graph shows that the firm´s opportunity costs are increasing over the years. Opportunity costs are rising due to the firm´s rising assets. The more the company has, the more it costs to work with it. Also, the firm is mostly using its own capital, and as seen during calculation, the cost of equity is higher than cost of debt. Re (equity cost) floated around 10% when Rd (cost of debt) is usually just about 1-3 %. A rising trend is expected in the future because of newly build warehouse increases the amount of firm´s assets. There is no expected market structure change and the firm is using mostly its own capital, which costs more. Rising opportunity cost, which consists of explicit and implicit cost, are caused not only by an increase in assets, but also by the fact that the alternatives, which were sacrificed, can get more expensive. The firm increases assets each year, which is corresponding in increase of opportunity cost. Since the opportunity cost is WACC*NOA, looking at each component, we see that WACC declined between 2011 and 2015 from .1015 to .098, i.e. it fell by approximately 3.5%, which is a small change over years.

On the other hand, the firm's NOA increased from 187 396 000 CZK to 304 638 000CZK (Table 8), i.e. an increase of 63%. It is also possible to conclude from this that the firm took advantage of the lower cost of capital by investing more.

So what this says is that the increase in opportunity cost is coming from greater investments in capital owned by the firm rather than an increase in the market value of that capital in alternative investment.

5.3   Comparison to industry

It is important to compare results of the firm with average values of the firm in the industry. By comparing results, some assumptions can be confirmed (rising trend of opportunity cost, market structure etc.). Information about the food wholesale industry is from the official web page of Ministry of industry and trade (MPO, 2017).

	2011	2012	2013	2014	2015
Economic profit	- 1 275 004	- 936 713	- 616 210	- 1 173 820	- 895 329
NOPAT	5 134 217	5 843 169	6 026 272	6 815 192	7 390 244
Opportunity cost	6 409 221	6 779 882	6 642 482	7 989 012	8 285 573

Tab. 22   Average industry values (CZK)
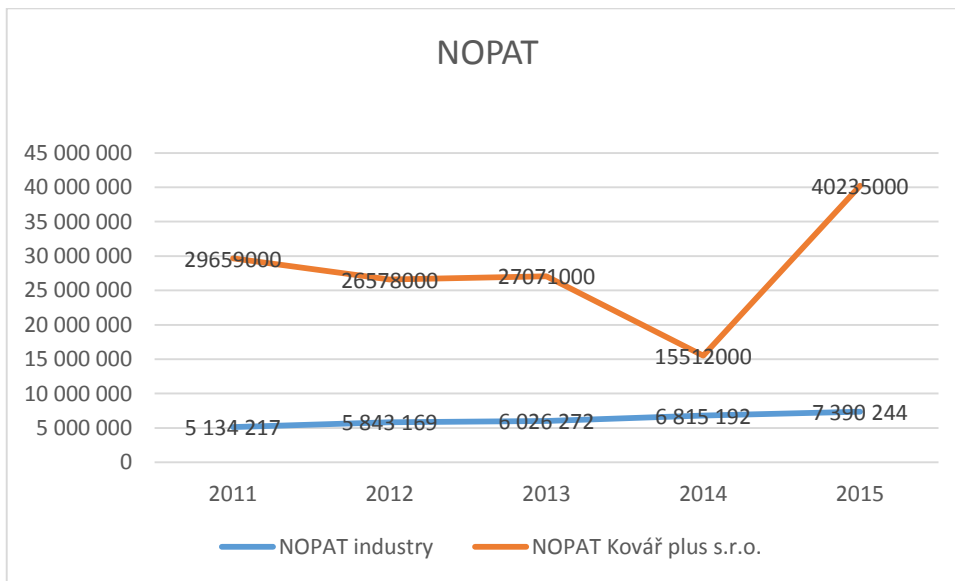
Graph n.5 NOPAT industry vs the firm

This graph compares two different accounting profits. The first one is average net operating profit after tax of firm in the wholesale industry and the second one is net operating profit after tax of the firm Kovář plus s.r.o. This graph confirms that the decisions made in 2014 were responsible for economic loss because the development of the industry´s NOPAT is steady and slow, without any drops. This means that no external forces affecting the firm, but the internal changes were. If there were global external changes, the whole industry would have a drop in 2014. This also confirms the finding mentioned above that the increase in opportunity costs came from the firm's decisions to invest more rather than an increase in the market value of the alternative.
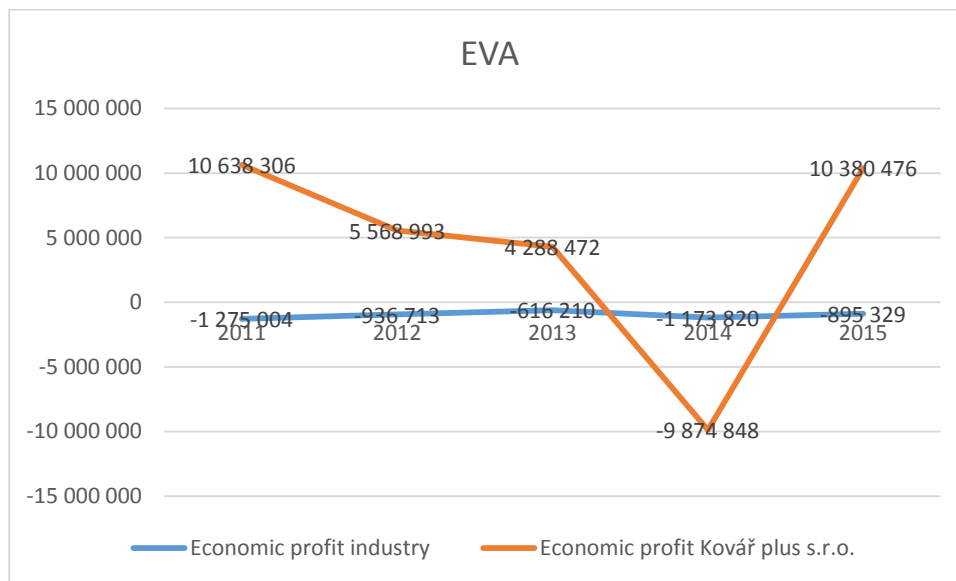
Graph n.6 EVA industry vs the firm

This graph compares the average economic profit of the industry and the firm´s profit. The average EVA of the industry is negative and it floats from – 1 200 000 CZK to – 600 000 CZK. The firm´s EVA, which is higher, rises up to 10 000 000 CZK, except the year 2014. This comparison proves and confirms the fact that the market with food wholesale has an oligopoly structure. It can be seen that the small businesses have a difficult time to state the economic profit, instead of economic loss, while the firm Kovář plus s.r.o. reaches an economic profit every year (except when they decided to invest).   The average EVA of the firm is 4 200 280 CZK for the observed period 2011-2015. Average EVA of the industry is – 979 415 CZK for the same observed period. Firm´s economic profit is not corresponding to the average economic profit of the industry. However, it can be explained by the position of the firm on the market. Big firms are less prone to outer effects due to their strength on the market.

According to PEST analysis, the outer factors affecting the firm are political, economic, socio-cultural and technological. The firm does not consider the political cycle as influential, but the change in taxes might have an effect on the firm. The firm also follows the legislation and the law, therefore the change in these can affect the firm. How much of an impact it would have depends on the change.

Economic factors have a big impact on companies in the industry, but not so much on the observed firm. The Czech economy is stable and growing, the exchange rate is also stable and the globalization effect affects the firm too, however the firm is able to deal with them.

Socio-cultural factors are imporant to the firm as well. The age profile of the Czech Republic says that most people are in age between 20 to 60 (Indexmundi, 2015), which is sufficient for the firm, as most of their customers are adults. The approach of people towards frozen food in modern society is very close and it is not expected to change in the near future.

As for the technological factors, the firm does not require any kind of special technology to have competitive advantage. The wholesale industry is focusd on the product more than the technology used in the process. The competive advantage of the industry is the quality of the food.

6 Conclusion

First of all, profit itself can be understood in a various ways. People usually think that a profit is just a yield minus the cost. However, as was stated in this thesis, profit can be differentiated into accounting and economic. The accounting profit is a statement from the balance sheet, while the economic profit also takes into consideration alternative costs.

Economic profit takes into account hypothetical items which are usually hard to evaluate. This indicator is supposed to mirror the position of the firm in the market, to give the owner insight into the efficiency of the firm, give the owner the idea of opportunity cost and what was lost while choosing the number one option. The firm´s management should have full track of economic profit and opportunity cost, so they can learn, adapt and improve the firm in a direction they desire.

The aim of the thesis was to answer the research question, if the firm reaches an economic profit during an observed period. The observed period was five years long and it was sufficient enough for the purpose of the thesis. To find out the economic profit or loss, the method EVA was used. It is a modern method and it is considered as one of the best current methods for evaluation of the firm. Even though EVA is not an exact calculation, but rather an approximation, it is still considered as a sufficient indicator of economic profit. Once the calculation was done, it was obvious that the firm reached an economic profit, except for an economic loss in one year.

The firm reached an economic profit in years 2011, 2012, 2013 and 2015. Only in one year, 2014, did the firm realize an economic loss. Reasons why the firm reached an economic loss are various, but basically the main factor that influenced the results was the firm´s investment into an expansion. The year 2014 might seem as a bad decision due to the drop in the profit, however as it can be seen that in year 2015, the firm was able to bounce back and reach a strong economic profit. Reasons might be that the firm lowered expenses compared to the previous year, and the firm was able to trade more due to an expansion and was able to increase the revenue. The firm also dominated in the industry. An average economic profit of the firm is bigger than average EVA of the firm in the food wholesale industry. It is caused by the dominance of two major firms on the market. Since the firm was able to reach an economic profit in most years, it means that the firm has chosen the right option. The alternatives which the firm might have considered are not necessary needed, because the firm successfully reached an economic profit.

The firm Kovář plus s.r.o. should strengthen the approach towards the understanding of what a profit is. It is not just an accountant´s statement that is important, but economic profit is. I recommend focusing on economic profit and the future planning, as well as considering other alternatives. For example the firm could invest money into a shares fund, where the annual interest is usually about 6% to 10 %, while considering the risk connected to it. The recommendation to management is to include economic profit and opportunity cost into an annual reports, and adjust the future progress of the firm according to it. Thinking about

other alternatives, and in the end choose what is the best for the business. The firm should also retrospectively analyse the loss in 2014, so when the firm tries to expand in the future, economic profit will not drop that drastically.

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