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THE IMPACT OF HEDGING CONTRACTS IN FIRM VALUE

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With a view of getting the degrees:
Master in Finance and Accounting
Master 120 credits in Management, Major in European Business

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Academic Year *2018-2019*

ABSTRACT

The main aim of this paper is to provide evidence if the hedging technique impacts the firm values in a positive or negative way, does not impact at all or it only has a slightly low impact. The hypothesis will be there is a positive impact of hedging techniques in firm value. Firstly in the study there will be explained the literature review part where will be given what hedging is and the description in details of the different hedging technique used. The most common types of techniques are financial derivatives like contracts, swaps, options etc.. There is done a SWOT analysis of hedging techniques to try to understand better what strength, opportunities, weaknesses and threatens arises from it. It is followed from the part where there are explained the positive and negative impacts of hedging or the advantages and disadvantages. Moreover, at the end of the literature review part it is explained how multinational companies through out the world deal with different risks and how they try to reduce it. The second part of the paper is composed of description of the variables and the test done. It explains the methodology used. The variables that are tested in the text are net sales, market capitalization, income tax expense, financial result, gain or loss from exchange rate and net profit. Based on the result of the study on Porsche case conducted on this paper we can see that the hedging contracts impact the firms in positive way, but the firm value is affected by many other variables as well. The more hedging the company does the more profits it has. The data used in the paper is secondary data.

Key words: hedging, financial derivatives, test, variables, analysis, companies, hypothesis, strategy, risk etc.

ACKNOWELEDGEMENT

I would like to thank all the people who helped and supported me through the long process of writing this thesis. Firstly, I want to thank my family who were there for me the whole time, supporting and motivating me in my good and bad days. After them I would like to thank Mr. Denis Knaepen, who I was very lucky to have him as my supervisor for the advices and corrections that I got from him. At the end I want to focus on all my friends who were a great motivation as well, that helped me to write this master thesis on time.

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1. Introduction

One of the most important concepts in all kinds of businesses, disregarding their size, their form of activity, means of finance and all other characteristics that a business can have, in the finance world is hedging. This importance arises from the need that all kind of firms have to reduce the risk in order to have safer returns. Hedging is not a strategy to make money, moreover it is considered as a technique in order to get the level of risk the company wants while maintaining a negative relationship with the asset or the commodity of the contract. The most common way to perform hedging is through financial derivatives which are numerous and different derivatives can be used in different financial scenarios. The most well known financial derivatives are future and forward contracts, swaps and options. There are a lot of different papers that have written regarding the topic that will be discussed here the effect of hedging contracts into the firm value. Firm value also known as enterprise value is the value that a company has in the market. If a company is about to be sold then the value at which it will be bought by the other party is known as the firm or enterprise value as it takes into consideration all the weaknesses and strengths as a firm. It is known to help the buyer when buying the company as it gives a more accurate value of the company. Usually it is the value used in mergers and acquisitions. By the test performed in this paper, it is trying to add a different point of view to other analyses that have been done so far in order to fulfill more the present gap. There come different papers with different results. Some of the outcomes come as a result of the different papers considering different industries that do not have the same effect by hedging as the commodities or assets hedged comes in different forms so not all of them respond in the same way to the different variables that have been tested, and not all of them have the same result as a outcome of the different thing that is being considered. For example if we take the hedging case in the airplane industry then there is a big

profit from hedging as we know that the price of the fuel is a commodity price that fluctuates a lot. On the other hand if we take the case of the companies that want to hedge translation exposure, there it is shown that the hedging strategy does not have any impact on the firm value or does not affect it enough to be profitable for the company in the future. But there are also different companies that use hedging about the exchange risk, then in those cases there are papers that show that the effect was not high enough or no effect at all based also on different outside effect that could influence the company. Still hedging is affected in different countries from different regimes of taxes and other rules that different states may have. This paper will consider the case of the car manufacturing companies like Porsche that will show if the hedging contracts that this firm uses will increase or decrease the firm value. Based on the company information online this firm makes more profit from the engaging into hedging contracts than from the sale of the cars but still let us see the result that we will have at the end of the paper with our analysis involving the following variables, net sales, market capitalization, income tax expense, financial result, loss or gain from exchange rate and net profit. In our case the Porsche data are taken from a time of 25 years to show a result on the long term. From other papers that test the same hypothesis, there is found that a lot of there are cases in which hedging provides profits and reduces the risk and there are cases that hedging techniques do not affect the firm values and moreover do not increase their value. So, hedging techniques are techniques that depending on the type of the firm and the type of the product, on how volatile the products that are being considered are then the hedging can have a positive impact in the firms value, can have a negative impact, can not have an impact at all or may have a very little impact which is negligible. Below, at the third part of this paper there will be explained the result that is obtained

form out test and also compared to the results that different people have found in their tests as mentioned above.

2. Theory and Hypothesis

2.1 Hedging definition

It has been a lot of years that the financial system is undergoing a lot of changes including here mergers, acquisitions, expansions etc., bringing into the market new and more intensifying competition but also leading to creation of new risks. This new risk is of course not desired from the companies so that is the reason that we use hedging contracts. Companies in order to reduce the risk, that can occur from different actions they take, use this hedging contracts in order to prevent the failures that may follow in the future their actions. Hedging is defined as a technique used to achieve a desired risk level, whereby an organization takes on a negatively correlated position (the hedge) to a currency, held asset or liability. The motivation is to offset losses on one side of the hedge with gains on the other, thus preserving a desired price outcome. Hedging is not a money making strategy but a loss limiting one. [1] The main aim of a hedger is not to make profit but to save the value of the underlying asset. Hedging strategies do not eliminate all the risk as doing so would result in a company with very low profits, but still the company has to decide which risk it wants to mitigate through hedging by considering all the external and internal factors affecting the company. Risk assessment should be done in order to understand which risk the company is more exposed to and sometimes there are natural hedges that exist in the company. The firms should also perform a cost benefit analysis that they can find if hedging is the strategy they need to hedge their risk. Hedging techniques are mostly done through

[1] (Heckiniger & Ruffini, 2005)

financial contracts. Hedging itself its costly including brokerage services, dealing spreads, managing hedging programs etc.. It can be the process of risk transferring but still it comes associated with some risk such as credit risk, settlement risk, basis risk, quantity risk etc.. Hedging is a process that is performed from very important and big companies but also from small institutions, from schools, municipalities etc. as well as from different private entities which do not represent an institution. When deciding on either to hedge or not we should take into consideration three main questions.

Does hedging increase the risk adjusted returns? If so, does the benefit come from higher average returns or lower volatility, or both?

What are the costs of hedging? How do the hedging costs change depending on market conditions?

What are the implementation issues associated with hedging? [2]

Still hedging changes from diversification of the firms as diversification is a portfolio optimization strategy which tries to reduce the potential loss of a company but also tries not to affect the expected returns of that company while hedging is the technique that reduces both the expected return and the expected losses. The trades are negatively correlated with each other opposite from diversification where the portfolio creation is tried to be uncorrelated or minimally correlated.

The perfect hedge is supposed to eliminate the specific risk at a level of 100%. It should be totally negatively correlated to the hedged position while the holding period and other characteristics of the asset and the hedged position should be equivalent. Hedging is done

[2] (Fischer, 2015)

through financial derivative contracts. The derivative like contracts date back in old ages like Babylon, Ancient Greece or Rome, but the derivatives for commodities have been traded only since the 19th century. While the equity derivatives would be traced at the late 19th century. Trading with currency and interest rate derivatives came back in the second half of the 20th century and later we could see advanced forms like credit derivatives, energy and weather ones. The trend of derivatives was increasing but it was interrupted from the financial crisis in 2008 and now it has boomed again. The modern financial derivatives are traded in their markets. The most common types of derivatives are futures and forwards, swaps and options. Usage of derivatives to hedge would be accompanied with different advantages as we explained above and will see more below but, everything comes with its drawbacks so they also have some disadvantages that also affected the financial crisis of 2008. Here will be shown an easy form of hedging of an automobile manufactures that hedges the price of steel which is his raw material in production of automobiles and will be considered both cases when the price of the steel increases after the signing of the contract and also when it decreases. Suppose that this automobile manufacturer enters into a contract with another entity that he has to deliver an agreed number of cars at a specific date in the future, supposedly in six month. Upon agreement the manufacturer has to think about the raw material that he will need to produce the cars and since the agreement with the company is for six months than the manufacturer has to be careful as the price of the raw material he uses may increase but decrease as well. So, to be protected from this kind of risk the manufacturer decides to enter into a hedging contract with the company that produces the steel in order to decide a fix price which he is going to pay for the upcoming six month. By entering this contract the manufacturer reduced his risk and now he is in a safer position for the future in both cases when the price of the steel goes up or down. Now let's take into

consideration the scenarios if the prices of the steel increases and then if the price of the steel decreases.

First scenario is if the price of the steel increases. If the manufacturer did not enter into the hedging contract and the price of the steel increased then for the next six months he would be obligated to buy his raw material at the new price as he has to bind to the contract and produce those car which would be more expensive for him. But, using the hedging contract into which he entered he will not have this loss from the price increase and still get the steel with the old price. So entering the contract was profitable for the manufacturer in this scenario as the risk he assumed to happened, actually happened. In the second case scenario, the price of the raw material would fall. In this case the vice versa happens for the manufacturer as he entered into the hedging contract deciding to buy the good at the actual market price being afraid that the price would rise in the future but actually it felt. He is a risk adverse person and made sure that he did not have a risk in his transaction. The manufacturer made a loss as if he did not enter into the hedging contract then he would have had to pay only the market price after six months which is supposed to be lower than what it is now so he would have made more profit which he did not. In this case the hedging contract was not a profit but still it was an elimination of a potential risk. The hedging techniques that is explained above is one of the easiest and most common one just to create an idea of what hedging is and how it is used in real life from different parties. There are different types of hedging techniques which are more complex and are performed in different forms that will be explained below how they are used and the cases in which they are used. Hedging techniques are used for all kind of commodities including different goods and products such as food and other manufacturer goods. It is used for different kind of assets between companies. It is used to fix different exchange rates that may fluctuate a lot. It is also used

for weather and many other everyday life cases when we want to hedge the risk and be safer and more secure on the investment or the action that we are undertaking.

2.2 Role of hedging in the firms

Hedging plays an important role in firm's value. Firm value is considered to be the economic value of a company. This kind of economic measure will reflect the whole value of the business in the market that includes the value being assigned to the shareholder and the debt holders. The firm value is not only what you can pay for that business as a price. In includes its structure, terms, policies etc.. In the current financial theories, Pandey (2009) say that there are different methods that can calculate the value of a firm. The most common method used is known as Net Present Value (NPV). Still this is not the reason that the same firm can have different value, it does not depend on the valuation method that is used. This happens because of different payment terms, operating assumptions, deal structures etc.. In order to have the present value of the company this method discounts the present and the future cash flows of this company. The discount rate is defined as the rate of return in the market in an average investment, that has the risk present same as the investment that we are taking into consideration under the NPV method. Damodaran (2006) said that firm value is a crucial factor for every company stakeholders, as it is a very important factor in making decisions for creation of the wealth. The main determinants of the firm value are leverage, profitability, risk management, growth options firm size as well as financial constrains. One case that will be explained in this section is the southwest airlines company, from the airline industry by hedging the fuel price. Scot Topping, the director of corporate finance for Southwest airlines, said that it is their duty to hedge the fuel price as if they do not do so then they are speculating. Regarding the industry the airlines industry main costs are labor force and fuel price. The Southwest airlines company started as a small enterprise and

by putting the costumer needs first they managed to become the top four company in the USA. Looking at the trend of the fuel prices in the past it is observed that there is a rising trend for a long time. This would lead in entering in different hedging techniques from the companies so they can reduce their future risk. The main reason why fuel hedging is done in this industry is that because of the high competition between companies in the cases that the price of the fuel keeps increasing they can not just transfer this cost to the ticket price and increase the prices because as mentioned above the high competition will not allow this as the people will immediately switch to the company which did not increase the prices because of this reason. As Southwest company hedged the fuel prices in order not to increase the price of the fuel the US Airways company did not hedge. This resulted in a net loss of $88 million that would have turned into a profit of $38 million if the price of the fuel did not rise or if the company entered into a hedging contract. This is a perfect example on how important hedging contracts are in the firms value. In this industry the use of derivative instruments was adopted in 1989 and is done on crude oil, heating oil or jet fuel. This happens for two reasons. Firstly because these products are considered to be part of the same group which means there their prices are positively correlated so if there is an increase in one of those products price there is also an increase in the fuel price. The second reason is because the fuel is not a sufficiently liquid market to warrant exchange traded contract so, there are used the fuel contracts which are arranged in the over the counter market. Nevertheless, there is some risk present. It is known as basis risk which happens in case these goods that are positively correlated change and do not have the same relationship anymore. It is the risk accompanied with the hedging contracts. In a perfect hedging situation there are no basis risk present that could risk the future of the company. The hedging contracts used in airline industry that are more common are plain vanilla swap, differential swaps and basis risks, call

options, collars, including zero-cost and premium collars and future and forward contracts. This is what we think if we only got the information from a specific industry, but what about if we will look in different industries and in hedging in general, will there be still the same opinion that hedging increases the firm value? Modigliani – Miller theorem states that hedging techniques do not have any effect on the firm value so they do not add any value on it, in cases of perfect financial markets. The cases of a perfect financial market are when there are no taxes or transaction costs, no asymmetric information as well. In real world this does not happen as the assumptions of the perfect financial markets do no hold and usually they are violated. Mogliani and Miller proved on 1958 that the risk is irrelevant and it does not have impact on the firm value. But Giggy and Dufey on 1992 suggested there are different groups of companies regarding the way how they deal with the risks that are exposed. There are some companies that are fully informed on the type of risk that they face but do not have the information for the methods to reduce this risk. There is another group of companies that hedge only some of the risk that is present. In addition, there is also that group of companies that think that hedging does not add value to the firm and think that the shareholders can individually hedge their risk. There are firms that do not enter into contracts but use natural hedging that means that the firm can reduce its risk by its operational techniques. On the other hand many other studies from Allayanis and Weston (2001)(using the sample of some American firms) and Kisaka and Waweru (2009) showed the vice versa that the risk management has an impact on the firms value. Rossi (2002) could find from his research that a shift in the Brazilian companies from the fixed exchange regime to the floating one as they started using derivatives to deal with the risk that they exposed from the foreign exchange. On 2004 while studying some Swedish companies Hagelin found out that there is an increase in the firms value from the hedging contracts. While

on the same year Pramborg agreed with Hagelin by having the same outcome for the companies that hedge for transaction exposure but the opposite, that it does not have any effect, for the companies that hedge for translation exposure. [3] Jim and Jorion on 2004 found that the impact of the hedging is almost significant when they were analyzing American oil and gas companies. On the same year Look Man while considering oil and gas producers again showed that the hedging contract have an impact in case the risk is secondary risk and in the case that this risk is the primary risk of the company hedging would have a negative impact. Smithson (2005) stated that a study provide binding facts that the use of the hedging derivatives increases the share value in a firm, but if it adds value in total depends on the type of risk that the company is exposed to. While Clark would state in 2006 that he did not find any impact on firm value from the currency derivatives. Moreover Dhanani on 2007 suggested that the effect of the hedging contracts depends based on the country as it is also affected by the tax regimes and the regulatory rules that the respective countries have. Bartram, Brown and Fehle (2009) suggest that the variability of the firm value can be smoothly affected from hedging process. In 2010 Fauver and Naranjo suggested that there is a negative relationship between hedging contracts and the companies that have a weak corporate governance. On 2011 Abiero could find that the hedging strategies have an impact on the firm value but it all depends on the type of hedging that has been used, not all of them add value to the company. In 2013 Judge summarized the outcome of 15 studies. In most of the studies there was a really low support of the relation between hedging contracts and the taxes system of the country, more specifically only two out of fifteen studies showed that there is a significant relationship between the hedging contracts and taxing system. There was also a low support of the managers risk aversion and presence of costs of bankruptcy related to the

[3] Accounting exposure comes the need to restate foreign subsidiaries financial Statement into the parents reporting currency.

derivatives. It was confirmed from half of the studies that there is a relationship between the use of financial derivatives and the growth opportunities. Important determinants of the derivative use were found from the volatility of the cash flow in foreign currency. As we can see most of the results that come as an effect of conducting different test in order to see if managing the risk through hedging has an impact on the firms value comes with different results. Some of them suggest that hedging has a positive impact on the firm value and some other ones would suggest the opposite of the above mentioned suggestion. Here arises the hypothesis that will be proved in the other section. There is a positive relationship between hedging contracts and the firm value. The hypothesis will help also the firms on their policy making for example the companies that never considered the financial management risk as a competitive advantage, they can have more light on how to increase the wealth of the shareholders regarding to that risk. The firms can also get affected from the hedging process and also have the chance to decide which of this hedging process is best for them.

2.3 Types of hedging and their strategies

As explained above there are different strategies that are used in hedging process. This strategies consist in different types of contracts that the parties enter in order to have a safer transaction in the future. In this section will be explained the main types of hedging contracts used. Hedging techniques can be used in different areas such as for commodities, securities, currencies, interest rates, etc.. In commodities there are included different products as agricultural products, metals etc., and the risk associated with this is known as Commodity Risk. In securities there are included different investments in shares, equities etc., and this risk is

known as Equity or Security Risk. In currencies it is known as Currency or Volatile Risk and it includes the risk that is present in different types of currencies. In interest rates the risk is known as Interest Rate Risk and it is related to the risk that is present in lending and borrowing rates. The main tools hedge are financial instruments. There are different kinds of financial instruments such as derivatives, options, swaps etc.. This can be classified in different groups according to their market such as over the counter (OTC) or exchange traded. Over the counter derivatives are contracts traded directly between two parties without going through an exchange or intermediary. It is the largest market for derivatives and it is highly unregulated with respect to disclosure of information between parties. Exchange trade derivatives are traded via specialized derivatives exchange or other intermediaries. A derivative exchange is a market that individuals trade standardized contracts that have been defined by the exchange. It acts as an intermediary between all related transactions and takes initial margins from both sides to act as a guarantor. The main derivatives traded over the counter are foreign exchange contracts and interest rate contracts. In foreign exchange contracts are included foreign exchange forward, foreign exchange swaps such as currency swaps, credit default swaps etc. and in interest rate contracts are included forward rate agreement (FRA), interest rate options (IRS) , interest rate swaps etc.. Equity and commodity derivatives are traded in organized markets. Credit derivatives are traded in OTC market but now there are new initiatives for them to be introduced in organized markets. Interest rate derivatives are traded in both markets. Foreign exchange future and foreign exchange option are traded in organized exchanges. Below will be explained the main types of financial instruments and the strategy used to hedge. Firstly, we will start with a forward contract which is a private legal agreement that takes place between two parties that decide the date and price at which a seller is going to buy a commodity, metal, oil or other good. It is not a

standardized contract and they are private between parties. Since they are private agreements then the terms of the contract can change from one another depending on what the buyer and the seller wants. The settlement of the forward contract is at the end of this contract. This is used by hedgers as a way to reduce the risk present. Anyway still the seller has two main risks. First one if he will produce enough the cover the amount that is agreed in the contract with the buyer. The second one is the risk that the price increases from the moment of signing the contract so he may lose. When instead of commodities, metals, oil or other goods the parties enter for deciding on the exchange rate that will be decided for a future transaction in different currencies it is known as foreign exchange forward. Secondly, forward contract will be followed by future contract which is a private legal agreement that takes place between two parties that decide the date and price at which a seller is going to buy a commodity, metal, oil or other good. Opposite to forward contracts it is a standardized contracts and they are traded over the counter. It is settled daily and it has a range of delivery dates. The contract is usually closed before its maturity. It is supposed to be safer than the forward contracts as it is more regulated so there is virtually no credit risk. Same as in forward contracts, when instead of commodities, metals, oil or other goods the parties enter for deciding on the exchange rate that will be decided for a future transaction in different currencies it is known as foreign exchange future. The above mentioned kind of contracts will be followed by swaps. Swap means exchanging one thing for another. In our case we would mostly deal with exchanges of interest rates and it is known as interest rate swap. The companies would exchange the interest rate so at the end their cost of borrowing money decreases. A company would borrow an amount of money from one bank and another company from another bank would borrow the same amount of money. Suppose that the first company wants to pay a floating rate the second one a fixed rate but from the offers they get from their respective banks, both of

the companies end up paying the type of interest rate that they did not want. The first company is paying fixed rate and the second one floating rate. Then by using swap banks the companies can exchange the interest rates and pay what they firstly wanted to pay at a lower cost from what the banks offered them so they could be also making a profit even though they are still paying what they firstly agreed to their banks. The swap bank profits from the difference in the interest rate that is gets from and pays to the companies. Fixed payment of the swap is called fixed leg and floating payment is known as floating leg. Another type of swap is known as foreign exchange swap which has two legs as it has two transactions. It happens between two parties that first a specific amount of currency is agreed to be bought or sold at a fixed rate known as the spot rate and then this amount is bought or sold again at another point in the future on another rate known as forward rate. In addition to the two above mentioned swaps there is also currency swap which is a type of contract where there is an exchange of amount of money of a party in a specific currency to another party in another currency. It is an agreement in order to exchange the currencies. The payment is made of the interest rate and the principle. For example, if there is a company in EU that needs to borrow dollars and a company in USA that needs to borrow euro, then they borrow from each other. The interest rate that may be fixed or floating and the maturity date are set at the beginning. This kind of swap helps to low the exposure toward the foreign exchange risk. In addition there are credit default swaps that are financial contracts where a buyer of a corporate or sovereign debt in the forms of bonds tries to reduce possible loss that can come as a result of the issuer not meeting the obligations. In other words it is a type of insurance against default risk. In case this happens the buyer receives the face value of the bond or loan from the protection and from the seller perspective the credit default swap provides a source of easy money. For example if a pension fund has an amount of money to invest, they should invest

in super safe companies (A or higher rating) as it is the money of other people. But if we suppose that there is a company that is not rated from rating agencies as really safe ones then the pension funds can still invest in here and a get their percentage of return. Here credit default swap get a fixed part of this percentage that the pension fund get back from that company. In case the company can not pay anymore back then the credit default swaps are paying the remaining part so the pension fund are secure they get the money back. Contract between two parties is known as protection buyer or protection seller. Another type of financial contract used to hedge is Forward agreement contracts (FRA). It is an over the counter contract. Forward Rate Agreement is entered between two counterparties in which one of them is borrowing an amount of money and the other one is lending. The main aim is to set a fix interest rate to be safer from the interest rate fluctuations. The parties enter into a contract before the settlement date and then there is a settlement date and maturity date where is decided the duration of the contract. Buyer of the FRA will be protected from the rise of the interest rate and the seller of the FRA will be protected from the fall of the interest rate. In case of the rise of interest rate the buyer will pay the difference of the amount of money calculated from the differences between settled interest rate and the actual one. In case of the fall of the interest rate the vice versa will happen, the seller will pay the difference. They are off balance sheet instruments. Another main class of financial derivatives that act as a hedging technique are options. They give the right to the buyer but not the obligation, to buy underlying assets at a certain price and at a certain date as well as before this date. The certain price decided in the option is known as strike price. The certain date is known as exercise date. There are two forms of options call and put option. Call option called call will give the right to buy an asset to the buyer while put option called put will give the right to sell an asset to the seller. In both cases it only gives them the right but not the obligation.

Investors buy call option when they think that the price will rise and sell when they think that the price will fall. It is the vice versa for the put options. Investors buy if they think that the price will fall and sell it if they think that the price will rise. When the owner buys an option has the right to either sell that option to someone else, let it expire or exercise it. The amount that the buyer of the option pays to the seller is known as premium. There are the so called American and European options. The different between them is that the American options allow their owner to exercise the option prior to the expiration that it has while the European option does not give this right to its owner. It only allows its owner to exercise the option at its expiration. A common type of option is the interest rate option. Interest rate options are options on the spot yield of U.S. treasury securities.[4] They are settled in cash. They are European style exercise which means can only be exercised at expiration in order to eliminate the risk or early exercise and to simplify the investment decisions. Available to meet the investors need are options on the short, medium and long term rate. Hedging cal also be done through cross hedging which is an investment strategy that involves taking a position on a commodity followed by an usual but opposite future position on a different commodity with similar price movements. Price movements of two commodities are closely negatively correlated. A negative movement of the price of a present commodity should be offset by a positive movement on a future opposite position and vice versa. It is often used in the kind of markets that there is no viable form of future market for presently owned commodity. [5]

[4] (Exchange, 2000)
[5] (The free dictionary , 2012)

2.4 SWOT analysis of hedging contracts

As mentioned above hedging contracts that are performed from different techniques have an important role in the firms. Still, as everything else it has both sides of the medals. The hedging contracts can have a positive impact but also a negative one so indeed it can bring advantages as well as disadvantages for the company. Starting from the easiest form of hedging by forward or future contracts we know that it has huge positive aspect from the perspective of the buyer as well as from the perspective of the seller. The positive impact of hedging is that if you are from the buyer side no matter how the production for the seller goes he has to bind to the contract so as a buyer you will have your product and also if there are big market fluctuations that the price of the good increases a lot you still buy it at the agreed price in the contract. From the seller side the positive impact is that even if there is not demand in the market your goods are sold as the buyer entered the contract so he has to bind to it and even if the price falls still the seller will get the amount of money agreed on the contract so it is in his advantage. On the other hand it can also be the opposite, in which case all the above mentioned scenarios go the other direction where for the buyer the price of the good decreases a lot due to fluctuations and he still has to bind the contract so he will buy the good at the predetermined higher price and for the seller as well if the price increases he makes a loss because he will have to sell it at the predetermined price even though he could have made more profit by selling it at the moment price. Another point in which hedging contracts are really important and have a positive impact is on the firms that deal with the foreign currencies. They can hedge the currency so there is no risk present in their company from the fluctuations of the exchange rates between different currencies. There is also present the negative effect of this as well in case the rates change in favor of the company so the company makes a loss because it has to bind to the contract where

the rate was fixed. Still we can say that over the long run the impact of currency hedging is not huge.

Below there will be performed a SWOT analysis of hedging that is an analysis showing the strength, weaknesses, opportunities and threatens of hedging. Starting with the strength of hedging we can say that an advantage that the investor can get by hedging with derivatives it that is gives the opportunity to the entities to make earnings that could not be done on normal basis or only if any case that they could pay a really high cost about that. Furthermore, derivatives in hedging make the asset market more efficient. They provide information to the market in different forms. For example there are a lot of countries in which swaps are the tools that provide the reliable information about the long term interest rates. In addition, credit swaps are a hedging tool to reduce the credit risk that may be found in many portfolios, insurance companies, banks etc.. The growth of the credit derivatives market shows perfectly how efficient this form of hedging is in helping to manage the risk and to transfer it to the entities that can best deal with it. Different observes of this phenomena came to conclusions that the hedge of the credit risk has helped a lot also during big banks during recessions like in 2001to not have major problems. Also, when major bankruptcies like Enron and WorldCom shake the financial markets in the USA that ended up with a lot of looses credit derivatives helped for the price estimation. In addition, hedging allows you to be flexible as there are a huge number of strategies that can be combined. On the other hand there are also some looses and weaknesses that arise from hedging. We can firstly say that some of the hedges are quite complex and hard. Secondly, there are cases when the market does not fluctuate a lot remaining neutral and this results in hedging contracts to be costly as they have to consider the upfront cost. In the case it is an addition to the costs that the company already has or will be reduced from the profits that the company makes.

Thirdly, some of the derivatives used for hedging can bring new risks such as legal risk. Fourthly, it is supposed that the derivatives make the market more efficient as mentioned above but it is also thought that they allow speculation to be constructed so they also have the opposite effect as well. Fifthly, investors are distressed that derivatives may be undervalued as some of the results coming from the evaluation formulas that are being used are different from the real result that the market has. There are also a lot of opportunities that we can use from hedging. Hedging can be used to take tax benefits. As we explained above hedging techniques help investors to protect both the rise and the fall of the prices as well as to reduce risk. Except of looking at this as only an advantage we can use this as an opportunity. Another opportunity that we can take is that nowadays online trading is very developed and popular. We can use it as a very good possibility to get the prices on real time and this would also allow us to perform the transactions faster. Expanding more the market is an opportunity that should be taken advantage of as it is not difficult to be done considering the load of information we can get for hedging from different types of derivatives that is accessible very easily, giving the chance to everyone to get more informed. On the other hand using hedging also presents threatens. The derivatives market can cause an uncontrolled event because of interconnecting the financial markets. This would bring a major financial crisis. Threats can also be of a different form like political, socio cultural, technological and from different influencing events which we can not control. Political factors can make it way easier but they can create a lot of barriers and trade restrictions as well. Economical factors affect on the purchasing power of traders as the amount of investments that occur depend on the wealth. Socio cultural effect is from personal economical situation and also different trends of the moment. Technological effects like innovation and development can influence trading a lot. Environmental events which do not depend on us like

earthquakes, a lot of rain during a season may cause lack of production of a specific good that ends in problems for the seller who entered into a contract. Wars as well have a huge impact as price of commodities produced from the countries in wars changes when the country is in war then in normal condition. So as we can see from all examples taken above the main advantage of hedging contracts is reducing the risk which in every case even if there is a big company or just a private entity still is very important and advantageous. But still reducing this risk can cause you to miss some opportunities. There are some weaknesses that backwards a bit the process but still we should take advantage of the opportunities present with taking considering threatens as well.

2.5 Multinational companies risk management

Multinational corporation is known as a large company that controls and also owns the production of goods and services that this company provides on more than one country except the home country. The activities that the multinational corporations perform in all of its branches are controlled from the parent company. From multinationals there can be imports and exports from the goods and services that are produced. They help the country where the branch is open in an economic way as they will make an significant investment there which means they will also pay some taxes, give salary to some people who are working there etc.. They can buy or sell the licenses in foreign markets where they wither sell their license to another company or buy the license of another company to perform its activity in that specific country. They also can enter into contract manufacturing that is the company signs a contract with another company which performs in the foreign market that our company wants to open its brand. The firm in the foreign market from the contracts sign gets the permission to produce our company's goods in its country. The multinationals have to deal with the political, economical, social, environmental,

cultural etc. effects of the country that they decide to invest as they may have different big impacts on the operations and well going of the brands. Political risk consist of shaping all the legal environment, the relations with government, the geo politics problems, to regulate different relationships etc.. Chief Executive Officer (CEO) is the person who is responsible for the well going of this type of issues, no matter if the company is a global level or if it is expanded to one or more countries except the home country. Another important factor of multinationals effect on business are the taxes that different countries impose on businesses that operate in their territory. Firms should be careful to avoid double taxation but also not to perform tax evasion. The firm should be also careful regarding the technological risk that it will face in the new environment, and deciding how they will impose different technologies that can be there on the new decision making process that they will have for the new branch. They should manage the threats to the automated systems and if the company decides to grow in the technology sector and implement technology techniques that it never used before then it will have to face the change that will happen in the production cycle and the related differences that it can have in energy use as well as in different costs. They have different contracts and arrangements with the country they are investing into for different factors in order to make their operations easier. Except arranging the above mentioned details the company also has to deal with different risks that it will face in the new environment. The company should also deal with the different policies that the new country in which is being invested may have in accordance or not with the Corporate Social Responsibility CSR values of the company. Since they are investing in another country the most common type of risk that they can face will be the currency risk and different companies choose different methods to spread this risk to entities that can better handle it. A lot of companies use hedging techniques in order to hedge the risk present. Financial executives list the risk

management as one of the most important objectives of a company. From all the risks mentioned above we will focus more on the economic risk which except the currency risk also includes the risk of being a business, if it will have enough profits to operate and be successful, to support the economic growth of the company, to protect the different investments they made and also to protect the shareholder value from different fluctuations that can occur in the market. Chief financial officer (CFO) is the person responsible for the potential economic risk. Going back to the currency risk we can see how multinational companies deal with it and when they think it is better to hedge and which form of hedge to use. In the case that this companies do not have the possibility to finance themselves through external sources or this sources are too expensive for them then they choose to finance themselves through funds generated internally and this is the typical case that generally is a benefit from using hedging. In this case hedging is said to add value to the firm as it gives to the firm the opportunity to invest in attractive investments. As multinationals they perform sales and also they have production places in different countries. Furthermore, the goods that are produced in any of the locations the company has can be used either for being used in the domestic market of the country of production or for being shipped to worldwide markets. This is a complication for the usage of the hedging. Multinationals can always invest in two or more locations, where the home company is and where the branches are located. The presence of different currencies would lead to the usage of hedging but still here are different case scenarios in the different currencies present that can lead to different types of derivatives being used to hedge. The first scenario is when both cost and revenues that arise from foreign operations have a high exposure of the exchange rate. There is the second case scenario where the is no foreign exchange exposure for either foreign or domestic revenues but there is a high exposure of the exchange rate from the costs of foreign investment. The third case scenario,

is the opposite of the second case scenario. It is the case that there is exchange rate exposure for the foreign revenues but there is no foreign exchange rate exposure for the foreign or the domestic costs. Also for multinationals the hedging process does not completely hedge the risk. There is still some sources of risk from the market. In case that there is a positive correlation between their cash flow and the future investment opportunities then the firms will want to hedge less as they are more secure and the vice versa will happen if there is a very high correlation between cash flows and collateral values. Considering here the ability of collateral values to raise external finance. In multinational companies the hedging strategy will depend on a number of different factors. Optimal hedging strategy that is more efficient for the firm is firstly decided from the type of the product the company trades or produces and depending on its competition as well and also it depends from what hedging strategies did the competitors of the company choose. Then, we consider the exchange rate exposure of both revenues and costs of the foreign investment exchange rate. There are also some special occasions where the company would prefer to hedge so they can have a fixed rate decided on a specific number of investments in the foreign countries that the company operates. Being a multinational company requires from the companies innovation so they can fit in the new environment by firstly understanding the risk and then creating risk management systems that will help the company. This risk management systems should include CSR projects in them. The first step is to identify the risk and the second one is to decide on the best strategy how this risk can be eliminated.

3. Data and Methodology

Porsche

‘‘In the beginning I looked around and could not find quite the car I dreamed of, so I decided to build it myself’’ (Porsche company) is what Ferry Porsche declared, the man who created the very first sport cars of the company. He tried to fit in together on the same car what he was looking for in a car, that he created the brand, the company and the automotive manufacturer which is very famous and successful worldwide today. The principle that they used to be what they are in today’s market, known as Porsche principle, is to get the most out of everything. From the first car produced until now they always have sought on how to achieve the maximum outcome from the minimum input used. Their confidence is based on how they never forget who they are and how and where it all started. Porsche company is a successful firm that operates in the manufacturing sector. Going back to the firm history when its first car model 356 was firstly created on 1940s by Ferry Porsche, the son of Ferdinand Porsche, in Austria. This is known as the first car produced by Porsche company because it was the only one sold and created only by this company. Ferdinand had created Volkswagen Beetle on 1931 on Stuttgart which is known as the location of the Porsche company. He was the chairman of the board of management of Volkswagen, position which he lost after World War 2 and went to jail. This is the time Ferry created the 356 car that was certified on 1948. The logo of the company was created inspired form the coat of arms of the free people state of Wurttemberg. In 1964 the company lunched Porsche 911. In 1972 Ferry Porsche decided to change the company legal form from limited partnership to public limited company. He was inspired from the Honda company that has the policy no members of the family are part of the company. So, Ferry created an executive board

that he excluded all the family members from and created a supervisory board that the family members were part of. From this transformation some of the family members left the company. The first CEO of the company was Ernst Fuhrmann. Porsche created a memorandum in order to learn from Toyota, using the Japanese manufacturing methods on 1990, but later on 2014 Toyota was helping Porsche with the hybrid energy. The nephew of Ferdinand Porsche was holding the second biggest amount of share in the company with 12.8% voting shares through the time he was a CEO of Volkswagen group from 1993 to 2002. In 2002 Porsche company introduced its SUV cars, Cayenne which has a huge success. After a lot of years of Boxster and Cayenne being the leader of the market in terms of sales on the mid 2006 the 911 Porsche took the leading role in the market as the best seller car of Porsche company in North America. It still continues to maintain its position even nowadays. In North America, on May 2011 the company decided that will relocate the headquarters from Sandy Springs in Atlanta to Aerotropolis Atlanta, which would have a cost of 80$ - $100 million but it also would receive from economic incentives $15 million. On October 2017 the company of Porsche in North America launched a new product which was known as Porsche Passport, that would allow the costumers to subscribe to the products instead of just renting or owning the vehicle of their company.
Apart from the interesting history Porsche company is very focused also on other fields that make it one of the leading automobiles companies in the huge markets like North America, Europe etc.. Being the most profitable automobiles company in the world it has to focus also on innovation, design, functionality, performance, everyday usability, exclusiveness, strategy and sustainability. Innovation is very important for the company especially for the sport cars. It is known that this cars aim is to drive faster but this is a thing which is already known. The company seeks for something in order to be special. The innovative engineering that the

company has, helps it to innovate new ways on how this sport cars can drive faster a kilometer. Design is another very important feature of each car. People choose a product that they buy also on how nice it is to be seen. Porsche has this amazing characteristic, they are recognizable immediately if you see them because of the design that they have. Starting from their special roofline, the cars wings and the shoulders of the car which are very powerful. This are characteristics that these cars have been using for more than 60 years, but they are only being changed and redesigned and reinterpreted for the time period in which these cars are being produced. The main important factor that a Porsche car should have apart from innovation and design is its functionality. A car can have a great design but if it does not function well then that is not what you need. A Porsche car always want to have its functionality on top in order to lead on the market and it is proved through different tests done to the car. When this feature is right then the car can genuinely be a Porsche one and beside this then the design that is has can just increase its value and be a bonus. Since 1948 this company has been producing sport cars, not being important the characteristics of a car like number of doors or type of petroleum or engines used. Its performance is crucial. The amount of liters that the car spends per 100 kilometers and how it performs, the quality of the motors used in production of vehicles which make the way they perform is fundamental about the company. In 1950, the people's using 356 car model motto was, 'Race on Sunday, drive on Monday'. If a user of 356 would race that he/she would have gotten the first place with that car, but also if on the next days they wanted to drive normally to just go to work or school then this car could still be the perfect fit. Also it is known as a car that can be used on every day as well as on every type of weather condition, so it is useful for all kind of days and people. In addition being exclusive is an important factor of every company. It adds to the cars more value as it is exclusive for the costumer. Everything in the car

is cut, paint, polish, adjust etc. with a high level of care in order to create a perfect car for the costumer. Another important feature of the company is that is socially acceptable. People prefer Porsche considering also the sales of the company, in addition to all of the design and innovation features. This is the kind of biggest motivation that a company can get, when the costumers prefer the product and continue to buy it and socially accept it. Another important feature of the company is being socially responsible. Being efficiently productive, developing more, having a higher number of sales of course are some of the main aspect of the strategy of the company but not the only important ones. For Porsche company is very important that while achieving its goal to also try to help the environment and to be responsible for the pollution it makes. Being responsible is not enough, it also tries to take measures in order to reduce the pollution that it makes to the nature by different forms in order to be as much eco friendly as possible. Firstly the company tries to use for its sport cars the resource efficient mobility and be a more sustainable automobile manufacturer. Furthermore technology leadership is very important to the company. Porsche company tries to also prove through their operations that being efficient company and being an sustainable firm, so not cross each other but can go very well with each other in the favor of the company and of the nature. The strategy for the company on 2025 is to still continue and improve the sport cars. They will try to maintain the value that the history showed that this company has but meanwhile that will still try to be as much sustainable as possible, using the best technology that they can. The main objective of the company will remain the profit growing. To all the valuable features of the company it is also added the compliance where every single person working in the company will give his/her contribution on daily basis including board members, members of managing bodies, manages and employees. Another important aspect of the company is the shareholder structure and the corporate governance. The company has an

executive board which members are, the chairman of the executive board who is also the chief financial officer (CFO), legal affair and compliance manager as well as the investment manager. On the other hand the supervisory board is composed of the chairman, deputy chairman, an entrepreneur, the chief executive officer of BBDO group Germany GmbH, attorney at law, A member of the shareholders' committee of Henkel AG & Co. KGaA, two other entrepreneurs, investment manager and a member of the supervisory boards of German listed companies and of controlling bodies of foreign companies. Porsche Automobile Holding SE holds about 53.1% of the ordinary shares of the Volkswagen company, a subscribed shares of 31.3%. In addition it holds 100% of the PTV Planung Transport Verkehr AG, which is located in Germany and it provides the service of traffic planning, management and transport logistics as well. In addition, Porsche company has minority percentage of the INRIX company located in Washington USA. Furthermore, the company has stakes in two 3D printing specialists companies which are Markforged Inc. located in Massachusetts USA and Seurat Technologies in Massachusetts USA as well. Except the above mentioned companies in which Porsche has shares, in the future investment strategy, it also want to acquire companies that are related to the automotive industry and that show growth potential considering the macroeconomic factors. Regarding the governance of the company, it is controlled form the Porsche and the Piech family. The company has ordinary and preferred shares. Ordinary shares hold all voting rights and are hold from both of the families while the preferred shares participate only in the profit and they are publicly traded to institutional investors in USA, Germany and UK. 14% of this shares are hold from both the families. They compensate the management based on profit that the company has from year to year and not from the share price.

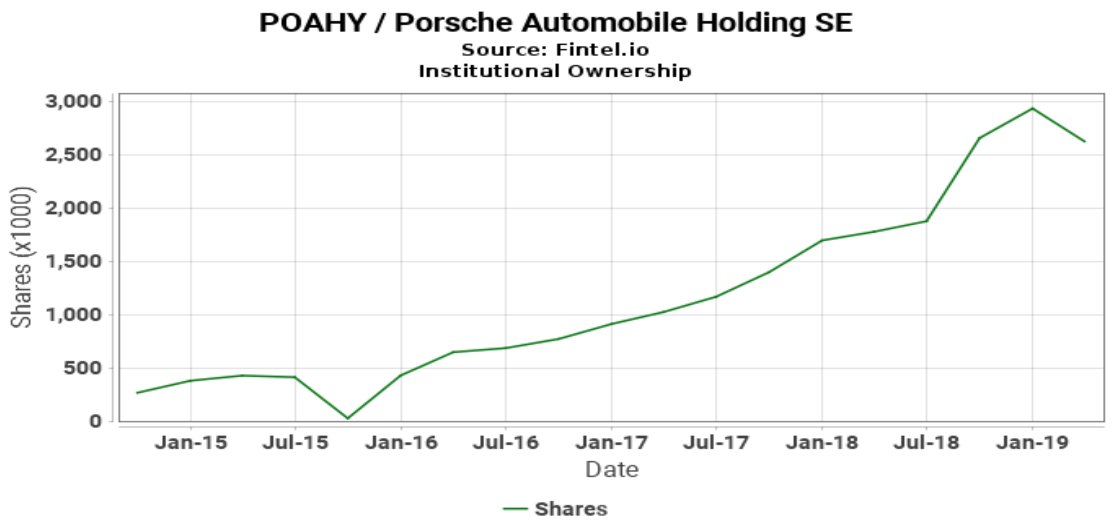

Figure 1 Source: Porsche Automobile Holding SE

As seen from the figure the number of shares has decreased on October 2015 and then it has an increasing trend until January 2019 when it started decreasing again. The company manufacture and assembly are located in Germany, Finland and Slovakia. All of its costs are in Euro. It sells 42% in the North America market but there is no production in that market. The company gets a lot of cash inflow in different currencies but it has involved itself in different hedging contracts in order to eliminate the currency risks. It uses financial derivatives in order to cover all of the risk to which it is exposed. The company would also report under the German accounting standard which was known for lack of transparence.

Nowadays Porsche creates a lot of cars but it has three main models of fast cars which are: the 911 Carrera, the Boxster, the Cayman and also a sport SUV which is known as Cayenne. The company was also rewarded as the most prestigious automobile brand. Porsche company is said to have most of its profits from entering into hedging contracts than from the selling of the cars. This would make this company an ideal case to prove the hypothesis of the paper, the effect of hedging contracts into the firm value.

After having the information on the company that will be tested in this section will be explained the data and the methodology that will be used. Furthermore, there will be described the research method that I will use in order to test the hypothesis. After having explained the data, in the methodology part there will be performed the regressions which that will be used to test the hypothesis.

3.1 Data

For testing the hypothesis, I have taken into consideration the Porsche case. I am testing six variables to understand if there is a positive relationship between the hedging contracts and the firm value. I will be using sales, market capitalization, income tax expense, financial result, loss or gain from exchange rate and net profit. The data will be taken from a time range of 25 years, starting from 1994 to 2018, thus leading to a number of 25 observations. The main source of collecting the data that I used are Bloomberg and financial statements of the company. There are three main reason why I choose Porsche company to test and why I also choose only one company. The first reason is the Porsche company is one of the companies that generates more profit from the usage of hedging contracts than from the sale of cars, which in appearance defends more our hypothesis that the hedging contracts affects positively in the firms value. This comes as a result of the widespread of hedging contracts and the fact that there is not a lot of diversification. The second reason of the fact that I only am taking one company into consideration when conducting my study is due to the fact to avoid the institutional differences and legal differences in different countries, because not all of the companies perform under the same conditions. The third reason why I choose only this company is that by taking only one

company into consideration then the outcome provided at the end will be more homogeneous. The reason why I took into consideration 25 years is for the fact that I wanted it be spread on time so the result can give the effect that hedging contracts may have had through time and not only on the past ten or twenty years. The data that are used for the description of the variables are all secondary data.

3.2 Description of variables

In this section of the thesis there will be explained variables that will be used in the test: The variables of the test are net sales, market capitalization, income tax expense, financial result, loss or gain from the exchange rate and net profit. The reason this variables were chosen is because they are seen as variables which are affected in case of usage of hedging techniques.

3.2.1 Net sales

The first variable that will be taken into consideration is net sales. It is one of the most important measures of the company as it shows the number or amount of product sold by the firm. The sales of a company are measured as the quantity of the product sold. The quantity sold of each product times the price the company put for that product we can get the total revenues that the company gets from the sale of the products. In the financial statement of a company sales can be found in income statement. In our test they are measured in million of Euros. Net sales is calculated as total revenues that the company gets from the sale deducting the sales return, allowances and discounts. The sale before these deductions is known as gross sale and should not be misunderstood with the net sale, which is what we need if we want to know the sales that a company has. Sales return is when you sell product but the costumer gives it back due to damages or defects that it may have and they expect a full refund. While allowances are the cases

that the seller reduces the price of the good or service provided to the costumer because there was problem with the good or service. It was either not the amount that was ordered or the quality of the product was not the one that was expected from the costumer. Moreover the sale discounts are known as a lower price of the sale. This happens due to the fact that the company needs the costumer to pay a specific amount of cash before they receive the good or service, even if the amount of the cash received before is not the total amount of the cash they will receive for the full service they are offering. Some companies prefer this type of sale as it is better for the cash flow of the firm. Data for this variable were retrieved from Bloomberg and financial statements of the company through years.

3.2.2 Market capitalization

Market capitalization or also known as market cap is the second variable that will be used in order to test our hypothesis. It is known as the aggregate market value of a company. The firm can calculate its market capitalization by multiplying the total number of outstanding shares and the current market price of its shares. Outstanding shares takes into account all the shares of the firm that are currently being hold by the shareholders. Market capitalization changes often as the price of the share are fluctuating which makes the total market value to fluctuate. The number of outstanding shares also changes some time but really rare for example when the company decides to issue additional shares etc.. It is a very important factor on a firm as it presents the health, stability and the value of a company where a lot of traders or investors think that it is the price of the share that shows the states the above mentioned characteristics of a company. For example a company that has a lower stock price share but a higher market capitalization is more worth than a company that has a higher stock price but a lower market capitalization. Depending

on the value of market capitalization a company has, they are separated into different groups that are mega cap (category of companies that have a market cap $300 billion or higher), large cap (category of companies that have a market cap $10 billion to $300 billion), mid cap (category of companies that have a market cap $2 billion to $10 billion), small cap (category of companies that have a market cap $300 million to $2 billion), micro cap (category of companies that have a market cap $50 million to $300 million) and nano cap (category of companies that have a market cap $50 million or lower). Mega and large caps are known also as blue chips and considered to be secure. As market capitalization comes as a result of the outstanding shares and the price of these shares, then everything that affects these two elements than effects the market capitalization as well. Some elements effecting market capitalization are demand and supply, strength of a company, the performance of the competitor, market sensitive information, external factor of the company such as a political factor, macroeconomic, geographical etc., the issue of the new share, the buyback of the shares etc.. Moreover, using market capitalization for different decisions has its advantages and disadvantages. Some of the advantages are it is one the easiest way to value a company, allows us to see the differences in the sizes of different firms, can be used to build a well balanced portfolio etc.. On the other hand, some of the disadvantages are that returns such as dividends or stock splits are not considered, it does not take into account the debt of the firm etc.. As Phil Town stated price is what you pay for something, value is what you get. The information for this variable is also received from Bloomberg.

3.2.3 Income tax expense

The third variable to be included in the test will be income tax expense. It is considered to be a liability to governmental institutions like federal, state, municipal institutions. Usually it is

owned for a given period of time. The way to calculate this variable is very complex. The main formula for it is appropriate tax rate times the income before taxes that an individual or a business generates. The reason it is a complex calculation is because different type of incomes get taxed in different ways. A business has different kind of taxes it should pay like taxes on the payroll of its employees, the excise tax on expensive goods etc.. Given the fact that it is a liability means that it reduces the profit distributed to shareholders who get a dividend. It is worse for the shareholders as they are obliged to pay taxes again on the dividends that they get. Income tax is only present in the case the company makes a profit. If a company makes a loss than it has no liability to pay for the income tax, thus it is zero. But, there are some companies that try to hard in order to avoid this taxes and pay nearly zero taxes even though they can make profit as a company. Tax authorities give careful instructions regarding the accounting methods used for items that affect the tax expense. Due to this the amount of tax that is recognized in the financial statements can be different from the amount of tax that is calculated from the formula of tax rate times the amount of income gained. Moreover, there can be different forms of deviation from the taxes that you get discounts from different conditions that individuals or business can have. The information is for this variable is found on Bloomberg.

3.2.4 Financial result

The fourth variable taken consideration into the test is financial result of the company. It is calculated as the result between the different of earning before interest and tax (EBIT) and earnings before taxes (EBT). It is the earning or the loss from different financial operations. The way how to calculate it is to deduct the interest expense from the interest income than to add or subtract write down or write ups for financial assets and add or deduct the write down or write ups for marketable securities and after this we should add other financial incomes and expenses.

It gives us information about the financial costs and non consolidated companies but it does not provide any information related to the risk of the investment. In most of the times for different companies the financial result is negative as the cost that companies may have when borrowing for different reasons usually exceeds the profit that it takes back from different investments in form of dividends. The information for the data of the financial result of Porsche company is taken in Bloomberg.

3.2.5 Net profit

The fifth variable being considered in our test in order to prove the hypothesis is net profit. It is the net income that the company has after deducting all the costs. It is calculated by subtracting all the cost of the goods sold, administrative, operating, interest, depreciation expenses from the sales. The net profit is the last element to be found in the income statement. It is a very important number as it shows how profitable a company is. If the number received at the end of the calculations is positive then the company is having a profit, but in case the number received at the end of these calculations is negative then the company is having a loss. When taking into consideration a person and not a company then the net income he or she receives is the money he is left after he or she removes the taxes that have to be paid and all other expenses that he or she may spend considering a specific time. Net income is also known as the profit that is distributed to the shareholders after removing all of the expenses of the company we are considering. Usually the net profit is confused with gross profit, but the difference between them is very important. The gross profit is the profit that the company has while it has deducted all the costs from the revenues gained but not the taxes that it has to pay. While the net income or net

profit reduces from the revenues except all the costs also the tax expense. So, the difference between the gross income and the net income is the tax expense. It can be distributed to the shareholders, be used in difficult situations of the company or also be reinvested in the future.

3.2.6 Gain or Loss from the exchange rate

The last variable used into the test if the gain or loss from the exchange rate. This happens when a person or business enters into a transaction with two different currencies and the currency value changes from day that the agreement was done to the settlement date. From the change in exchange rate of the currencies there can be loss or gain for the parties. Entering into hedging contracts can reduce the risk of loss from the exchange rate but also in some cases hedging contracts may not allow you from making more profits. The information was found in Bloomberg and financial statements of the company. For some years, specifically before 2003 in the financial statements the loss or gain from the exchange rate was not separated from the operational expenses so it is taken as 0, also because in Bloomberg it was not stated so assumed that there was no profit or loss and the effect on the company was neutral.

3.3 Methodology

The main aim of this paper is that according to my test to show the relation between the hedging contracts and the firm value. The hypothesis tried to be proved is that there is a positive relationship between hedging contracts and firm value. This hypothesis will be tested by doing a regression analysis, descriptive analysis and then being followed by a correlation matrix. The relation of the variables will be shown also through different graphs that show the relation of the dependent variable with the independent variables in the test and with the years that the variables

are considered. The tests are performed through STATA program. The firm value is the dependent variable, while the independent variables are market capitalization, sales, loss or gain from the exchange rate, financial result, net profit and income tax expense. To evaluate if there is a positive relationship between the firm value and the other independent variables the following model has been has been estimated:

$$\textit{The firm value} = \alpha + \beta_1 * \textit{Sales} + \beta_2 * \textit{Market capitalization} + \beta_3 * \textit{Gain or loss on exchange rate} + \beta_4 * \textit{Interest tax expense} + \beta_5 * \textit{Financial Profit} + \beta_6 * \textit{Net profit} + e$$

From the equation above, Betas are the relationship between variables, how much the dependent variable depend on independent ones. From the equation the α is the constant variable while β shows how much of the dependent variable is going to change by increasing or decreasing the independent variable by one extra unit. This information holds true only for the ceteris paribus cases, which is in the case that all the other variables remain constant so there is no change in other thing that may in the same way affect the dependent variable. The information regarding this equation will be explained below in Empirical Findings and is based on the table 4.1 in Appendix 1.

3.4 Descriptive statistics

In this test there are 25 observations as for this test we took the information for each of the variables in a range of 25 years. Generally from the standard deviation we can see that the variables are spread and not close to the mean value of the respective variable, except for loss or gain from the exchange rate compared to other variables. In the table 3.1 there is found the information for the minimum, maximum and the mean for each variable that is independent and dependent as well.

. summarize Enterprisevalue Sales Marketcapitalization Lossorgainfromtheexchanger Incometaxexpense Financialresult Netprofit

Variable	Obs	Mean	Std. Dev.	Min	Max
Enterprise~e	25	15166.05	20213.34	366.5	105089
Sales	25	105091.7	73749.26	19262	256255
Marketcapi~n	25	10919.72	7252.173	586.1	23447.4
Lossorgain~r	25	9.096	27.07246	-9.3	109
Incometaxe~e	25	258.796	572.3596	-827	2177
Financialr~t	25	142.34	319.9829	3	1410
Netprofit	25	1406.776	2255.423	-2524	7932

Figure 2 Descriptive analysis

Between these variables there is also a correlation matrix which shows if this variables are correlated to each other and in case they are to which extent. All of the variables are perfectly correlated to themselves, so their correlation is 1. If the number is positive then the variables are positively correlated which means if the independent variable increases then the dependent one increases as well and if the number is negative then they are negatively correlated with each other so if the independent variable moves then the dependent one moves in the opposite direction. Based on the results that we got from the test performed then we found that the enterprise value is positively correlated to sales, market capitalization, loss or gain from the exchange rate and financial result and also that our dependent variable is negatively correlated with income tax expense and net profit. The correlation values of our test are as following. The correlation value between the enterprise value and itself is of course one. The correlation between enterprise value and the sales is 0.1710, between enterprise value and the market capitalization is 0.2656, between enterprise value and loss or gain on exchange rate is 0.1273,

between enterprise value and the income tax expense is - 0.2006, between enterprise value and the financial result is 0.8472 and between enterprise value and the net profit is - 0.0976. According to the test the enterprise value is more positively correlated to financial result. From the above mentioned results it is said that if there is an increase in the number of sales in the company, an increase in the market capitalization, a rise on the gain from exchange rate and a rise in the financial result then there will also be a rise in the enterprise value but also the vice versa. If there is a fall on sales, a fall on market capitalization, a reduction in the gain from the exchange rate and a reduction in financial result then there will also be a reduction in the market value of the firm. On the other hand if income tax expense or the net profit increases from then the enterprise value will fall but it the net profit and income tax expense rises then the market value of the firm will decline. But still all of this correlations between these variables will also be affected from the next part that will be explained the empirical results in order to see if they are significant or not, so if they are in the confidence level to understand if they affect the dependent variable or not. Variables are also negatively or positively correlated to each other but it will not be discussed further in this section as we only need their correlation with our dependent variable, enterprise value. Additionally, all values mentioned above regarding the correlation matrix are found on table 3.1 on Appendix 1.

4. Empirical findings

4.1 Main hypothesis results

Based on the result from the test that we performed the constant value is 682.3549 and based on the Betas results we received this regression equation:

*The firm value = 682.3549 + (– 0.0778849) * Sales + 1.994798 * Market capitalization + 246.2294 * Gain or loss on exchange rate + -21.73005 * Interest tax expense + 43.99561 * Financial Profit + (-1.416186) * Net profit + e*

I am considering this test at 10% significance level so the net profit is the only variable that is not significant, since if it is not significant it does not exclude the opportunity that its β can be zero. For all other independent variables, they are all significant at 10% significance level, so their β are not equal to zero. For one car increase in sales the firm value will decrease by € 0.0779948, holding all other variables unchanged, which is not what was expected , because just because it has more sales it does not necessarily decrease the firm value, but it can also be related the cost that an extra car can bring to the company. For one unit increase of market capitalization there will be a € 1.994708 increase in the firm value, ceteris paribus. If we company the enterprise values within the companies with the same number of sales, same market capitalization, same income tax expense , same financial result and net profit, the ones with higher gains on the exchange rate tend to be worth more. Particularly, one unit increase in the gain from the exchange rate will increase the enterprise value by € 246.2294. If we consider the companies with the same sales, market capitalization, loss or gain from the exchange rate,

financial result and net profit, then an extra increase of one unit in income tax expense will result in the fall of the enterprise value by € 21.73005. Holding all the other variables constant an increase in the financial result will increase the enterprise value by € 43.99561. With one unit increase in the net profit there will be a decrease in the enterprise value of € 1.416186, when everything else is hold unchanged, but still this variable is not significant so the Beta value can also be zero and not have any effect on the enterprise value at all. According to results the whole test is significant at 10% significance level. There is also the R^2 value in the test which measures if the model fits. Our value is 0.9123, which is a very good value and close to one, means that in our test fits and there is a strong link between regression and correlation. As we can see the variable that effects the most in this test the firm value is the loss or gain from the exchange value. Which mean entering into hedging contracts has a positive impact on the firm value. Defending our hypothesis the hedging contracts have a positive impact on the firms value but there should be mentioned that there are also other variables that affect the firm value like market capitalization and financial results that appeared from the test but also other variables that were not tested on our model that affect in a positive way the firm value. For more gathered form of the whole information given in this part of the paper you can also see the table 4.1 in Appendix 2.

In the section below from the main finding for the hypothesis there will be explained the graphs that show the relationship between enterprise value and itself, enterprise value through the year that are taken into consideration and the enterprise value in relation to all other independent variables.

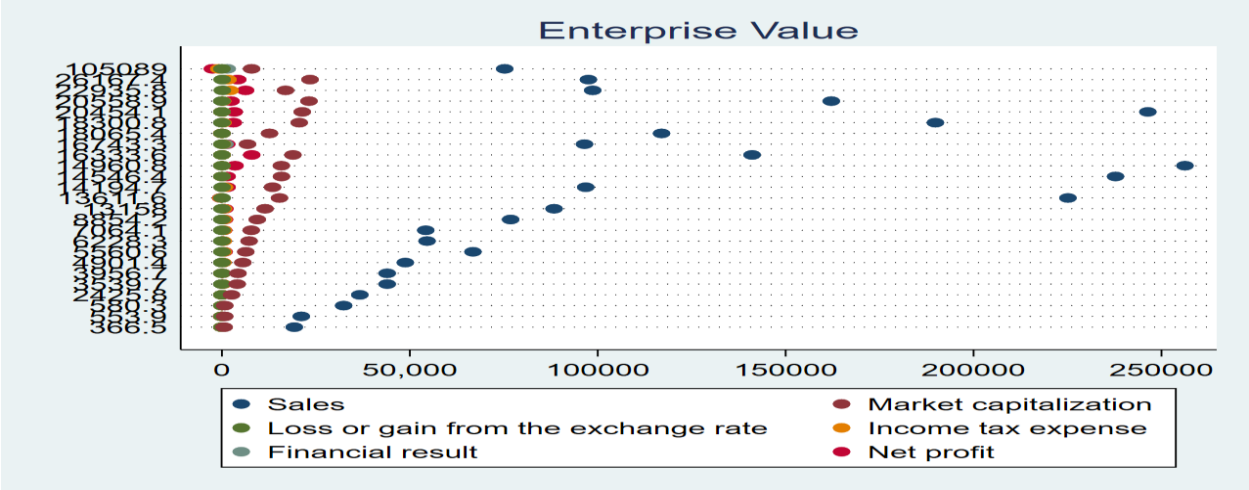

Figure 3 Enterprise value in relation to all six other independent variables

In this graph is it shown the relation between the dependent and all independents variables of our model. As we can see sales is the one variable that has spread a lot and does not have a trend.

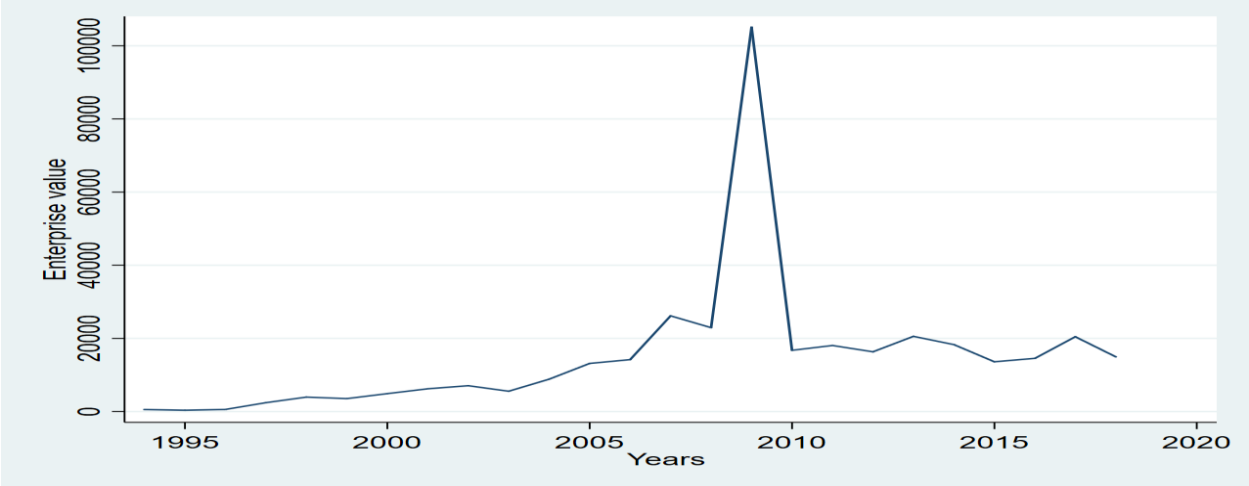

Figure 4 The enterprise value during the years

In this graph it is shown the enterprise value of the company through the years that we are considering. As we can see the through the time it is on the same level of value except the peak that it had on 2009 but then on 2010 it was again back to its normal values.

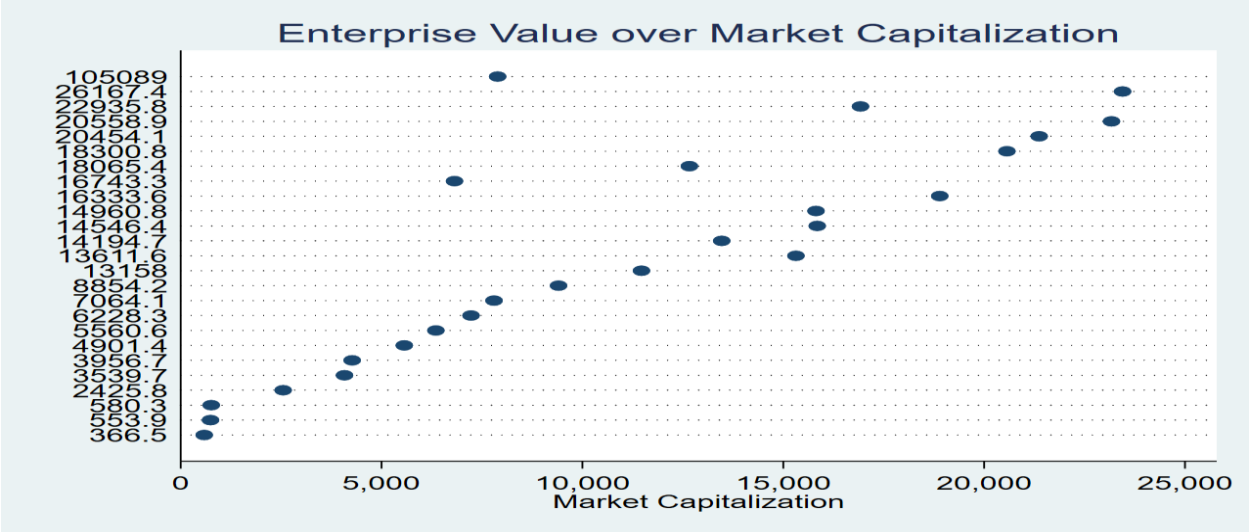

Figure 5 Enterprise value in relation to market capitalization

In this graph it is shown the relationship between the enterprise value and the market capitalization. We can see an increasing trend that as the enterprise value increases the market capitalization of the company increases as well, but there are always exceptions.

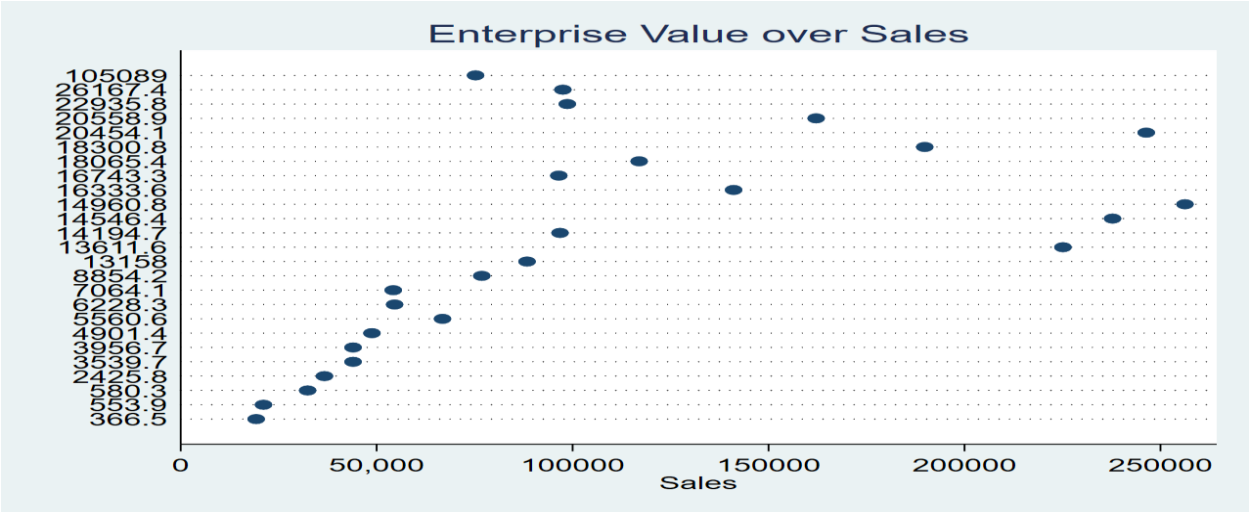

Figure 6 Enterprise value in relation to sales

In this graph it is seen the relationship of enterprise value with the sales. We can see the spread on the sales which at the beginning increase as the enterprise value increases but later not.

Figure 7 Enterprise value in relation to income tax expense

In this graph is shown the relationship between the enterprise value and the interest tax expense. As it is seen the income tax expense is not influenced from the enterprise value because as the enterprise value increases the income tax expense does not change in accordance with the increase of the firm value.

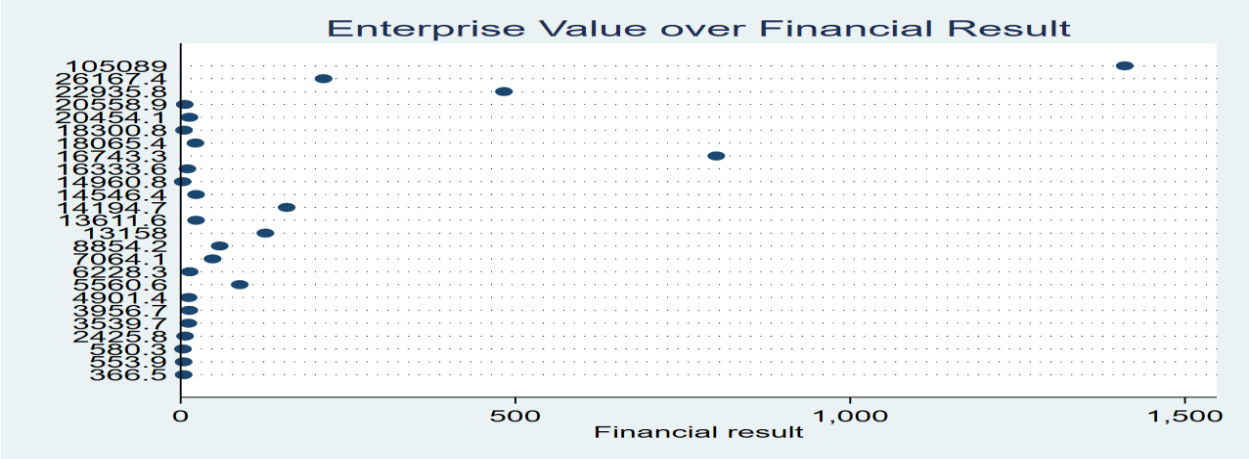

Figure 8 Enterprise value in relation to financial result

Same as in the graph above the financial result does not increase in accordance with the enterprise value and it does not have very spread results.

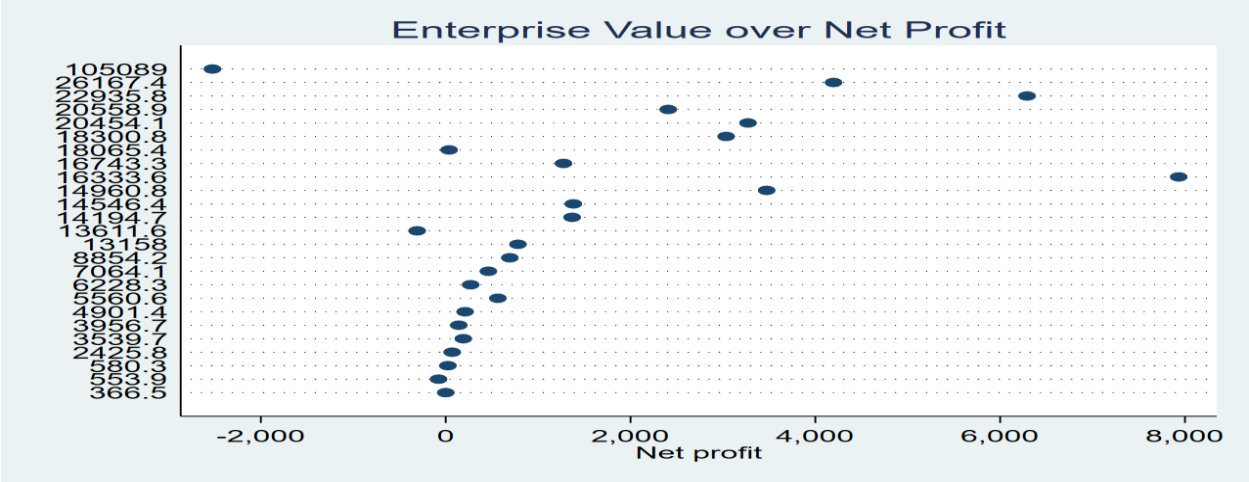

Figure 9 Enterprise value in relation to net profit

In this graph the enterprise value and the net profit show the results of enterprise value does not depend on net profit as the net profit does not increase or decrease with the change of the enterprise value. It spreads depending on a lot of other internal and external factors.

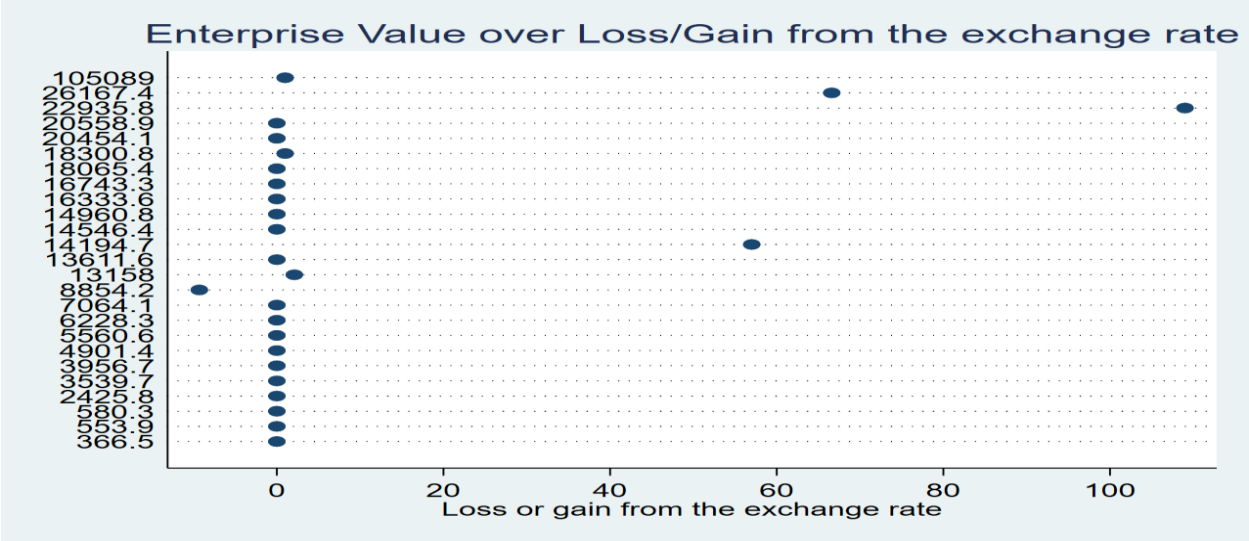

Figure 10 Enterprise value in relation to loss or gain from the exchange rate

As the company has entered into a lot of hedging contracts then the loss or gain from the exchange rate are almost fixed with not a lot of variation, also in relation to enterprise value.

5. Discussion

In this test it is taken into consideration Porsche company with 25 observations for different independent variables that affect the dependent value. The hypothesis tested is there is a positive impact between hedging contracts and firms value. From the test performed in this paper it is found that the hedging contracts have a positive impact on the firm value, thus they increase the firm value. We should be aware of the fact that there are many other important variables that have a huge impact on the firm value beside the loss or the gain from the exchange rates. Based also on other papers there is not a fixed outcome from the tests performed through years. There are papers that stand on the side that the hedging contracts do not have an impact on firm value like Mogliani and Miller in 1958, like Allayanis and Weston on 2001, like While Klark on 2006, like Kisaka and Waweru on 2009. There are papers that stand on the side that hedging contracts have an positive impact on the firm value like Rossi on 2002, like Hagelin testing Swedish companies on 2004 as well as Pramborg on a specific type of risk, like Jim and Jorion and Look Man on 2004, Smithson 2005, Bartram, Brown and Fehle on 2009, Abiero 2001. There are other papers like Fauver and Naranjo in 2010 that state that there is a negative impact between them and there are also papers telling that it depends based on the industry and other external factors from the government of a country to the taxes and many other impacts as stated from Dhanani on 2007. From our test we support the papers having a positive effect on EV. The implications that I faced while writing this paper and performing the test was when trying to find the data regarding one of the variables, specifically the loss or gain on the exchange rate that before year 2003 they were in the financial statements not separated from the operational costs and in Bloomberg there was no information. This test will help to fill the gap and give one more opinion on the huge discussion and the findings regarding the impact of hedging contracts on the enterprise value.

6. Conclusion

In this paper is examined the effect of hedging contracts into the firm value. We try to prove the hypothesis that they affect positively in the firms value. After having explained that hedging contracts are techniques that help to reduce the risk and make an investor investments safer regarding the risk arising from the exchange rates usually. It has a lot of advantages and disadvantages, as well as there are different types of hedging techniques known as financial derivatives. The most common ones are future and forward contracts, swaps and option. They are used in a lot of different situations and not only businesses but also for individuals and any other party of any form regardless of the size or nature of activity that they perform. The company tested in the paper is Porsche since it is known as a firm that uses a lot of hedging contracts in its transactions to be safer from the exposure to exchange rate risk. Porsche is one of the companies that makes more profits from the usage of hedging contracts then from its main activity, sale of the cars. As well as it is a very well known and successful company in the whole world, producing sport cars with a lot of attention in design, innovation, functionality as well as social responsibility about the nature. As the data chosen to be tested were variables that usually have a direct impact on the firms value, there were some of the variables that were not expected to have a value they had regarding their relationship with the enterprise value. Variables such as sales appeared to have negative impact on the firm value, which may be explained as the costs that may arise from an additional car produced may be higher. From the tests performed in this paper it was shown that the hedging contracts impact the firm value in a positive way, which is also supported by a lot of literature through years. But still it needs to be considered that the enterprise value of a company is also affected by a lot of other variables that are and are not tested in this paper.

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