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The role of financial and accounting methods as estimators
of intrinsic value: the Tubacex case

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Resumen

En este trabajo estudiamos si el valor intrínseco de Tubacex entre 1994-2013 coincide con su tendencia bursátil a largo plazo, teniendo en cuenta parte de la teoría de Shiller. También queremos verificar la posible infravaloración de la acción de Tubacex a 31/12/13.

Para ello en la primera parte explicamos los principales métodos de valoración de empresas y en la segunda parte llevamos a cabo un análisis del sector en el que opera Tubacex (acero inoxidable) y calculamos el valor de la acción de Tubacex mediante tres métodos de valoración (Free Cash Flow, Cash Flow y Valor en Libros). Aplicamos estos tres métodos de valoración para verificar si como mínimo alguno de ellos coincide con la tendencia bursátil a largo plazo.

Resum

En aquest treball estudiem si el valor intrínsec de Tubacex entre 1994-2013 coincideix amb la seva tendència bursàtil a llarg termini, tenint en compte part de la teoria defensada per Shiller. També verifiquem la possible infravaloració de l'acció de Tubacex a 31/12/13.

A la primera part expliquem els principals mètodes de valoració d'empreses y a la segona part fem una anàlisi del sector en el que opera Tubacex (acer inoxidable) i calculem el valor de l'acció de Tubacex per mitjà de tres mètodes de valoració (Free Cash Flow, Cash Flow i Valor en Llibres). Apliquem aquests tres mètodes de valoració per verificar si com a mínim algun d'ells coincideix amb la tendència bursàtil a llarg termini.

Abstract

In this bachelor thesis we study if Tubacex's intrinsic value among 1994-2013 coincides with its long term stock trend, taking part of Shiller's theory into consideration. Also we want to verify the possible undervaluation of Tubacex's share at 31/12/13.

In the first part of the thesis we explain the main company valuation approaches and in the second part we carry out the analysis of the sector in which Tubacex operates (stainless steel sector) and we estimate the Tubacex's share value through three different types of valuation (Free Cash Flow, Cash Flow and Book Value). We calculate three different types of valuation approaches in order to verify if at least one of them matches up with the long term stock trend.

Palabras clave/ Keywords

Company valuation- Financial analysis-Mean Reversion- Free Cash Flow-
Cash Flow- Book Value-WACC- Terminal value- NOPLAT-Working Capital

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Introduction

It is very important for shareholders, potential investors, banks and other stakeholders, to know the value of a company. This is a key issue for shareholders because it is important for them to know the value of the company in which they have invested, since they do not have good perspectives they will sell their shares. According to Shiller¹, the companies which operate in the stock exchange market are undervalued or overvalued due to the herding effect. So he says that we cannot consider the stock value as a correct value in the short term. The values from stock exchange markets trend to revert to the mean. Possible investors need to have an idea of the approximate value of the company, because if the current value is lower than the real value, they will probably invest in it, and vice versa. There are many types of company valuation approaches. The most important ones are the asset value, market value and discounted cash flow approach.

I have chosen to carry out this project because company valuation is a field in which I am very interested. This is not the only reason why I decided to work in this topic. Nowadays it is very important to know more deeply where you want to invest your money, which are the past results, and how a company is going to perform in the future. The more information is achieved, the better the decisions already taken will be. Tubacex operates in the stock exchange market so they are forced to publish financial information for the public, not only for its shareholders. Fundamental analysis approach consists in studying the environment of the company but also the company in financial terms, and this is the method I have been carrying out in this project. It is difficult to have sustainable profits in the stock exchange market and studying the sector and the company in detail helps to take the right investment decision.

The main goal of the thesis is to compare the ex-ante forecasts of the company (the stock value) to the valuation values of the firm ex-post market value for the years 1994 until 2013 through different valuation approaches. We are going to have a valuation of the company each year. We are bound to create a trend from the values of stock exchange market and we are going to compare the deviation of the different valuations against the trend. If the deviations of a valuation approach are lower than the deviation from the values of stock exchange market, Shiller's theory is applicable to Tubacex. Also this approach will help us to know if Tubacex in the stock market is overvalued or undervalued comparing to the stock market trend.

¹ Nobel Prize of economy in 2013, currently is the professor of Yale University.

We are going to use the discounted cash flow method (Free Cash Flow and Cash Flow). Moreover the book value valuation is going to be carried out as well. The discounted cash flow method requires a wide knowledge about the company and the sector which is related with. We already know this fact. Previously it has been carried out the study case approach of Tubacex. We have an overview of the company and we have already forecasted the Balance Sheet and the Profit and Loss accounts. All of these things will help us to know if Tubacex is overvalued or undervalued, according to this approach at the end of the year and how the company is going to perform during the subsequent years. In the economic downturn, Tubacex market share plummet so we think that the company could be undervalued in 2013. This company has been chosen because of the sector in which operates. The industrial sector is very cyclical and now, global economy is growing so it seems that it could be good choice to invest in this sector. At the end of the thesis we will test that.

The thesis is divided in two parts: the first one explains how financial markets perform; taking some topics related to Shiller's theory on financial markets inefficiency and statistical methods as "Mean Reversion" into account. Also we are going to explain the three different approaches in company valuation.

In the second part we carry out the different valuation approaches to value Tubacex among 1994-2013 and each valuation is bound to be compared with the short term stock values. Our valuation either the short term stock valuation is going to be compared with the long term stock trend. If the deviation from our valuation is better than the deviation of short term stock value, our approach would be good and Shiller's theory will have been fulfilled. We are going to carry out three different types of valuations.

In the thesis we are going to follow Shiller's theory about the irrationality of financial markets in the short term and at the end of the thesis we are going to be able to prove if in the case of Tubacex, he is right or not.

PART I: THEORETICAL FRAMEWORK

1. Theoretical approach

Last year the novel award² of economy was given to Mr. Eugene Fama, Mr Shiller and Mr Hansen. All of these economists have talked about how financial markets perform and if it is possible to beat the market (gain money investing in the financial markets).

Mr Fama says that the financial markets are efficient. He says that in the short term, it is not possible to have profits in the stock exchange market. All over the world markets are opened the 24 hours. This means that if a company announces that is going to have profits the following year, investors don't wait until the subsequent year to invest, they invest just after the good news. So the market grows very fast and the investors practically don't have profits, just the dividends. He has demonstrated that after breaking news, markets quickly react but afterwards they become unpredictable. His analysis shows that any trader could not consistently beat the market after taking into account transaction costs. But he says that in the long term, if the price of an asset is undervalued, it is possible to have profits in the long term.

Mr Shiller in 1981, compared the stock value of a company with its intrinsic value (the future cash flows which was able to generate). He found out that the stock prices were much more volatile than the intrinsic values. He sorted out that in the long term, the stock prices trends to revert to the intrinsic value.

He has such a different view comparing to Eugene Fama. He defends the theory of herding effect, the irrationality of financial markets. In his theory he says that in some periods, people act in an irrational way because of the action of the others. If an investor realizes that a huge amount of traders are selling its shares, he thinks that something wrong that he does not know is happening in the company. So he sells because he does not want to lose money and he is contributing to the herding effect. Mr Shiller forecasted in 2006 the real state bubble, but nobody took his opinion in consideration. He advised that the intrinsic value (it was calculated through discounting the future cash flows that the company would generate in the future) was the correct value of the company. In the long term, Shiller concluded that the stock market value trends to revert to the intrinsic value.

²<http://www.economist.com/news/leaders/21588090-investors-can-profit-insights-years-nobel-prizewinners-economics-very>
<http://www.economist.com/news/finance-and-economics/21588059-nobel-prize-economics-reveals-how-little-we-know-about-behaviour>
<http://www.tv3.cat/videos/4740151/Classe-deconomia-amb-Xavier-Sala-i-Martin-311013>
<http://www.tv3.cat/videos/4740231/Classe-deconomia-amb-Xavier-Sala-i-Martin-311013>

The last economist which has been rewarded has been Mr Hansen. He has developed a statistical technique which helps econometricians to test theories and make them the best use of all information they have. Mr Hansen, after studying the thesis of Fama and Shiller, thinks that both are right in their theories about the performance of the financial markets in the short term. He defends the position of Fama because he strongly agree with the efficiency of financial markets but at the same time he defends the position of Shiller that having sustainable profits in the short term period is possible. He gives the example of Warren Buffet as this kind of investors.

Even though, it seems that all of the economists defend completely different positions, it is not truth. All of them meet that it is very difficult to obtain sustainable profits in the short term period and they defend that it is possible to have profits in the stock exchange market but in the long term.

As we already said, it is going to be defended Shiller's position.

2. The Shiller's theory and mean reversion

Mr Shiller published in 1981 a paper in the American Economic Review which was titled "Do stock Prices move too much to be justified by subsequent changes in dividends?" He compared the stock value of a company with its intrinsic value (the future cash flows which a firm is able to generate). He found out that the stock prices were much more volatile than the intrinsic values. Therefore he applied the theory of the Reversion to the Mean which tells that in the long term, the stock prices trends to revert to the mean. The reversion to the mean ³says that if the prices of a firm are unsteady due to an economic crisis for instance, the most probable fact is that in the short term they will remain unsteady. This is similar what Burton Malkiel defended in his book "A Random Walk down Wall Street" published in 1973. Basically in this book⁴ he exposed the random of the market movements in the short term. In the theory of the regression to the mean, prices in the long term will trend to be the long trend average of the stock exchange market.

Moreover, Shiller defends the theory of herding effect which shows the irrationality of financial markets in the short term. That theory tells that in some periods, people act in an irrational way because of the action of the others. If an investor realizes that a huge amount of traders are selling its shares, he thinks that something wrong that he does not know is happening in the company. So he sells because he does not want to lose money and he is contributing to the herding effect. That theory is not only applied to marked crashes, is also applied to market bubbles. The real state crisis has been a consequence of the blast of the real state bubble. Mr Shiller forecasted in 2006 the real state bubble but nobody took his opinion into consideration. He advised that the prices of the real states sectors were much higher that their intrinsic values.

Shiller says that the intrinsic values are the same as the mean (long term stock exchange). He concluded that in the long term the stock market values trends to revert to the mean.

³

[http://www.dii.uchile.cl/wp-content/uploads/2011/05/REVISTA DINERO La paciencia en finanzas tiene nombre Reversiooon a la media columna Joseee Miguel Cruz.pdf](http://www.dii.uchile.cl/wp-content/uploads/2011/05/REVISTA_DINERO_La_paciencia_en_finanzas_tiene_nombre_Reversiooon_a_la_media_columna_Joseee_Miguel_Cruz.pdf)

⁴ http://en.wikipedia.org/wiki/A_Random_Walk_Down_Wall_Street

3. The valuation concept⁵.

The company valuation has a part of art and a part of science. The part of art means that the person who values a company, has to fix many hypothesis, but these ones need to have sense, otherwise this valuation will not be have any validity. The part of science is the easiest one because it just consists in carrying out the knowledge of the different valuation systems and the tools that they give us to be able to achieve the valuation of that company. The science part does not have many complex formulas. Basically it is based on financial maths and statistics.

Every valuator has the basic knowledge about the different valuation methods but not all of them set the right hypothesis or the more logical ones. The more valuations have been made, the better the results are. The part of art also means have a wide knowledge about the sector in which the company operates and experience as well.

It is very important to know which the main aim of the valuation is. We say that if it is wanted to be valued a company because it is wanted to be sold, the firm will try to value the company as high as possible. It will be the opposite in the purchasing part.

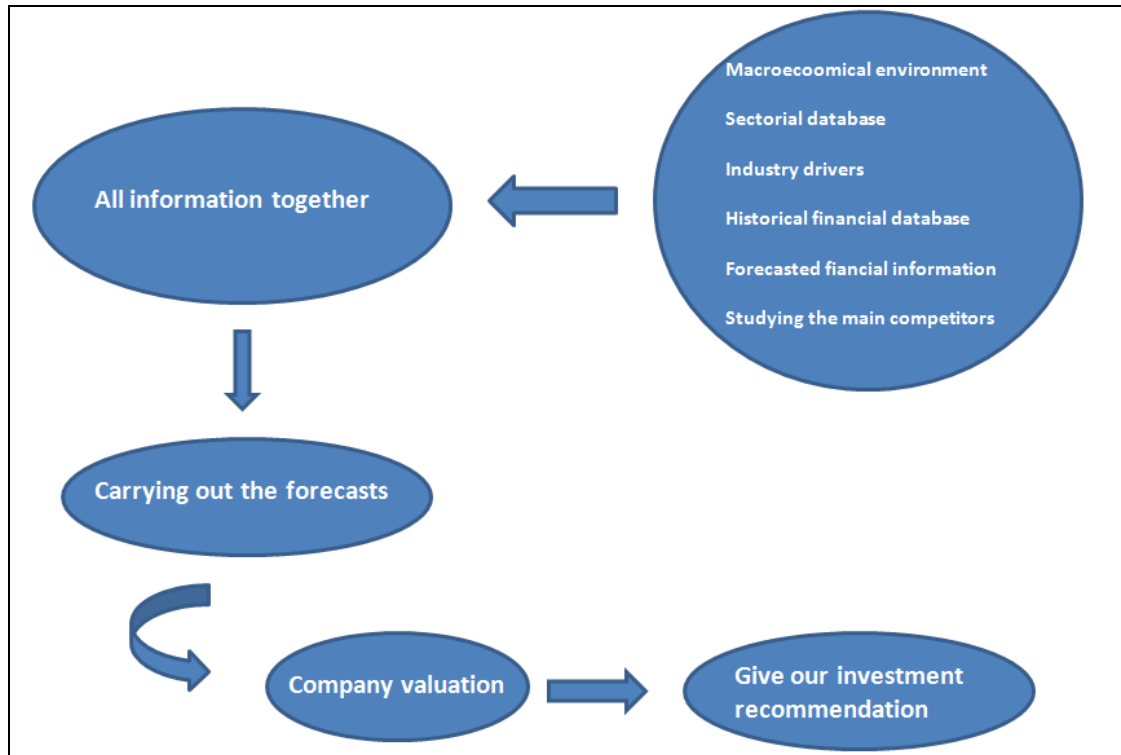
In the case of an investor which wants to buy a company or a part of a company, the value that he has achieved will be the maximum price which he will pay to purchase that company. We can see that the price which is paid in a transaction, will never be the real value of the company because the seller and the purchaser want to pay the price which benefits more their selves. Both parts will have to lose ground if they want to reach an agreement.

But in our case is quite different, because we want to test a model and the valuation process is a tool to build up this model which has been explained previously. Also we want to ascertain if at the end of 2013, Tubacex share is overvalued or undervalued.

The industry in which the company operates has a very important role when we are considering which valuation approach is more appropriate. Afterwards we are going to analyze which is the best valuation approach in the stainless steel sector.

⁵ The majority of information of Point 3 and 4 an 5 is based on the book *Análisis y valoración sectorial*, José Morales Plaza and Javier Martínez de Olcoz

Figure 1: Company valuation phases



Source: Own elaboration based on "Análisis y valoración sectorial" book

In the figure 1 we can see all the steps which are required to figure out which is the value of a company. At the beginning, it is very important to study the sector in which the company operates and how the foreseeable evolution is. Then analyze the financial historical data of the company. It is very important to invest a lot of time in searching forecasted financial information of the company and sort out which are the factors that influence more in the company's financial statements. Also is very important to study our main competitors and the potential competitors which the company could have in the short-medium term. After collecting all information, we can reach phase 3, which is carrying out the forecasts.

When we have our forecasts, we can value the company and give our investment recommendations.

This approach that we have explained here is the discounted cash flow approach, which is the most used approach, but we will explain in more detail lately. But in almost all valuation approaches, it is very important to carry out, at least, the first and the second step of all process.

4. Valuation methods

There are three approaches⁶ that we could use to value Tubacex. The first one basically is focused on the book value. The second one concerns to the market value. And the third one consists in the incomes which the company is bound to generate in the future. In each approach, there are so many valuation methods; we are just going to explain the most important ones.

4.1. Account approach

This approach is based on the book values and there are several methods that they take into account the accountancy in the process of valuation. The most current way is to value a company according to the book value.

4.1.1 Book value

This method says that if we want to know which the value of a company is, we have to check which net worth (difference between the total assets and total liabilities) the firm has and we will know the organization's value. The accountancy shows the faithful image of the company and all of the value which the company has been creating since the launching of the company. There is no need of carrying out any adjustments on the balance sheet accounts, since the financial information shows perfectly the value which the company has been created.

This approach is condemned due to the account criteria is quite subjective and it does not take into consideration the market criteria. The accountancy does not use to represent the market value. For instance a company which is trying to come up with a new product which could improve some illnesses, at the beginning they it have losses but they are expected to have high profits in the future.

This approach can be used in the case that we consider that a company will have an infinity life. So the book value will be the minimal value of a company.

4.1.2 Adjusted book value

This one takes into account the book value but with several adjustments. It is an improved version of the book value approach. The assets are valued according to the

⁶ Métodos de Valoración de Empresas Pablo Fernández IESE Business School- Universidad de Navarra <http://www.iese.edu/research/pdfs/di-0771.pdf>

market value. Therefore it is found out the adjusted net worth. In this approach, all balance accounts have to be replaced by the market value. The typical adjustments are to rest in the balance sheet the slow-to-pay costumers, adjustments of the inventory which could be old or in bad conditions and the machines plants and properties have to be applied the deterioration.

The main concern about this type of valuation is that it does not take into consideration the future cash flows that the company could generate in the future. Moreover, finding the market value of some assets is very difficult to achieve, such as a machine which has been already used, the old inventories and so forth. Nevertheless, there are some accounts that it is easy to find its market value, for example, market lands and buildings. This is a method which keeps on giving more importance the assets rather than what the company is doing with its assets.

4.1.3 Liquidation value

This approach will have sense if we don't assume that the company will operate forever. In the liquidation method, it is used the adjusted account value, but the liquidation expenses (fiscal expenses, legal expenses, compensation payouts and so forth) have to be taken off. The assets have to suffer a devaluation of its prices due to the company sells them quickly, not in a normal conditions, so the value of the assets is lower than its market value. Achieving the liquidation value give us the minimal value to the company. In the majority of taxations, this method is not taken into account, unless there is an hypothetical case of liquidation.

4.2 Market approach

In the market approach, we have the trading multiples value and the stock value in the case that the company operates in the stock exchange market.

4.2.1 Trading multiples

It is based on finding companies which could be possible to compare with the firm that is wanted to find out which value has, through finding a similar company that operates in the stock exchange market or a company which has been involved in a purchasing process and it is possible to sort out which is the price. The market price is related to some financial aspects (total turnover, EBITDA, profits..) of the company in which it is fixed a ratio which is applied to the company that is wanted to value. For example when we are valuing a flat, at the beginning we say which is the price for the m2, in this case it has

been applied the trading multiples. The main advantage of this approach is that is very easy and fast to figure out which is the value of a company. On the other hand, this method does not analyse the firm deeply. This approach helps to have a quick idea which is the firm's value and this model sorts out the minimal and the maximum value which could have a company. A lot of times, it is used to check if the value taken off through the discounted cash flow approach is logical or not.

There are a lot of types of trading multiples such as the Price Earning Ratio (PER) the sales multiples, the EBITDA, EBIT, Net Profit and book value.

The PER measures how long the investor will have to wait until he will start to have profits of his investment. So the lower the PER will be, the better the investment will be, due to this means that the shareholder will need less time to recoup the investment.

The sale's multiple takes an average multiple of a sector and we apply this number to our company which we want to value. If the multiple of our sector is 2,5 the sales of the year we are going to multiply our revenues with the multiple.

In the case of EBITDA, EBIT, Net profit and Book value, it is approached the same methodology. The question is: Which is the best multiple to consider in our valuation? There is no best one and the best way to achieve the value of a company is to calculate the average of all the valuations that we have reached through the trading multiples.

4.2.2 Stock valuation

This is a very simple approach. The only requirement is that the company has to be in the stock exchange market. The way to know the value is to multiply the number of shares with the current share price of the company.

4.3 Cash flow approach

According to how the company is going to develop in the future, investors are going to invest or disinvest in that company. Before investing, investors consider how the company is in financial terms but also how is going to perform. They are considering the future cash flows which the company is going to generate. Because of using a dynamic approach, we will have to discount the future cash flows to the present value. Not only carrying out a good forecast for the future cash flows is enough. The interest rate which it is going to use in each year to discount the cash flows (WACC⁷), it is going to be important to be logical

⁷ WACC (Weight Average Cost of Capital) is the weight average between the cost of the equity and the cost of debt. It is going to be explained later in more detail.

and to be as close as the reality as possible, otherwise the valuation won't be correct. We are not going to discount the profits, because the profits there are not the same as the cash. Stakeholders value the cash which a company is generating, not its profits. A company can create more profits than the real ones through taking less amortization than should take, for instance. The company could do this as a formula to try to increase the share's value. Another example that proves our theory is when we discount the payout (dividends). The dividends are not a part of the company's profit. They are related to the cash flow. The only reason why the firm is able to pay dividends is the cash which has generated in the year. Though the profit could have been positive but if the company had not created cash, the payout makes the company to reduce its net worth and affects negatively the company's value and the capacity of growing itself.

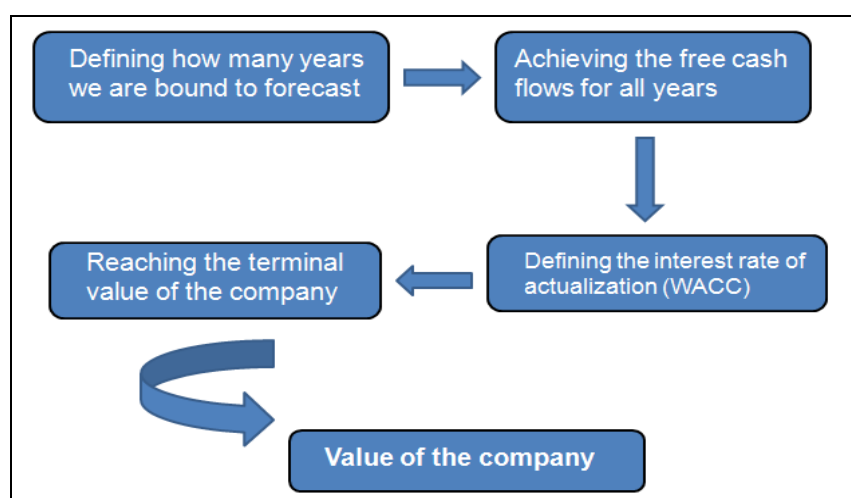
Anyway, the markets value in a positive way when the cash flow is generated through the operating activity, not from alternative source such as from financial institutions.

The discounted cash flow approach is conceptually the best way to value a company, due to it takes into account the expectatives which is so important for the investor. Also includes the interest rate as an important factor which sets the final value. And finally because of the valuator is forced to know the company in deep through analyzing the internal and external environment where the company operates.

4.3.1 Free Cash flow

The free cash flow is the liquidity which has the company after having already covered the working capital and also the amount of investment required in that year, but before paying the interests of financial debt.

Figure 2: Steps for valuating through the free cash flow approach

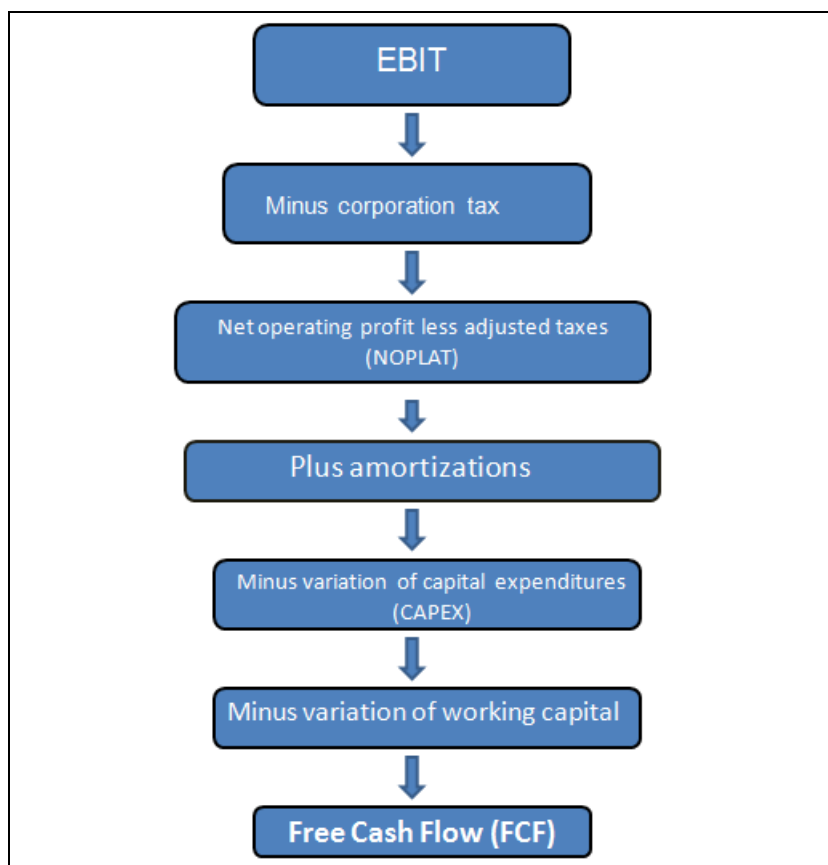


Source: Own source

It will be clearer saying what the free cash flow does not include. It does not include the liquidity which has come from the financial resources, the same as the amount of dividends paid to its shareholders and the capital broadening which the company could carry out. So, the free cash flow is the treasury forecast which ignores the entrances and the withdrawals of cash related to how the company is financing itself.

Before calculating the cash flow, it is very important to have some clear ideas. First of all we have to ask ourselves if the company which we are valuating has future or not. If it does, we can suppose that the company will have infinity life (will have a terminal value which this one would have to be among 60-80% of the total valuation). Secondly we have to consider how many years we are bound to forecast. It is strongly recommended to forecast no more than 5 years, otherwise the predictions have a lot of chance to not have any sense.

Figure 3: Methodology for calculating the Free Cash Flow



Source: Own source

In the second figure, we can see the methodology that has to be applied for calculating the Free Cash Flow. First of all we need to have the EBIT of the year (Earnings before interest and taxes). To calculate the EBIT we have taken the total turnover and we have

subtracted the operative expenses (procurements, salaries and so forth) and the amortizations and we have achieved the EBIT. We calculate the corporation tax from the EBIT, not from the account Earnings before Taxes (because as we have already explained in the free cash flow we don't account the cash flow which comes from the financing sources) and we have to subtract of the EBIT. Then we have the Net Operating less adjusted taxes (NOPLAT). Afterwards we need to plus the amortization, subtract the variations of capital expenditures and the variation of working capital.

To calculate the variation of the working capital the formula that we have been used is the following:

$$(1) \text{ Variation of } WC_{t+1}: WC_t - WC_{t+1}$$

Where the WC: (Accounts receivable - Banks account) - (Short term accounts payable - Short term financial debt)

Therefore we will ascertain which Free Cash Flow Tubacex has. We add the amortizations because they do not figure in the EBIT so we need to take them into account. We need to subtract the CAPEX (variation of investments comparing to the previous year) and the variation of the working capital compared to the year before. Afterwards we will have achieved the Free cash flow.

When we have the free cash flows for each year, then, the next step is to calculate the Weight average cost of capital (WACC). The WACC is the interest rate of actualization of the forecasted years and the terminal value.

The formula of the WACC is the following

$$(2) \text{ WACC: } [K_{eg} \cdot (V_s / (V_s + V_b))] + [i(1-T) \cdot (V_b / (V_s + V_b))]$$

Where V_b is the current financial debt of the company, V_s is the value of equity, K_{eg} or CAPM (Capital asset pricing model) is the shareholder's required return, "i" is the interest cost of debt and T is the corporate tax rate.

The CAPM formula is the following:

$$(3) K_{eg}: R_f + \beta [ER_m - R_f]$$

Where R_f is the risk free rate for example the short term public year (12 months), Beta value is the risk of the value against the market portfolio and ER_m is the expected value return which we take the legal money price of the European Central Bank.

After calculating the WACC, we have to forecast the terminal value. The terminal value is the value of the company after forecasting the free cash flows (is the remaining value of the company in the last projection supposing that the company will last infinity time). It should be between 50 and 60% of the total valuation but in some occasions, the terminal value is more than 100%. It is higher 100% when the company has been investing a lot of money which will have the returns in the future. This fact does not have to worry the valuator. But in the case that the free cash flow is negative because of the EBIT has been negative; this fact has to worry about the investor and could mean a change of the trend.

The formula of the terminal value considering that the company won't grow and will remain constant is:

$$(4) VT^8: \text{Average}^9 \text{ of NOPLAT/WACC}$$

We have not considered that Tubacex won't grow in the future to simplify the valuation. In the case that we had considered that the company would have grown, we would have had to establish the growth rate (g). In the case that we consider that the company will grow, we have to consider that the company will remain investing otherwise the VT will be overvalued. The formula is the following

$$(5) VT: \text{Average NOPLAT}/(\text{WACC}-g)$$

When we have all the projections and the terminal value, we have to discount the free cash flows to the present value and we will have achieved the company's value. But we are interested in finding out which value the net worth has (to compare with the current net worth). To estimate that value, we have to minus the net debt to the firm's value and also, to subtract the non operative assets and liabilities and to plus the tax credits. Afterwards, we will have reached the firm's net worth.

4.3.2 Cash flow approach

The cash flow is the liquidity which has the company after having already covered the working capital and also the amount of investment required in that year, and in this case we take into account how the company is financing itself.

The main differences among FCF and CF as we can see in the Figure 4 are that in this case, we take into account the financial result, the dividends which the company gives to

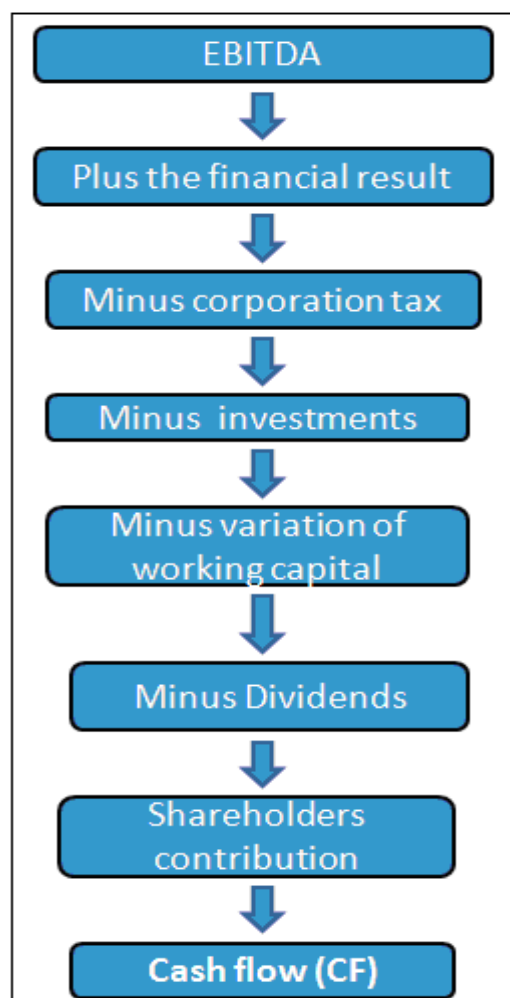
⁸ In the second part of the thesis the Terminal Value is going to be explained in more detail

⁹ Of the explicit periods

its shareholders and also if there is a capital growth or reduce, we consider as well. The corporation tax that we use is not the same as the one which we use in the Free Cash Flow, because here we take into account the financial result and in the FCF we don't consider it. In the case of the CF, the Corporation tax is the same amount as the accounting one.

The interest rate that is used is the WACC and is not the same as the one we use in the calculation of the Free Cash Flow .The only difference is that in the CAPM the ERM (expected value return) is higher than the Free Cash Flow, due to in the calculation of the Free Cash Flow we do not consider that the company has financial debt and in the Cash Flow, we consider it so the risk is higher and the shareholders will require a higher return that means that the WACC will increase.

Figure: 4 Methodology for calculating the Cash Flow



Source: Own source

After calculating the Cash Flows and the WACC we can start the taxation. To carry out a valuation, we have to take the cash flows and to discount them using the WACC and also to discount the terminal value (is the remaining value of the company in the last projection, supposing that the company will live infinity time). The formula that we have used to calculate it, is no exactly the same. In the case that we suppose that the company remain constant and does not grow the formula is:

$$(6) \text{ VT: Average of NOPLT}^{10} / \text{WACC}$$

In the case that is considered that the company will grow the formula is

$$(7) \text{ VT: Average NOPLT} / (\text{WACC} - g)$$

After having the VT and the projections already discounted, we have to sum all the values and we will have calculated the value of a company through the CF approach. But we are interested in finding out which value of the net worth a company has (to compare with the current net worth). To ascertain that value, we have to minus the net debt to the firm's value and also subtract the non operative assets and liabilities and to plus the tax credits. Afterwards we will have reached the firm's net worth.

¹⁰ Net Operating Profit less Taxes. In our thesis we consider that the financial result is 0 so the NOPLT=NOPLAT

PART II: TESTING THE VALUATION APPROACHES

5. Stainless steel sector valuation and behaviour

Tubacex operates in a very dynamic sector (stainless steel sector) which is narrowly tied to the evolution of the economy. The results are higher when the economy is growing, but when there is an economic downturn, the profits go down. Also it is a very volatile sector. The prices of raw materials change so much, so the majority of the companies are already covered in order that costs of raw materials could not trigger.

Also it is very important to be covered in the currencies which a company operates (in this case Tubacex is covered because they operate in so many countries with different currencies).

In the stock market, the stainless steel sector is very cyclical. The investor is fixed in the performance of the sector and he invests when the company is on the bottom of the cycle and sells when the firm is on the top of the cycle. The difficulty remains setting the bottom and the top of the cycle. The results of the sector, the company results, strategy and geographical exposure, determine the possible investment.

5.1 Tubacex valuation approach

We are going to use a dynamic method, because of the sector in which Tubacex operates in, requires forecasting the results of the future. Historical ones will be useful as well, because the valuations that we are going to carry out in each year (1994-2013), will give us 20 years of valuations and therefore, we will be able to compare these values with the stock trend and to the short term stock values. Checking the trend's line (of stock market) against the free cash flow and the cash flow value, will say us if the deviation of one or both values are lower than the deviation of the stock values.

Dynamic approach taking into account the future cash flows which the company will create, we think that is the best approach. The problem is that sometimes the market is irrational and there are bubbles and crashes in the stock market. We are going to calculate the book value of the company between 1994 and 2013 to check the reliability of the discounted cash flow and free cash flow approaches. Most of the years, the book value has to be lower rather than dynamic approach due to as we previously said, the book value is the minimal value of a company supposing the infinity of its life. Also it is going to be compared with the stock market trend and if the values are closer to the mean

rather than the values of the stock market and also closer than the other valuation approaches, this approach will be the right one.

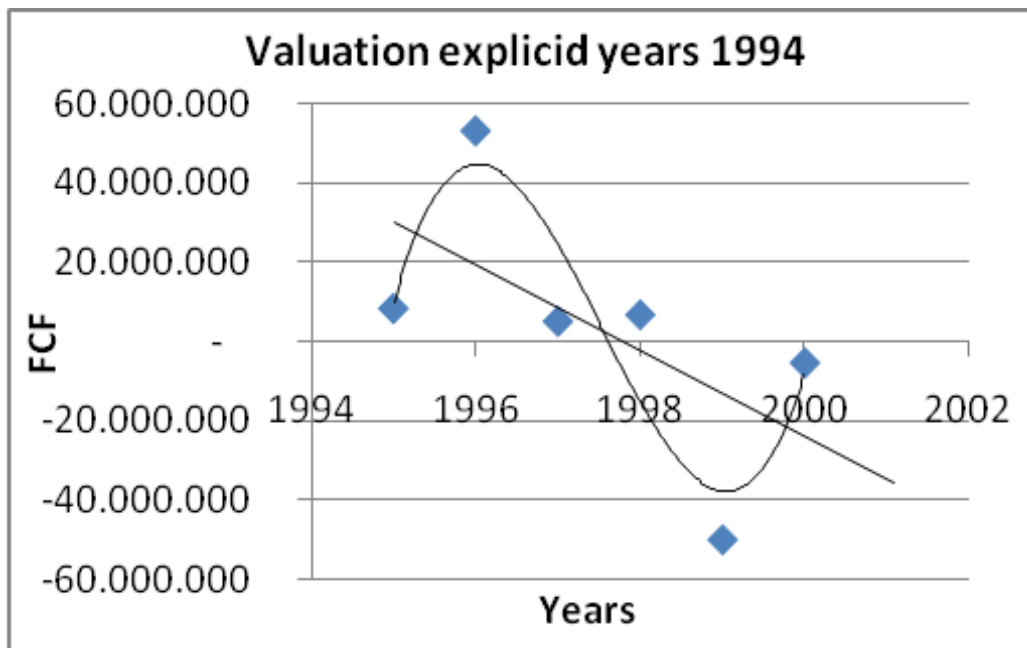
5.2 Valuation approach

5.2.1 Free cash flow approach

We have been carried out 20 valuations which 18 of them, in each projection are comprised by 6 years free cash flow projections and the terminal value. The last two valuations they have five and four years of the explicit projections respectively. As we have said before, in the lasts two valuations we have less explicit projections years, because we have not forecasted more than five years (we have forecasted until 2017).

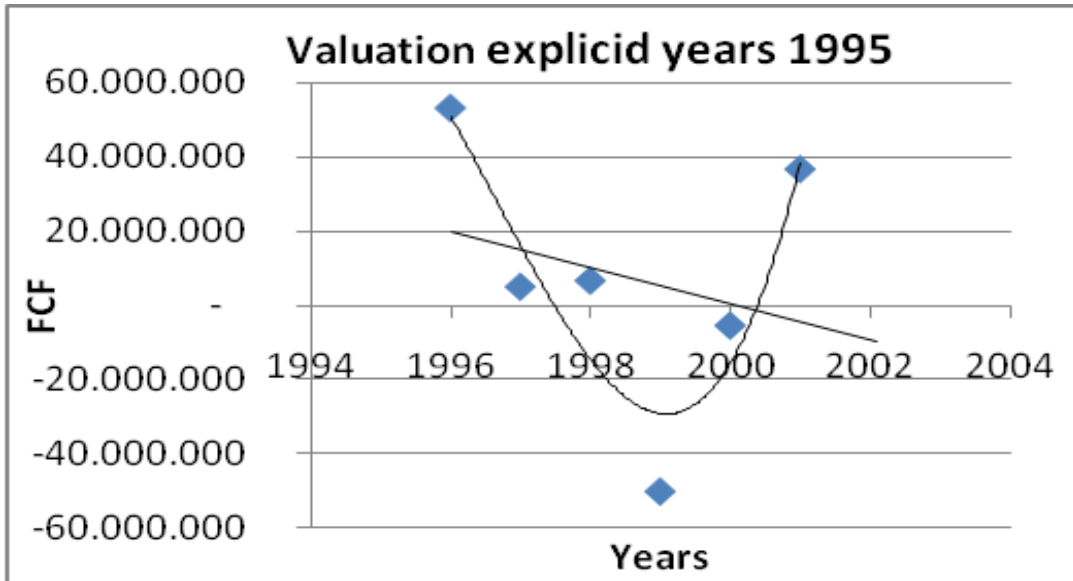
We have represented each valuation in a graph so we will see how the Free Cash Flows have been performed and how they are going to perform in the subsequent years.

Figure 5: Performance of free cash flows 1994



Source: Own source

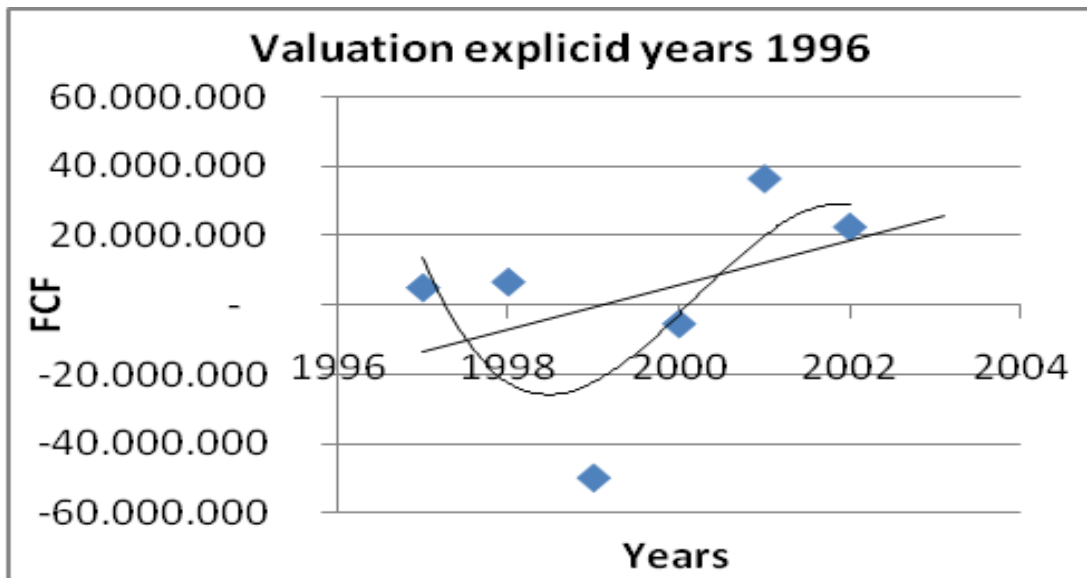
Figure 6: Performance of free cash flows 1995



Source: Own source

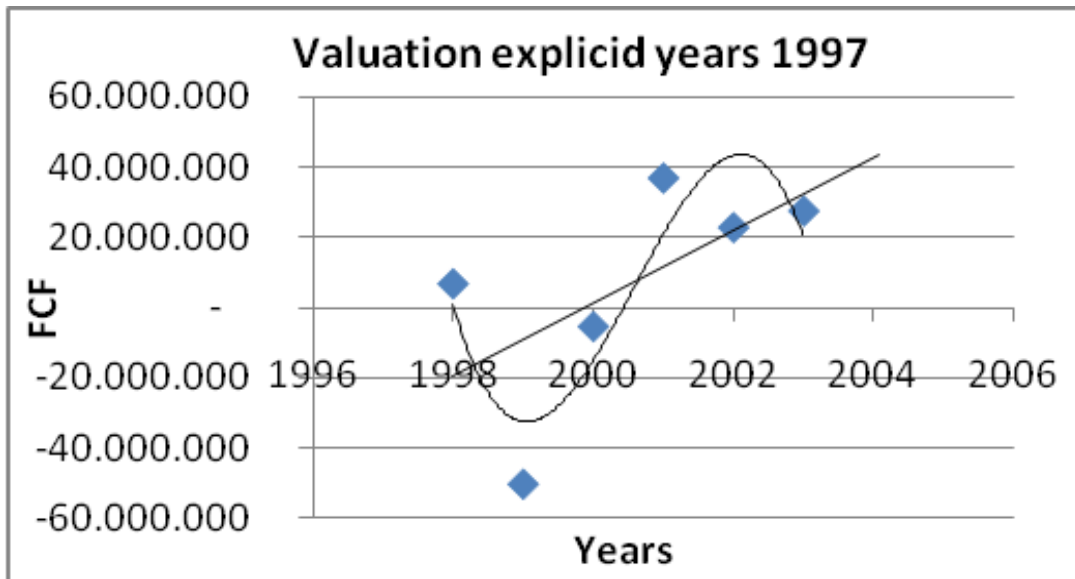
As we can see in the valuations of 1994 and 1995, both ones show us an economic cycle. It is very important that all the valuations could show us an economic cycle. If a company is valued containing just the explicit years of the top of the cycle the valuation will be overvalued and vice versa. For this reason in each valuation, we have built a graph to verify the reliability of the valuation.

Figure 7: Performance of free cash flows in 1996



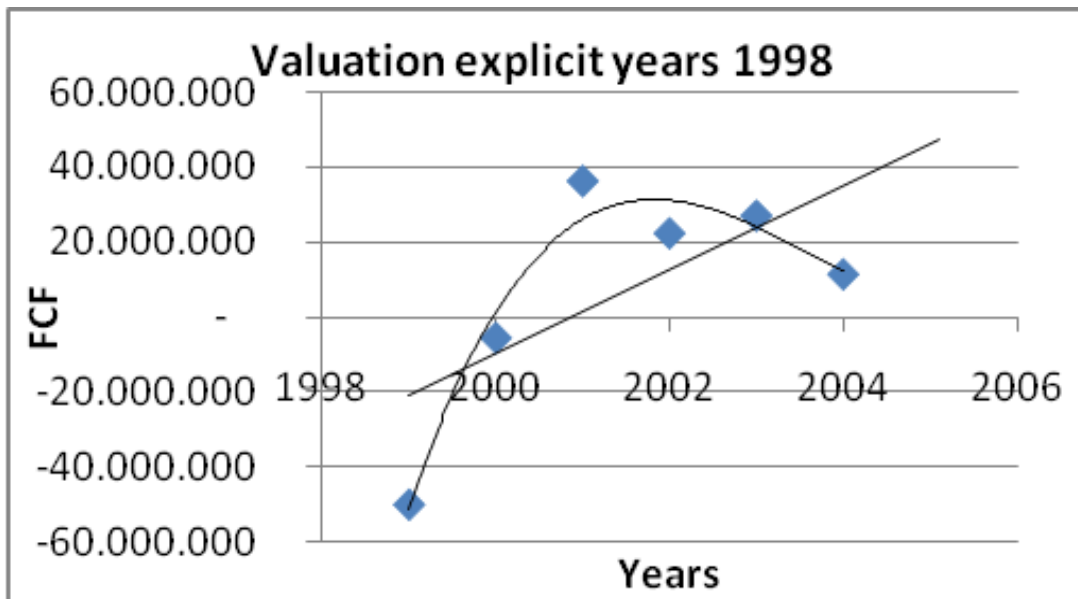
Source: Own source

Figure 8: Performance of free cash flows in 1997



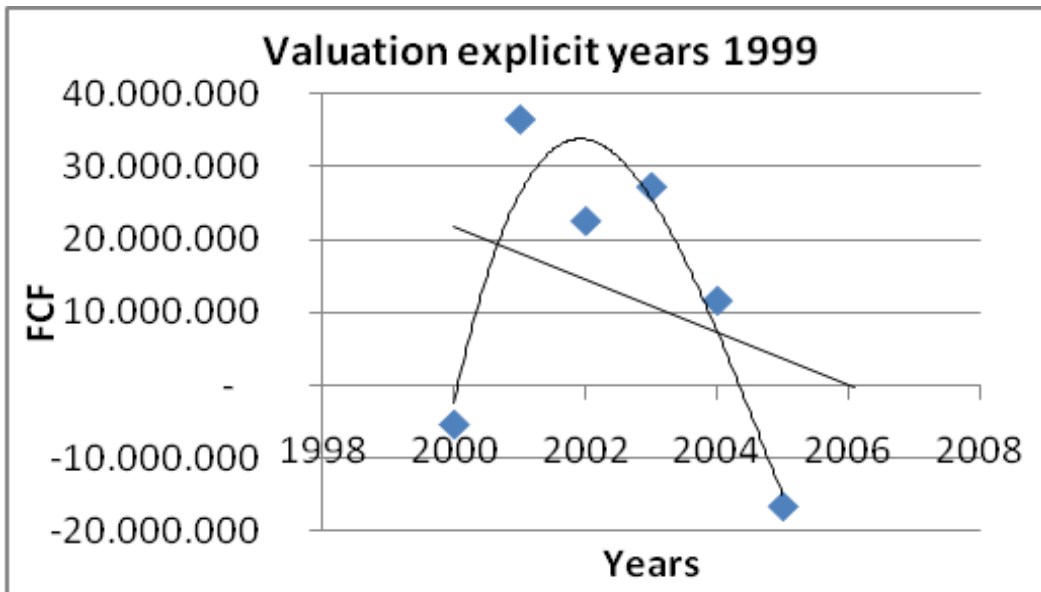
Source: Own source

Figure 9: Performance of free cash flows in 1998



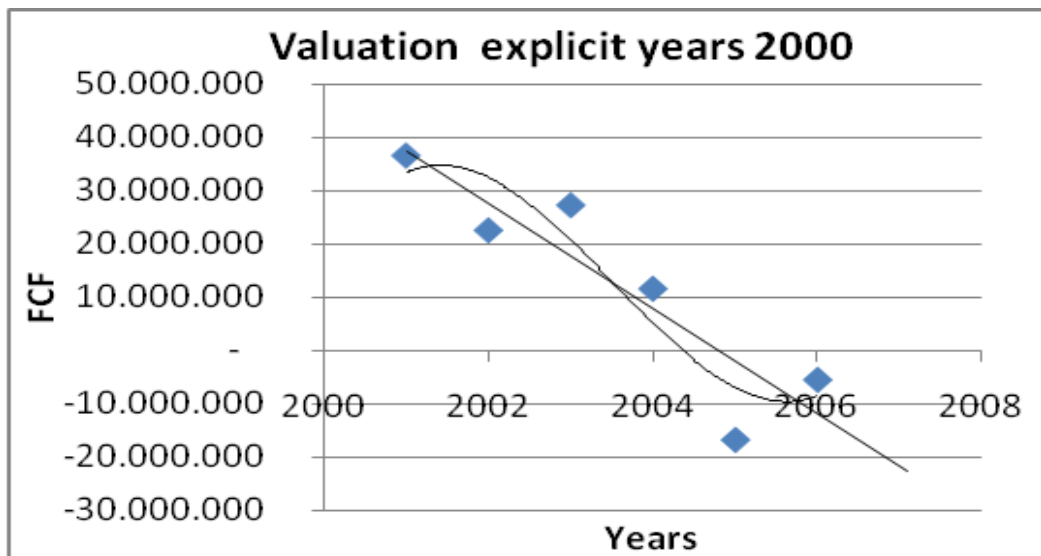
Source: Own source

Figure 10: Performance of free cash flows in 1999



Source; Own source

Figure 11: Performance of free cash flows in 2000



Source: Own source

As we can see above, all the valuations they contain the economic cycle, so these are good news for our model. In all years, our valuations contain the economic cycle so afterwards we can continue to carry out the next steps in the valuation process.

This has been the first approach that we have carried out. We are going to calculate the Tubacex's free cash flow in the same way as we have explained in Part I.

To see clearly, we are going to see an example of the valuation of 1994 which will be the same for the following years.

In 1994, we are going to use the free cash flows of the years 1995 till 2000 plus the terminal value and we are going to discount all these values to the year 1994. In all valuations we will discount six years because in 6 years reflects more an economic cycle (it is very important than more or less in a valuation could reflect an economic cycle, otherwise the valuation will be overvalued or undervalued). In the last two valuations, we will take 5 and 4 years in the explicit period, due to we have not forecasted the years 2018 an 2019 (because forecasting more than 5 years in a very dynamic sector is not recommendable due to the forecasting could be more an invention rather than a logical prediction). After having all the values already discounted with each WACC, we will have to calculate the VT and discounting it as well.

Figure 12: WACC calculation approach FCF

Years	Spanish debt 12 months %	Mibor	β	CAPM	Vs	Vb	i	T	WACC
1994	8,1990	0,0945	0,8300	0,0923	69.162.570	33.559.490	0,22	0,1421	12,37%
1995	9,8830	0,0914	0,8300	0,0926	77.521.900	44.936.840	0,24	0,1421	13,47%
1996	7,2490	0,0599	0,8300	0,0621	107.383.030	14.683.780	0,33	0,1421	8,91%
1997	5,0430	0,0462	0,8300	0,0469	125.103.750	26.814.860	0,11	0,1421	5,57%
1998	3,8140	0,0324	0,8300	0,0334	139.912.370	38.671.290	0,11	0,1421	4,61%
1999	3,0610	0,0381	0,8300	0,0368	151.177.630	49.949.720	0,08	0,1421	4,45%
2000	4,6470	0,0489	0,8400	0,0485	159.579.906	78.329.908	0,15	0,1421	7,45%
2001	3,9450	0,0329	0,9800	0,0330	169.104.000	69.795.000	0,18	0,1421	6,88%
2002	3,4790	0,0288	0,6700	0,0308	178.178.000	78.263.000	0,14	0,1421	5,67%
2003	2,2370	0,0238	0,8300	0,0236	174.358.000	82.748.000	0,11	0,1421	4,51%
2004	2,1440	0,0231	0,8300	0,0228	184.550.000	100.269.000	0,09	0,1421	4,19%
2005	2,2040	0,0278	0,8300	0,0268	206.022.000	135.038.000	0,08	0,1421	4,25%
2006	3,2640	0,0392	1,1800	0,0403	225.218.000	190.660.000	0,07	0,1421	4,82%
2007	4,1060	0,0478	1,1100	0,0485	265.851.000	200.124.000	0,10	0,1421	6,42%
2008	3,7760	0,0346	1,1200	0,0342	279.964.000	210.011.000	0,08	0,1421	4,95%
2009	1,0430	0,0124	1,2400	0,0129	241.147.000	152.292.000	0,05	0,1421	2,48%
2010	1,7980	0,0153	0,8500	0,0157	237.715.000	212.219.000	0,04	0,1421	2,35%
2011	3,3030	0,0200	1,6100	0,0121	239.495.000	225.441.000	0,04	0,1421	2,47%
2012	2,9290	0,0055	0,9421	0,0069	251.954.000	153.990.000	0,10	0,1421	3,53%
2013	3,0500	0,0055	1,0300	0,0047	283.134.190	119.775.912	0,09	0,1421	2,59%
2014	2,9991	0,0386	0,9463	0,0381	317.412.193	113.252.750	0,09	0,1421	4,87%
2015	2,9949	0,0365	0,9518	0,0362	349.299.547	96.641.841	0,10	0,1421	4,70%
2016	2,8848	0,0337	0,9576	0,0335	383.381.055	79.319.290	0,11	0,1421	4,46%
2017	2,8141	0,0310	0,9637	0,0309	417.521.431	57.944.753	0,16	0,1421	4,39%

Source: Own source

Above we can see the methodology that we have followed in order to calculate the WACC. We have used the formulas 2 and 3 to obtain the WACC

First of all, we have calculated the K_{eg} (is the same as CAPM). The R_f is the risk free rate. We have taken the 12 months Spanish debt. For the years 2013-2017, we have calculated a moving average from 1998 to 2012 (this fact was in the case of 2013). Beta is the sensibility of investment against the market risk. The higher the beta is means that is more volatile than the market in which operates. In this case, we compare Tubacex against the

Ibex Medium Cap. We have used Betas¹¹ of the industrial sector for 1999 until 2011. In 2012 and 2013, we have found the betas of Tubacex. Before 1999, we have supposed that the Betas were the same as 1999. Then we have calculated the ERm which is the expected yield return which we have used the Mibor (Madrid Interbank offered rate). We have used the Mibor¹² instead of Euribor, due to Euribor was created in 1999 and Mibor already existed in 1994 and we wanted to take the same type of interest rate for all the years. After reaching the Keg we have been able to start to calculate the WACC. We have calculated the interest rate through dividing the financial expenses of the year against the financial debt of the company. And the corporation tax we have calculated through calculating the average of the tax rate in the years which the company has profits and not considering those years which the company had tax credits from the country.

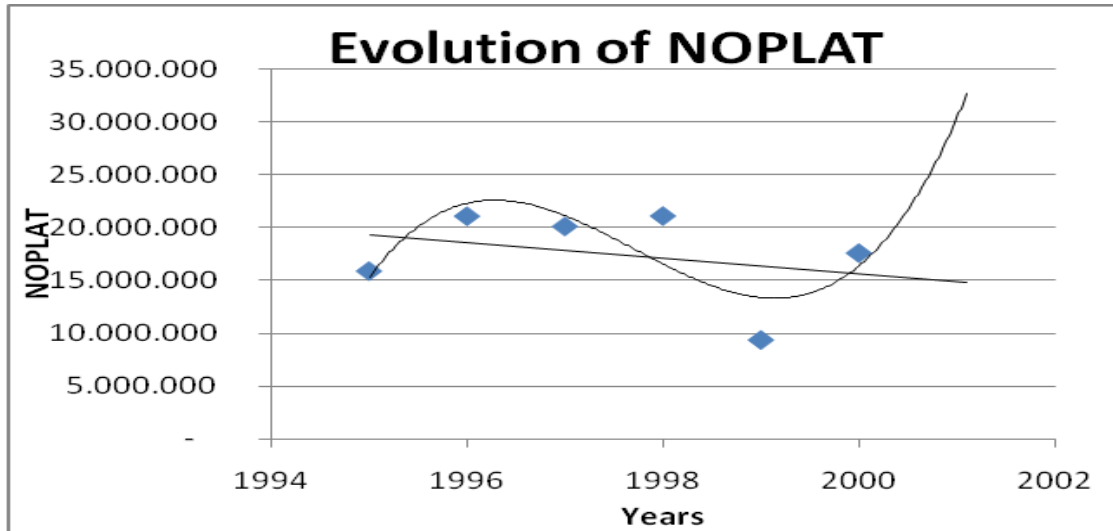
The formula for calculating the WACC is logical, because it calculates the required return of yields from the shareholders multiplied the equity and all this divided against the financial debt and the equity. We have to sum the interest rate paid multiplied the financial debt but taking into account the tax effect (we take into account the tax effect because thanks to the interests, the company pays less money in corporation taxes, they save money). The amount calculated in the nominator we divide against the equity and the debt. Finally we will have achieved the Weight Average Cost of Capital (WACC).

Afterwards, we have figured the Terminal Value (VT). In the example that we have used before (calculating the firm's value in 1994) we are going to base on it in order to explain how the terminal value is figured. We have calculated the average of the NOPLAT of the years 1995 till 2000. We consider that the variation of working capital is 0 and the amount which the company is investing is the same as amortisation. Then the FCF is the same as NOPLAT so that is the reason why we use the NOPLAT as to figure the terminal value.

¹¹ <http://blogs.cincodias.com/inversion/2009/12/apostando-con-beta.html>

¹² Banco de España

Figure 13: Evolution of NOPLAT



Source: Own elaboration

We have considered that the variations of working capital will be 0 in the long term and the amount money invested in the company will be the same as the amortization. It does not have any sense to consider that the company will keep investing in an infinity period. Only a firm will invest to replace the old equipment. In the long term the Working Capital trends to become 0 so that is the reason why we suppose that is zero. Therefore NOPLAT=Free Cash Flow.

The terminal value is figured in the last year of the explicit projection. We will consider an average of the NOPLATS of the 6 forecasted years due to an average of the NOPLAT will give as the middle point of the cycle. It is considered an average of the NOPLAT because if the last forecasted year would be higher than the average of the NOPLAT, it would be overvalued and vice versa. When we have the average of the NOPLAT of the cycle we are going to divide it against the WACC of the last forecasted year (because the VT is the remained value of the company in the last year forecasted). Then we will have to discount the free cash flows of each year and the terminal value to 1994.

The formula that we have used is

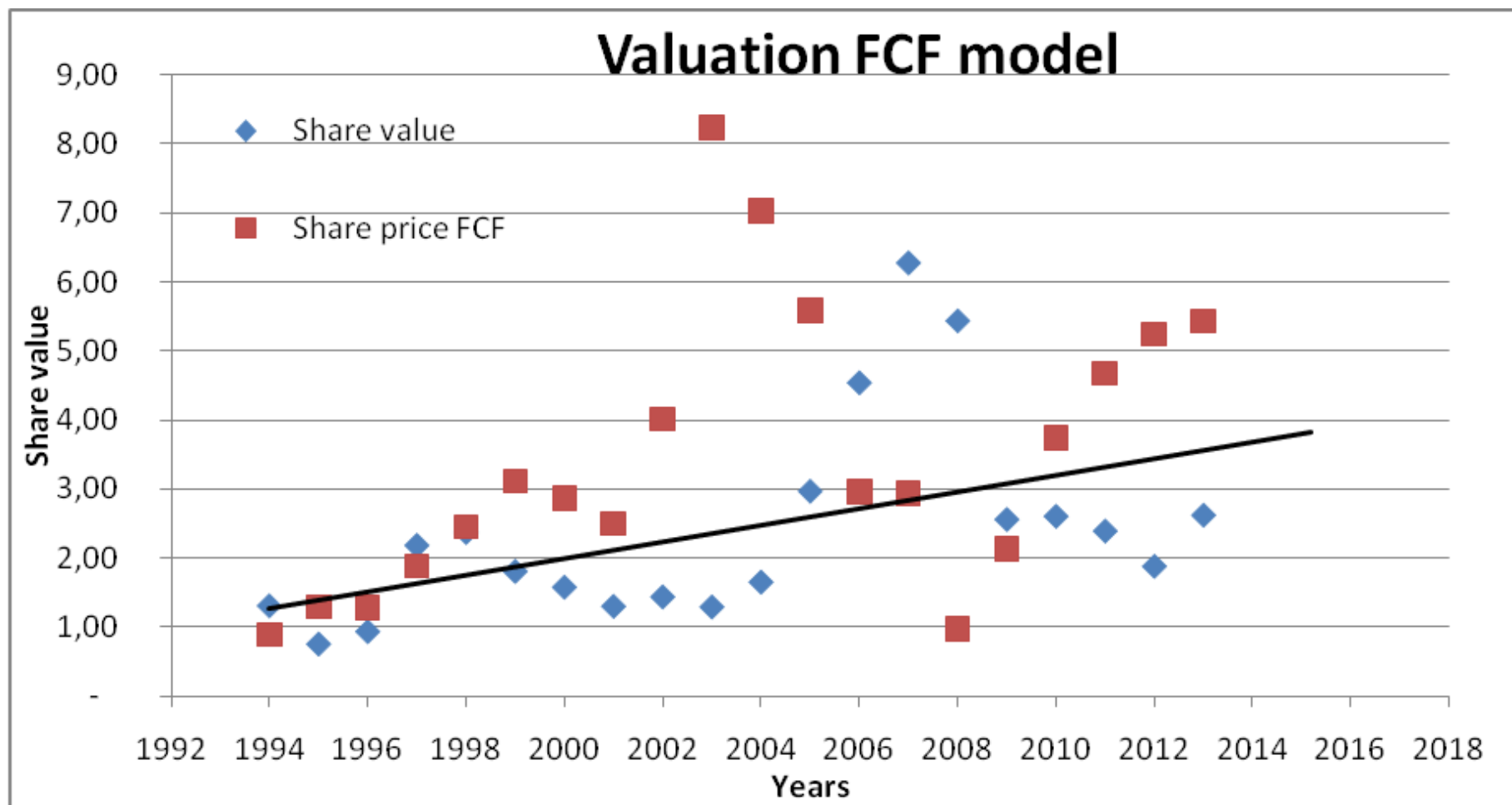
$$(8) CV_0: FCF_1/(1+WACC_1)^1 + FCF_2/(1+WACC_2)^2 + FCF_3/(1+WACC_3)^3 + FCF_4/(1+WACC_4)^4 + FCF_5/(1+WACC_5)^5 + FCF_6/(1+WACC_6)^6 + VT/(1+WACC_6)^6$$

The only thing left will be sum all numbers and we will have the valuation of 1994. Afterwards we rest the net debt (accounts receivable are added in the valuation and all the

debt is taken off) and we will have the equity's value. Then we will divide the equity's value against the total number of shares and we will have the theoretical share price.

This approach will be done each year. Between 1994 and 2006, all of valuations, will have been calculated through real database. The rest of the years include free cash flows projections. Forecasting the future cash flows is very difficult to do it correctly specially in this sector which is very volatile. We already know that our forecast won't be exactly the real value of the firm because the predictions are never the same as the reality but the discounted cash flow approach is one of the best methods so that is the reason why we have carried out this one in our valuation.

Figure 14: Valuation FCF model



Source: Own source

As we can see above, we have the model of the Free Cash Flow. The black line is the trend of Tubacex's stock market. The blue points are the stock values of Tubacex and the red ones are the FCF share price of Tubacex. As we can see in 8 years (1995, 1996, 1997, 2001, 2006, 2007, 2008, 2010) our forecast, the deviation is lower than the real stock values. The other years, the stock values are closer of the trend rather than the FCF values. As we can see, according to our forecast the share value is undervalued and also undervalued comparing with the stock's trend. Moreover, the Free Cash Flow projection shows us that it is an advanced indicator comparing to the stock market values.

Figure 15: FCF, WACC, Terminal value calculation¹³

	2003	2002	2001	2000	1999	1998	1997	1996	1995
EBIT	11.370.000	19.124.000	16.886.000	20.490.992	10.897.210	24.586.260	23.439.490	24.566.020	18.500.140
Tax	- 1.615.677	- 2.717.520	- 2.399.501	- 2.911.770	- 1.548.494	- 3.493.708	- 3.330.752	- 3.490.831	- 2.628.870
NOPLAT	9.754.323	16.406.480	14.486.499	17.579.222	9.348.716	21.092.552	20.108.738	21.075.189	15.871.270
Amortisation	13.918.000	15.104.000	13.874.000	14.437.465	10.188.700	8.821.440	7.444.600	7.397.950	7.620.640
CAPEX	3.834.000	- 1.910.000	- 3.616.704	- 29.634.076	- 47.900.490	- 5.692.560	- 3.332.240	- 6.365.240	9.456.650
WVC	15.625.000	-20.004.000	18.554.607	7.409.123	-20.480.990	-33.463.850	-30.310.700	29.585.890	-30.719.510
Free cash flow	43.131.323	9.596.480	43.298.402	9.791.734	- 48.844.064	- 9.242.418	- 6.089.602	51.693.789	2.229.050
Cash flow	19.962.000	31.511.000	29.462.000	30.084.689	26.147.360	30.596.120	28.831.550	26.394.710	17.792.370
WACC	4,51%	5,67%	6,88%	7,45%	4,45%	4,61%	5,57%	8,91%	13,47%
Number of shares	132.978.782	132.978.782	132.978.782	109.222.659	109.222.661	123.785.679	135.418.214	135.286.217	132.025.433
VT	327.923.403,59	290.836.240,24	251.026.257,34	235.066.133,14					

	2011	2010	2009	2008	2007	2006	2005	2004
EBIT	6.502.000	- 5.871.000	- 35.414.000	55.712.000	89.472.000	47.286.000	37.004.000	26.093.000
Tax	- 923.934	834.269	5.032.329	- 7.916.675	- 12.713.971	- 6.719.341	- 5.258.268	- 3.707.815
NOPLAT	5.578.066	- 5.036.731	- 30.381.671	47.795.325	76.758.029	40.566.659	31.745.732	22.385.185
Amortisation	20.705.000	18.642.000	17.031.000	16.668.000	16.693.000	16.746.000	15.645.000	15.082.000
CAPEX	- 10.085.000	- 19.995.000	- 41.336.000	- 42.109.000	5.807.000	8.563.000	- 3.063.000	3.409.000
WVC	2.908.000	-42.298.000	149.498.000	-42.672.000	-39.459.000	-77.639.000	-71.248.000	-28.519.000
Free cash flow	19.106.066	- 48.687.731	94.811.329	- 20.317.675	59.799.029	- 11.763.341	- 26.920.268	12.357.185
Cash flow	23.848.000	12.673.000	-9.037.000	54.251.000	73.354.000	47.693.000	41.069.000	28.594.000
WACC	2,47%	2,35%	2,48%	4,95%	6,42%	4,82%	4,25%	4,19%
Number of shares	132.978.782	132.978.782	132.978.782	132.978.782	132.978.782	132.978.782	132.978.782	132.978.782
VT	913.616.843,25	1.146.106.674,39	1.268.452.440,04	770.948.708,93	512.947.486,27	467.721.047,35	441.088.255,83	357.715.139,83

¹³ The Free Cash Flows and the Terminal Values are not discounted yet

	2017	2016	2015	2014	2013	2012
EBIT	49.290.189,50	48.856.292,71	46.817.027,41	50.045.547,22	46.561.824,23	26.547.000
Tax	- 7.004.136	- 6.942.479	- 6.652.700	- 7.111.472	- 6.616.435	- 3.772.329
NOPLAT	42.286.054	41.913.814	40.164.328	42.934.075	39.945.389	22.774.671
Amortisation	23.869.833,53	23.118.412,00	24.628.228,00	21.441.267,45	21.350.318,18	19.236.000
CAPEX	- 11.753.201	- 13.449.864	- 12.782.838	- 1.422.564	- 8.431.619	- 12.885.000
WC	-10.722.372	-9.182.968	-6.790.734	-29.433.931	13.937.919	-38.128.000
Free cash flow	43.680.315	42.399.393	45.218.984	33.518.848	66.802.007	- 9.002.329
Cash flow	17.044.678	2.473.594	2.746.444	4.584.828	1.113.482	31.329.000
WACC	4,39%	4,46%	4,70%	4,87%	2,59%	3,53%
Number of shares	132.978.782	132.978.782	132.978.782	132.978.782	132.978.782	132.978.782
VT	874.212.224,94	722.904.679,33	518.561.996,64	259.280.322,52	518.642.683,78	554.125.381,88
VT valuation 2012	945.185.229,33					
VT valuation 2013	953.755.680,83					

Source: Own source

Figure 16: Discounted cash flows

Year 6	Year 5	Year 4	Year 3	Year 2	Year 1	Discounted FCF
6.362.373	- 39.284.012	- 7.719.119	- 5.175.077	43.579.435	1.964.519	1994
29.039.177	6.836.375	- 41.033.165	- 8.074.622	- 5.463.540	47.463.524	1995
6.891.108	31.038.369	7.345.691	- 42.860.202	- 8.446.498	- 5.768.083	1996
33.107.945	7.282.148	33.175.195	7.892.951	- 44.768.589	- 8.835.500	1997
9.658.893	34.599.964	7.695.379	35.459.131	8.480.982	- 46.761.948	1998
- 20.976.663	10.063.740	36.159.222	8.132.059	37.900.303	9.112.822	1999
- 8.867.372	- 21.867.220	10.485.555	37.788.748	8.593.518	40.509.537	2000
41.165.321	- 9.295.032	- 22.795.584	10.925.051	39.491.709	9.081.163	2001
- 15.204.123	43.808.523	- 9.743.317	- 23.763.363	11.382.967	41.271.414	2002
81.843.513	- 15.956.837	46.621.443	- 10.213.223	- 24.772.227	11.860.077	2003
- 42.359.357	83.874.561	- 16.746.816	49.614.980	- 10.705.791	- 25.823.923	2004
16.506.149	- 43.353.855	85.956.011	- 17.575.905	52.800.729	- 11.222.115	2005
- 7.309.098	16.913.494	- 44.371.702	88.089.116	- 18.446.040	56.191.034	2006
57.292.225	- 7.567.381	17.330.892	- 45.413.445	90.275.155	- 19.359.252	2007
25.194.067	58.777.529	- 7.834.792	17.758.591	- 46.479.646	92.515.445	2008
34.319.462	26.421.861	60.301.340	- 8.111.652	18.196.845	- 47.570.878	2009
32.639.194	35.933.859	27.709.491	61.864.655	- 8.398.296	18.645.914	2010
33.763.771	34.093.857	37.624.198	29.059.871	63.468.500	- 8.695.069	2011
	35.244.397	35.613.350	39.394.050	30.476.060	65.113.925	2012
		36.789.952	37.200.565	41.247.157	31.961.264	2013

Source: Own source

5.2.2 Cash flow approach

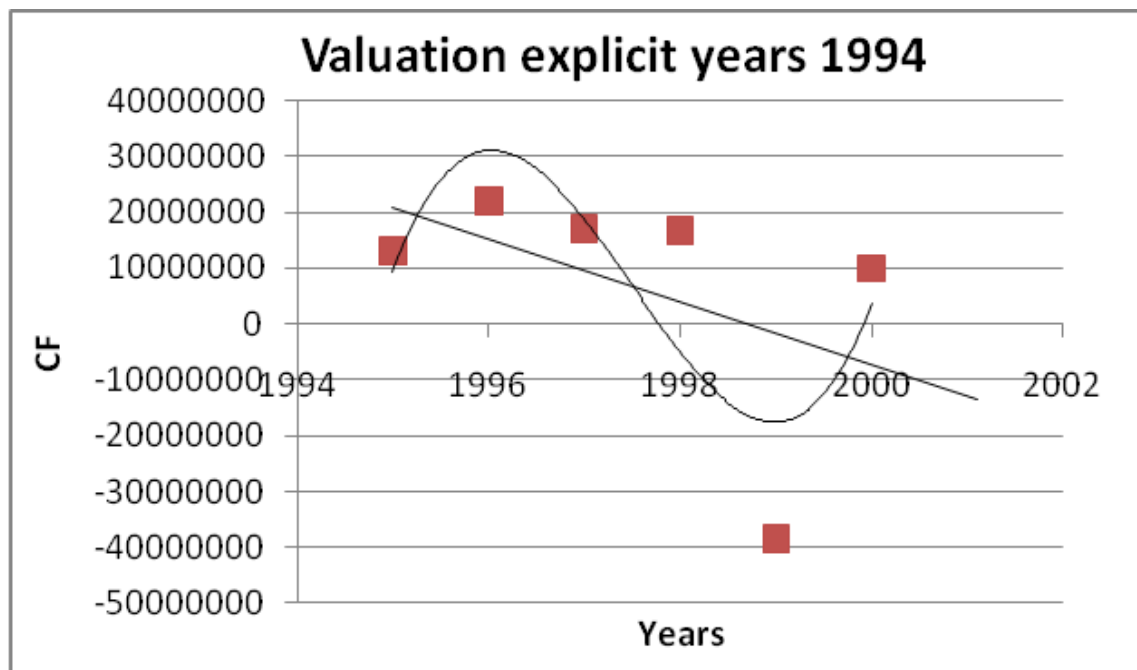
The second valuation approach that we have been carried in our valuation, has been the Cash flow approach.

We are going to calculate the Tubacex's cash flow in the same way as we have explained in Part I.

We have been carried out 20 valuations which 18 of them, in each projection are comprised by 6 years free cash flow projections and the terminal value. The last two valuations they have five and four years of the explicit projections respectively. As we have said before in the lasts two valuations we have less explicit projections years because we have not forecasted more than five years (we have forecasted until 2017).

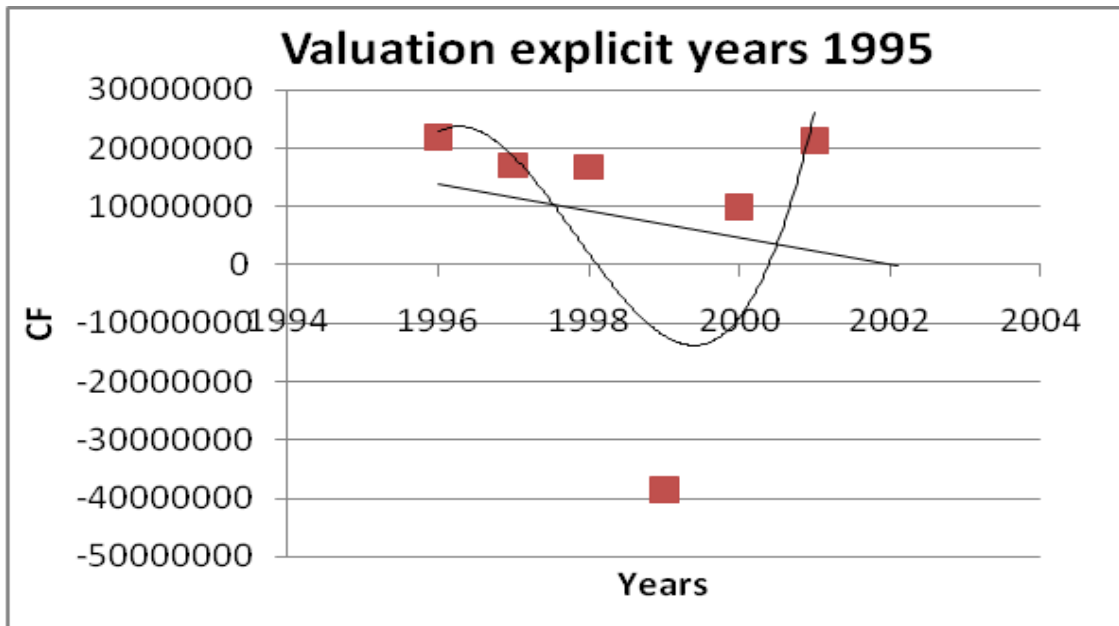
We have represented each valuation in a graph so we will see how the Cash Flows have been performed and how they are going to perform in the subsequent years.

Figure 17: Performance of the Cash Flows in 1994



Source: Own source

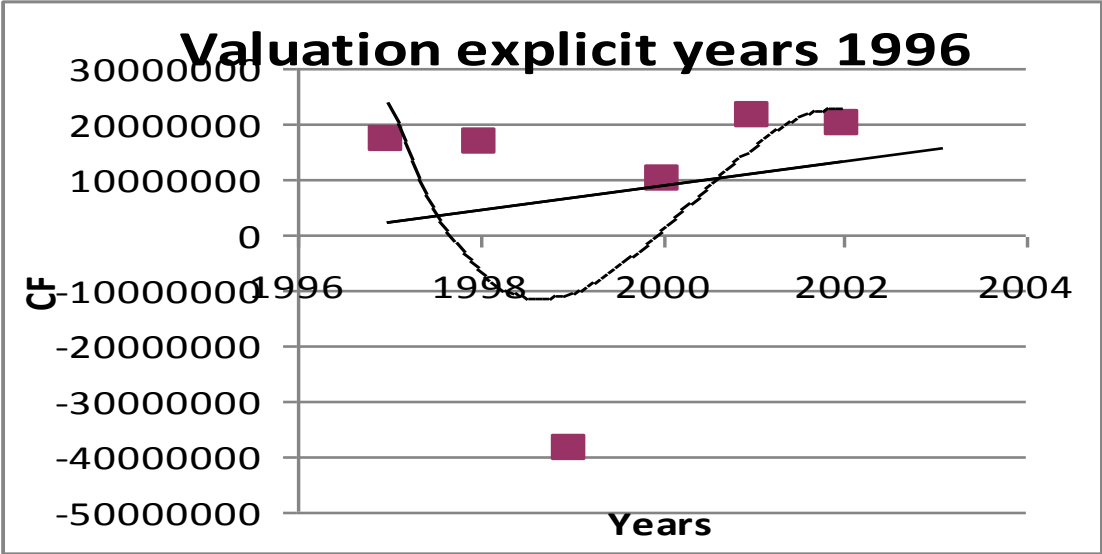
Figure 18: Performance of the Cash Flows in 1995



Source: Own source

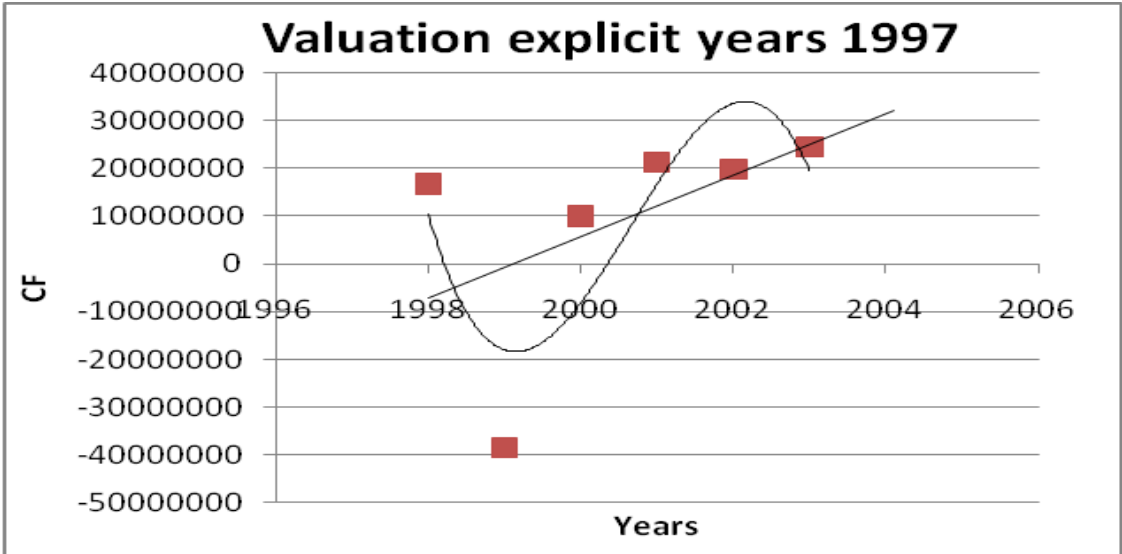
As we can see in the valuations of 1994 and 1995, both ones show us an economic cycle. It is very important that all the valuations could show us an economic cycle. If a company is valued containing just the explicit years of the top of the cycle the valuation will be overvalued and vice versa. For this reason in each valuation we have built a graph to verify the reliability of the valuation.

Figure 19: Performance of the Cash Flows in 1996



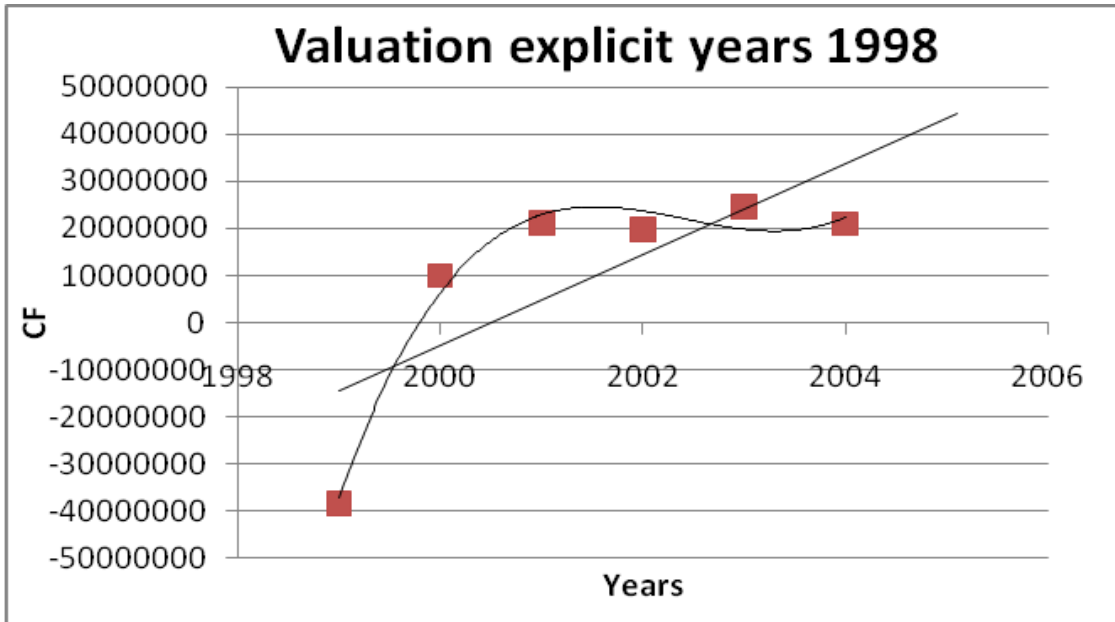
Source: Own source

Figure 20: Performance of the Cash Flows in 1997



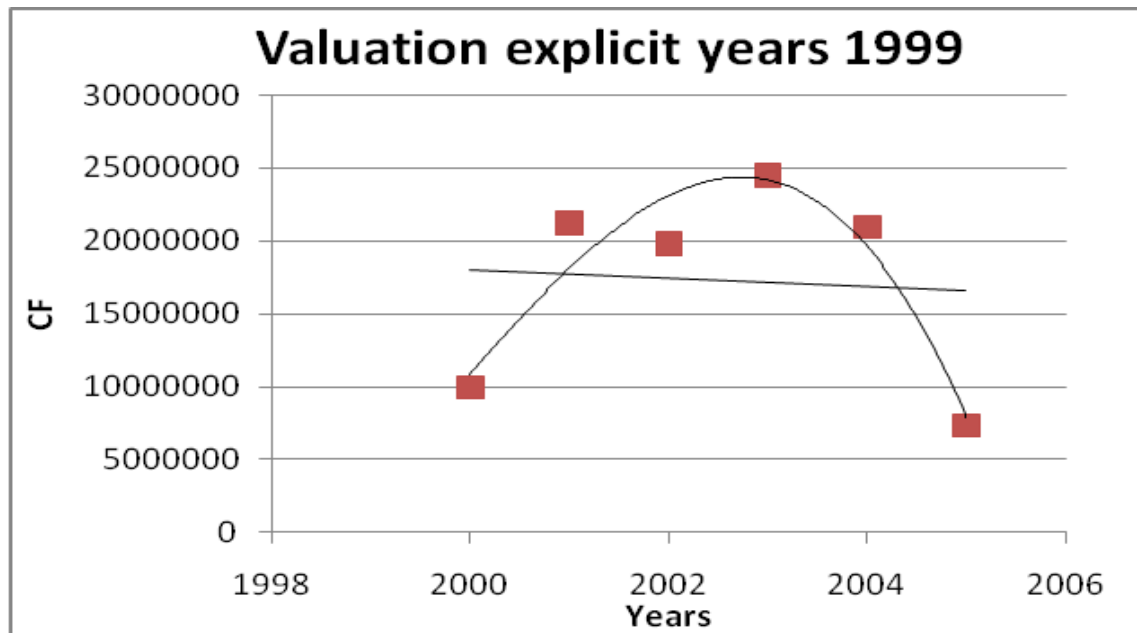
Source: Own elaboration

Figure 21: Performance of the Cash Flows in 1998



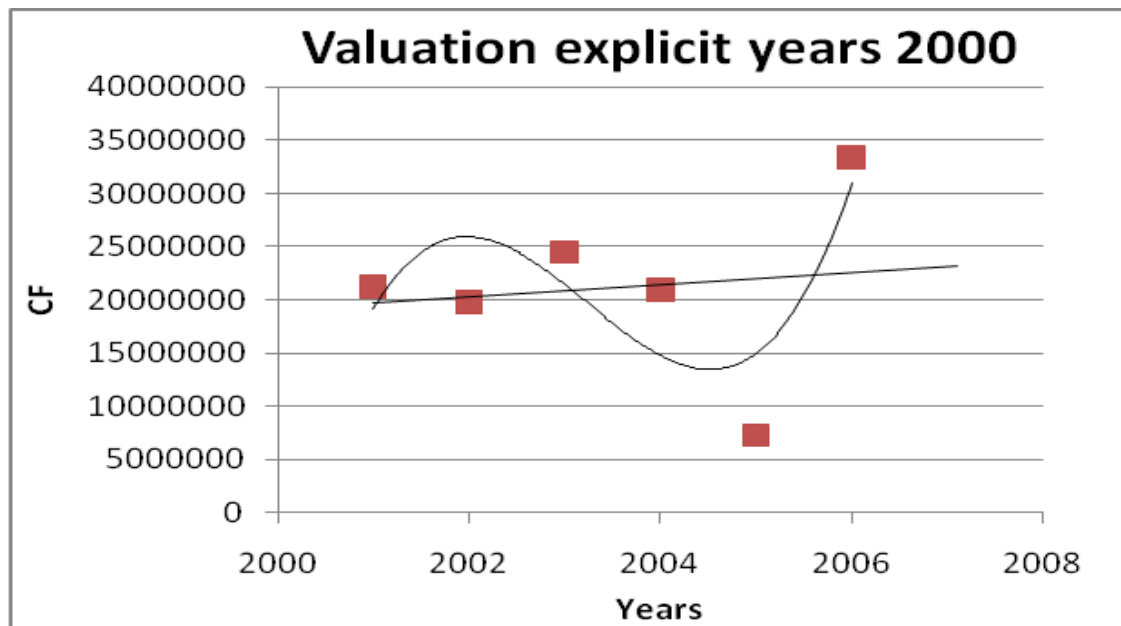
Source: Own source

Figure 22: Performance of the Cash Flows in 1999



Source: Own source

Figure 23: Performance of the Cash Flows in 2000



Source: Own source

As we can see above, all the valuations contain an economic cycle so these are good news for our model. So we can continue to carry out the next steps in the valuation process.

To see clearly, we are going to see an example of the valuation of 1994 which will be the same for the following years.

In 1994 we are going to use the cash flows of the years 1995 till 2000 plus the terminal value and we are going to discount all these values to the year 1994. In all valuations, we will discount six years because in 6 years reflects more an economic cycle (it is very important that more or less in a valuation could reflect an economic cycle, otherwise the valuation will be overvalued or undervalued). In the last two valuations we will take 5 and 4 years in the explicit period due to we have not forecasted the years 2018 and 2019 (because forecasting more than 5 years in a very dynamic sector is not recommendable due to the forecasting could be more an invention rather than a logical prediction). After having all the values already discounted with each WACC, we will have to calculate the VT (Terminal Value) and discounting it as well.

Figure 24: WACC Calculation approach CF

Years	Spanish debt 12 months %	Mibor	β	CAPM	Vs	Vb	i	T	WACC
1994	8,1990	0,0945	0,8300	0,0965	69.162.570	33.559.490	0,22	0,1421	12,65%
1995	9,8830	0,0914	0,8300	0,0968	77.521.900	44.936.840	0,24	0,1421	13,73%
1996	7,2490	0,0599	0,8300	0,0662	107.383.030	14.683.780	0,33	0,1421	9,28%
1997	5,0430	0,0462	0,8300	0,0511	125.103.750	26.814.860	0,11	0,1421	5,92%
1998	3,8140	0,0324	0,8300	0,0375	139.912.370	38.671.290	0,11	0,1421	4,93%
1999	3,0610	0,0381	0,8300	0,0409	151.177.630	49.949.720	0,08	0,1421	4,76%
2000	4,6470	0,0489	0,8400	0,0527	159.579.906	78.329.908	0,15	0,1421	7,73%
2001	3,9450	0,0329	0,9800	0,0379	169.104.000	69.795.000	0,18	0,1421	7,23%
2002	3,4790	0,0288	0,6700	0,0341	178.178.000	78.263.000	0,14	0,1421	5,91%
2003	2,2370	0,0238	0,8300	0,0277	174.358.000	82.748.000	0,11	0,1421	4,79%
2004	2,1440	0,0231	0,8300	0,0269	184.550.000	100.269.000	0,09	0,1421	4,46%
2005	2,2040	0,0278	0,8300	0,0310	206.022.000	135.038.000	0,08	0,1421	4,50%
2006	3,2640	0,0392	1,1800	0,0462	225.218.000	190.660.000	0,07	0,1421	5,14%
2007	4,1060	0,0478	1,1100	0,0541	265.851.000	200.124.000	0,10	0,1421	6,74%
2008	3,7760	0,0346	1,1200	0,0342	279.964.000	210.011.000	0,08	0,1421	4,95%
2009	1,0430	0,0124	1,2400	0,0191	241.147.000	152.292.000	0,05	0,1421	2,86%
2010	1,7980	0,0153	0,8500	0,0199	237.715.000	212.219.000	0,04	0,1421	2,57%
2011	3,3030	0,0200	1,6100	0,0202	239.495.000	225.441.000	0,04	0,1421	2,88%
2012	2,9290	0,0055	0,9421	0,0116	251.954.000	153.990.000	0,10	0,1421	3,83%
2013	3,0500	0,0055	1,0300	0,0099	283.134.190	119.775.912	0,09	0,1421	2,95%
2014	2,9991	0,0386	0,9463	0,0426	317.412.193	113.252.750	0,09	0,1421	5,21%
2015	2,9949	0,0365	0,9518	0,0407	349.299.547	96.641.841	0,10	0,1421	5,06%
2016	2,8848	0,0337	0,9576	0,0381	383.381.055	79.319.290	0,11	0,1421	4,83%
2017	2,8141	0,0310	0,9637	0,0354	417.521.431	57.944.753	0,16	0,1421	4,79%

Source: Own source

In order to achieve the WACC we have used the same methodology as we did when we figured out the WACC's rate. The WACC is a little bit higher than the WACC of FCF due to the ERM (shareholders required return is a little bit higher due to there is more risk).

When we have the WACC and the projections of the cash flow, we have to figure which terminal value Tubacex has for each valuation. We are going to take an average¹⁴ of the NOPLT (Net operating profit less taxes) from the forecasted years and this average is going to be divided against the WACC of the last year of the forecasted period. We consider that the NOPLT is the same value as the Cash Flow. We consider that if the company's life is infinite, the Financial Result is likely to be 0 and also the company is not going to pay dividends in an infinite period of time because we have supposed that the VT is not going to grow (we have not put any percentage of growing when we have figured the VT).

We have considered that the variations of working capital will be 0 in the long term and the amount of money invested in the company will be the same as the amortization. It does not have any sense to consider that the company will keep investing in an infinite period. Only a firm will invest to replace the old equipment. In the long term, the Working Capital trends to become 0 so that is the reason why we suppose that is zero. Also we consider that the company will have the same amount of capital every time. Therefore NOPLT= Cash Flow. The NOPLT is the same as the NOPLAT that we have calculated in the FCF due to we have considered that the financial result would be 0.

The terminal value is figured in the last year of the explicit projection. We will consider an average of the NOPLTS of the 6 forecasted years (Figure 13) due to an average of the NOPLT will give as the middle point of the cycle. It is considered an average of the NOPLT because if the last forecasted year would be lower than the average of the NOPLT, it would be undervalued and vice versa. When we have the average of the NOPLT of the cycle, we are going to divide it against the WACC of the last forecasted year (because the VT is the remained value of the company in the last year forecasted). Then we will have to discount the cash flow of each year and the terminal value to 1994.

The formula that we have used is

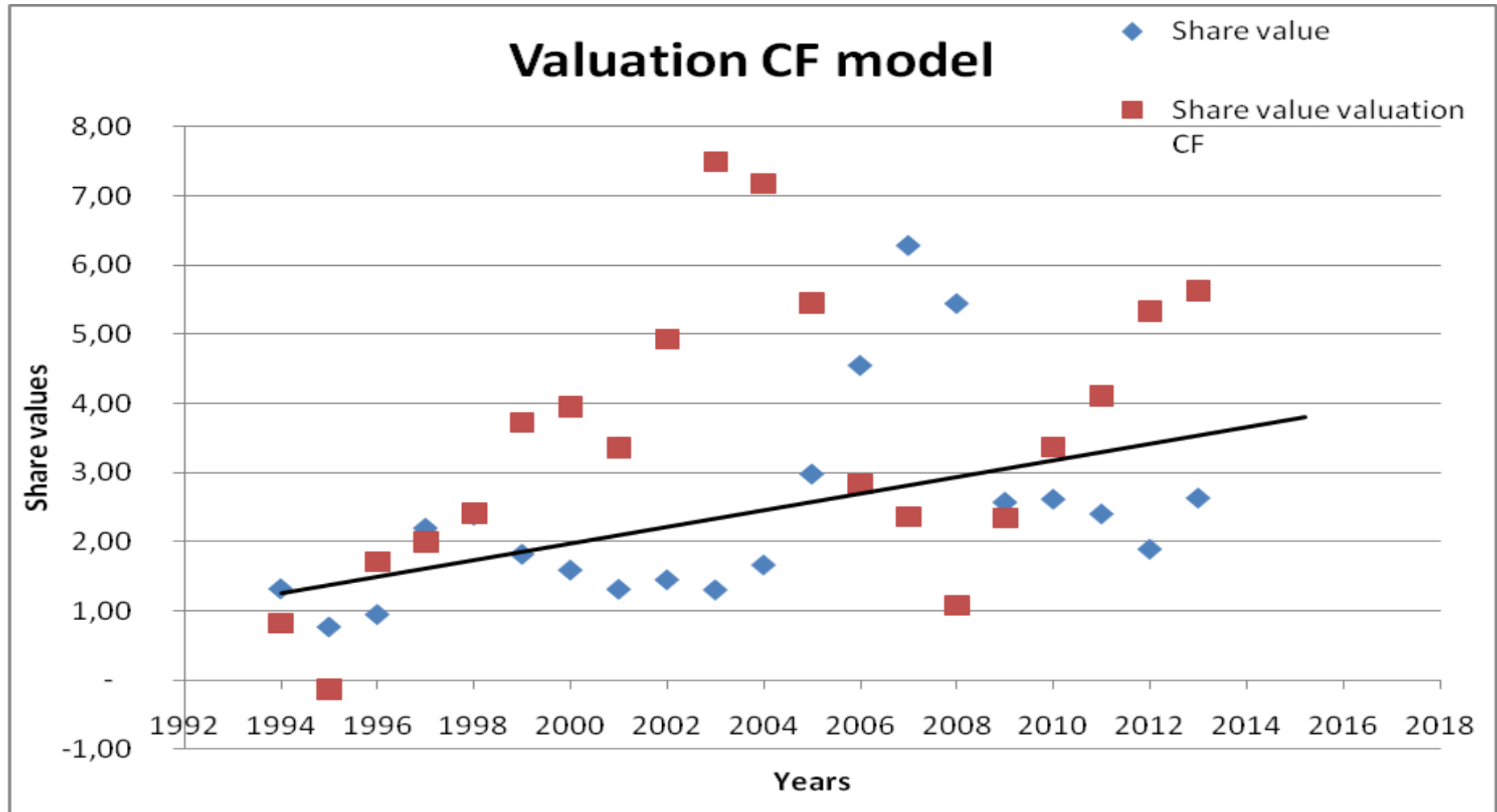
$$(9) CV_0: CF_1/(1+WACC_1)^1+ CF_2/(1+WACC_2)^2+ CF_3/(1+WACC_3)^3+CF_4/(1+WACC_4)^4+ CF_5/(1+WACC_5)^5+ CF_6/(1+WACC_6)^6+ VT/(1+WACC_6)^6$$

The only thing left will be to sum all numbers and we will have the valuation of 1994. Afterwards, we rest the net debt (accounts receivable are added in the valuation and all the debt is taken off) and we will have the equity's value. Then we will divide the equity's value against the total number of shares and we will have the theoretical share price.

¹⁴ It is represented in Figure 13

This approach will be done each year. Between 1994 and 2006, all of valuations, will have been calculated through real database. The rest of the years include cash flows projections. Forecasting the future cash flows is very difficult to do it correctly, specially in this sector which is very volatile. We already know that our forecast won't be exactly the real value of the firm because the predictions are never the same as the reality but the discounted cash flow approach is one of the best methods so we are going to carry out this one in our valuation.

Figure 25: Valuation CF model



Source: Own source

We can see that the evolution of values of the cash flow is very similar as the Free Cash Flow model but the main difference is that the evolution of the Cash flow is more volatile comparing to the Free Cash Flow. In the years 1996, 1997, 2006, 2007, 2008, 2010 and 2011 the share value according to Cash flow valuation is closer to the mean than the stock share values. The FCF model is slightly better than this model due to is less volatile than CF and also there is one more year which is closer to the mean comparing to the stock share value. As the same as in the Free Cash flow, the CF model shows us that it could be used as an advanced indicator of the evolution of the share values. As the same as the FCF, in 2013 the stock share value is undervalued comparing to the mean and to the CF share.

Figure 26: CF, WACC, Terminal Value Calculation¹⁵

	2003	2002	2001	2000	1999	1998	1997	1996	1995
Cash flow at the beginning of the period									
EBITDA	25.288.000	34.228.000	30.760.000	34.928.457	21.085.910	33.407.700	30.884.090	31.963.970	26.120.780
Variation of investments	2.648.000	- 680.000	- 4.180.169	- 25.385.311	-46.533.230	- 4.315.720	- 3.285.590	- 6.587.930	9.588.870
Variation of Working capital	5.466.000	241.000	3.877.134	16.356.826	-11.690.660	- 7.046.030	- 7.088.250	887.900	-13.414.940
Variation of fix liabilities	- 4.294.000	- 8.635.000	- 9.221.059	626.209	46.958.640	- 3.446.890	- 7.085.680	- 2.393.710	- 9.323.990
Financial result	- 3.238.000	- 5.021.000	- 3.848.000	- 4.804.948	1.893.190	- 436.620	- 36.220	- 1.184.830	- 7.363.960
Corporation tax	- 1.179.140	- 2.044.935	- 1.890.510	- 2.274.476	- 1.854.608	- 3.501.696	- 3.393.474	- 3.390.273	- 1.614.746
Dividends	- 5.666.625	- 5.666.625	- 4.053.459	- 4.624.269	-	-	-	-	-
Banks (Cash flow)									
Cash flow of the year	24.504.235	19.826.440	21.228.461	9.947.514	-38.466.658	16.730.794	17.033.906	21.911.527	13.183.784
WACC	4,79%	5,91%	7,23%	7,73%	4,76%	4,93%	5,92%	9,28%	13,73%
HOPLT	9.754.323	16.406.480	14.486.499	17.579.222	9.348.716	21.092.552	20.108.738	21.075.189	15.871.270
VT	308.648.187	279.376.660	238.985.947	226.501.186					
VT 2012									
VT 2013									

¹⁵ The Cash Flows and the Terminal Values are not discounted yet

	2011	2010	2009	2008	2007	2006	2005	2004
Cash flow at the beginning of the period								
EBITDA	27.207.000	12.771.000	- 18.383.000	72.380.000	106.165.000	64.032.000	52.649.000	41.175.000
Variation of investments	- 8.022.000	- 18.384.000	- 40.973.000	- 42.134.000	5.754.000	9.664.000	- 2.500.000	4.573.000
Variation of Working capital	4.817.000	19.226.000	85.471.000	- 21.853.000	- 39.355.000	- 16.776.000	- 26.781.000	- 12.872.000
Variation of fix liabilities	1.425.000	2.590.000	- 5.681.000	49.874.000	- 7.032.000	- 12.084.000	7.809.000	- 1.893.000
Financial result	- 6.920.000	- 6.355.000	- 6.611.000	- 14.981.000	- 12.256.000	- 6.108.000	- 3.823.000	- 5.319.000
Corporation tax	60.610	1.772.770	6.093.625	- 5.905.995	- 11.196.320	- 5.970.810	- 4.811.245	- 3.012.230
Dividends	-	-	- 13.472.479	- 20.119.690	- 12.553.197	- 10.319.153	- 6.854.657	- 2.455.453
Banks (Cash flow)								
Cash flow of the year	15.079.610	7.419.770	11.762.146	- 32.588.685	36.611.483	33.421.037	7.316.098	20.925.317
WACC	2,88%	2,57%	2,86%	4,95%	6,74%	5,14%	4,50%	4,46%
NOPLT	5.578.066	- 5.036.731	- 30.381.671	47.795.325	76.758.029	40.566.659	31.745.732	22.385.185
VT	782.187.376	1.046.060.834	1.100.008.178	770.948.709	488.840.813	438.659.857	416.495.022	336.149.482
VT 2012								
VT 2013								

	2017	2016	2015	2014	2013	2012
Cash flow at the beggining of the period	42.457.602	34.110.132	27.066.561	19.380.081	20.637.000	
EBITDA	49.290.189,50	48.856.292,71	46.817.027,41	50.045.547,22	46.561.824	45.783.000
Variation of investments	- 11.001.779	- 12.589.969	- 11.965.588	- 1.331.615	- 6.317.301	- 14.354.000
Variation of Working capital	- 5.342.497	- 18.158.050	- 16.358.072	- 28.270.612	- 21.635.088	- 100.931.000
Variation of fix liabilities	8.958.311	5.013.981	3.479.877	3.010.704	- 4.484.720	102.826.000
Financial result	- 4.914.517	- 4.767.268	- 5.493.352	- 6.132.872	- 6.448.580	- 13.414.000
Corporation tax	- 6.307.529	- 6.266.785	- 5.873.720	- 6.241.719	- 5.701.670	- 1.904.285
Dividends	- 3.927.768	- 3.740.731	- 3.562.601	- 3.392.954	- 3.231.384	-
Banks (Cash flow)	69.212.013	42.457.602	34.110.132	27.066.561	19.380.081	
Cash flow of the year	17.044.678	2.473.594	2.746.444	4.584.828	1.113.482	- 83.351.285
WACC	4,79%	4,83%	5,06%	5,21%	2,95%	3,83%
IIOPLT	42.286.054	41.913.814	40.164.328	42.934.075	39.945.389	22.774.671
VT	801.142.719	666.661.575	482.251.822	242.737.886	455.111.177	511.782.814
VT 2012	866.183.568					
VT 2013	874.037.673					

Source: Own source

Figure 27: Discounted Cash flows

Year 6	Year 5	Year 4	Year 3	Year 2	Year 1	Cash Flow
6.362.841	-30.479.885	13.800.906	14.336.114	18.348.866	11.592.369	1994
13.963.323	6.854.803	- 31.932.105	14.481.376	15.184.216	20.051.226	1995
14.050.398	14.973.055	7.384.803	- 33.453.516	15.195.398	16.082.491	1996
18.508.564	14.880.401	16.055.803	7.955.781	- 35.047.416	15.944.625	1997
16.105.102	19.394.748	15.759.436	17.216.848	8.570.906	-36.717.257	1998
5.619.242	16.823.444	20.323.361	16.690.398	18.461.852	9.233.591	1999
24.737.370	5.871.892	17.573.826	21.296.436	17.676.355	19.796.886	2000
24.757.858	26.009.456	6.135.901	18.357.678	22.316.102	18.720.555	2001
- 24.386.765	26.425.940	27.346.956	6.411.780	19.176.493	23.384.589	2002
9.930.384	-25.594.087	28.206.411	28.753.236	6.700.064	20.031.829	2003
6.371.031	10.214.555	- 26.861.179	30.106.842	30.231.831	7.001.308	2004
12.715.717	6.534.913	10.506.858	- 28.191.002	32.135.316	31.786.461	2005
- 66.538.538	13.082.249	6.703.011	10.807.526	- 29.586.661	34.300.460	2006
935.004	-69.084.364	13.459.345	6.875.433	11.116.798	-31.051.415	2007
3.381.374	962.628	- 71.727.595	13.847.312	7.052.291	11.434.920	2008
2.042.635	3.557.390	991.068	- 74.471.959	14.246.462	7.233.697	2009
1.863.569	2.145.956	3.742.569	1.020.348	- 77.321.324	14.657.117	2010
12.876.232	1.953.631	2.254.503	3.937.387	1.050.493	-80.279.709	2011
	13.492.387	2.048.046	2.368.541	4.142.346	1.081.529	2012
		14.138.026	2.147.024	2.488.346	4.357.975	2013

Source: Own source

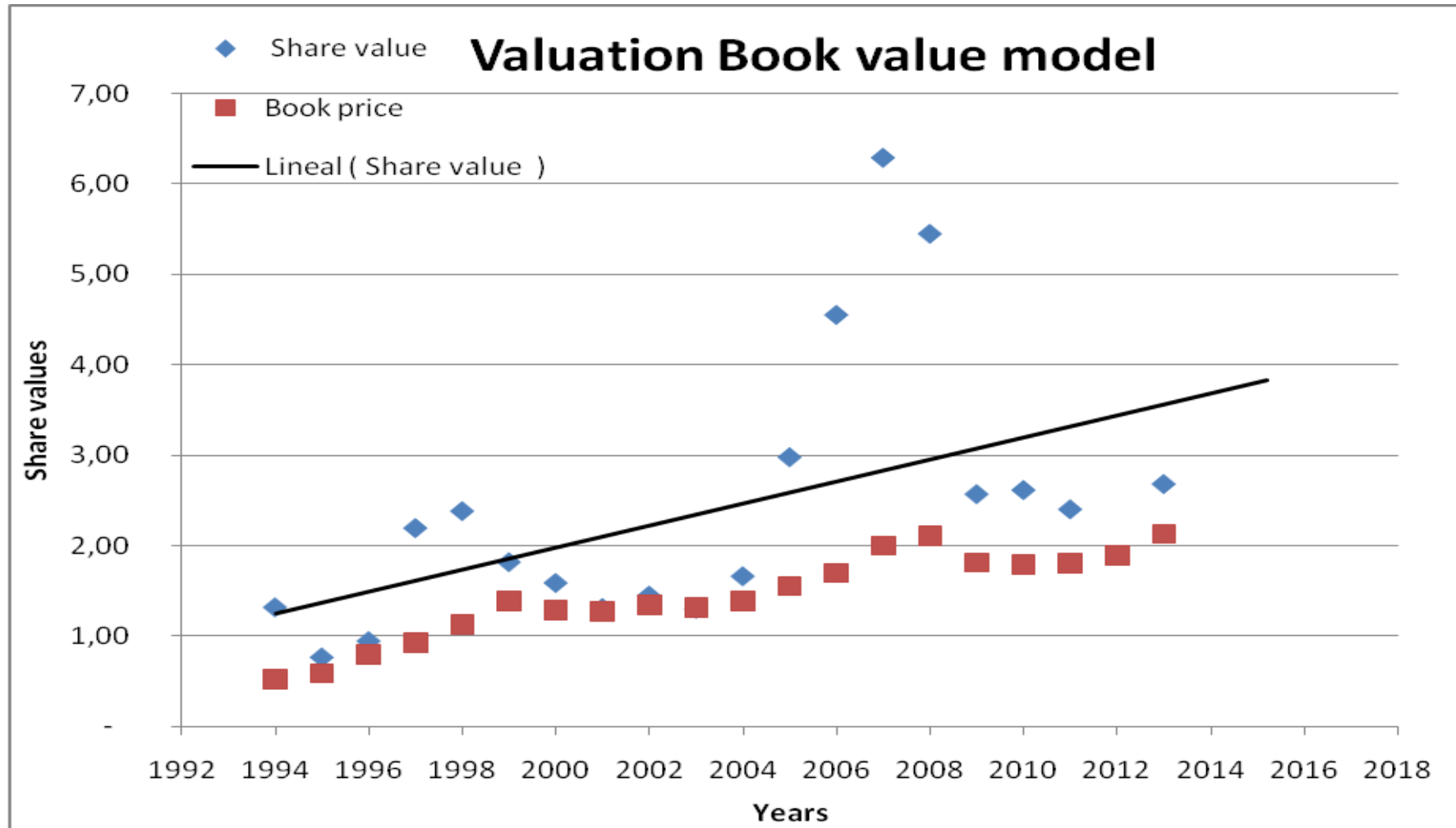
5.2.3 Book value approach

The book value approach has been figured for two reasons. The first one was to have an idea of the minimal value of the share that should have in the FCF and CF approaches.

The second reason is to test if the book share value is closer to the mean comparing to the stock exchange shares.

To calculate the book value, we have taken the company's net worth of one year and we have divided against the total number of shares and therefore we have ascertained the share book value.

Figure 28: Valuation Book value model



Source: Own source

We can see that all years the book value has been lower than the stock exchange values except in 2003 that the book value was 1, 31 and the share value 1, 3. As we said before, this model gives us the minimal value which the company has. It is not a good model since there are only 5 years in which the book value is closer to the mean comparing to the share's values. Only in 2008 the Share Book Value was higher than the Share FCF and CF values (it is normal because there was the crash of global economy) and in 1995 the Book value is higher comparing to the Cash Flow share value.

5.3 Comparing the three valuation approaches

The valuation approach which has been the best one is the FCF approach. This one was not better than the performance of the stock values because there have been more stock share values which have been closer to the mean (12 years) rather than the free cash flow shares (8 years). In the case of Cash Flow valuation, the CF share values which have been closer to the mean have been (7 years) rather than the stock share values (13 years). Also we can see that the volatility of the Cash Flow share values is higher rather than the FCF share values.

In the Book value approach, we have seen that it is not a better model comparing to the FCF and CF approaches. The Book share values which are closer to the mean rather than the stock share values are only four years. But it has been useful to calculate it as to checking the reliability of the FCF and CF share values (most of the FCF and CF share values are higher than the book share values).

In Tubacex's case, the best thing is to believe in technical analysis rather than fundamental analysis but also fundamental analysis (FCF) is useful because it give us an advanced indicator of the performance of Tubacex share.

6 Tubacex Financial analyses

6.1 Balance sheet and P&L

Figure 29: Balance sheet 2012-2017

Balance de situación	2017	%	2016	%	2015	%	2014	%	2013	%	2012	%
Inmovilizado restado las amort	305.561.252	39%	294.559.473	38%	281.969.504	38%	270.003.916	37%	268.672.301	39%	262.355.000	39%
Inmovilizado inmaterial	25.689.500	3%	28.128.428	4%	28.100.073	4%	28.128.428	4%	35.689.500	5%	34.033.000	5%
Inmovilizado material	242.497.941	31%	230.127.927	30%	218.515.592	29%	206.786.693	29%	196.212.572	29%	173.760.000	26%
Otros activos fijos	61.243.645	8%	59.421.530	8%	57.612.356	8%	56.530.063	8%	58.120.547	8%	54.562.000	8%
		0%		0%		0%		0%		0%		0%
Activo circulante	484.081.579	61%	471.231.267	62%	461.086.915	62%	454.372.388	63%	418.383.581	61%	412.926.000	61%
Existencias	213.655.000	27%	231.087.743	30%	230.885.069	31%	231.087.743	32%	213.655.000	31%	231.623.000	34%
Deudores	171.553.566	22%	168.024.922	22%	166.430.714	22%	166.557.084	23%	155.687.500	23%	151.642.000	22%
Otros activos líquidos	29.661.000	4%	29.661.000	4%	29.661.000	4%	29.661.000	4%	29.661.000	4%	29.661.000	4%
Tesorería	69.212.013	9%	42.457.602	6%	34.110.132	5%	27.066.561	4%	19.380.081	3%	20.739.000	3%
		0%		0%		0%		0%		0%		0%
Total activo	789.642.831	100%	765.790.740	100%	743.056.419	100%	724.376.304	100%	687.055.882	100%	675.281.000	100%
Fondos propios	417.521.431	53%	383.381.055	50%	349.299.547	47%	317.412.193	44%	283.134.190	41%	251.954.000	37%
Capital suscrito	59.840.000	8%	59.840.000	8%	59.840.000	8%	59.840.000	8%	59.840.000	9%	59.840.000	9%
Otros fondos propios	357.681.431	45%	323.541.055	42%	289.459.547	39%	257.572.193	36%	223.294.190	33%	192.114.000	28%
		0%		0%		0%		0%		0%		0%
Pasivo fijo	212.752.154	27%	203.793.842	27%	198.779.861	27%	195.299.984	27%	192.289.280	28%	176.137.000	26%
Acreedores a L. P.	166.159.161	21%	157.702.253	21%	152.914.802	21%	149.416.968	21%	147.950.780	22%	151.685.000	22%
Otros pasivos fijos	25.955.992	3%	25.454.589	3%	25.228.060	3%	25.246.016	3%	23.701.500	3%	24.452.000	4%
Provisiones	20.637.000	3%	20.637.000	3%	20.637.000	3%	20.637.000	3%	20.637.000	3%	20.637.000	3%
		0%		0%		0%		0%		0%		0%
Pasivo líquido	159.369.247	20%	178.615.843	23%	194.977.011	26%	211.664.127	29%	211.632.412	31%	247.190.000	37%
Deudas financieras	57.944.753	7%	79.319.290	10%	96.641.841	13%	113.252.750	16%	119.775.912	17%	153.990.000	23%
Acreedores comerciales	74.761.304	9%	73.019.162	10%	72.232.078	10%	72.294.469	10%	66.928.000	10%	53.949.000	8%
Otros pasivos líquidos	26.663.190	3%	26.277.392	3%	26.103.091	4%	26.116.908	4%	24.928.500	4%	39.251.000	6%
		0%		0%		0%		0%		0%		0%
Total pasivo y capital propio	789.642.831	100%	765.790.740	100%	743.056.419	100%	724.376.304	100%	687.055.882	100%	675.281.000	100%

Source: Own source

Figure 30: Profit and Loss 2012-2017

Profit and Loss	2017	%	2016	%	2015	%	2014	%	2013	%	2012	%
Total Turnover	615.442.157	100,00%	601.999.704	100,00%	595.926.530	100,00%	596.407.940	100,00%	555.000.000	100,00%	532.420.000	100,00%
Procurements	393.702.088	63,97%	384.229.191	63,83%	379.949.425	63,76%	380.288.675	63,76%	351.108.500	63,26%	333.194.000	62,58%
Amount of payrolls	96.745.637	15,72%	95.069.363	15,79%	94.312.038	15,83%	94.372.070	15,82%	89.208.500	16,07%	108.575.000	20,39%
Other expenses	51.834.409	8,42%	50.726.445	8,43%	50.219.811	8,43%	50.260.380	8,43%	46.770.858	8,43%	44.868.000	8,43%
EBITDA	73.160.023	11,89%	71.974.705	11,96%	71.445.255	11,99%	71.486.815	11,99%	67.912.142	12,24%	45.783.000	8,60%
Amortization	23.869.834	3,88%	23.118.412	3,84%	24.628.228	4,13%	21.441.267	3,60%	21.350.318	3,85%	19.236.000	3,61%
EBIT	49.290.190	8,01%	48.856.293	8,12%	46.817.027	7,86%	50.045.547	8,39%	46.561.824	8,39%	26.547.000	4,99%
Financial income	4.356.644	0,71%	4.286.525	0,71%	4.227.359	0,71%	4.227.359	0,71%	4.162.793	0,75%	1.290.000	0,24%
Financial expenses	9.271.161	1,51%	9.053.793	1,50%	9.720.711	1,63%	10.360.231	1,74%	10.611.373	1,91%	14.704.000	2,76%
Financial result	- 4.914.517	-0,80%	- 4.767.268	-0,79%	- 5.493.352	-0,92%	- 6.132.872	-1,03%	- 6.448.580	-1,16%	- 13.414.000	-2,52%
Result before taxes	44.375.673	7,21%	44.089.025	7,32%	41.323.676	6,93%	43.912.675	7,36%	40.113.244	7,23%	13.133.000	2,47%
Corporation tax	6.307.529	1,02%	6.266.785	1,04%	5.873.720	0,99%	6.241.719	1,05%	5.701.670	1,03%	1.040.000	0,20%
Net Result	38.068.144	6,19%	37.822.240	6,28%	35.449.955	5,95%	37.670.957	6,32%	34.411.574	6,20%	12.093.000	2,27%

Source: Own source

As we can see in the Balance Sheet, Tubacex's assets will increase in the subsequent years. Non current assets will keep constant but the account equipment and plants will keep growing because of they will keep on investing in new facilities, especially those ones which they are going to produce high added value products as OCTG¹⁶ or umbilicals¹⁷.

The current assets evolution of the company is positive due to the company will reduce the inventory level, it will keep the same percentage of accounts receivable and the cash flow will increase (3% of the total assets in 2012 and it will represent 9% of the total assets in 2017).

The company shows us a high degree of solvency (the net worth was the 37% of the total assets in 2012 and will represent a 53% in 2017).

The long term liabilities keep constant in 27% of the total assets. According to our forecast the current liabilities will be reduced almost 36% in 5 years. The account which will be reduced more is the financial debt which in 2012 represented 23% of the total net worth plus liabilities and in 2017 will represent just 7%.

As we can see in the Profit and Loss account, Tubacex has good future perspectives. EBITDA will represent an average of 12% of sales between 2013-2017, a huge improvement comparing to the year 2012 that it represented 8,6%. The EBIT will improve as well representing an average of 8% of sales among 2013-2017 (in 2012 was 5%). The financial results are likely to improve but they will continue to be negative.

During 2013-2017, the Return on Sales (ROS) is bound to double, comparing to 2012 (the average of the period will be around 6% and in 2012 was 2,27%).

¹⁶ Oil Country tubular goods are a kind of pipes that are used in the oil extraction in offshore conditions.

¹⁷ Umbilicals are used to control the equipments in the subsea.

6.2 Working Capital and Liquidity position

Figure 31: Working capital and liquidity position

	2017	2016	2015	2014	2013	2012
Current Assets	414.869.566	428.773.665	426.976.783	427.305.827	399.003.500	412.926.000
Currents liabilities	159.369.247	178.615.843	194.977.011	211.664.127	211.632.412	247.190.000
Working capital	255.500.319	250.157.822	231.999.772	215.641.700	187.371.088	165.736.000
Financial urgencies	- 5.342.497	- 18.158.050	- 16.358.072	- 28.270.612	- 21.635.088	-100.931.000
Working capital/Sales	41,51%	41,55%	38,93%	36,16%	33,76%	31,13%

Source: Own source based on Rankia¹⁸ analysis

As we can see, the working capital is growing among 2012-2017. This is bad for the firm, because this means that the company is financing the others. The positive thing is that the working's capital growth is being reduced every year. The increase of the working capital means that Tubacex will have to finance this amount of money asking for a loan for instance.

The ratio working capital/Sales is growing in Tubacex accounts. In 2017 the ratio will be 41, 5% of sales. This means that every 100 Euros of revenues, the company will have to finance 41, 5 Euros in operating expenses.

Figure 32: Liquidity position

Liquidity ratios	2017	2016	2015	2014	2013	2012
Current Ratio	3,04	3,04	2,64	2,64	2,36	2,36
Quick ratio	1,70	1,70	1,34	1,34	1,18	1,18
Tresury	0,43	0,43	0,24	0,24	0,17	0,17

Source: Own source based on Rankia analysis

We have been figured the liquidity ratios to know if the company could have some problems of liquidity in the short term. Tubacex is bound to improve all ratios. Maybe in 2016 and 2017 there are so high. The current ratio has to be around 1'5, the quick ratio around 1 and the treasury ratio around 0'3. Anyway these ratios show the Tubacex solvency in the short term.

¹⁸ <http://www.rankia.com/blog/analisis-value/1643689-analisis-tubos-reunidos-vs-tubacex>

6.3 Financial position, debt and solvency.

Figure 33: Financial position

	2017	2016	2015	2014	2013	2012
EBITDA margin	11,89%	11,96%	11,99%	11,99%	12,24%	8,60%
Net debt	200.567.834	214.384.762	227.326.159	240.407.027	248.234.192	271.685.000
Net debt/EBITDA	2,74	2,98	3,18	3,36	3,66	5,93

Source: Own source based on Rankia analysis

As we can see, the net debt is bound to fall 71 million Euros in 5 years. The net debt is the total debt less accounts receivable. The ratio Net Debt/EBITDA will drop more than 50% in 5 years. These are good news for Tubacex because the financial expenses are likely to reduce next years and therefore the company will generate more cash.

We can see that if these numbers are fulfilled, Tubacex will increase its solvency in the long term.

6.4 Cash flow

Figure 34: Cash flow

	2017	2016	2015	2014	2013	2012
Cash flow at the beginning of the period	42.457.602	34.110.132	27.066.561	19.380.081	20.637.000	12.091.000
EBITDA	49.290.189,50	48.856.292,71	46.817.027,41	50.045.547,22	46.561.824	45.783.000
Variation of investments	- 11.001.779	- 12.589.969	- 11.965.588	- 1.331.615	- 6.317.301	- 14.354.000
Variation of Working capital	- 5.342.497	- 18.158.050	- 16.358.072	- 28.270.612	- 21.635.088	- 100.931.000
Variation of fix liabilities	8.958.311	5.013.981	3.479.877	3.010.704	4.484.720	102.826.000
Financial result	- 4.914.517	- 4.767.268	- 5.493.352	- 6.132.872	- 6.448.580	- 13.414.000
Corporation tax	- 6.307.529	- 6.266.785	- 5.873.720	- 6.241.719	- 5.701.670	- 1.904.285
Dividends	- 3.927.768	- 3.740.731	- 3.562.601	- 3.392.954	- 3.231.384	-
Banks (Cash flow)	69.212.013	42.457.602	34.110.132	27.066.561	19.380.081	20.637.000
Cash flow of the year	17.044.678	2.473.594	2.746.444	4.584.828	1.113.482	83.351.285

Source: Own source based on Rankia analysis

In the table, we can see the evolution of the cash flow of the company. As we can see, between 2013 and 2017 the company is going to generate cash flow at the same time that the firm is going to reduce the financial debt as we have seen when we were analyzing the balance sheet. Therefore, the financial result will improve. The company will carry on investing which is very important in order to be competitive. We have to consider as well that the company is going to share the profits in all years without reducing the company's net worth. The negative fact is that the variation of working capital is negative in all years. This means that the company does not reduce the accounts receivable and the accounts payable remains constant or increases and this is bad because this means that Tubacex is financing its suppliers rather than financing itself.

Figure 35: Financial ratios

Ratios	2017	2016	2015	2014	2013	2012
ROA	4,82%	4,94%	4,77%	5,20%	5,01%	1,79%
ROCE	7,82%	8,32%	8,54%	9,76%	9,79%	6,20%
ROE	9,12%	9,87%	10,15%	11,87%	12,15%	4,80%

Source: Own source based on Rankia analysis

As we can see, the three ratios improve comparing to 2012. The ROA (Return on assets) measures the percentage of yield of the total assets. It goes down a little bit due to the increase of profits is lower than the increase of assets, that is the reason why the ROA is falling a little bit. The ROCE measures the value of the business gains from its assets and liabilities. In Tubacex's case, the EBIT is expected to grow but less than the increase of assets. So since 2013, the ROCE is expected to go down and these are negative news for

the firm. Finally, we have the ROE (Return on equity). In 2013 the ROE almost triplicates comparing to the previous year. Since then it is expected to fall but it will keep higher than 9% which is a very good yield for shareholders.

6.5 EVA ratio

Figure 36: EVA calculation

EVA calculation	2017	2016	2015	2014	2013	2012
NOPLAT	42.286.054	41.913.814	40.164.328	42.934.075	39.945.389	22.774.671
(Net Worth+Liab)*Average cost debt	19.673.433	18.130.583	18.343.900	18.440.707	18.049.553	23.455.465
EVA	22.612.621	23.783.230	21.820.428	24.493.368	21.895.836	- 680.794

Source: Own source based on Rankia analysis

EVA (economic value added) measures if the company adds value or not. If it is positive, it means that the firm adds value but if it is negative, it means that the company has to take some measures to get over the problem of not adding value. We can see that in 2012, the EVA was negative. This means that if the net worth cost would be the same as the cost of financial debt, the company would not have generated enough NOPLAT to pay all.

In the subsequent years, it is completely different, because of the EVA of the company is positive. This means that if the equity cost would be the same as the financial debt cost, the company would have generated enough NOPLAT to pay all.

If our projections are fulfilled, Tubacex will be in a good financial position. The firm will improve its results, will reduce the net debt, will generate cash flow, the liquidity of the firm will increase substantially and the EVA will be positive. The negative point will be the working capital, because it will increase comparing to the firm's sales and this is bad. Instead of financing itself, the company finances its costumers and this cash could be used as reducing more the financial debt for instance. This fact is getting worse every year.

7. Conclusion

The first part of the thesis has been explaining the view of Shiller about the performance of financial markets. After studying the theories about financial markets, we have thought that Shiller's point of view could be applied in Tubacex. Shiller states that financial markets are irrational. In the short term, the share value can be overvalued or undervalued, but in the long term, the share stock value tends to revert to the mean (trend of stock exchange market). In order to identify if a company is overvalued or undervalued, to achieve the firm's intrinsic value has been necessary. We have figured this fact in the second part of the thesis.

Afterwards, we have explained the three valuation approaches that can be used as valuing a firm: the Account approach, Market approach and the Cash flow approach. In each approach there are several¹⁹ methods that can be used.

In the second part of the thesis, we have analyzed the sector which Tubacex has its business (stainless steel sector). We have seen that stainless steel sector is a very volatile sector which is narrowly tied to the evolution of global economy. The prices of raw materials change so much. It is a sector which the fix costs trend to be very high, if there is a deep economic downturn such the last one, losses can be very high.

After analyzing the sector in which Tubacex operates, we have started to estimate Tubacex's intrinsic value. We have applied three different valuation approaches to forecast the Tubacex's intrinsic value. We have followed three approaches using the Free Cash Flow, Cash Flow Method and the Book Value. The last approach has been useful as to check the reliability of the two different discounted cash flow approaches (Free Cash Flow and Discounted Cash Flow) and Book Value. Also it has been useful to check if this model was better than the short term stock values. We have calculated three different approaches to check if the share prices of the three methods were closer to the mean, comparing to the short term stock values.

According to Shiller's approach, we have found that Tubacex annual average stock values are closer to Tubacex's stock trend than the intrinsic company value estimated by means of finance and accounting methods.

¹⁹ See point 4 which is talked about the valuation approaches

Figure 37: Comparison of our valuation methods

Valuations methods	Values closer to the stock trend comparing to the short term stock values (the trend is composed of 20 years)
FCF share values	8 (1995, 1996, 1997, 2001, 2006, 2007, 2008 and 2010)
CF share values	7 (1996, 1997, 2006, 2007, 2008, 2010 and 2011)
Book share values	5 (2003, 2006, 2007, 2008 and 2012)

Source: Own source

It means that in the case of Tubacex, annual average stock values are better predictors of company's intrinsic values than financial and accounting methods.

The outcome put in question Shiller's theory in relation to the role of Free Cash Flow, Discounted Cash Flow or Book Value methods as estimators of company intrinsic value.

Anyway, Free Cash Flow and in a less extend Cash Flow could be considered as advanced indicators of intrinsic value.

As we can see in the Figure 37, the best valuation approach is the discounted Free Cash Flow due it is the valuation method which has more years closer to the mean, comparing to the other valuation approaches. The Free Cash Flow is better also because its volatility is lower rather than the Discounted Cash Flow approach.

The Book Value approach is the worst because it is a static method which does not take into account the future, only the present and the past.

We can see that the short term stock values are closer to the mean comparing to all valuation approaches that we have carried out. This fact tells us that we ought to trust in technical analysis more than fundamental analysis (valuation approaches) in the short term market performance. This fact does not say that fundamental analysis is not applicable in Tubacex. In the valuation of the Free Cash Flow, we have seen that our model can be used as an advanced indicator, forecasting how stock values are going to perform in the future. In the Cash Flow approach, we can see this fact either but is not as precise as the Free Cash Flow because the volatility in the Cash Flow is higher than the FCF. So we will have to take the FCF method into account, because it will say us how the firm is going to perform in the future. The advanced indicator (more or less 4 years from the evolution of the short term stock values) will help us to know when it is more

appropriate to invest or disinvest in the firm. Trusting in fundamental analysis does not invalidate the technical analysis, so we will have to take both analysis (fundamental and technical) into account.

We can see that Tubacex at 31/12/13 is undervalued due to the short term stock trend is a lower value rather than the trend. Also it is lower than the discounted Free Cash Flow. At the beginning of the project, we thought that Tubacex could be undervalued but now we know for sure that is undervalued. So the investors or potential investors do not have to worry about Tubacex and they can trust in it.

In the future, we will develop the same analysis applied to different companies of different sectors to test if Shiller's theory is fulfilled in most of the times, sometimes or only in very specific sectors.

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9. Annex

Balance sheet and Profit and loss accounts

Figure 38: Balance sheet 1994-2017

Balance de situación	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994
Inmovilizado restado las amort	155.979.000	158.627.000	157.947.000	153.766.831	128.381.520	81.848.290	77.532.570	74.246.980	67.659.050	77.247.920
Inmovilizado inmaterial	2.718.000	2.998.000	3.941.000	3.970.045	2.910.520	1.022.380	400.840	350.460	364.130	1.423.000
Inmovilizado material	95.126.000	98.609.000	113.491.000	103.777.495	91.866.900	72.009.070	69.042.680	66.174.960	57.922.960	57.914.460
Otros activos fijos	58.135.000	57.020.000	40.515.000	46.019.291	33.604.100	8.816.840	8.089.050	7.721.560	9.371.960	17.910.460
Activo circulante	185.257.000	189.528.000	177.164.000	190.721.533	168.934.500	137.744.080	120.806.260	95.734.090	114.048.680	90.251.800
Existencias	93.910.000	81.642.000	83.731.000	88.610.514	64.652.750	38.930.570	41.704.900	37.649.940	40.666.260	31.836.080
Deudores	77.236.000	79.107.000	76.148.000	78.646.905	61.876.740	54.321.760	49.159.190	39.024.690	55.684.640	46.479.820
Otros activos líquidos	14.111.000	28.779.000	17.285.000	23.464.114	42.405.010	44.491.750	29.942.170	19.059.460	17.697.780	11.935.900
Tesorería	13.478.000	28.122.000	16.345.000	22.487.565	41.920.050	44.408.150	29.846.760	18.755.390	17.200.320	11.273.100
Total activo	341.236.000	348.155.000	335.111.000	344.488.364	297.316.010	219.592.370	198.338.840	169.981.060	181.707.750	167.499.720
Fondos propios	174.358.000	178.178.000	169.104.000	159.579.906	151.177.630	139.912.370	125.103.750	107.383.030	77.521.900	69.162.570
Capital suscrito	59.840.000	59.840.000	59.840.000	61.164.689	61.164.690	69.319.980	75.834.200	81.171.730	79.215.260	79.168.050
Otros fondos propios	114.518.000	118.338.000	109.264.000	98.415.217	90.012.940	70.592.390	49.269.550	26.211.300	-1.693.360	-10.005.480
Pasivo fijo	38.303.000	42.597.000	51.232.000	60.453.059	59.826.850	12.868.210	16.315.100	23.400.780	25.794.490	35.118.480
Acreedores a L. P.	22.163.000	30.383.000	39.126.000	51.471.835	52.105.960	7.599.740	10.656.610	17.548.410	20.093.300	26.669.750
Otros pasivos fijos	16.140.000	12.214.000	12.106.000	8.981.224	7.720.890	5.268.470	5.658.490	5.852.370	5.701.190	8.448.730
Provisiones	16.140.000	12.214.000	12.106.000	8.981.224	7.720.890	5.268.470	5.658.490	5.852.370	5.701.190	8.448.730
Pasivo líquido	128.575.000	127.380.000	114.775.000	124.455.399	86.311.540	66.811.780	56.919.990	38.936.070	56.362.760	45.980.820
Deudas financieras	82.748.000	78.263.000	69.795.000	78.329.908	49.949.720	38.671.290	26.814.860	14.683.780	44.936.840	33.559.490
Acreedores comerciales	30.393.000	30.665.000	29.733.000	27.221.479	18.341.800	14.697.730	15.917.250	13.982.560	11.237.770	11.142.080
Otros pasivos líquidos	15.434.000	18.452.000	15.247.000	18.904.012	18.020.020	13.442.760	14.187.880	10.269.730	188.150	1.279.250
Total pasivo y capital propio	341.236.000	348.155.000	335.111.000	344.488.364	297.316.010	219.592.370	198.338.840	169.981.060	181.707.750	167.499.720

Balance de situación	2011	2010	2009	2008	2007	2006	2005	2004
Inmovilizado restado las amort	248.001.000	239.979.000	221.595.000	180.622.000	138.488.000	144.242.000	153.906.000	151.406.000
Inmovilizado inmaterial	35.319.000	35.371.000	31.731.000	26.352.000	22.895.000	22.958.000	23.857.000	2.045.000
Inmovilizado material	160.253.000	159.736.000	153.871.000	133.089.000	99.879.000	89.585.000	92.976.000	94.325.000
Otros activos fijos	52.429.000	44.872.000	35.993.000	21.181.000	15.714.000	31.699.000	37.073.000	55.036.000
Activo circulante	378.954.000	346.910.000	304.429.000	494.342.000	464.593.000	395.373.000	303.024.000	234.919.000
Existencias	206.680.000	192.335.000	174.771.000	266.044.000	246.933.000	201.926.000	159.721.000	121.296.000
Deudores	143.569.000	121.612.000	90.555.000	189.469.000	189.585.000	166.772.000	122.001.000	101.191.000
Otros activos líquidos	28.705.000	32.963.000	39.103.000	38.829.000	28.075.000	26.675.000	21.302.000	12.432.000
Tesorería	12.091.000	23.404.000	21.807.000	28.115.000	17.183.000	26.543.000	21.302.000	11.604.000
Total activo	626.955.000	586.889.000	526.024.000	674.964.000	603.081.000	539.615.000	456.930.000	386.325.000
Fondos propios	239.495.000	237.715.000	241.147.000	279.964.000	265.851.000	225.218.000	206.022.000	184.550.000
Capital suscrito	59.840.000	59.840.000	59.840.000	59.840.000	59.840.000	59.840.000	59.840.000	59.840.000
Otros fondos propios	179.655.000	177.875.000	181.307.000	220.124.000	206.011.000	165.378.000	146.182.000	124.710.000
Pasivo fijo	73.311.000	71.886.000	69.296.000	74.977.000	25.103.000	32.135.000	44.219.000	36.410.000
Acreedores a L. P.	49.602.000	48.015.000	67.949.000	45.891.000	4.960.000	6.689.000	12.295.000	19.130.000
Otros pasivos fijos	23.709.000	23.871.000	1.347.000	29.086.000	20.143.000	25.446.000	31.924.000	17.280.000
Provisiones	20.489.000	21.969.000	n.d.	27.839.000	4.551.000	9.169.000	13.945.000	17.280.000
Pasivo líquido	314.149.000	277.288.000	215.581.000	320.023.000	312.127.000	282.262.000	206.689.000	165.365.000
Deudas financieras	225.441.000	212.219.000	152.292.000	210.011.000	200.124.000	190.660.000	135.038.000	100.269.000
Acreedores comerciales	47.957.000	40.651.000	38.189.000	72.043.000	96.709.000	79.711.000	67.634.000	43.724.000
Otros pasivos líquidos	40.751.000	24.418.000	25.100.000	37.969.000	15.294.000	11.891.000	4.017.000	21.372.000
Total pasivo y capital propio	626.955.000	586.889.000	526.024.000	674.964.000	603.081.000	539.615.000	456.930.000	386.325.000

Balance de situación	2017	2016	2015	2014	2013	2012
Inmovilizado restado las amort	305.561.252	294.559.473	281.969.504	270.003.916	268.672.301	262.355.000
Inmovilizado inmaterial	25.689.500	28.128.428	28.100.073	28.128.428	35.689.500	34.033.000
Inmovilizado material	242.497.941	230.127.927	218.515.592	206.786.693	196.212.572	173.760.000
Otros activos fijos	61.243.645	59.421.530	57.612.356	56.530.063	58.120.547	54.562.000
Activo circulante	484.081.579	471.231.267	461.086.915	454.372.388	418.383.581	412.926.000
Existencias	213.655.000	231.087.743	230.885.069	231.087.743	213.655.000	231.623.000
Deudores	171.553.566	168.024.922	166.430.714	166.557.084	155.687.500	151.642.000
Otros activos líquidos	29.661.000	29.661.000	29.661.000	29.661.000	29.661.000	29.661.000
Tesorería	69.212.013	42.457.602	34.110.132	27.066.561	19.380.081	20.739.000
Total activo	789.642.831	765.790.740	743.056.419	724.376.304	687.055.882	675.281.000
Fondos propios	417.521.431	383.381.055	349.299.547	317.412.193	283.134.190	251.954.000
Capital suscrito	59.840.000	59.840.000	59.840.000	59.840.000	59.840.000	59.840.000
Otros fondos propios	357.681.431	323.541.055	289.459.547	257.572.193	223.294.190	192.114.000
Pasivo fijo	212.752.154	203.793.842	198.779.861	195.299.984	192.289.280	176.137.000
Acreedores a L. P.	166.159.161	157.702.253	152.914.802	149.416.968	147.950.780	151.685.000
Otros pasivos fijos	25.955.992	25.454.589	25.228.060	25.246.016	23.701.500	24.452.000
Provisiones	20.637.000	20.637.000	20.637.000	20.637.000	20.637.000	20.637.000
Pasivo líquido	159.369.247	178.615.843	194.977.011	211.664.127	211.632.412	247.190.000
Deudas financieras	57.944.753	79.319.290	96.641.841	113.252.750	119.775.912	153.990.000
Acreedores comerciales	74.761.304	73.019.162	72.232.078	72.294.469	66.928.000	53.949.000
Otros pasivos líquidos	26.663.190	26.277.392	26.103.091	26.116.908	24.928.500	39.251.000
Total pasivo y capital propio	789.642.831	765.790.740	743.056.419	724.376.304	687.055.882	675.281.000

Source: Own source

Figure 39: Profit and Loss 1994-2017

Cuentas de pérdidas y ganancias	2002	2001	2000	1999	1998	1997	1996	1995	1994
Ingresos de explotación									
Importe neto Cifra de Ventas	286.703.000	286.670.000	262.032.467	159.987.560	162.560.340	155.956.550	154.268.750	156.680.720	99.165.770
Consumo de mercaderías y de materias	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Resultado bruto	73.140.000	72.804.000	55.860.640	33.072.380	46.966.060	45.097.520	48.728.330	38.817.800	9.726.060
Otros gastos de explotación	54.016.000	55.918.000	35.369.648	22.175.170	22.379.800	21.658.030	24.162.310	20.317.660	9.229.560
Resultado Explotación (EBIT)	19.124.000	16.886.000	20.490.992	10.897.210	24.586.260	23.439.490	24.566.020	18.500.140	496.500
Ingresos financieros	5.552.000	8.820.000	6.833.237	5.848.210	3.707.170	2.988.860	3.726.890	3.486.630	2.267.360
Gastos financieros	10.573.000	12.668.000	11.638.185	3.955.020	4.143.790	3.025.080	4.911.720	10.850.600	7.367.990
Resultado financiero	-5.021.000	-3.848.000	-4.804.948	1.893.190	-436.620	-36.220	-1.184.830	-7.363.960	-5.100.630
Result. ordinarios antes Impuestos	14.103.000	13.038.000	15.686.044	12.790.400	24.149.630	23.403.270	23.381.190	11.136.180	-4.604.130
Impuestos sobre sociedades	-23.959.000	-712.000	745.802	978.180	1.349.950	1.494.630	509.540	n.d.	n.d.
Average tax	-169,89%	-5,46%	4,75%	7,65%	5,59%	6,39%	2,18%		
Resultado Actividades Ordinarias	38.062.000	13.750.000	14.940.242	11.812.220	22.799.680	21.908.640	22.871.650	11.136.180	-4.604.130
Ingresos extraordinarios	1.170.000	5.013.000	2.363.125	5.844.360	191.310	2.089.720	845.530	3.874.910	3.276.620
Gastos extraordinarios	22.825.000	3.175.000	1.656.143	1.697.910	1.216.310	2.611.420	4.720.420	4.839.350	6.170.860
Resultados actividades extraordinarias	-21.655.000	1.838.000	706.982	4.146.450	-1.025.000	-521.700	-3.874.890	-964.440	-2.894.240
Resultado del Ejercicio	16.407.000	15.588.000	15.647.224	15.958.660	21.774.680	21.386.950	18.996.760	10.171.730	-7.498.370
Materiales	123.286.000	128.146.000	125.615.139	73.014.120	72.126.480	69.934.750	67.071.320	84.207.220	55.163.840
Gastos de personal	75.173.000	71.846.000	66.119.223	43.712.360	34.646.360	33.479.680	31.071.150	26.035.060	26.787.450
Dotaciones para amortiz. de inmovil.	15.104.000	13.874.000	14.437.465	10.188.700	8.821.440	7.444.600	7.397.950	7.620.640	7.488.420

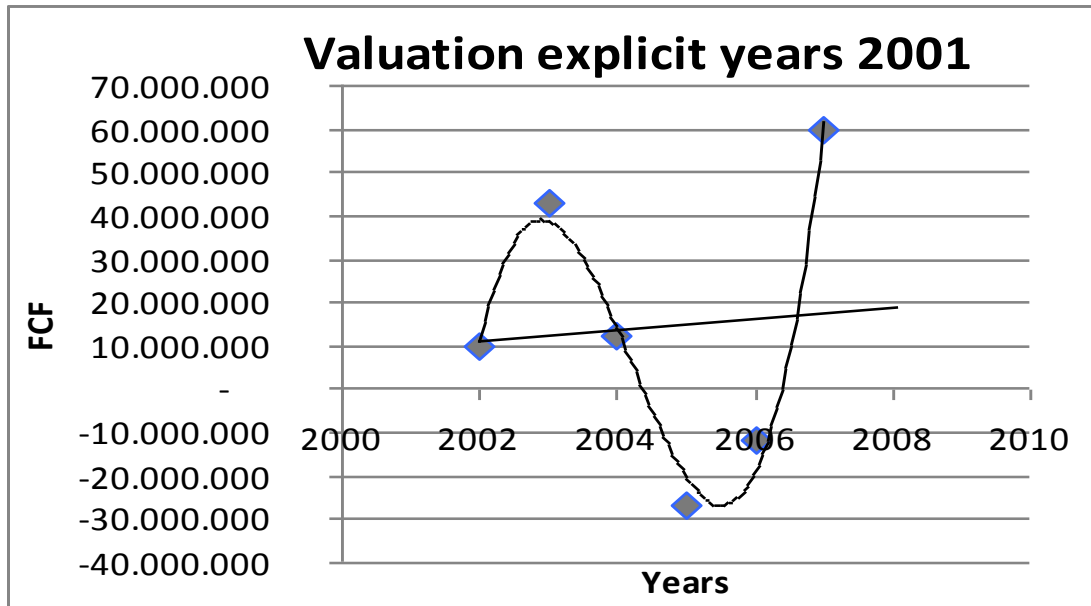
Cuentas de pérdidas y ganancias	2011	2010	2009	2008	2007	2006	2005	2004	2003
Ingresos de explotación									
Importe neto Cifra de Ventas	486.602.000	361.776.000	371.465.000	671.804.000	696.731.000	539.073.000	430.497.000	347.452.000	258.918.000
Consumo de mercaderías y de materias		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Resultado bruto	60.243.000	43.953.000	99.002.000	133.630.000	114.473.000	108.369.000	38.803.000	63.183.000	46.538.000
Otros gastos de explotación	53.741.000	49.824.000	134.416.000	77.918.000	25.001.000	61.083.000	1.799.000	37.090.000	35.168.000
Resultado Explotación (EBIT)	6.502.000	-5.871.000	-35.414.000	55.712.000	89.472.000	47.286.000	37.004.000	26.093.000	11.370.000
Ingresos financieros	3.072.000	1.619.000	1.148.000	2.145.000	7.581.000	6.686.000	6.614.000	3.695.000	5.475.000
Gastos financieros	9.992.000	7.974.000	7.759.000	17.126.000	19.837.000	12.794.000	10.437.000	9.014.000	8.713.000
Resultado financiero	-6.920.000	-6.355.000	-6.611.000	-14.981.000	-12.256.000	-6.108.000	-3.823.000	-5.319.000	-3.238.000
Result. ordinarios antes Impuestos	-418.000	-12.226.000	-42.025.000	40.731.000	77.216.000	41.178.000	33.181.000	20.774.000	8.132.000
Impuestos sobre sociedades	-3.561.000	-6.257.000	-15.957.000	3.148.000	20.798.000	10.274.000	7.832.000	5.587.000	622.000
Average tax	851,91%	51,18%	37,97%	7,73%	26,93%	24,95%	23,60%	26,89%	7,65%
Resultado Actividades Ordinarias	3.143.000	-5.969.000	-26.068.000	37.583.000	56.418.000	30.904.000	25.349.000	15.187.000	7.510.000
Ingresos extraordinarios	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	668.000	442.000
Gastos extraordinarios	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2.343.000	1.908.000
Resultados actividades extraordinarias	n.d.	n.d.	n.d.	n.d.	243.000	43.000	75.000	-1.675.000	-1.466.000
Resultado del Ejercicio	3.143.000	-5.969.000	-26.068.000	37.583.000	56.661.000	30.947.000	25.424.000	13.512.000	6.044.000
Materiales	312.474.000	213.246.000	173.294.000	407.196.000	470.890.000	328.601.000	293.494.000	198.740.000	129.048.000
Gastos de personal	93.180.000	85.935.000	82.138.000	114.310.000	94.675.000	85.357.000	82.555.000	70.447.000	69.414.000
Dotaciones para amortiz. de inmovil.	20.705.000	18.642.000	17.031.000	16.668.000	16.693.000	16.746.000	15.645.000	15.082.000	13.918.000

Cuentas de pérdidas y ganancias	2017	2016	2015	2014	2013	2012
Ingresos de explotación	2,18%	1,01%	-0,08%	7,46%	4,24%	
Importe neto Cifra de Ventas	615.442.157	601.999.704	595.926.530	596.407.940	555.000.000	532.420.000
Consumo de mercaderías y de materias	393.702.088	384.229.191	379.949.425	380.288.675	351.108.500	
Resultado bruto	101.124.598	99.582.738	97.036.838	100.305.927	93.332.682	71.415.000
Otros gastos de explotación	51.834.408,95	50.726.444,79	50.219.810,55	50.260.379,86	46.770.857,59	44.868.000
Resultado Explotación (EBIT)	49.290.190	48.856.293	46.817.027	50.045.547	46.561.824	26.547.000
Ingresos financieros	4.356.643,86	4.286.525,11	4.227.359,12	4.227.359,12	4.162.792,68	1.290.000
Gastos financieros	9.271.160,53	9.053.792,65	9.720.710,90	10.360.230,89	10.611.372,61	14.704.000
Resultado financiero	4.914.516,67	4.767.267,54	5.493.351,78	6.132.871,77	6.448.579,93	-13.414.000
Result. ordinarios antes Impuestos	44.375.672,83	44.089.025,17	41.323.675,63	43.912.675,45	40.113.244,29	13.133.000
Impuestos sobre sociedades	6.307.529,08	6.266.785,17	5.873.720,19	6.241.718,93	5.701.670,27	1.040.000
Average tax	14,21%	14,21%	14,21%	14,21%	14,21%	7,92%
Resultado Actividades Ordinarias	38.068.143,76	37.822.240,00	35.449.955,44	37.670.956,52	34.411.574,02	12.093.000
Ingresos extraordinarios	0	0	0	0	0	n.d.
Gastos extraordinarios	0	0	0	0	0	n.d.
Resultados actividades extraordinarias	0	0	0	0	0	n.d.
Resultado del Ejercicio	38.068.143,76	37.822.240,00	35.449.955,44	37.670.956,52	34.411.574,02	12.093.000
Materiales	393.702.088,02	384.229.191,41	379.949.425,45	380.288.675,19	351.108.500,00	333.194.000
Gastos de personal	96.745.636,98	95.069.363,09	94.312.038,25	94.372.070,09	89.208.500,00	108.575.000
Dotaciones para amortiz. de inmovil.	23.869.833,53	23.118.412,00	24.628.228,00	21.441.267,45	21.350.318,18	19.236.000

Source: Own source

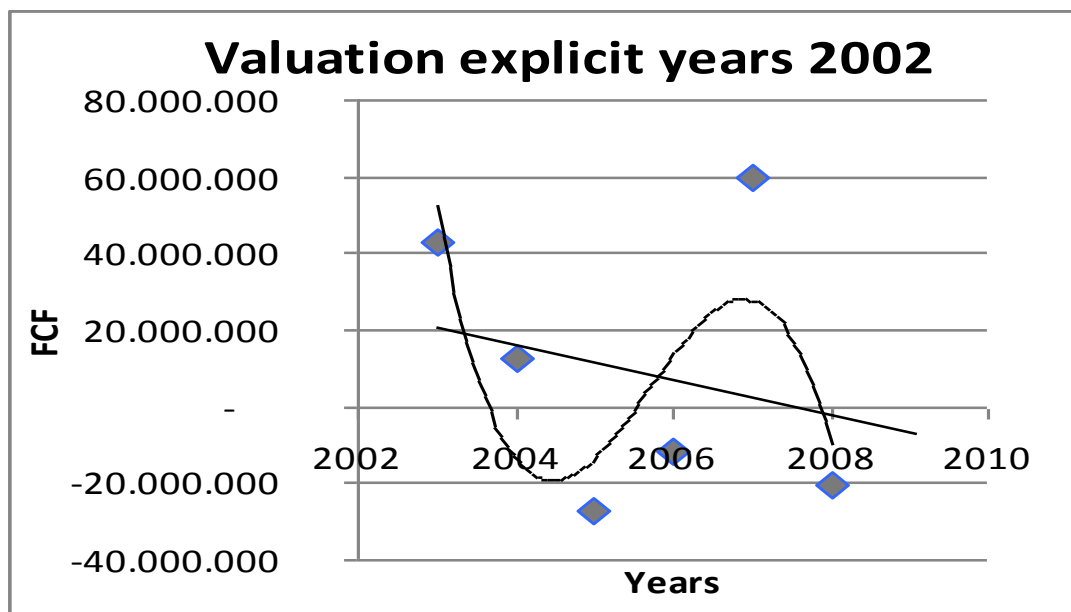
Evolution of FCFs and CFs among 2001-2013

Figure 40: Performance of the FCFs 2001



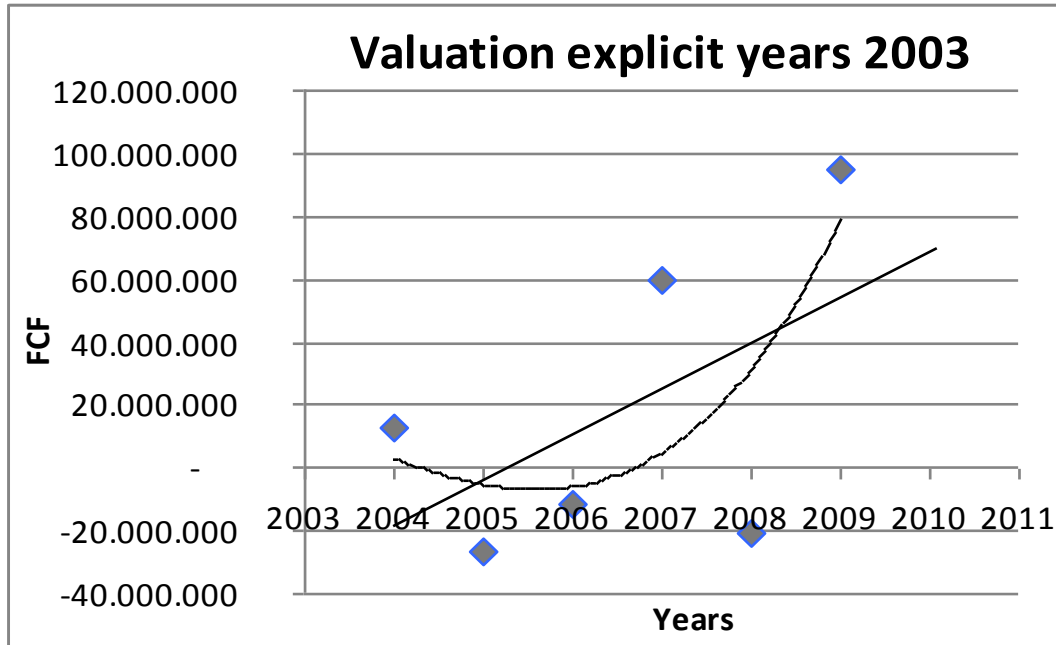
Source : Own source

Figure 41: Performance of the FCFs 2002



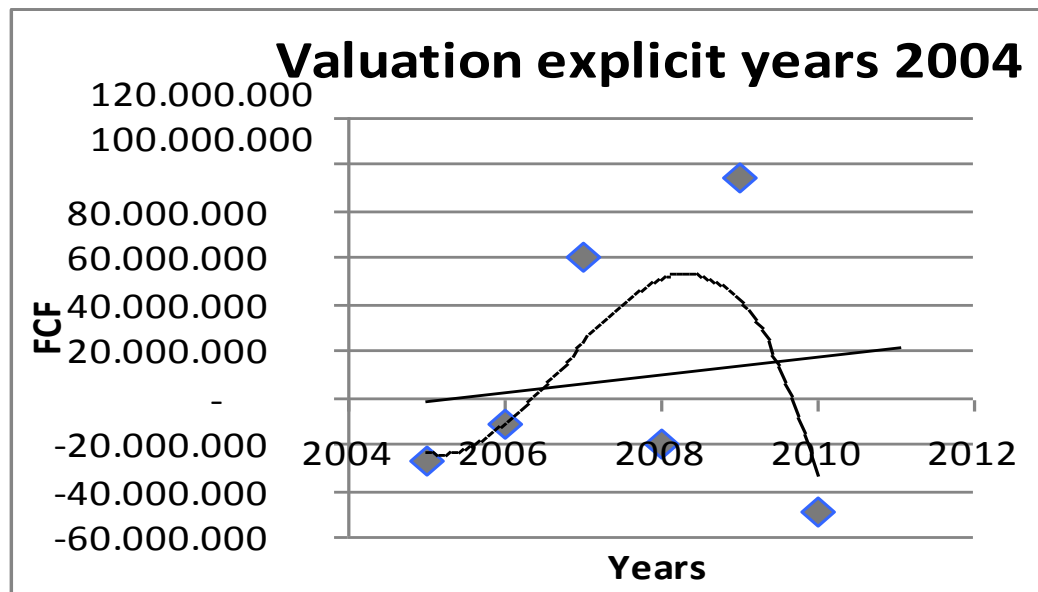
Source: Own source

Figure 42: Performance of the FCFs 2003



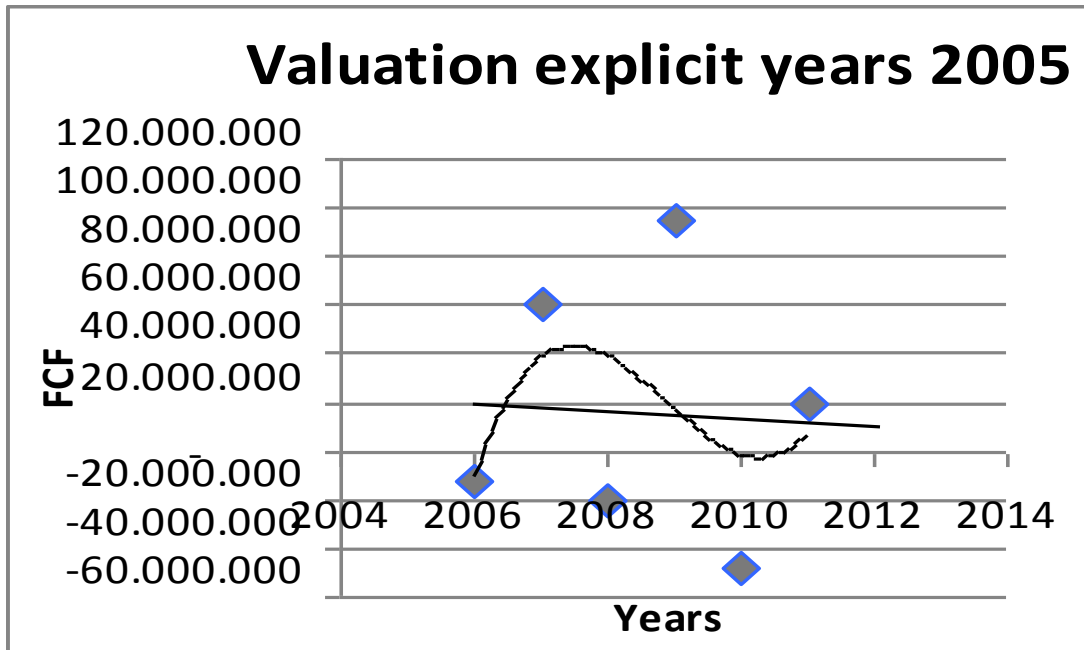
Source: Own source

Figure 43: Performance of the FCFs 2004



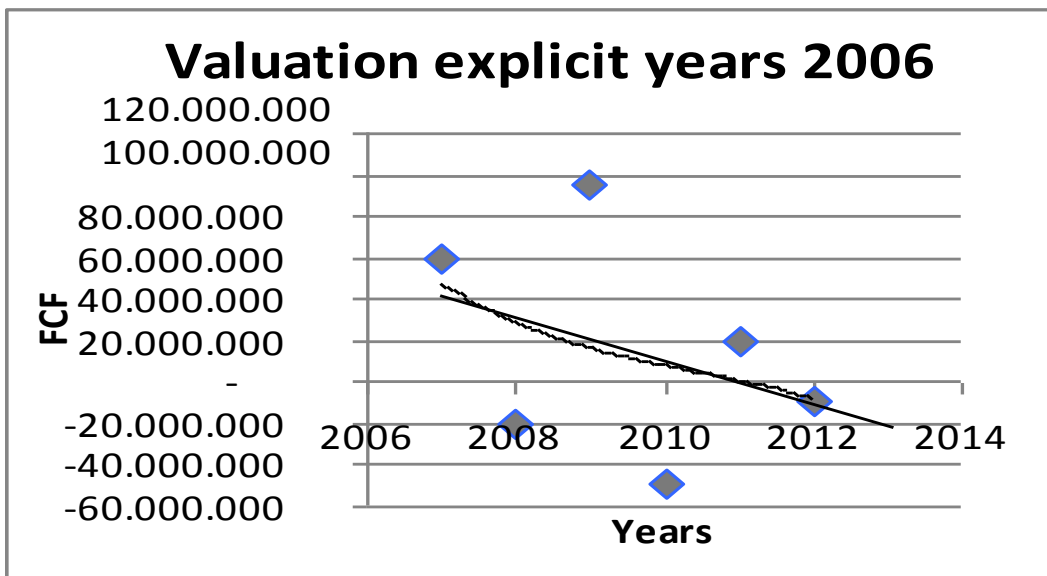
Source: Own source

Figure 44: Performance of the FCFs 2005



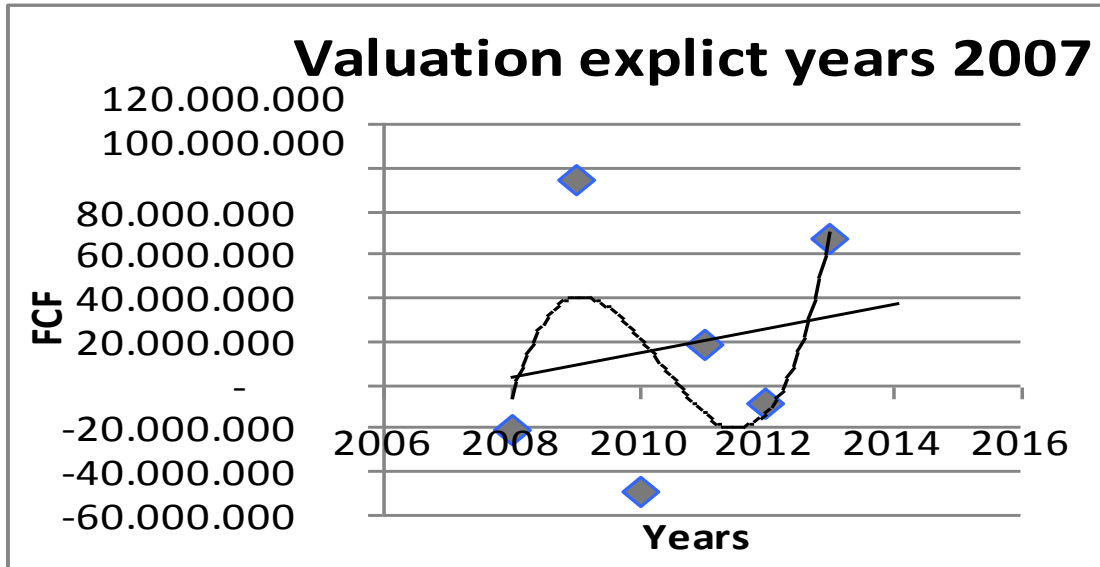
Source: Own source

Figure 45: Performance of the FCFs 2006



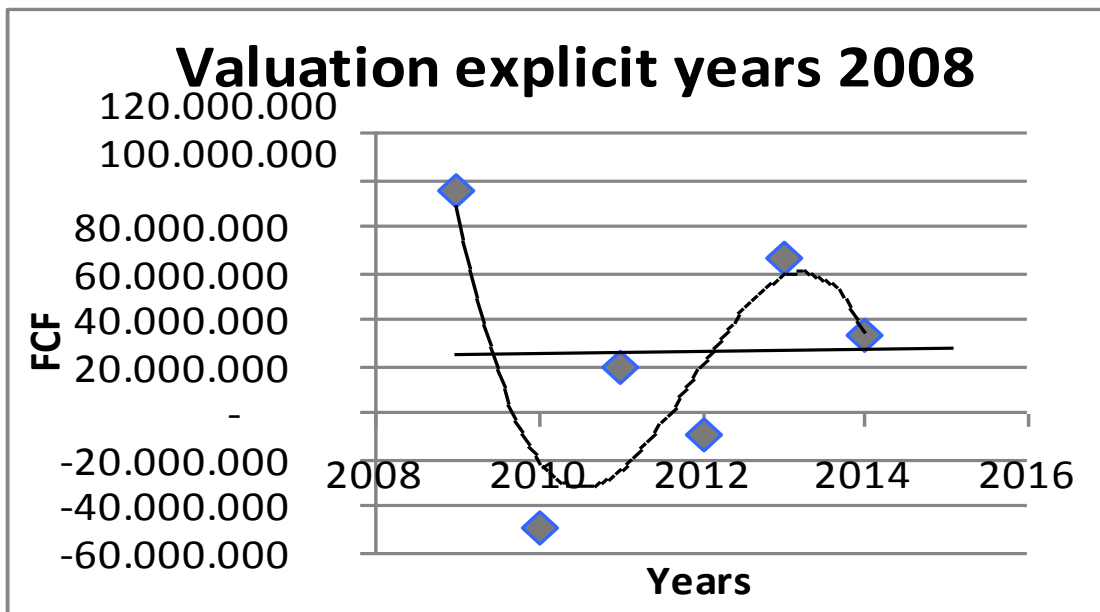
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Figure 46: Performance of the FCFs 2007



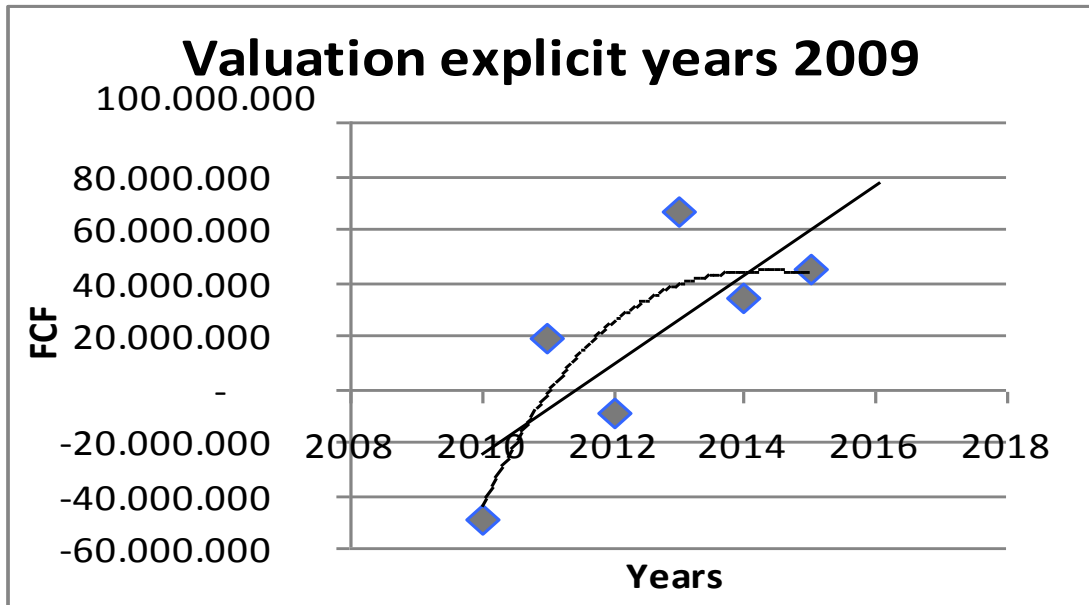
Source: Own source

Figure 47: Performance of the FCFs 2008



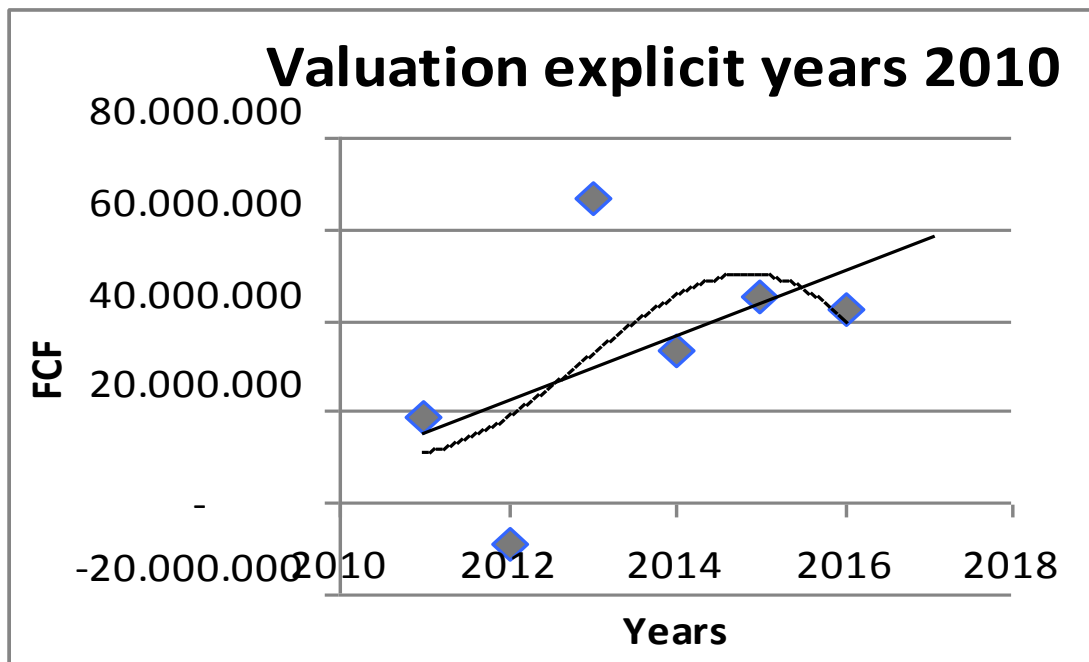
Source :Own source

Figure 48: Performance of the FCFs 2009



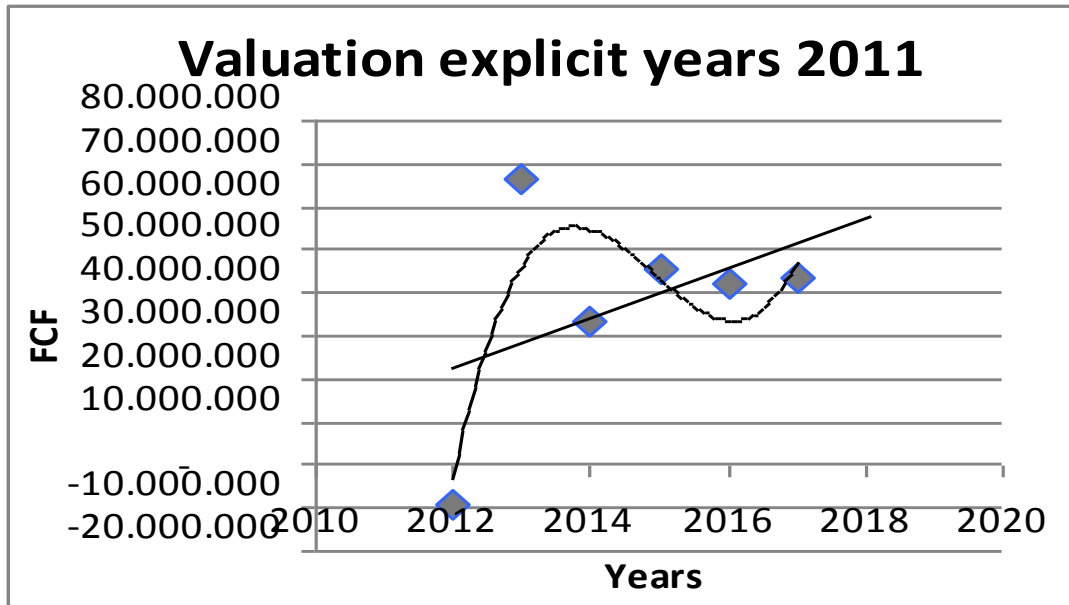
Source: Own source

Figure 49: Performance of the FCFs 2010



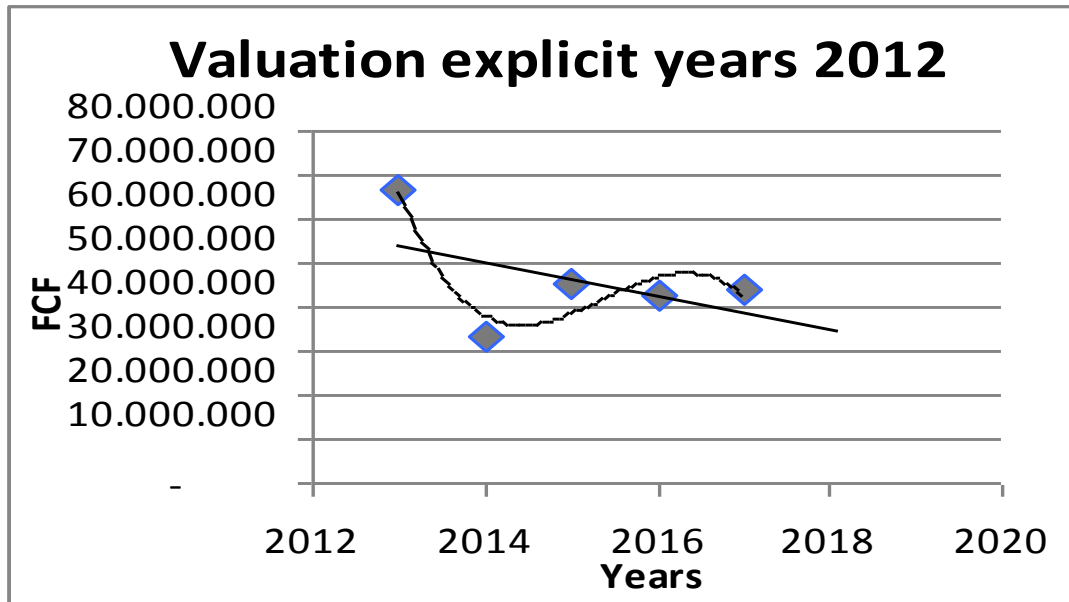
Source: Own source

Figure 50: Performance of the FCFs 2011



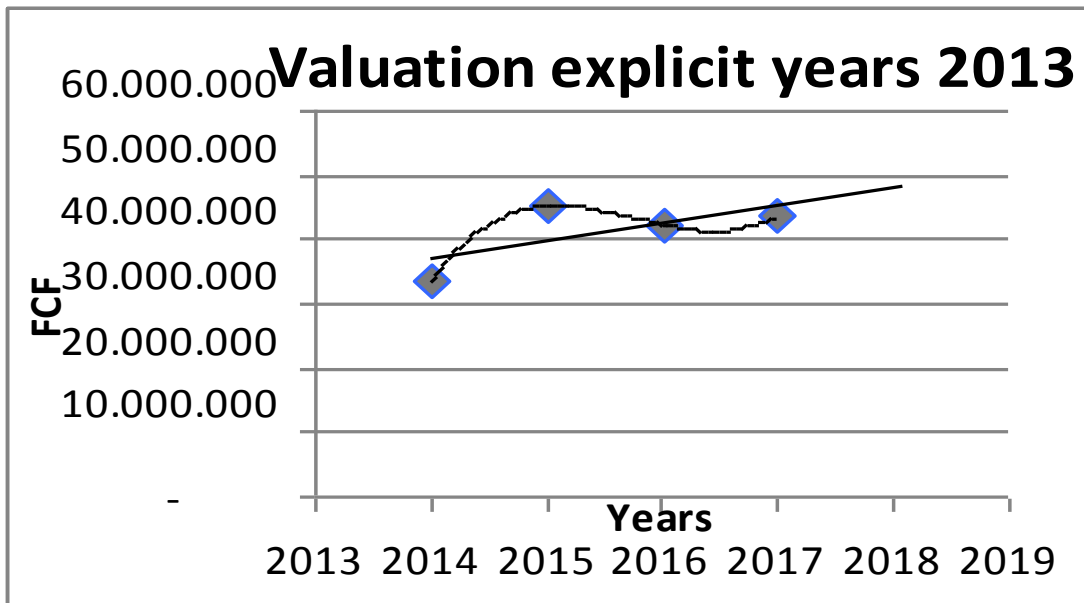
Source: Own source

Figure 51: Performance of the FCFs 2012



Source: Own source

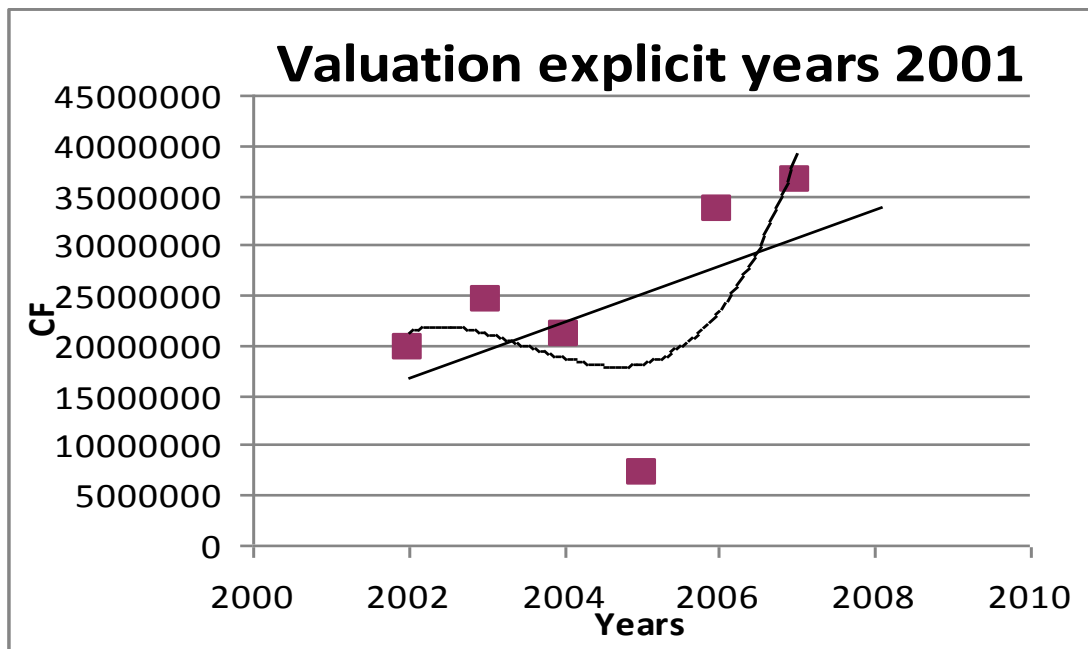
Figure 52: Performance of the FCF 2013



Source: Own source

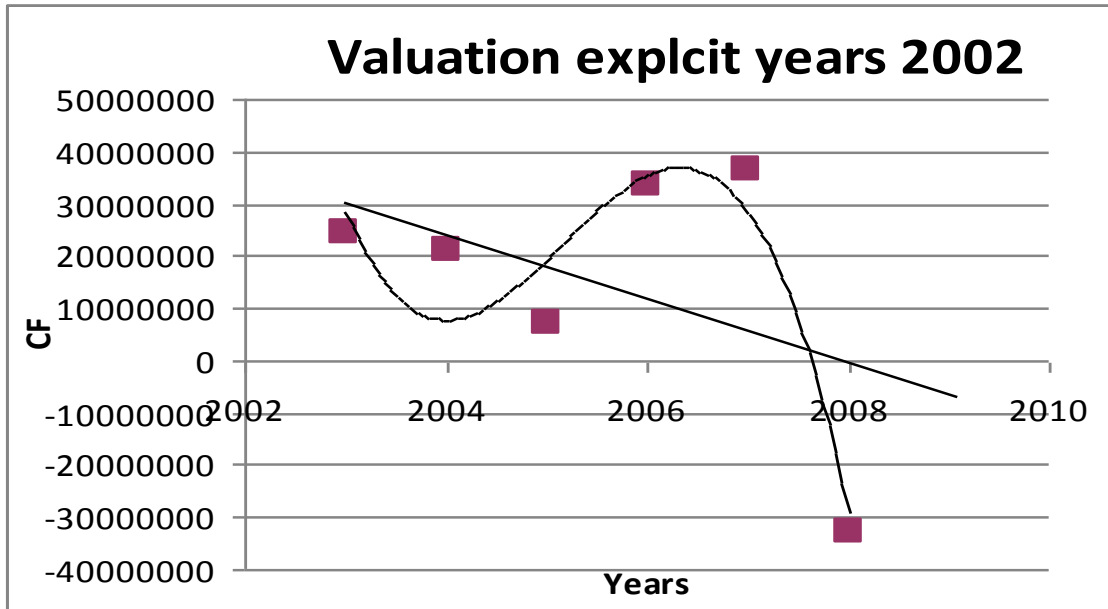
Evolution of CF among 2001-2013

Figure 53: Performance Cash Flow 2001



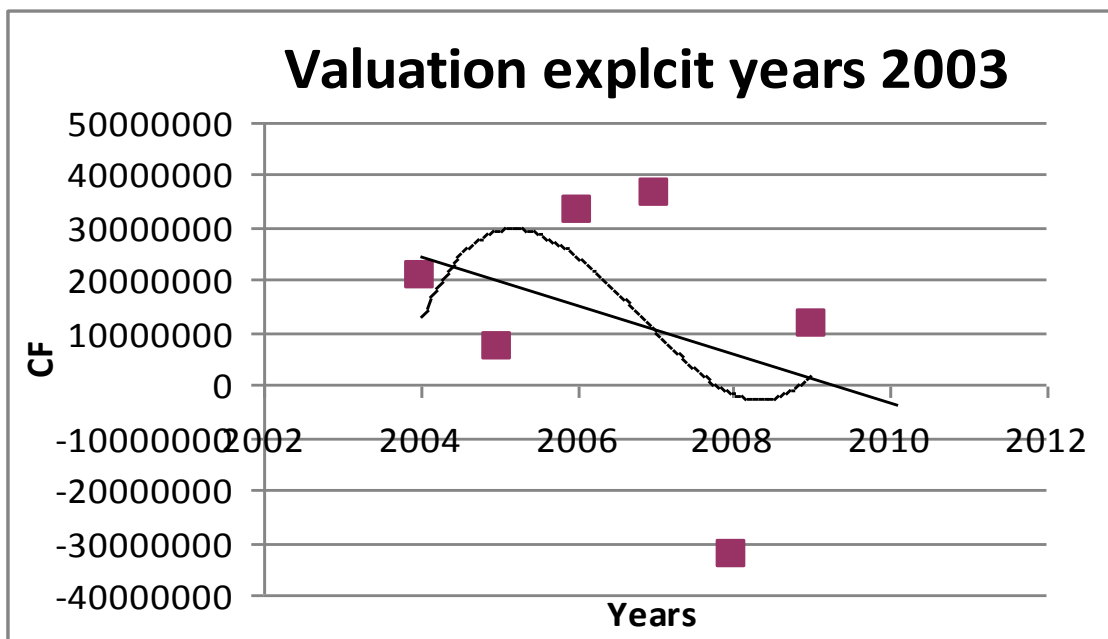
Source: Own source

Figure 54: Performance Cash Flows 2002



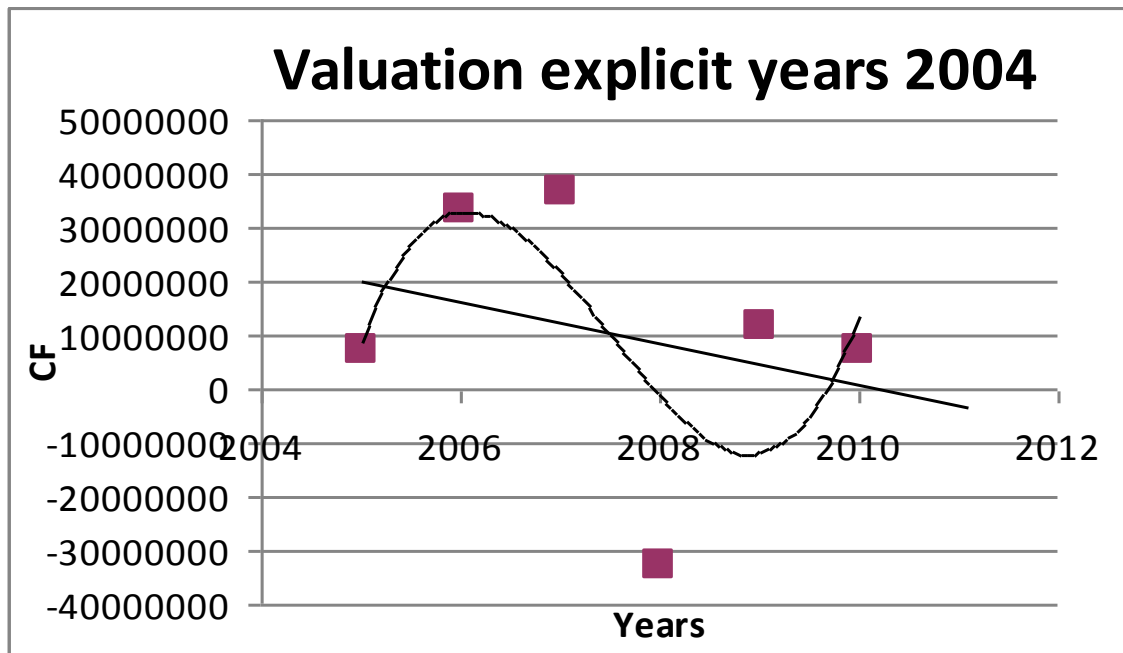
Source: Own source

Figure 55: Performance Cash Flows 2003



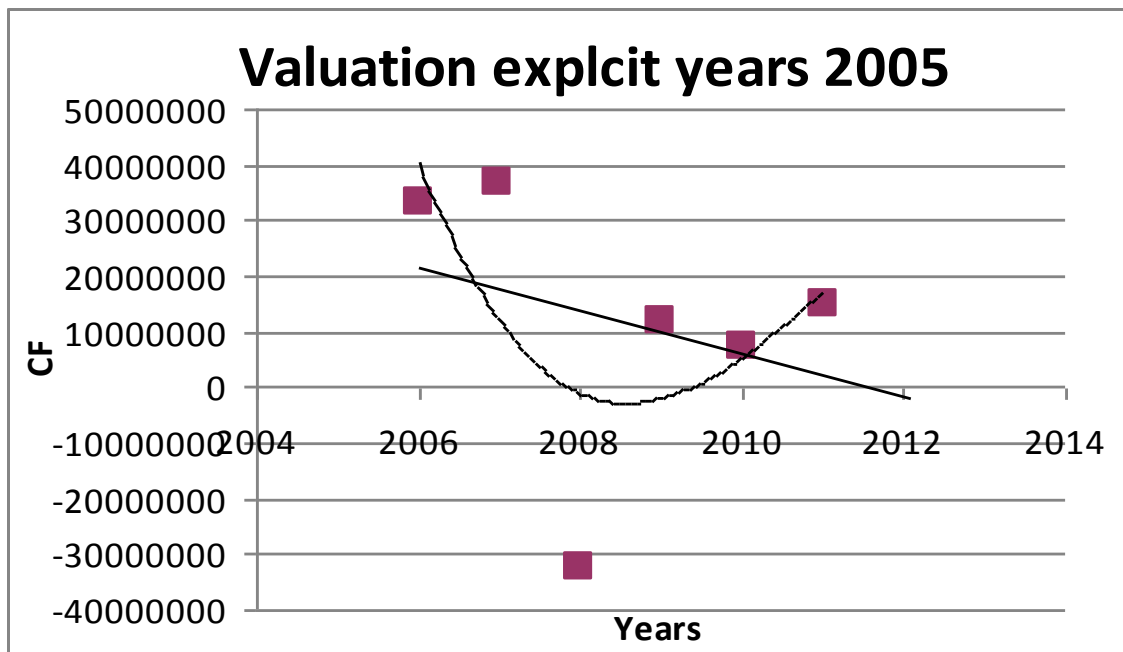
Source: Own source

Figure 56: Performance of Cash Flows 2004



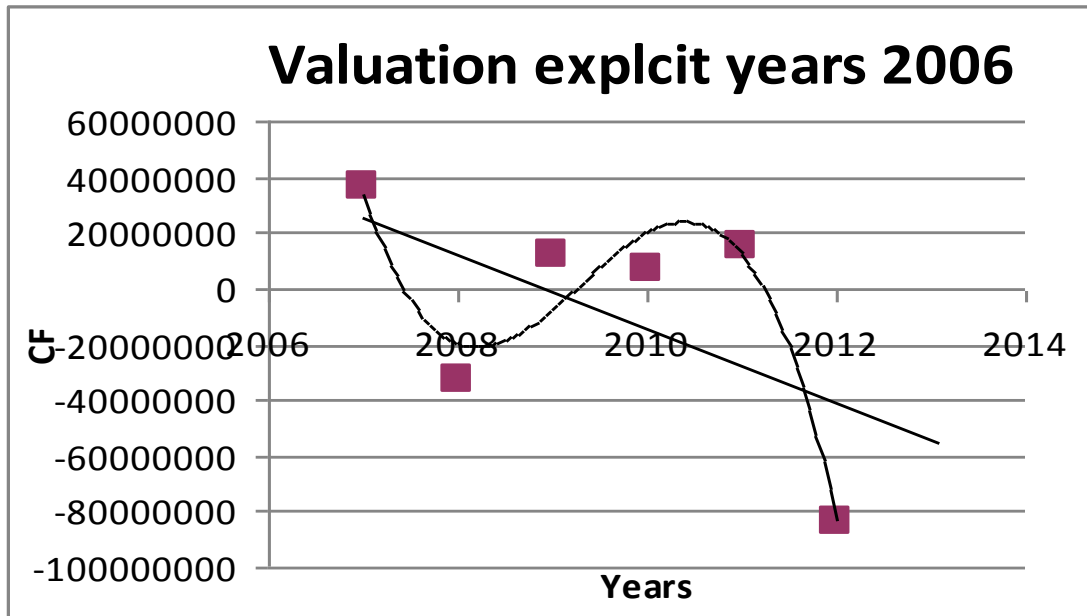
Source: Own source

Figure 57: Performance of Cash Flows 2005



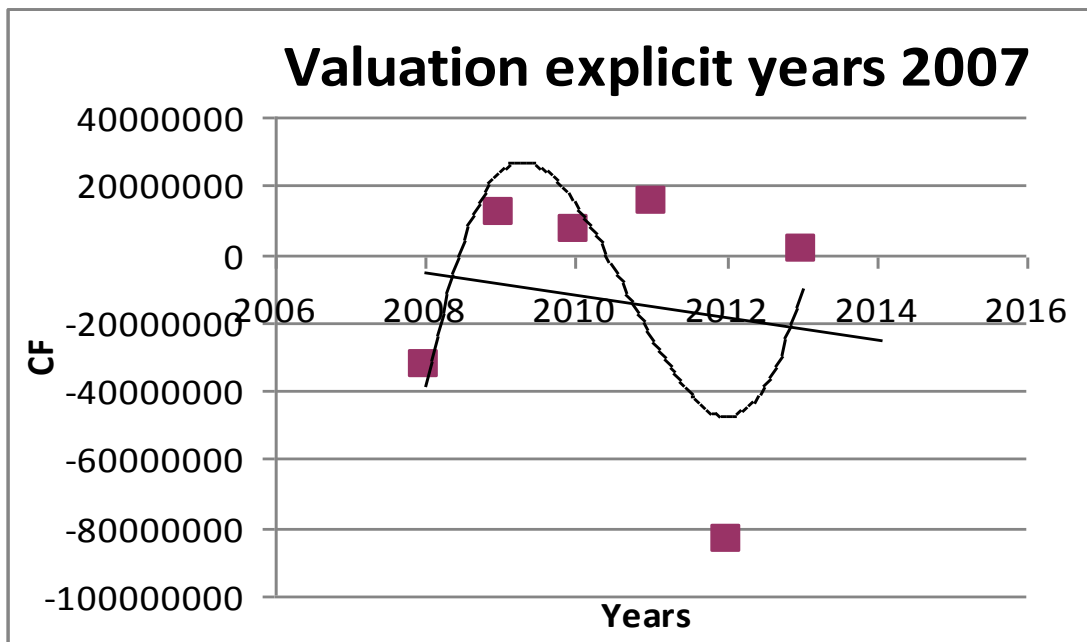
Source: Own source

Figure 58: Performance of Cash Flows 2006



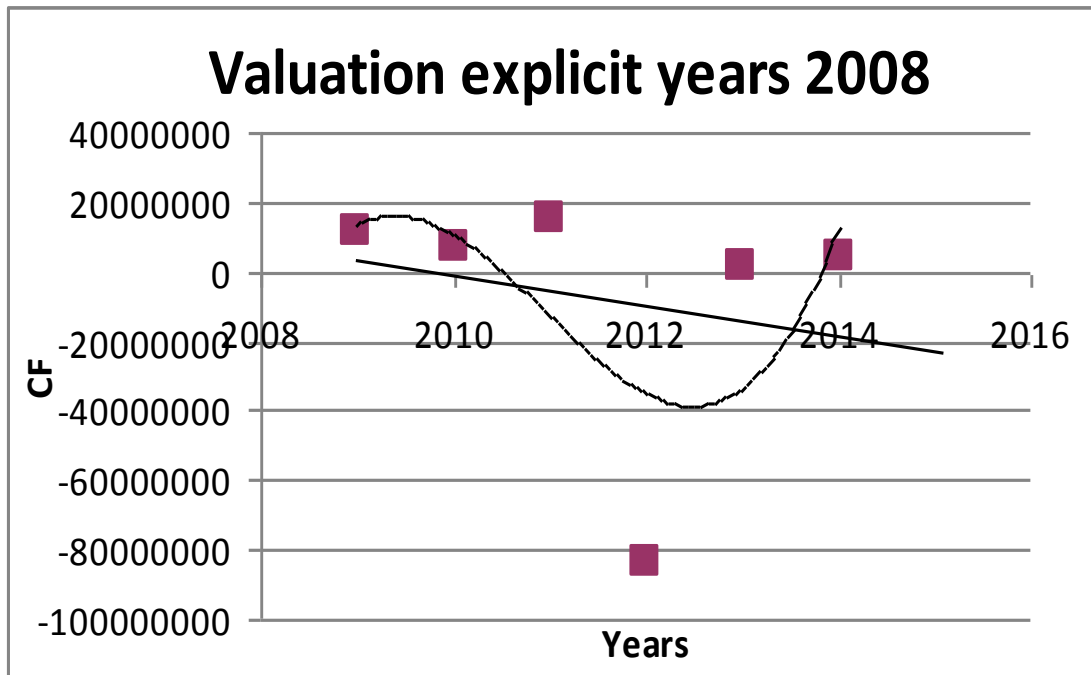
Source: Own source

Figure 59: Performance of Cash Flows 2007



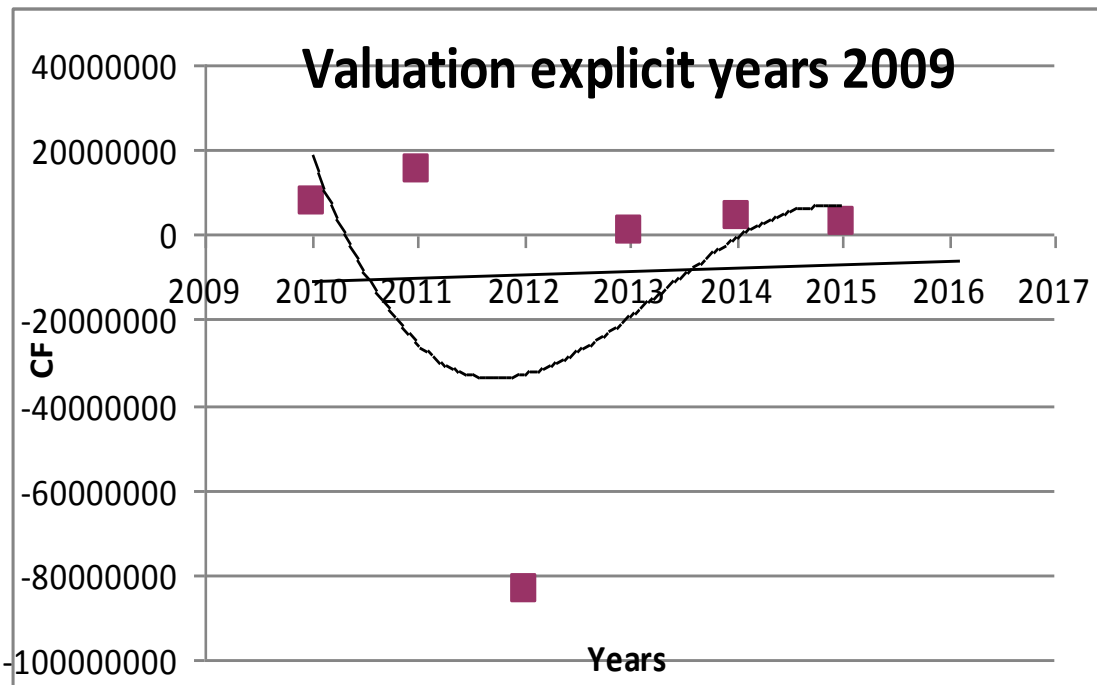
Source: Own source

Figure 60: Performance of the Cash Flows 2008



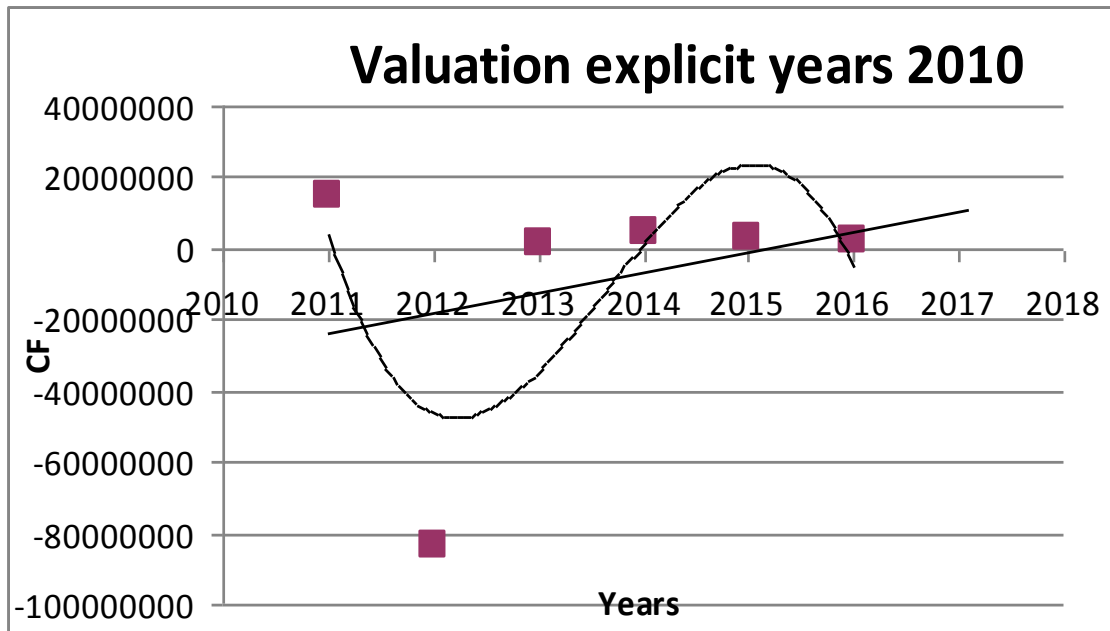
Source: Own source

Figure 61: Performance of the Cash Flows 2009



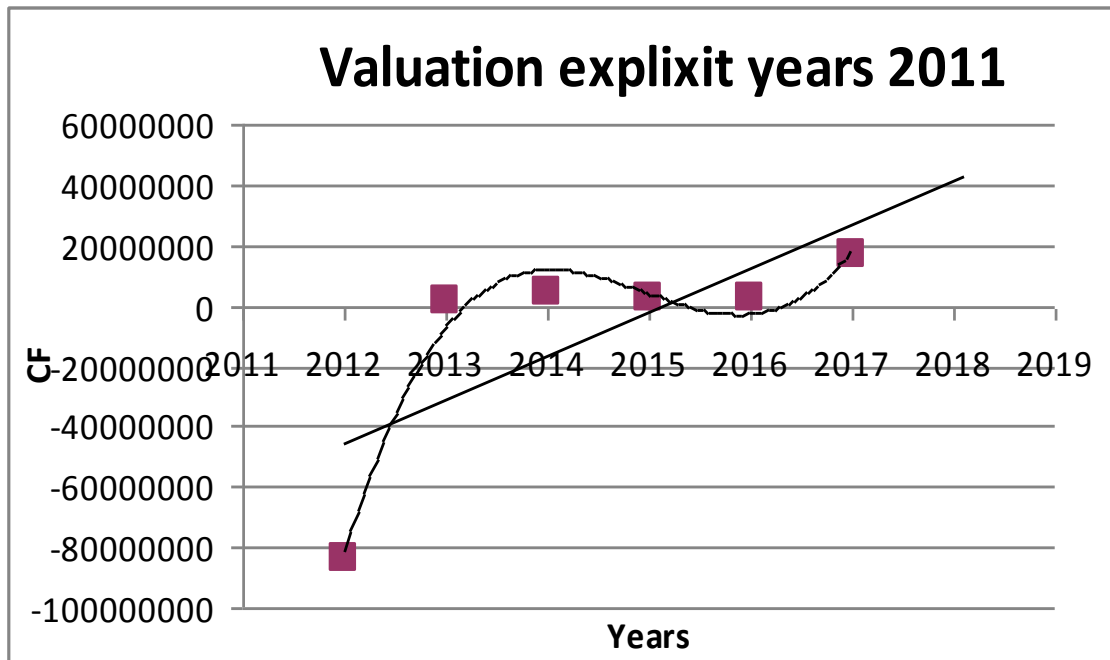
Source: Own source

Figure 62: Performance of the Cash Flows 2010



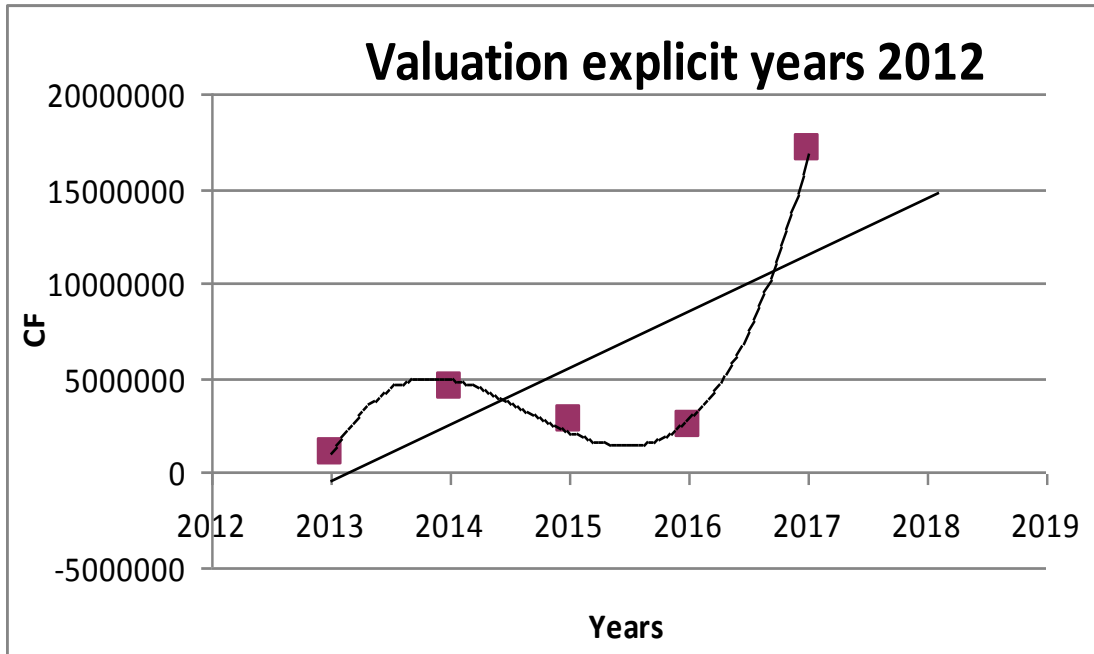
Source: Own source

Figure 63: Performance of the Cash Flows 2011



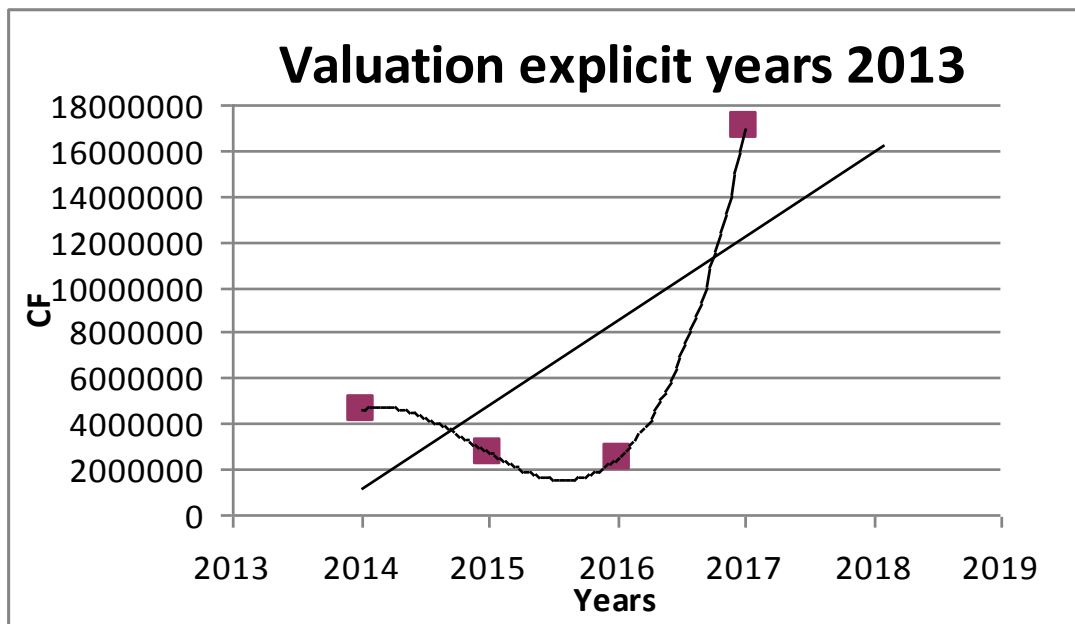
Source: Own source

Figure 64: Performance of Cash Flows 2012



Source: Own source

Figure 65: Performance of Cash Flows 2013



Source: Own source