



Equity Valuation

Siemens AG

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Abstract

This dissertation presents an in-depth analysis and consequent equity valuation of Siemens AG. The main objective of this paper is to provide an alternative perspective of what might be the fair value of this company considering its prospects of growth, risk and position in the market. The idea that value is highly subjective is kept in mind during all this process although it is important to understand how crucial this information is to shareholders and potential investors and the necessity of maintaining a neutral position.

In order to accomplish what is purposed an overview of the most important valuation techniques and related theory is performed. This part is used as a support for many of the decisions along this dissertation.

In the end, the methods and results of this dissertation are compared with those of HSBC in one of their published reports.

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The completion of this dissertation symbolizes the end of my Masters, this experience has been very rewarding not only because of the tools that were obtained that will help me through my career but also because of the opportunity to meet and learn with very interesting people, both professors and colleagues.

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1. Introduction

This dissertation puts in practice what has been taught in classes during the last year, regarding Equity Valuation. The subject chosen was Siemens A.G, the biggest industrial conglomerate company in Europe and one of the biggest in the world.

The focus of this dissertation is to determine a target price for the company and compare the results with the ones from an investment bank. The purpose of this will be to identify the methodological differences among them and explain the different sources of value.

The structure of this dissertation is organised in 5 main sections: Literature Review, Internal Analysis, External Analysis, Valuation and Comparison of Results. This order intends to follow the same one that was used in the process of doing this valuation.

1. The Literature Review presents the most relevant studies and papers regarding valuation methods and other related issues. Also, along this section, some decisions concerning the methodology of the valuation are provided and justified;
2. In the Internal Analysis, the company's identity, structure and recent performance are examined in order to better forecast what might be its future;
3. The External Analysis intends to provide a picture of what is the environment in which Siemens is in. The focus is both on industry and Macro analysis;
4. The Valuation, the most crucial part of this dissertation, intends to explain all the steps from the forecasting to the target price determination. The reasoning behind the assumptions made was based on the insights provided by the first 4 sections combined with the best of judgement of the author;
5. In the Comparison of Results is where the Investment Bank results are analysed and faced against the results of this dissertation in order to understand which causes are behind those differences. The investment Bank chosen is the HSBC Bank PLC.

2. Literature Review

This section has the role to go over the techniques and particularities in the valuation of a company by presenting the most relevant papers and their respective perspectives about each subject.

In order to understand what value is and why it is important to assess it, Fernandez (2007) makes a very important distinction between value and price. He defines price as “the quantity agreed between the seller and the buyer in the sale of a company”. This differs from value because it concerns the perception of each player in the market, considering that each one values the company differently. This means that, in practice, the seller, the buyer or even both had to compromise in order to get to an agreement due to the fact that they are in different positions and have opposite interests.

According also to Fernandez (2007), valuation can be done with several purposes: set the minimum price for an acquisition; decide to sell or buy publicly traded stock; determine price for an IPO; create systems of compensation based on value creation; identify value drivers; and assist strategic decisions.

Reinforcing the differences in the perception of value, is the increasing number of valuation techniques which contribute to a more diverse and complex universe of estimations. Damodaran (2006) recognizes that these models make very different assumptions about what determines value, although, he thinks they share common characteristics. Considering this, now, the focus will be in presenting each valuation method along with some related issues. Also, I will reveal and explain, along this section, some of the choices made for valuing Siemens.

2.1 Valuation Methods

2.1.1 Relative Valuation

Relative Valuation or Multiples Valuation is a technique based on the assumption that the market is efficient and that similar assets have similar values. Damodaran (2006) identifies three steps to perform a valuation using multiples:

1. Find comparable assets that are priced by the market;
2. Scale the market prices to a common variable;
3. Adjusting for differences across assets.

First, comparable assets can be identified according to different criteria. A very common choice is to use an industry classification system such as SIC (Standard Industrial Classification). Eberhart (2004) is one of the few researchers to devote time to this specific topic by comparing a wide variety of classification systems publicly available. Although it seems logic that companies' profiles vary a lot within an industry, it also makes sense that companies that compete in the same markets and are subject to the same set of macroeconomic forces can be target of comparisons. Another alternative is to look at the fundamentals of a company. Damodaran (2006) defines a comparable company as one with growth potential, risk and cash flows similar to the firm being valued, highlighting the fact that there is no industry or sector reference in this definition. These two perspectives of what is a comparable company can be combined as Bhojraj, lee and Ng, (2003) does by selecting companies on the basis of variables that drive the cross-sectional differences in a certain ratio, including profitability, growth and the cost of capital. Finally, Andrew W. Alford findings on his paper about "*The Effect of the Set of Comparable Firms on the Accuracy of the Price-Earnings Valuation Method*" reveal that much of the cross-sectional variation in P/E (Price-to-Earnings) that is explained by risk and earnings growth is also explained by industry and that the selection of companies solely on the basis of the fundamentals is not advantageous. Even though we may have a quite strong peer group, there is always the need to find a common variable as measure of comparison because even similar companies differ in size, number of shares, capital structure and other parameters. To avoid a direct comparison, multiples are used based on different variables:

- Earnings (PE, EV/EBITDA, PEG)
- Assets (P/BV)
- Cash Flows (P/CF, EV/Operating FCF, etc...)
- Revenues (P/Sales)
- Industry Specific (EV/Subscriber, EV/Reserves, EV/Capacity, EV/Invested Capital, etc...)

Although “there is no clear-cut answer for which multiples should be used, many researchers tried to evaluate their accuracy” (Kim and Ritter, 1998). There is studies that show that, in practical life, investment bankers typically use multiples as a main technique or as assistance to other techniques. Fernandez (2001) shows that the PE and Enterprise Value-to-EBITDA appear in first and second, respectively, as the valuation methods most widely used in Morgan Stanley for valuing European companies, whereas the DCF (Discounted Cash Flow) method only appears in fifth place. Lie and Lie (2002) also supports this trend.

Regarding empirical studies, the opinions are diverse. Liu, Nissim and Thomas (2002) found that multiples derived from earnings are more accurate than the ones from cash flow, book value of equity and sales. Contrarily to this, Lie and Lie (2002) considers that asset value multiples (E/BV) yield the best results. Even so, these two papers agree on the fact that the use of forecasted performance instead of the historical performance increases the efficiency of the earnings multiple.

Lie and Lie (2002) also finds that EBITDA multiple generally are more accurate than EBIT multiple and that accuracy and bias between multiples vary by company size, profitability and sector.

Once an analyst has chosen his peer group and the right multiples, he needs to decide how to properly apply the multiple. Most relative valuations compute the average of each multiple of the comparable companies which opens some space for discussion on how to do it. Liu Nissim and Thomas (2002) found that the harmonic mean improves the valuation comparing to arithmetic mean and median. Also, Beatty, Riffe and Thompson (1999) state the same but only regarding multiples of earnings, book value and total assets.

Another measure used by analysts is the adjustment for the growth rate, known as P/EG or EV/EG depending if it is based on PE or EV/EBITDA. Fernandez (2001) explains

that these adjusted multiples are used mainly in growth industries since the growth expectations vary a lot.

Regarding this valuation, I intend to use the sum-of-the-parts method adapted for multiples suggested by Damodaran (2009). In his paper, he presents some alternatives to value conglomerate companies. This specific method consists on valuing the different businesses separately by finding “Pure Play” companies for each peer group. The results provided by each business’s relative valuation is weighted by their respective sales and summed up.

I consider this method the most appropriate one for valuing Siemens giving the level of detail provided in their financial information. Also, by using different peer groups, makes it possible to grasp the fundamentals behind each industry in terms of market growth and risk.

2.1.2 Discounted Cash Flows Models

It is consensual that DCF method is the one that provides the strongest theoretical support to a valuation. This is because “The value of an asset is not what someone perceives it to be worth but it is a function of the expected cash flows on that asset” (Damodaran, 2006). By following this reasoning, high valuations are synonym of high and stable (or growing) cash flows.

At this point, we are presented with many different methods all of them using discounted cash flows. Fernandez (2002) presents 10 methods to value a company, also Damodaran (2006) refers to 7 methods grouped in 4 classes. In order to avoid being too extensive on this subject, in this paper, I will focus on these main DCF methods:

- Free Cash Flow to the Firm (FCFF)
- Free Cash Flow to the Equity (FCFE)
- Dividend Discount Model (DDM)
- Adjusted Present Value (APV)
- Economic Value Added (EVA)

These alternatives are consistent between them and are supposed to arrive to the same value although “they differ only in the cash flows taken as the starting point for the valuation” (Fernandez, 2002). Two important components of these models are the Cost of Capital, or discount rate, and Terminal Value which I will start by introducing.

- Cost Capital

Using a discount rate to adjust cash flows has become a very popular method to account for risk. An alternative to this would be to use the certainty equivalent approach where the cash flows are adjusted and then discounted at the risk free rate.

Depending on the type of cash flows that are being used, the discount rate used differs accordingly. This means that when using cash flows originated by the whole firm we must use a discount rate that represents both equity and debt required returns (WACC) although when considering only the equity cash flows, the most appropriate is to use the cost of equity.

The WACC represents the cost of capital of a firm although Fernandez (2010) points to a common mistake which is to think of WACC as a cost or a required return when it is no more than a weighted average of those two.

The traditional approach to calculate it is:

$$WACC \text{ after tax} = K_e \times \frac{\text{Equity Value}}{\text{Enterprise Value}} + K_d \times \frac{\text{Debt Value}}{\text{Enterprise Value}} \times (1 - t)$$

Where: K_e - Cost of Equity, K_d - Cost of Debt and t - Tax Rate.

Then, in order to compute it, we need to have information on the cost of equity and debt, capital structure and tax rate. Some of this information is not directly available and it needs to be calculated.

However, there is a limitation in this approach since it does not consider a varying capital structure. In order to overcome it a manager or analyst can either assume a target capital structure (Miles & Ezzel, 1980) or adjust the capital structure by calculating a new WACC continuously over the explicit period. (Harris & Pringle, 1985).

- Terminal Value

Considering that a company can last for an indeterminable period of time, it is assumed that it has infinite lives. Since it is not possible to calculate cash flows for that amount of time, an explicit period value and a terminal value must be computed. This last value is treated as a perpetuity and it is assumed to have a constant growth rate which, according with Damodaran (2006), it should be lower or equal than the growth rate of the economy in nominal terms.

FCFF (Free Cash Flow to the Firm)

Using this method, we are valuing the whole firm by discounting the cash flows generated by the company before any claims by the investors. As a discount rate, it is used the weighted average of the cost of equity and debt after taxes (WACC after-tax). This model was first developed in 1958 by Modigliani and Miller and states that the value of a firm can be extracted by calculating the present value of the after-tax operating cash flows. From the several definitions of operating cash flows, the FCFF is the most widely used:

$$\text{FCFF} = \text{After-tax Operating Income} + \text{Depreciation} - \text{Capital Expenditures} - \Delta \text{Net Working Capital}$$

This cash flow after taxes represents the remaining in cash for the investors, either debt or equity. Damodaran (2006) says that the most revolutionary idea behind firm valuation is that equity investors and debt holders are ultimately partners who finance the firm and share in its success.

Even though the purpose of this method is to extract the value of a firm, there is the possibility of finding the value of Equity by subtracting all the non-equity claims, including debt and financial leases.

FCFE (Free Cash Flow to the Equity)

Contrarily to the previous method, this one is used to extract directly the value of equity and it can be done using the FCFF by deducting the non-equity expenses and repayments.

$FCFE = FCFF - \text{Interest expenses after taxes} - (\text{Debt Issued} - \text{Debt Repayments})$

Then, this cash flow can be interpreted as the left over after all reinvestment needs and debt repayments (Damodaran, 2006).

The discount rate used for these cash flows changes comparing with FCFF method since it should represent only the cost of equity.

DDM (Dividend Discount Model)

This model is probably the most intuitive one since it focuses on the two sources of cash flow from a share, dividends and price (that is reflected, in theory, by the present value of future dividends). It can be computed by using the Gordon growth model:

$$P_n = \frac{DPS}{Ke - g}$$

In case there are stock buybacks, this value should be added as dividends. The fact that it requires such simple assumptions makes it a very straightforward model to use.

However, there are limitations associated with DDM since dividend policies vary quite much between companies. On one end, there are companies that hold back cash and pay few or no dividends and, on the other end, companies that pay more dividends than they have available on cash flows. This diversity makes it very difficult to compare companies through this method.

Notwithstanding, Damodaran (2006) specifies three scenarios where DDM can be useful: to establish a floor value for firms with higher cash flows than dividends; in the valuation of companies that have a dividend pay-out ratio equal to 1; and when cash flow estimation is very uncertain and the dividends are the only cash flows that can be estimated.

APV (Adjusted Present Value)

Damodaran (2006) explains it as an approach that attempts to estimate the expected value of debt benefits and costs separately from the value of the operating assets. This is achieved by discounting the tax shields and estimating the bankruptcy costs associated with debt. At the same time, the value of the company without debt is calculated. Then, value of a firm will be:

$$\text{Firm Value} = \text{Value of Firm without Debt} + (\text{Tax Shields} - \text{Bankruptcy Costs})$$

The logic behind it is that for each amount of debt that a company adds to its financial structure there are benefits (interest tax savings) and costs (expected cost of bankruptcy) associated with it. Thus, by separating from the firm value the effects of borrowing money we know how much value it creates to the all company.

- Tax Shields

As it was said, Tax Shields, are the tax benefits from having debt. For a company that is expected to maintain its capital structure over time, the present value of tax shields is given by:

$$PV (\text{Tax Shields}) = \frac{\text{Interest} \times \text{Debt} \times \text{Tax rate}}{\text{Unlevered cost of capital}}$$

Although it is consensual that this is how the tax shields are calculated there is some discussion around three issues, whether the amount of debt can change over time, the discount rate and the tax rate used. At first, when APV method appeared it was considered that both debt amount and tax rate were constant and the discount rate should be the pre-tax cost of debt. Since then, some variations to the model were proposed, considering variations in the tax rate and level of debt but it is around the discount rate used that much of the divergence is.

According with Fernandez (2002), there is nine theories on how to calculate the value of Tax Shields (VTS):

Table 1: 9 Theories on VTS Calculation

Theory	Value of Tax Shields
Fernandez (2004)	DT
Damodaran	$DT - [D (Kd - Rf) (1 - T)] / Ku$
Practinioners	$D[Rf - Kd(1 - T)] / Ku$
Harris-Pringle	$TD Kd / Ku$
Myers	DT
Milles-Ezzell	$TDKd (1 + Ku) / [(1 + Kd)Ku]$
Miller (1997)	0
With Costs of leverage	$D(KuT + Rf - Kd) / Ku$
Modigliani-Miller	DT

Where: D – Value of Debt, T – Corporate Tax Rate, Ku – Unlevered cost of capital, Kd – Cost of Debt and Rf – Risk-free rate

Source: Fernandéz, Valuing Companies by Cash Flow Discounting: Ten Methods and Nine Theories, 2002

Fernandez (2002) states that VTS should be the difference between the tax expenses of the unlevered company minus the tax expenses from the one with leverage. As a consequence it should be discounted with K_u , which contrasts the reasoning from past authors. Authors like Myers (1974), Miles and Ezzel (1980), Harris and Pringle (1985) and Cooper and Nyborg (2006) support that cost of debt should be the right discount rate to use, although with some difference in their models since, for example, Miles and Ezzel believed that it should be used the K_d for the first year and K_u for the rest of the period.

- Bankruptcy Costs

This component is sometimes not considered by authors and analysts given the difficulty to estimate a reliable value. In theory, the costs of bankruptcy are composed by indirect and direct costs and to estimate its value we must use the probability of default correspondent to the level of existent debt.

$PV \text{ of Bankruptcy costs} = \text{Probability of default} \times PV \text{ (Bankruptcy costs)}$

Although, in practical life, it becomes very hard to estimate either the probability of default or the bankruptcy costs. Some studies have tried to come up with evidences about the weight of bankruptcy costs. Andrade and Kaplan (1998) that concluded that indirect costs accounted for 10-23% of firm value. Also, Damodaran (2002) believes that both indirect and direct costs represent 30% of firm value.

Another relevant paper on this matter is the one from Kortweg (2007), where he estimates the ex-ante costs of financial distress across industries, based on the market opinion. The results showed that the market expect these costs to vary between 0 and 11% of firm value. Also, the author found that companies choose their level of leverage taking into account the trade-off between tax benefits and costs of financial distress.

This method has as a main weakness the fact that it is hard to include a good estimation of the bankruptcy costs and the alternative of not accounting for them is not ideal also. Notwithstanding, the adjusted Present Value method is definitely appreciated within the researchers community given its flexibility and detail, Luehrman (1997) says “APV always works when WACC does, and sometimes when WACC doesn’t, because it requires fewer restrictive assumptions”.

2.1.3 Economic Value Added (EVA)

EVA is one of many excess return models and the most widely used among them.

Damodaran (2006) defines it as “a measure of the surplus value created by an investment or a portfolio of investments”. In other words, it represents the excess return on an investment. It can be calculated by following formula:

Economic Value Added = (Return on Capital Invested – Cost of Capital) X (Capital Invested)

The underlying logic in this formula is the same for NPV. The value of EVA discounted over the years with the cost of capital should give a similar value to NPV.

Damodaran (2006) points out some possible missteps regarding the calculation of ROIC, Capital Invested and Cost of Capital. Namely, the older the firm the bigger is the amount of adjustments that book value values require.

2.1.4 Option Based Valuation

This method has appeared in response to companies with “projects that involve both with a high level of uncertainty and with opportunities to dispel it as new information becomes available” (Kopeland and Keenan, 1998). These kinds of projects include a range that goes from a development of a new product to the exploration of an oil field. For these companies, opportunities are the most valuable thing they own (Luerhman, 1997). Moreover, this method appearance is related with some criticism to the most traditional methods, like DCF, regarding its lack of flexibility (Luerhman, 1997) and tendency to underinvestment and stagnation (Kopeland and Keenan, 1998).

According with Luerhman (1997) the right to start, stop, or modify a business activity at some future time has to be incorporated in the valuation. It is different to take these decisions now or in the future, especially when we might have new and more reliable

information about the subject. Thus, “the option valuation recognizes the value of learning” (Leslie and Michaels, 1997).

The models of option pricing used are Binomial Model and Black-Scholes Model, being the second, the most important one but also the most complex. Managers are known to avoid using it since the mathematics behind Black-Scholes formula are not accessible to the standard management knowledge. Although, Leslie and Michaels (1997) believe that in the same way as managers used CAPM, without a deep knowledge of the subject, they can also use Black-Scholes.

Even though these authors recognize the added value of this approach, they look at it as a complement to a valuation without discarding the traditional methods. Also, they point a limitation which is the fact that to use option-based valuation requires information, knowledge and the vision of top managers. This demand makes it very hard for external investors to use it.

2.1.5 Asset Based Valuation

This method follows the belief that the value of assets individually might be a better proxy of the true value of a firm than the DCF valuation that is based in dubious assumptions.

There are three different approaches to do an asset based valuation: Book Value; Replacement Cost; and Liquidation Value. The first one, Fernandez (2007) defines it as the value of shareholders’ equity reported in the balance sheet which is the difference between total assets and liabilities. The second, also called Substantial Value, represents the amount needed to create a company with the exact same assets. The Liquidation Value, as its name says, is the value obtained from selling all the assets now.

Theoretically, this value should be similar to the value of the discounted cash flows of the individual assets although we should account for the discount on the value that exists in the urgency of selling (Damodaran, 2006).

However, when using an asset based method the prospects of growth are not being considered. Only information about the past and the present is incorporated. This may not have a big effect on the valuation of a company in a mature market and that is composed predominantly by fixed assets. Although using it for companies with growth

opportunities and potential for excess returns will produce a very different value from the true value (Damodaran, 2006).

2.2 Other Issues on valuation

2.2.1 Risk free

In Damodaran (2008), the author focuses on the “Basic Building Block” of a valuation which is the risk-free rate. The importance of this component is explained in this paper as being the start for every valuation because it is through the risk-free rate that we find both cost of equity and debt.

It is consensual that the risk-free rate should be the expected return of an asset with no default risk and because of that government bonds are widely used to represent this rate although there are several countries that present default risk.

According to Damodaran (2008), the maturity chosen for the government bond matters since it should correspond to the period in which you are going to account for cash flows.

Also, the rate should be in real terms since we do not want that the growth derived from inflation prices misrepresents the valuation.

For the purpose of this dissertation, the 10 year German government bonds will be used as the risk-free rate.

2.2.2 ERP

The expected return of an investment can be divided in two components, the risk-free rate, discussed in the previous topic, and the risk premium which compensates for the risk attached to the specific investment. Damodaran (2012) defines equity risk premium as the “premium that investors demand for the average risk investment, and by extension, the discount rate that they apply to expected cash flows with average risk”.

In the same paper, Damodaran defines the determinants that influence ERP: Risk Aversion; Economic Risk; Information disclosure and transparency; Liquidity; Catastrophic risk; Government policy; and behavioural component.

The most widely adopted approach to estimate equity risk premiums is by using the historical ERP although there is a significant criticism about this approach where

Fernandez (2006) says that historical ERP is not equal to required ERP which is different for each investor. Also, when it comes to deal with less developed markets than U.S or some European countries there are limitations about the historical data available (Damodaran 2012).

Damodaran (2012) presents two alternative approaches. The first, consists in using a survey where managers and investors are asked about what are their expectations of returns in equity. The second approach estimates implied premiums by using market rates and prices on assets traded today. These two alternatives to get the ERP correct some of the limitations regarding the historical approach but present other kind of problems as overweighting recent history.

In order to determine the cost of equity of Siemens, I will use ERP for Germany provided by Damodaran considering that there are no recent studies on the matter that provide better estimates.

2.2.3 Beta

When using the CAPM to estimate the cost of equity of a firm, the component, along with ERP, that creates more problems is beta. It can be defined as a measure of the systematic (or undiversifiable) risk of an asset. In other words, represents the relation between the returns of a specific asset and the ones from its market.

According with Damodaran (1999), betas have two basic characteristics, the first, is that they add on to a diversified portfolio, rather than total risk. Second, is the fact that they measure the relative risk of an asset.

Since there is no efficient portfolio that represents the whole market, most practitioners use market indices which include only a subset of securities. S&P 500 is the most commonly used proxy for beta estimation for US companies and it only considers 500 companies. If we tried to estimate the beta for emerging markets we will have a much harder scenario given the existence of few public companies and short historical data.

Damodaran also presents three issues to take into account when estimating betas:

- Choice of Market Index – indices that include more securities should provide better estimates, as should the ones that are market-weighted.
- Choice of a Time Period – By using longer time periods we may get more observations but this may adulterate the final results if the company has suffered several changes in their characteristics in the past.

- Choice of a Return Interval – By using shorter intervals it is likely to create some bias due to the fact that assets are not traded on a continued basis. On the other side, the use of bigger intervals may reduce significantly the number of observations if the company has a recent public history.

When analysing betas across industries it is clear that there are considerable differences. This happens mainly because of the “statistical noise” reduction that a narrower industry specific market index provides comparing with a general one. Kaplan and Peterson (1998) call a “Pure Play Portfolio” to a portfolio composed by companies with one business and defend that this kind of portfolio is ideal to get a precise beta, although they recognize the difficulty in finding a large sample of this type of companies. Also, the author found that large market-capitalization firms (most of them conglomerates) tend to have smaller betas than those in small market-capitalization firms.

For this purpose, I have used the historical beta of Siemens using DAX Index as portfolio. The nature of Siemens, i.e. having a diversified portfolio of businesses makes this acceptable since this company is exposed to many industries and their specific risks. Also, the monthly data used was from a period of 3 years ending in February 2015. The choice of the period length takes into account a period where the company remains fairly stable in terms of portfolio and leverage.

2.2.4 Cross Border and Conglomerates Valuation

Multinationals may not represent a large percentage of the overall number of firms, they have an outsized influence, because they tend to be the largest firms (in terms of revenues, earnings and market capitalization) in many markets.

These companies, due to their presence in different countries, cannot be valued in the same way as the ones that are only exposed to the political and economic risk of one country. One way to solve this problem is valuing the company using the sum-of-the-parts approach. Alternatively, we can adjust only the risk parameters using a weighted average in order to estimate the risk for the consolidated company.

Also, there are other issues besides risk. Centralized costs and Intra-company transactions have to be looked out for to avoid the inflation of sales and its respective costs. Finally, the effective tax rate of a multinational is just a reflection of the multiple taxes rate along the countries it is operating in, which demands for attention.

2.3 Conclusion

After looking over the most important literature on Equity Valuation and analysing the target company, I have decided to use as main valuation technique the DCF with the Adjusted Present Value approach. I believe the APV can extract a reliable value considering the fact that the company has not maintained a constant capital structure due to the big variations of cash. As a downside, there is the calculation of Bankruptcy costs which will have to be handled using the studies that were mentioned earlier even though considering this is not most ideal solution.

In order to make this valuation more consistent with the current market context I will also value the company using a variation of the sum-of-the-parts multiple valuation to support the main method. The choice of this particular technique is due to the diversified portfolio of businesses that Siemens is in and the limited number of direct peer companies existent.

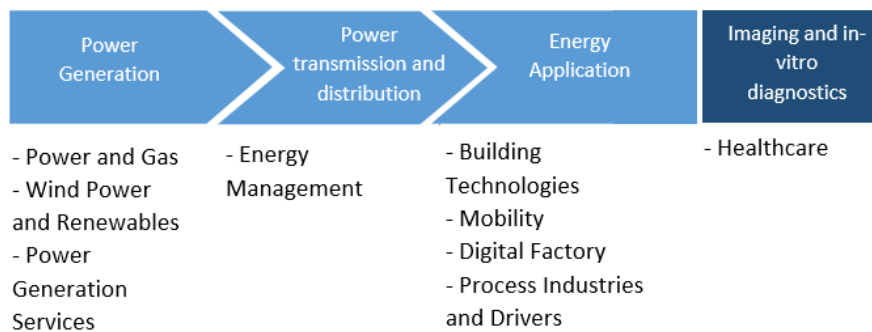
Damodaran (2009), when valuing conglomerate companies, suggests two approaches, the one where the company is valued as a whole and the one where the company is broken down into businesses and those are valued separately (the sum-of-the-parts approach). Even though the second approach might be the correct in theory it also requires a great deal of assumptions regarding the allocation of assets and profit to the respective businesses. Considering this, I have decided to value the company as a whole given the short level of detail provided and also the fact that Siemens's businesses, with the exception of Healthcare, are interrelated and positioned along the same value chain.

3. Internal Analysis

3.1 Presentation

Siemens AG is a German company and it was founded by Werner von Siemens in 1847. At the time, the focus was in telecommunications, since then, Siemens has internationalized and diversified into more business areas. At the moment, this firm operates in more than 200 countries, has 343,000 employee and is organized in 8 reportable divisions, the Healthcare business, that is now managed separately, and a segment of Financial Services, which act as a partner with those divisions and also with external customers (Fig. 1). For the purpose of this dissertation, I will use the sector organization that was used prior to the current one. It was composed by only 4 sectors: Energy, Healthcare, Industry and Infrastructures & Buildings. As it can be seen in Figure 3, in 2014, Energy sector was the one that assumed the most relevance, followed by Infrastructures & Cities and Industry.

Figure 1: Business Segments Grouped along the Value Chain of Electrification



Source: Siemens Annual Report 2014

In Siemens, they define themselves as a “global powerhouse in electrical engineering and electronics”, positioning along the value chain of electrification. Its customers come from industries as distinct as Oil, Healthcare, Construction and Transportation.

Figure 2: Revenues by Geographic Segment

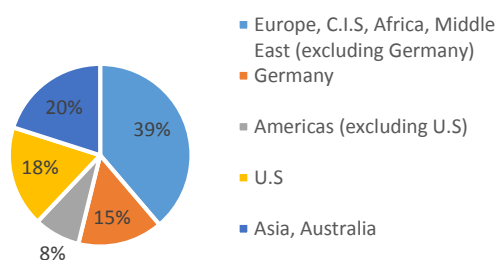
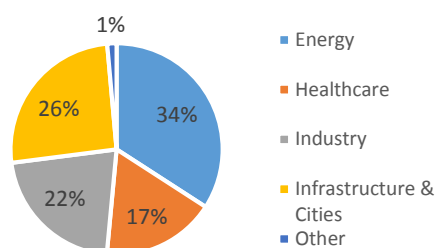


Figure 3: Revenues by Sector



Source: Siemens Annual Report 2014

In terms of geography, this company is divided into 3 major regions: Europe, C.IS¹, Africa and Middle East; Americas; and Asia and Australia. In terms of volume of sales, by looking to Figure 2 is clear that the region of Europe, C.I.S, Africa and Middle East, when including Germany, represents the majority of revenues in which the European market stands out.

3.1.1 Performance Indicators and Stock Performance

Table 2: Performance Indicators

Million Euros	2011	2012	2013	2014
Sales	73 275	78 296	73 445	71 920
<i>Energy</i>	24 390	27 302	26 425	24 380
<i>Healthcare</i>	12 463	13 600	12 626	12 401
<i>Industry</i>	18 124	18 872	15 256	15 346
<i>Infrastructure & Cities</i>	16 166	16 731	17 149	18 291
<i>Other</i>	2 132	1 791	1 989	1 502
Orders	86 055	77 822	80 383	79 530
Gross Margin	33,7%	31,9%	31,2%	32,2%
EBITDA margin	14,6%	12,5%	11,0%	12,7%
EBIT Margin	11,3%	9,0%	7,2%	9,4%
Profit Margin	8,6%	5,9%	6,0%	7,7%
ROE	20,5%	14,3%	14,6%	18,2%
Book value D/E	17,0%	31,4%	39,3%	41,0%
Interest Coverage ratio	4,82	4,08	6,75	8,81
ROCE	15,8%	13,1%	9,5%	12,0%
Dividend payout	42,8%	56,7%	59,1%	50,4%

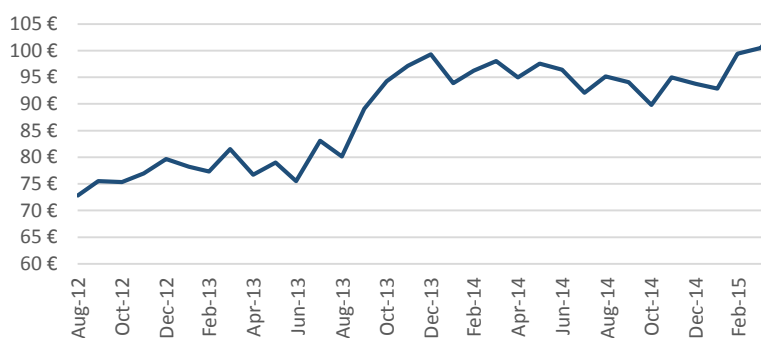
Source: Siemens Annual Report 2014

¹ Commonwealth of Independent States

This table aims to resume the recent performance of Siemens using some key indicators. In terms of sales, Siemens has been inconstant since they have been going through several acquisitions and divestitures due to their strategic readjustment. The level of orders has not followed any clear trend, even though, it presents a decrease in the last 4 years. When breaking down into sectors, Infrastructures & Cities stands out from the other sector with a constant positive growth along these years. Offsetting this uptrend, the Energy and Industries sectors have been in decline. Looking at the profitability in the last 4 years, specifically to the margins and ROE, it is clear that Siemens had 2011 as its most profitable year. Since then, it has been decreasing its profitability, although this seems to be recovering when looking to 2014. Regarding their debt levels, in 2011 they had €17,940 million in debt with a book value debt-to-equity ratio of 17%. Four years later, it reached €20,940 million with a book value gross debt-to-equity of 41% where mostly was due to the decrease of excess cash. Despite this increase in leverage, the interest coverage ratio has reached the highest value of 8,81x. Finally, the dividend policy has been consistent along these years, which also has been combined with the repurchases of shares.

Siemens, AG is listed in Deutsche Börse since 1899, having delisted from NYSE on May 2014. Since then, it is only traded over-the-counter using ADR's (American Depositary Receipts). The ticker used in the German Stock Exchange is SIE.

Figure 4: Market Price Evolution



Source: Bloomberg

In February 2015, Siemens market capitalization was €83,019 million with 835 million shares traded in the market. As it can be seen from the graph, the share price has followed a growing trend, with an increase of roughly 40% since 2012 until now. Following an inverse trend is the dividend yield, this performance is mainly caused by the increase of the stock price as it can be seen from the table below.

Table 3: Dividend Policy

Million Euros	2007	2008	2009	2010	2011	2012	2013	2014
Dividends	1 292	1 462	1 380	1 388	2 356	2 629	2 528	2 533
Payout ratio	38%	24%	61%	60%	43%	57%	59%	50%

Source: Siemens Annual Report 2014

3.1.2 Strategic Vision

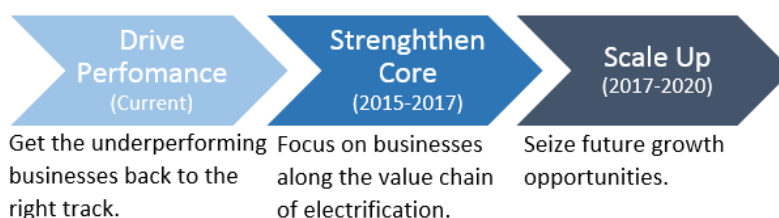
In the last decade, Siemens has been changing their strategic focus. In 2008, the telecommunications business had been completely divested, on the other side, investments in the renewable energies and healthcare were made.

Since last year, after the entry of the new CEO, Joe Kaeser, a new strategic plan called “Vision 2020” was launched, in response to the last years of underperformance by the company. This plan aims to put Siemens back on the path of growth and it lays on three major components:

- Focus on opportunities of growth along electrification, automation and digitalization and exit from underperforming businesses;
- A flatter and flexible structure, increasing efficiency, by eliminating layers of management;
- Achieving long-term success by supporting an “Ownership Culture” where more employees are also shareholders.

In order to deliver it, they established three phases:

Figure 5: Strategic Timeline



Source: Siemens Annual Report 2014

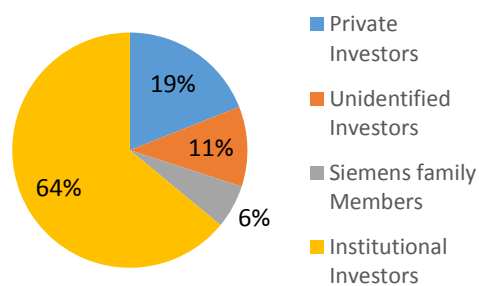
Also, Siemens has linked the success of this plan to some specific goals:

- Cut costs by 1 Billion € until 2016
- Increase capital efficiency target – achieve a ROCE of 15% to 20%

- 30% of Division and Business Unit managers to be base outside Germany by 2020
- Increase the number of employee shareholders by 50%

3.1.3 Shareholder Structure

Figure 6: Shareholder Structure



Source: Siemens's website

Currently, Siemens has issued 881.000.000 registered shares of which 89% are free float since either treasury shares and Siemens family members' holdings are considered non-free float.

3.1.4 Siemens Rating

The ratings given to Siemens are A1/stable/P-1 and A+/ stable/A-1+ by Moody's and Standard & Poor's, respectively. In the case of Moody's, the last update occurred in February 2015, prior to that the rating was Aa3/Neg/P-1. The recent history of the rating of this company is in detail in the Appendix 8.7.

3.2 Dresser-Rand

3.2.1 The Deal

Siemens announced on September 2014 that it had come to an agreement to buy Dresser-Rand, the initial offer was \$7,600 million (€5,800 million as of this date) in cash, or \$83 per share with the assumption of debt. In addition to this, this deal has a ticking fee feature where, starting in March and until the deal closes, a \$0.55 monthly fee will be added to the original price. At the date of this work, the European Commission is still performing an in-depth investigation in order to assess the effects in competition that this deal may cause. The possibility that this deal does not go through will cost to Siemens \$400 million in break fees excluding any other additional cost already occurred.

The synergies that the company expects to extract, reach €1,300 million until 2019. The source of these synergies is both from revenues and costs.

This company is quoted in NYSE and the recent performance of the stock has shown a sharp growth where most of it was caused by the announcement of the merger, growing 22% during the 10 days after the communication. This sign combined with the negative reaction in Siemens stock price, indicates clearly that the investors see this deal as being overpaid.

3.2.2 Presentation and Analysis of the Company

Dresser-Rand is a company that provides products and services to the Oil & Gas industry and it comes as a strategic fit to Siemens's sector of Energy. Its headquarters are located in Huston, Texa, USA. The client base comes from more than 150 countries where 32% and 24% of the \$2,812 million in revenues in 2014, came from North America and Europe, respectively.

Table 4: Dresser-Rand Performance Indicators

Million Euros	2011	2012	2013	2014
Revenue	2 312	2 736	3 033	2 812
Gross Margin	15%	25%	24%	27%
EBITDA Margin	5%	13%	15%	14%
Profit Margin	2%	5%	3%	5%
Book Value Debt Ratio	33%	31%	34%	31%
Coverage Ratio	4,20	5,58	6,84	5,54
ROE	12%	18%	14%	9%

Source: Siemens's website

When looking more closely to the company's performance, it is possible to see that, in the last 4 years, there was a growth of 22% in revenues even though there was a decline of 7.3% in 2014. In terms of profitability, Dresser-Rand has shown an improvement in some indicators (Gross and EBITDA margins) although ROE has been very unstable over the last 4 years.

Regarding the capital structure, the company has, as of December 2014, a book value debt ratio of 68.9%, having decrease from 84.3% in 2013. The coverage ratios in 2013 and 2014 were 10x and 8x, respectively. The current rating from Dresser-Rand is Ba2 and BB for Moody's and S&P, respectively.

4. External Analysis

4.1 Macroeconomic Analysis

Siemens as one of the most geographically dispersed companies in the world is dependent of the macroeconomic environment at a global level. Also, given the industry it operates, there is a significant correlation between GDP growth and the performance of the company where the gross fixed investment and manufacturing value added assume a great importance.

The previsions for global GDP, in real terms, are 3% for 2015 and an average growth of 3.2% until 2020². For inflation, it is expected to reach 2.3% in 2015, and 2.5% each year until 2020. In the Eurozone, inflation is expected to grow, on average, 1.1%³.

One other important factor that will influence the possible outlook of Siemens is the price of certain commodities, more specifically aluminium and copper. This happens because they account for an important part of raw material used in the final products of the company. The prices of those commodities are expected to decrease, in real terms, 3% and 6% for aluminium and copper, respectively⁴.

4.2 Sector and Market Analysis

This section analyses the company by sector explaining which products and services they provide, the recent performance and what can be expected from the future. This last part is based on the few studies and reports available for consultation regarding the outlook for the next 5 to 6 years.

Energy

For this sector, Siemens offers turbines and other components to oil, gas and renewable energies infrastructures. At the moment, renewable energies segment represents 28% of the revenues of this sector being the one showing a better growth. Until 2020, it is expected that the whole segment will grow 5.7% annually⁵.

² “ATK Global Economic Outlook 2014-2020” – AT Kearney (2014)

³ “EY Eurozone Forecast” – Ernst & Young (2014)

⁴ World Bank Database

⁵ BP Outlook Energy 2035 - BP (2014)

The other two segments account for the majority although they have been showing a slow or even negative growth. The prospects for these segments differ between them, with a 0.8% annually growth in consumption for oil and 1.9% for gas until 2020,

Healthcare

The focus of this sector is on diagnostics and imaging technologies to the industry of healthcare. In the past recent years, the revenues remained stable after a very fast growth. Siemens expect that this sector will grow next year. The prospects for the following years are of a CAGR of 5.4% and 5.7% for diagnostics and imaging, respectively⁶.

Industry

This sector provides solutions of various types to enhance the use of resources and energy in infrastructures and industry. Its revenues have slowly declined over the last years and for 2015 it is expected to keep this trend. The drivers that are considered important are the factory automation industry and, more generally, GDP. The expectations for the factory automation industry are 8.5%, annually, until 2020⁷.

Infrastructures & Cities

This last sector is the most recent one and it offers solutions to metropolitan centres and urban infrastructures. In the last years, the revenues have grown steadily and Siemens estimates that this trend will continue in 2015. This sector can be correlated with industries of rail systems and non-residential construction. For the next 5 years, these drivers are expected to grow both at 8% year over year⁸.

⁶ “Global Home Healthcare Market Analysis” – Grand View Research (2014)

⁷ “Economic Outlook no. 1210 – The Global Automotive Market” – Euler Hermes Economic Research (2014)

⁸ Data extracted from www.ttiinc.com and www.researchandmarkets.com (see References)

5. Valuation

5.1 Methodology

As it was said in the literature review section, the main method used to perform the evaluation of Siemens will be the DCF with the APV approach. In order to get a more realistic and market-based result, I will also complement the DCF with multiples using a sum-of-the-parts approach. Adding to this, the announcement of the acquisition of Dresser-Rand will be taken into account by valuing it separately and assessing its eventual creation or destruction of value. Even though the deal with Dresser-Rand is not certain, the fact is that this information affects the firm value of the company. The option of valuing this company separately instead of integrating it in Siemens's Financials, was made because of that uncertainty. Considering the size of this deal, it was decided that a valuation using multiples would be a fair approach.

The choice regarding the length of explicit period was conditioned by Siemens's "Vision 2020" plan. It was assumed that the company will only enter in a steady state after 2020 due to efficiency improvements and growth of revenues. Then, an explicit period of 6 years was chosen.

Another important assumption concerns acquisitions and divestments, as Siemens has been through an agitated period with many portfolio adjustments. Given their strategic plan, in which they pretend to consolidate the existent businesses, it was assumed that from now on the company will remain on the current businesses and no additional acquisitions or divestitures will be considered in the future besides the Dresser-Rand deal mentioned above. Also, following this logic, the results of discontinued operations will be assumed as 0.

Finally, giving the recent historical data and the information provided by the company, the capital structure was assumed to vary along the explicit period, mostly due to the accumulation of cash.

5.2 Forecasting and Other Assumptions

5.2.1 Revenues

Table 5: Revenues and Growth by Sector

Revenues (million Euros)	2013	2014	E2015	E2016	E2017	E2018	E2019	E2020
Energy	26 425	24 380	24 648	25 047	25 581	26 259	27 090	28 088
<i>Growth</i>	-3,2%	-7,7%	1,1%	1,6%	2,1%	2,6%	3,2%	3,7%
<i>Oil Demand</i>			0,8%	0,8%	0,8%	0,8%	0,8%	0,8%
<i>Gas Demand</i>			1,9%	1,9%	1,9%	1,9%	1,9%	1,9%
<i>Renewables</i>			5,7%	5,7%	5,7%	5,7%	5,7%	5,7%
Healthcare	12 626	12 401	12 636	12 963	13 388	13 920	14 570	15 351
<i>Growth</i>	-7,2%	-1,8%	1,9%	2,6%	3,3%	4,0%	4,7%	5,4%
<i>Diagnostics</i>			5,4%	5,4%	5,4%	5,4%	5,4%	5,4%
<i>Imaging</i>			5,7%	5,7%	5,7%	5,7%	5,7%	5,7%
Industry	15 256	15 346	15 515	15 851	16 363	17 067	17 982	19 139
<i>Growth</i>	-19,2%	0,6%	1,1%	2,2%	3,2%	4,3%	5,4%	6,4%
<i>Automation Market</i>			8,5%	8,5%	8,5%	8,5%	8,5%	8,5%
Infrastructure & Cities	17 149	18 291	18 492	18 881	19 466	20 264	21 297	22 597
<i>Growth</i>	2,5%	6,7%	1,1%	2,1%	3,1%	4,1%	5,1%	6,1%
<i>Rail systems</i>			8,0%	8,0%	8,0%	8,0%	8,0%	8,0%
<i>Non residential construction</i>			8,0%	8,0%	8,0%	8,0%	8,0%	8,0%
Other	1 989	1 502	1 519	1 535	1 552	1 569	1 586	1 604
<i>Growth</i>	11,1%	-24,5%	1,1%	1,1%	1,1%	1,1%	1,1%	1,1%
Total	73 445	71 920	72 809	74 259	76 316	79 028	82 458	86 692
Growth	-6,2%	-2,1%	1,2%	2,0%	2,8%	3,6%	4,3%	5,1%

As it was said before, Siemens's revenues have been stagnated where much of the variations came from portfolio adjustments. Beginning in 2016, the company believes that revenues will increase, although, they do not provide actual forecasts.

This table presents the forecasts and the market information that were used as drivers to predict revenues. As it can be seen, the growth rate of revenues does not follow the one of its drivers but instead it slowly converges to it. These assumptions come in line with the company's belief of growth in the future but also with a conservative expectation due to the recent past performance. In the segment "Other" is composed by the Financial Services and Equity Investments departments and it will be considered as constant.

Adding to this, inflation was incorporated into sales and it represents 1.1%⁹ of the annual growth.

⁹ Average of the estimated inflation until 2020 in the Eurozone (see section 4.1)

5.2.2 Cost Structure and other Income

Table 6: Cost Structure and Other Income

Million Euros	2013	2014	E2015	E2016	E2017	E2018	E2019	E2020
Cost of Sales	50.505	48.754	49.678	50.667	52.071	53.921	56.261	59.151
<i>as % of Sales</i>	<i>68,8%</i>	<i>67,8%</i>	<i>68,2%</i>	<i>68,2%</i>	<i>68,2%</i>	<i>68,2%</i>	<i>68,2%</i>	<i>68,2%</i>
Selling General and Administrative Expenses	10.869	10.424	10.569	10.780	10.500	10.624	10.826	11.109
<i>as % of Sales</i>	<i>14,8%</i>	<i>14,5%</i>	<i>14,5%</i>	<i>13,8%</i>	<i>13,4%</i>	<i>13,1%</i>	<i>12,8%</i>	<i>12,5%</i>
R&D Expenses	4.048	4.065	4.117	4.162	4.208	4.254	4.301	4.348
Other Operating Income	500	656	547	557	573	593	619	651
<i>as % of Sales</i>	<i>0,7%</i>	<i>0,9%</i>	<i>0,8%</i>	<i>0,8%</i>	<i>0,8%</i>	<i>0,8%</i>	<i>0,8%</i>	<i>0,8%</i>
Other Operating Expenses	424	194	291	297	305	316	330	347
<i>as % of Sales</i>	<i>-0,6%</i>	<i>-0,3%</i>	<i>0,4%</i>	<i>0,4%</i>	<i>0,4%</i>	<i>0,4%</i>	<i>0,4%</i>	<i>0,4%</i>
Income From Investments Using the Equity Method	510	582	0	0	0	0	0	0

Cost of Sales (COGS)

The cost structure of Siemens consolidated is quite constant in general, the historical COGS as percentage of sales, is a clear example, where the values range between 66.1% and 69.2%.

Giving the constant structure, it was assumed that the average of the last three years would be a good representative of the future cost of sales. In addition, as it was mentioned in the macroeconomic analysis, the prices in real terms of aluminum and copper are not expected to differ much in the future and for that it will have little impact in the supply costs.

Selling General and Administrative Expenses

This type of expenses also followed a fairly constant weight of total sales, ranging from 14% to 17.6%.

The reasoning behind this forecast is similar to the one used above, where the value of 2015 is equal to the average of the last 3 years, although, it also considered the company's objective to decrease these costs by €1,000 million until 2016 and the economy of scale effects caused by the increase in sales.

R&D Expenses

This company follows an accounting policy where the Research & Development expenses are not capitalized until it is confirmed that there will be possible economic gains coming from it. For the forecasted period, the accounting policy will be kept since

the levels of expenses have been constant in the last years as well as the value of Intangible Assets. In order to replicate these expenses for the following years, the average of the 3 years was used.

Other Operational Incomes and Expenses

The additional income and expenses related with operations concerns mostly impairments, sales of PPE and Intangible Assets, operating leases and legal and regulatory matters.

These operational expenses have been decreasing pronouncedly since 2007 although, like the operational income, they have stabilized in the last years. Considering this, the last 3 years average as percentage of sales was used as a driver to forecast these items.

Income from Non-consolidated Associates

These gains or losses have been somewhat unstable, ranging from gains of €582 million to losses of €1,946 million. For the sake of the reliability of this valuation, this income will be assumed as zero for the explicit period. Moreover, giving the non-recurring nature of this item, it is excluded from the calculation of free cash flow.

5.2.3 Investment Policy

Table 7: Investment Policy

Million Euros	2013	2014	E2015	E2016	E2017	E2018	E2019	E2020
Gross PPE	24 083	23 968	25 940	28 064	30 427	33 054	35 973	39 218
Accumulated Depreciations	14 268	14 330	16 111	18 039	20 124	22 385	24 841	27 514
Net PPE	9 815	9 638	9 829	10 025	10 303	10 669	11 132	11 703
Net PPE/Sales	13,4%	13,4%	13,5%	13,5%	13,5%	13,5%	13,5%	13,5%
Depreciations	1 931	1 670	1 781	1 928	2 085	2 261	2 456	2 673
Depreciation/Last year's GPPE	13,4%	13,4%	7,4%	7,4%	7,4%	7,4%	7,4%	7,4%
Retirements	2 623	2 515	1 198	1 297	1 403	1 521	1 653	1 799
Retirements/Last year's GPPE	10,4%	10,4%	5,0%	5,0%	5,0%	5,0%	5,0%	5,0%
Other Intagibles Assets	5 057	4 560	4 560	4 560	4 560	4 560	4 560	4 560
Amortization	873	741	813	813	813	813	813	813
Amortization/Last year's IA	10,4%	10,4%	17,8%	17,8%	17,8%	17,8%	17,8%	17,8%
Capital Expenditures	2 504	1 567	3 171	3 420	3 766	4 148	4 572	5 043
Additions in PPE	-654	1 313	2 358	2 607	2 953	3 335	3 759	4 230
Additions in IA	1 335	244	813	813	813	813	813	813
Other Investments	1 823	10	0	0	0	0	0	0
Net Capital Expenditures	-300	-844	576	680	868	1 074	1 303	1 557

This topic concerns every addition in PPE (Property, Plants and Equipment), Intangible assets and portfolio of businesses. As it was mentioned in the methodology, this valuation will assume no portfolio adjustments. Regarding PPE, Siemens has gone through a reduction in the last 4 years where most of it was due to the disposal of obsolete assets. Adding to this, the net capital expenditures have been negative since 2008.

For the explicit period, it was considered that the continuation of this policy is unlikely, even more giving the projection of revenues. Then, the new investment policy will follow the trend of sales. In order to do that, it was used the ratio of Net PPE/Sales. The depreciation was determined by the last 3 years average of the ratio Depreciation/Last year's GPPE. Also, it was considered an annual amount of retirements of 5%, using Retirements/ Last year's GPPE. This value is lower than the company's recent past since part of that value was composed by transfers to Assets Held for Disposal due the portfolio divestments.

Regarding intangible assets and the respective amortization, it was assumed that the additions minus amortization will equal zero. This assumption comes with the impossibility to determine when the company will be able capitalize any R&D expenses. Adding to this is the fact that the amounts in intangible assets have remained stable which makes it a more reasonable assumption. Also, Goodwill will be maintained as it is, due to the no acquisitions assumption mentioned above, and no impairments will be recognized.

Finally, after all these assumptions, is possible to obtain the value of capital expenditures for each year, as it can be seen in the table.

5.2.4 Working Capital

This component represents the difference between the current assets and the current liabilities. These assets exclude any financial assets and excess cash. Siemens has been increasing its working capital needs, annually, from 2010 until now. The items used to determine it were: Trade Receivables, Inventories and Other Current Assets, on the side of assets, Accounts Payable and Other Current Liabilities on the side of liabilities.

Table 8: Working Capital

As % of Sales	2013	2014	E2015	E2016	E2017	E2018	E2019	E2020
Current Assets	43,2%	43,0%	42,4%	42,4%	42,4%	42,4%	42,4%	42,4%
Trade and other Receivables	20,2%	20,2%	20,0%	20,0%	20,0%	20,0%	20,0%	20,0%
Inventories	21,2%	21,0%	20,7%	20,7%	20,7%	20,7%	20,7%	20,7%
Other Operational Assets	1,8%	1,8%	1,7%	1,7%	1,7%	1,7%	1,7%	1,7%
Current Liabilities	37,2%	35,5%	36,3%	36,3%	36,3%	36,3%	36,3%	36,3%
Accounts Payable	10,3%	10,6%	10,4%	10,4%	10,4%	10,4%	10,4%	10,4%
Other Current Liabilities	26,8%	25,0%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%
Working Capital	6,0%	7,5%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%

Million Euros	2013	2014	E2015	E2016	E2017	E2018	E2019	E2020
Current Assets	31.703	30.923	30.885	31.500	32.372	33.522	34.978	36.774
Trade and other Receivables	14.853	14.526	14.528	14.817	15.228	15.769	16.453	17.298
Inventories	15.560	15.100	15.097	15.398	15.825	16.387	17.098	17.976
Other Operational Assets	1.290	1.297	1.259	1.285	1.320	1.367	1.426	1.500
Current Liabilities	27.300	25.548	26.428	26.954	27.701	28.685	29.930	31.467
Accounts Payable	7.599	7.594	7.565	7.715	7.929	8.211	8.567	9.007
Other Current Liabilities	19.701	17.954	18.863	19.239	19.772	20.474	21.363	22.460
Working Capital	4.403	5.375	4.457	4.546	4.672	4.838	5.048	5.307
Net Working Capital	570	972	-918	89	126	166	210	259

The forecasting was done in percentage of sales, mainly because the items referred are all dependent of the volume of existing business, and also, since COGS driver happens to be sales there was no point in using it as a driver to Trade Payables or Inventories. Criteria used was the same as in the previous forecasts, the average of the last 3 years. In the end, the component that will be used in the valuation is the Net Working Capital, which is the difference between the Working Capital needs from one year to the next. By looking at the table, the values become positive after the first year which is caused by the revenue growth. The reduction in the first year is a consequence of the normalization effect caused by the use of a 3 year average.

5.2.5 Taxes

When analyzing the consolidated results of Siemens it is possible to look at the annual value of taxes attributable to Net Income. Even though this is way more complex than that since the tax rates differ a lot from country to country, the calculation of the historical effective tax rate returns percentages very close to each other, around 30% (see Appendix 8.6). Then, it seems safe to admit that this component will continue

following the same trend. In order to come up with a tax rate for the next years, it was used the average of the last 3 years.

5.2.6 Debt

As it was said in the methodology section, the capital structure of Siemens will vary in market value terms. The fact that Siemens's Debt is predominantly composed by bonds with fixed rates helped, since these traded securities have their market values available. Using Bloomberg, it was possible to extract the price of each bond that was issued. When multiplying the price of the bond for its respective carrying amount, the market value of a bond is obtained.

Table 9: Outstanding Bonds Composition

Type	Currency	Amount (€)	Issuance	Maturity	Carrying Amount (€)	Price (€)	Value (€)	Yield
Senior Unsecured	USD	1 750	16/08/2006	17/10/2016	1 457	107,4	1 564	0,80%
Senior Unsecured	USD	500	16/03/2006	16/03/2016	425	104,6	445	0,58%
Senior Unsecured	EUR	2 000	20/02/2009	20/02/2017	2 122	109,2	2 318	0,12%
Senior Unsecured	EUR	1 600	11/06/2008	11/06/2018	1 839	117,0	2 151	0,22%
Senior Unsecured	USD	500	12/03/2013	12/03/2018	396	101,3	401	1,05%
Senior Unsecured	EUR	1 000	10/09/2012	10/03/2020	995	105,6	1 050	0,35%
Senior Unsecured	EUR	1 250	12/03/2013	12/03/2021	1 276	107,6	1 373	0,45%
Senior Unsecured	GBP	350	10/09/2012	10/09/2025	448	104,1	466	2,30%
Senior Unsecured	USD	1 750	16/08/2006	17/08/2026	1 843	128,5	2 368	3,12%
Senior Unsecured	EUR	1 000	12/03/2013	10/03/2028	996	122,1	1 216	1,03%
Senior Unsecured	USD	100	12/03/2013	12/03/2028	77	97,9	75	3,71%
Senior Unsecured - With Warrants	GBP	650	10/09/2012	10/09/2042	819	112,2	919	3,08%
Senior Unsecured - With Warrants	USD	1 500	16/02/2012	16/08/2017	1 158	112,0	1 297	-3,81%
Senior Unsecured - With Warrants	USD	1 500	16/02/2012	16/08/2019	1 140	116,6	1 329	-1,99%
Subordinated, unsecured - Hybrid	GBP	750	14/09/2006	14/09/2066	1 025	143,1	1 467	2,19%
Subordinated, unsecured - Hybrid	EUR	900	14/09/2006	14/09/2066	959	83,6	802	0,89%
Total		17 100			16 975		19 241	

Source: Bloomberg

The other type of debt, bonds with floating rates, loans from banks and financial leases represent 13% of the total debt in book values. Giving this and the difficulty to find exact maturities and interest rates, these other types of debt were considered in book value terms.

Table 10: Debt Structure

Million Euros	Short-term	Long-term	Total	Weight
Bonds with Floating Rate	-	1 190	1 190	6%
Bonds with Fixed Rate	-	16 975	16 975	81%
Loans from banks	773	968	1 741	8%
Other financial indebtedness	826	85	911	4%
Finance leases	21	108	129	1%
Total	1 620	19 326	20 946	

As it was said in the company presentation section, Siemens's debt ratio has fluctuated in last 8 years where the cash variations have contributed a great deal (see Appendix 8.4). For the purpose of keeping the company structure consistent with the past, it was assumed that the debt value would grow with the total assets by maintaining a constant gross debt ratio, independently of the cash amounts.

The company has presented inconstant historical interest rates (interest expenses/Last year's debt value), ranging from 14%, in 2009, to 4% in the last year. For the explicit period it was used the average of the last 4 years, considering that the recent fall in interest rates will not continue indeterminately, and by using information of the last 4 years it is expected to normalize possible future variations.

Table 11: Debt Composition and Other Financial Information

Million Euros	2013	2014	E2015	E2016	E2017	E2018	E2019	E2020
Total Debt	20 452	20 948	20 814	20 770	21 062	21 396	21 783	22 232
Short-term and Current Maturities	1 945	1 620	2 952	2 946	2 988	3 035	3 090	3 154
Long-term	18 507	19 328	17 861	17 824	18 074	18 361	18 693	19 078
Debt/Assets	20%	20%	20%	20%	20%	20%	20%	20%
Long-term Debt/Assets	18%	18%	17%	17%	17%	17%	17%	17%
Cash	9 190	8 013	8 141	7 999	9 787	11 713	13 819	16 152
Net Debt	11 262	12 935	12 672	12 771	11 275	9 683	7 964	6 079
BV Debt Ratio	11%	12%	12%	12%	11%	9%	7%	5%
Interest Expenses	784	764	1 350	1 341	1 338	1 357	1 379	1 403
Interest Expenses/Last year's Debt	3,8%	3,7%	6,4%	6,4%	6,4%	6,4%	6,4%	6,4%
Interest Coverage Ratio	6,8	8,8	4,2	4,3	4,8	5,3	5,9	6,5

5.2.7 Financial Statements

In order to construct the forecasted financial statements it is necessary to go over items other than the ones mentioned above, even though they do not enter in the free cash flows.

The importance of having complete financial statements along the explicit period is concerned with the fact that it is the best way to check whether the assumptions made make sense or not. These items are presented in the Appendix 8.8.

Income Statement

The items concerning Income Statement that were already mentioned made possible the calculation of EBIT. For the purpose of arriving to Net Income, two additional items were forecasted, Net Interest Expenses and Other Financial Expenses.

The Net Interest Expenses, combined the expenses (presented above) and income derived from financial activities. The reasoning followed to project this income was to look at what has been its value as a percentage of last year's cash. Then, the average of the last 3 years was used.

Other Financial Expenses, which are composed mainly by gains or losses from available-for-sale financial assets, were forecasted in a more cautious way due the lack of information about it. It was used the average of the last 3 years in absolute values.

Balance Sheet

The completion of the Balance Sheet will enable the analysis of profitability and liquidity through the computation of ratios. Still, many of the remaining items that compose the Balance Sheet are not easy to estimate given the unpredictability and the shortage of information.

On the assets side, Available for Sale Financial Assets and Other Financial Assets have followed a clear uptrend, the fact there is no information where this will stop. Then these items were considered constant over the explicit period. A different case, also on the assets side, is the behavior of Income Tax Receivables, Assets Held for Disposal, Equity investments, Deferred Tax Assets and Other Assets. These have been fairly constant in the last years which made reasonable the use of last 3 years average as constant value.

On the liabilities and equity side, it was used a similar rationale, excluding the case of Treasury Stock. According to the company, it was released the Share Repurchase Program that consists in a commitment to buy treasury in a total amount of €4,000 million until 2016, considering that this has started in 2014 and €1,006 were already spent. The price per share used was calculated through an average of the stock price in the last 6 months.

5.3 Dresser-Rand Valuation

This deal, as it was said before, will be accounted separately from the Siemens's value of operations. The main idea is to assess whether there is a creation of value or not and quantify that amount, which may be positive or negative. In order to do that, the valuation of Dresser-Rand will be performed and compared with the expected price of this deal. Adding to the side of Dresser-Rand's value are also the synergies that Siemens expects to create from this acquisition.

The method chosen to value this company was the relative valuation. This approach may not be the one with the strongest theoretical support but is the most practical and the one that gives a real perspective of how the market might price a company like Dresser-Rand.

The composition of the peer group was at first based on the sector, then after gathering a considerable number of companies, the attention was pointed to the fundamentals, i.e. risk, growth and profitability but also to size, capital structure and analysts' recommendations. By using this group of items, the idea is to capture the main company information that the market absorbs and then find which companies provide that information similar to Dresser-Rand.

The consensus of analysts' recommendations was included because of the insight that provides about the overpricing or underpricing of a certain stock.

During the process of choosing which companies might be appropriate, the idea in mind was always to prioritize homogeneity over size, although that was not easy since all these companies differ from Dresser-Rand in one aspect or another (see Appendix 8.10). In order to better correct these differences, it was used the median as instrument to find the right multiple instead of the average that, in this case, could be too influenced by some outliers.

The multiples analyzed were Price-to-Earnings, Enterprise Value-to-EBITDA and Price-To-Book Value where the share prices range from €2.3 to €2.9. Given the fact that there is some heterogeneity in the terms of capital structure along the comparable companies, it was decided to use the EV/EBITDA which do not take that into account. Also, this multiple is widely used in sectors with high capital intensity because it does not consider Depreciations.

Table 12: Dresser-Rand Multiple Valuation

	P/E	EV/EBITDA	P/B
Median	15,76	7,45	1,47
Million Euros			
Variable	152	401	1 300
Enterprise Value	3 869	2 991	3 374
Net Debt	1 102	1 102	1 102
Equity	2 400	1 889	1 905
Share Price (€)	2,9	2,3	2,3

5.4 Discount Rates

Table 13: Discount Rates

Equity Beta	1,02		
Risk-free rate	0,33%		
Equity Risk Premium	5,75%	Market Value of Debt	23 212
Cost of Equity	6,20%	Cash	8 013
Unlevered Beta from Siemens	1,02	Market Capitalization	83 020
Unlevered Cost of Capital (Ku)	6,20%	Debt ratio	13%
Yield for Bonds	0,92%		
Cost of Debt (Kd)	0,92%		
Tax Rate	28%		
Cost of Debt after tax	0,66%		

When doing an APV valuation there are two discount rates that must be determined, the one to find the unlevered firm value and the one to discount the interest tax shields. The first was calculated through CAPM, and it represents the cost of capital as if the company has only equity.

The risk-free rate was considered to be close to the German government bonds with a maturity of 10 years. Even though Siemens has businesses all around the world, it is by the German economic and political environment that this company is mostly influenced. Also, these bonds are the ones closest to a default free asset.

The ERP that was chosen was the one provided for Germany by Damodaran. The reason for this choice comes with the fact that there is few studies on this subject that are relevant and updated which makes Damodaran's data the best estimation available. As it was explain in the literature review, beta was computed through Bloomberg platform where Siemens's stocks were compared with DAX index. The data used was from the last 3 years and with monthly intervals. Since Bloomberg provides the levered

beta as well as the unlevered, there is no need to any further calculation. The right beta is the one that is debt-free i.e. it does not consider the capital structure.

For the computation of the cost of debt, it was assumed to be equal to the weighted average of the yields from the company outstanding bonds. Giving the weight of bonds in the total debt (explained in Debt section) this seems a reasonable assumption.

5.5 APV Valuation

After collecting all the information and making the necessary assumptions is possible to perform the valuation using the Adjusted Present Value method. This approach is composed by 3 elements – Interest Tax Shields, Bankruptcy Costs and Unlevered Value from Operations – that need to be valued separately. In the end of this sub-section, the sum of this components and non-operational assets will be computed in order to find the Equity of Siemens.

5.5.1 Unlevered Value of Operations

First, the value of operations from Siemens as if there was no debt is estimated. For this purpose, the FCF are discounted at the unlevered cost of capital. In the following table all the process from the EBIT to the unlevered value of operations can be found.

Table 14: Unlevered Value of Operations

Million Euros	2015	2016	2017	2018	2019	2020
EBIT	6 106	6 170	6 907	7 431	8 089	8 902
Operational Taxes	1 713	1 731	1 938	2 085	2 270	2 498
EBIT (1-t)	4 393	4 438	4 969	5 346	5 820	6 404
+ Depreciation	1 781	1 928	2 085	2 261	2 456	2 673
- Capital Expenditures	3 171	3 420	3 766	4 148	4 572	5 043
- Δ NWC	-918	89	126	166	210	259
+ Net Deferred Taxes	-	-	-	-	-	-
FCFF	3 921	2 857	3 162	3 293	3 494	3 775
<i>Discount Factor - Ku</i>	<i>0,94</i>	<i>0,89</i>	<i>0,83</i>	<i>0,79</i>	<i>0,74</i>	<i>0,70</i>
Discounted FCFF	3 692	2 533	2 640	2 589	2 586	2 631
Explicit Period	16 672					
Terminal Value	91 697					
PV (Terminal Value)	63 275					
Adjustment Factor	1,03					
Unlevered Value of Operations	82 388					

When looking at the cash flows is possible to see that most of them grow in consistency with EBIT. The exception to this is the first year of NWC, which suffers the effects of the averaging done to follow the recent historical behavior of this item. Adding to this, the Net Deferred Taxes was considered zero as it was explained before.

The value of capital expenditures comprises only the capital expenditures relative to tangible assets since it was assumed that the depreciation of intangibles will equal the value of its additions.

In the calculation of terminal value, the choice of the growth rate took into account the global GDP projections although keeping in mind that Siemens is not expected to grow at the same pace. Then, it was done an average between the global GDP projections and the ones from Eurozone.

5.5.2 Interest Tax Shields (ITS)

Table 15: Calculation of ITS

Million Euros	E2015	E2016	E2017	E2018	E2019	E2020	Terminal Value
Interest Expenses	331	306	322	113	-110	-353	
Interest Tax Shields	93	86	90	32	-31	-99	-2 405
<i>Discount Factor - Ku</i>	<i>0,94</i>	<i>0,89</i>	<i>0,83</i>	<i>0,79</i>	<i>0,74</i>	<i>0,70</i>	<i>0,66</i>
PV(ITS)	88	76	75	25	-23	-69	-1 578
Total PV(ITS)	-1 406						

In this table, the projected net interest expenses can be seen, as they were firstly explained in the debt section, and which will in part be translated into gain for shareholders by not being taxed (ITS).

In order to capture the present value of the tax shields, it was decided that it would be discounted at the unlevered cost of capital (K_u). The reason is that the debt is not considered stable but growing with the same pace as total assets. In other words, it is assumed that the risk from debt will equal the one from the assets.

The terminal value was computed also under the assumption that debt would grow with assets and because of that it was used the same growth rate as in the unlevered firm value calculation.

5.5.3 Bankruptcy Costs

As it was discussed in the literature review, this is a delicate part from this method since is not easy to estimate a fair amount of these costs. Considering the studies available on this subject, it will be followed the estimation used by Damodaran (2002) mainly because it includes already both direct and indirect costs and also because of its straightforward approach.

The present value of the costs of financial distress is assumed to account for 30% (Damoradan's estimation) of the unlevered firm value.

In the end, it is necessary to understand which probability of default (PD) Siemens has in order to multiply it by the value of financial distress costs. The PD that was used was the one provided from Moody's, where there is a historical one-year PD percentage correspondent to each class rating (see Appendix 8.9).

Finally, having all the information, it is possible to calculate the equity value of Siemens's shareholders.

Table 16: Value of Siemens

Unlevered Value of Operations	82 388
Interest Tax Shields	-1 406
Bankruptcy Costs	57
Value from Operations	80 924
Non-consolidated Subsidiaries	2 127
Financial Assets	18 416
Cash	8 013
Enterprise Value	109 480
Debt Value	23 212
Minority Interests	560
Dresser-Rand Value Creation	-2 638
Equity Value	83 071
# Shares Outstanding	835
Target Price	99,5

The non-operating assets that were added to the value of operations, were valued in book value terms due to the lack of information and also, in the case of Non-consolidated subsidiaries, the no existence of market data.

After arriving to the Enterprise Value, the market value of Debt, the Minority Interests and value destroyed with the acquisition of Dresser-Rand were subtracted to get the Equity value.

5.6 Multiple Valuation

After valuing the company focusing in the company growth and based on an internal analysis, it is important to assess how the market look at companies like Siemens and then apply the same standards to it.

As it was mentioned in the Literature Review, there are few companies that can be compared with Siemens. That happens because of its size but mainly because of the extensive line of products and client base diversity. The fact that there are very few pure-players in these industries made it hard to use the method of sum-of-the-parts as suggest by Damodaran (2009). In response to this, it was tried an alternative approach, by doing multiple valuation composed by 4 peer groups correspondent to each company sector. The final multiples are a result of a weighted average based on the respective EBITDA sectors.

When building the peer groups, some companies with more than one business were considered and because of that some are included in more than one peer group as it is the case of ABB or Scheneider Electric (see Appendix 8.10).

Regarding the rest of this valuation, the criteria used to choose the companies was similar to the one used to value Dresser-Rand since both companies belong to comparable industries.

Table 17: Dresser-Rand Multiple Valuation

Sector	P/E	EV/EBITDA	P/B	Weight
Energy	20,98	11,09	3,47	35%
Industry	21,79	8,77	3,12	22%
Infrastructures	20,17	10,30	2,10	26%
Healthcare	33,34	17,07	4,24	18%
Weighted Average	24,53	9,57	3,31	
Million Euros				
Variable	5 507	9 139	31 513	
Enterprise Value	150 308	87 501	119 596	
Net Debt	15 199	15 199	15 199	
Equity	135 109	72 302	104 397	
Share Price (€)	161,8	86,6	125,0	

The multiples analyzed were also Enterprise Value-to-EBITDA, Price-to-Earnings and Price-to-Book value. When comparing the results of the 3, there is a considerable range of share prices, going from €86.6 to €161.8. For the same reasons as in Dresser-Rand, it was considered Enterprise Value-to-EBITDA as the best multiple to use. This price faced with the ones given by the DCF valuation or the market is considerably lower which may indicate that the benefits of being a conglomerate are not incorporated in this relative valuation approach.

5.7 Sensitivity Analysis

This sub-section intends to test the effects of variations in the main value drivers on the target price. These drivers were chosen taking into account their importance but also the amount of uncertainty attached to them.

The first, and most important driver in this valuation, to be analyzed is the revenues. In order to assess plausible variations in this driver, two alternative scenarios were created, the pessimistic and optimistic. These scenarios are linked to the base scenario where the first one grows with half the pace and the second one with twice the pace.

Table 18: Sensitivity Analysis - Revenue

Revenues Scenarios	Pessimistic	Base Scenario	Optimistic
Target Price (€)	76,9	99,5	117,1

Moreover, to understand how profitability may influence the target price it was tested variations of +/- 5% in EBITDA margin. These variations intend to simulate an enhancement or cancellation of the improvements predicted in Selling General and Administrative Expenses.

Table 19: Sensitivity Analysis – EBITDA Margin

Variation	-5%	-2%	Base Scenario	2%	5%
Target Price (€)	89,2	95,4	99,5	103,6	109,8

Regarding discount rates, it is important to understand how the different assumptions made to calculate unlevered firm value influence target price. One of the following tables analyzes the alternative values for Beta and ERP. Another important aspect to look in is the effective tax rate used that will influence the amount of interest tax shields and consequently the target price.

Table 20: Sensitivity Analysis – Beta and ERP

		Beta		
		Industry	Base Scenario	Peer Group
		0,90	1,02	0,99
ERP	Damodaran - 5,75%	114,6	99,5	102,9
	Fernandez - 5,9%	111,2	96,8	100,0

Table 21: Sensitivity Analysis – Ku and Tax Rate

		Unlevered Cost of Equity				
		4,2%	5,2%	6,2%	7,2%	8,2%
Tax rate	26,0%	175,6	128,7	103,9	88,4	77,8
	27,0%	171,9	126,0	101,7	86,6	76,2
	28,1%	168,0	123,2	99,5	84,7	74,5
	29,0%	164,5	120,7	97,5	83,0	73,0
	30,0%	160,9	118,1	95,4	81,2	71,5

The terminal value represents the majority amount of the value of operations and because of that it is considered crucial to this valuation. As the most controversial aspect of this calculation is the terminal growth rate. In this table two other alternatives were considered for this rate, the forecasted average GDP for the Eurozone, 1.6%, and the same for Global GDP, 3.2%.

Table 22: Sensitivity Analysis – Terminal Growth Rate

	Eurozone	Base Scenario	Global
	1,6%	2%	3,2%
Target Price (€)	92,6	99,5	131,5

The Bankruptcy costs as it was said before are probably the most questionable assumption. With the purpose of assessing its importance it was considered different percentages of the unlevered firm value to represent the costs of financial distress. However, as it can be seen in the table, its significance in the whole picture is none.

Table 23: Sensitivity Analysis – Bankruptcy Costs

	10,0%	20,0%	30,0%	40,0%	50,0%
Target Price (€)	99,5	99,5	99,5	99,5	99,4

Looking at the Dresser-Rand deal, it is also possible to test its influence in this valuation. The aspect that seemed more important to check is the value of synergies giving that these are only projections and there is a long way between acquiring a company and securing those gains. It was considered variations of +/-20%.

Table 24: Dresser-Rand Deal

	-20%	Base Scenario	+20%
Target Price (€)	99,2	99,5	99,8

6. Valuation Comparison

As it was said, one of the purposes of this dissertation was to compare the results achieved with the ones of a real investment bank. The chosen bank was HSBC which does Equity Research for many companies in the Capital Goods industry including Siemens. The responsible for this industry is Colin Gibson. The analyst Michael Hagemann was the analyst that provide all the reports and information to make this comparison possible.

The report used is from March 2015 in order to be consistent with the data used in this dissertation. HSBC publishes weekly global reports of each industry called Valuation Book where it presents the recent performance of the industry and its respective companies.

Regarding the valuation, HSBC uses a different approach that intends to differentiate from the traditional valuation methods. The objections made are against CAPM and its impracticability problems which, in the end, all comes down to the WACC. Hagemann explains that, in case of beta, the problem lies in the way it is calculated. The use of historical observation implies that during that period conditions like risk and portfolio composition do not change significantly. This premise makes beta, in the analyst view, fatally flawed.

In response to this, HSBC presents their own method where, as it happens in the DCF approach, cash flows are discounted at a certain rate. However, the discount rate used is called MACC (Market Assessed Cost of Capital), which, according to Hagemann, is less ambitious than WACC because it does not attempt to capture an absolute value of the stock but instead considers that the concept of fair value is related to investors' views of risk. Basically, MACC can be interpreted as the result of the comparison between return on capital (CROIC) and market value¹⁰

In order to perform the forecasting, the analysts chose to use a 3 year explicit period contrasting with the 5 year period used in this dissertation which restricts the comparison only for those first three years. Among the assumptions made, the discount rate and its components cannot be compared since these two valuations follow different approaches. Then, the comparison will be mainly focused on the forecasting assumptions and the final price.

¹⁰ MACC is calculated using Gross Cash Invested (GCI) Cash flow Return on Invested Capital (CROIC) adjusted for inflation (AGCI and ACROIC, respectively) where:

$$ACROIC \times \frac{AGCI}{Enterprise\ Value} + Long\ term\ growth\ rate$$

Table 25: Comparison between Forecasts

	HSBC			Dissertation		
	2015	2016	2017	2015	2016	2017
Revenues	74 913	77 698	81 151	72 809	74 259	76 316
EBITDA	10 559	10 113	10 796	8 700	8 910	9 805
<i>EBITDA margin</i>	14%	13%	13%	12%	12%	13%
EBIT	8 187	7 741	8 424	6 106	6 088	6 818
<i>EBIT margin</i>	11%	10%	10%	8%	8%	9%
Net Profit	7 002	5 625	6 199	4 074	3 979	4 484
<i>Profit margin</i>	9%	7%	8%	6%	5%	6%

HSBC's expectations of the future of Siemens are good. This was motivated in part by the 2020 agenda that the new CEO introduced but also because of the signals that weaker businesses are starting to come around. This sentiment is clearly reflected in the forecasting (Table 25). When compared with the values of this dissertation it is noticeable more optimism, namely, in revenues that grow at a considerable bigger pace and also the more efficient margins.

Table 26: Comparison between Free Cash Flows

	HSBC			Dissertation		
	2015	2016	2017	2015	2016	2017
Operating Cash Flows	8 275	6 967	7 393	6 106	6 170	6 907
Depreciation	2 372	2 372	2 372	2 594	2 741	2 899
Capex	2 100	2 100	2 100	3 171	3 420	3 766
Δ NWC	1 500	1 300	1 500	-918	89	126
FCF	4 730	3 988	4 095	3 921	2 857	3 162
Tax rate	28%			28%		

Regarding the investment policy (Table 26), the capital expenditures are considerably lower than the ones forecasted in this dissertation, contrarily, the variations in net working capital are much bigger which can be explained by the strong increase in sales projected. Also, the effective tax rates chosen are the same.

Despite the heavier investment policy, HSBC's optimistic operational performance forecast still creates a considerable difference in FCF comparing with the ones from this dissertation. These two projections have many differences between them which can be mostly explained by the pace of growth that is expected. In this dissertation, the choice of an explicit period of 5 years is not random since I considered that Siemens is going through a period of many changes and it will take time to have a clear payoff and stabilize. In HSBC's projection, the company will take less time to start growing and achieve a steady state.

Table 27: Comparison of Target Prices

	HSBC	Dissertation
Terminal growth rate	0%	2%
Discount Rate	8,1%	6,2%
Target Price (€)	108	99
Recommendation	BUY	NEUTRAL

As it was said earlier, the comparison between Equity Research results will be restrict to the forecasting and final price since the methods used are distinct. In figure 27 it can be seen that the discount rate used by HSBC (MACC) is almost 2 points higher than the one used in this dissertation (Unlevered Cost of Equity). In terms of long-term growth, the bank has been using a rate of 0% for calculating the terminal value that strongly contrasts with the 2% of this dissertation.

Finally, when looking at the target prices, it is clear that the difference in the cash flows were crucial, especially, the cash flow used in the terminal value calculation since the discount rates used by the investment bank were higher than the ones from this thesis. Also, the long-term growth rate assumes a key role to understand the contrast given the fact if it was used the HSBC rate for this thesis the target price would fall even more, to € 74.

7. Conclusion

This dissertation had the purpose of finding the fair value of Siemens's equity and comparing it with the results of one investment bank of choice. Given this, I consider that the purpose was successfully achieved.

In order to begin the process of valuing Siemens, it was necessary to go over the most relevant literature about the equity valuation subject which enabled me to have a more profound knowledge of the matter and which I believe it will turn out to be very useful in the future. The following step to value Siemens consisted in the internal as well as external analysis that gave the necessary insights to make the decisions regarding valuation method and forecasting assumptions. After valuing the company and arriving to a target price, it was time to compare it with the one from HSBC and explain the main differences between them.

As it was said earlier in this dissertation, the final target price was € 99.5 which results in a **Neutral** recommendation considering the market price of € 99.4. This outcome goes accordingly with the picture drawn above in the Internal Analysis section: Siemens is a company that is going through a restructuring period triggered by some years of stagnation in sales and underperformance. However, the pursuance of the strategic plan "Vision 2020" combined with the signs of performance improvement and the good prospects for the markets they are in, suggest that there may be consisting growth in the future. However, it is important to mention two conditions that need to be confirmed in the near future that were taken as guaranteed in this dissertation which are the Dresser-Rand acquisition and effectiveness of the restructuring costs and costs savings planned for the next years.

Another important aspect about this dissertation is the fact that the information access was very limited both for company and for external data. The information used was the one available in the internet and Bloomberg platform and because of that some assumptions had to be made for the sake of going through with this valuation. This limitation certainly has a significant impact in the final result although a sensitivity analysis was made in order to minimize this issue.

8. Appendix

8.1 Historical Income Statement

Income Statement	2010	2011	2012	2013	2014
Revenues	75 978	73 275	78 296	73 445	71 920
<i>Energy</i>	25 204	24 390	27 302	26 425	24 380
<i>Healthcare</i>	12 280	12 463	13 600	12 626	12 401
<i>Industry</i>	33 728	18 124	18 872	15 256	15 346
<i>Infrastructure & Cities</i>		16 166	16 731	17 149	18 291
<i>Other</i>	413	1 825	1 623	1 712	1 502
Cost of Goods Sold	-50 213	-48 609	-53 348	-50 505	-48 754
Gross Profit	25 765	24 666	24 948	22 940	23 166
Selling General and Administrative Expenses	-11 130	-10 239	-11 162	-10 869	-10 424
R & D Expenditures	-3 846	-3 899	-4 238	-4 048	-4 065
Other Operating Income	856	547	516	500	656
Other Operating Expenses	-1 611	-374	-276	-424	-194
EBITDA	10 034	10 701	9 788	8 099	9 139
Depreciation and Amortization Expense	-4 118	-2 437	-2 744	-2 804	-2 411
EBIT	5 916	8 264	7 044	5 295	6 728
Net Interest Expenses	271	484	506	163	294
<i>Interest Income</i>	2 161	2 200	2 234	947	1 058
<i>Interest Expense</i>	-1 890	-1 716	-1 728	-784	-764
Other Financial Losses	-336	649	-5	-154	-177
Income From Non-Consolidated Using the Equity Method	-40	210	-266	510	582
Income from Continuing Operations Before Income Taxes	5 811	9 607	7 279	5 814	7 427
Income Tax Expense	-1 699	-2 232	-2 094	-1 634	-2 028
Income from Continuing Operations	4 112	7 375	5 185	4 180	5 399
Discontinued Operations	-44	-1 055	-595	231	108
Net Income	4 068	6 320	4 590	4 411	5 507
Minority Interests	169	176	132	126	134
Net Income Attributable to Shareholders	3 899	6 145	4 458	4 284	5 373

Source: Siemens Annual Report 2014

8.2 Historical Balance Sheet

Balance Sheet	2010	2011	2012	2013	2014
Assets					
Cash and Equivalents	14 108	12 468	10 891	9 190	8 013
Available For Sale Financial Assets	246	477	524	601	925
Trade and other Receivables	14 971	14 847	15 220	14 853	14 526
Other Current Financial Assets	2 610	2 628	2 901	3 250	3 710
Inventories	14 950	15 143	15 679	15 560	15 100
Income Tax Receivables	790	798	836	794	577
Other Current Assets	1 258	1 264	1 277	1 297	1 290
Assets Held For Disposal	715	4 917	4 800	1 393	3 935
Total Current Assets	49 648	52 542	52 128	46 938	48 076
Goodwill	15 763	15 706	17 069	17 883	17 783
Other Intangible Assets	4 969	4 444	4 595	5 057	4 560
Property Plant & Equipment - Net	11 748	10 477	10 763	9 815	9 638
<i>Accumulated Depreciation</i>	-17 189	-13 667	-14 492	-14 268	-14 330
<i>Property Plant & Equipment - Gross</i>	28 937	24 144	25 255	24 083	23 968
Investments Accounted for Using the Equity Method	4 724	4 966	4 436	3 022	2 127
Other Financial Assets	11 296	12 126	14 666	15 117	18 416
Deferred Tax Assets	3 940	3 206	3 777	3 234	3 334
Other Assets	739	776	846	872	945
Total Non-current Assets	53 179	51 701	56 152	55 000	56 803
Total Assets	102 827	104 243	108 280	101 938	104 879
Liabilities					
Short-Term Borrowings and Current Maturities of Long-Term Debt	2 416	3 660	3 826	1 944	1 620
Accounts Payable	7 880	7 677	8 036	7 599	7 594
Other Current Financial Liabilities	1 401	2 247	1 460	1 515	1 717
Current Provisions	5 138	5 168	4 750	4 485	4 354
Income Taxes Liabilities	1 816	2 032	2 204	2 151	1 762
Other Current Liabilities	21 794	21 020	20 306	19 701	17 954
Liabilities Associated With Assets Held For Sale	146	1 756	2 054	473	1 597
Total Current Liabilities	40 591	43 560	42 636	37 868	36 598
Long Term Debt	17 497	14 280	16 880	18 509	19 326
Pos-employment Benefits	8 464	7 307	9 926	9 265	9 324
Deferred Tax Liability	577	595	494	504	552
Provisions	3 332	3 654	3 908	3 907	4 071
Other Financial Liabilities	990	824	1 083	1 184	1 620
Other Liabilities	2 280	1 867	2 052	2 074	1 874
Total Non-current Liabilities	33 140	28 527	34 343	35 443	36 767
Total Liabilities	73 731	72 087	76 979	73 311	73 365
Equity					
Common Stock	2 743	2 743	2 643	2 643	2 643
Capital Reserve	5 986	6 011	6 173	5 484	5 525
Retained Earnings	22 998	25 881	22 756	22 663	25 729
Other Equity	-8	-68	1 058	268	803
Treasury Stock	-3 373	-3 037	-1 897	-2 946	-3 747
Total Equity Attributable to Shareholders	28 346	31 530	30 733	28 112	30 953
Minority Interests	750	626	569	514	560
Total Equity	29 096	32 156	31 302	28 626	31 513
Total Liabilities and Equity	102 827	104 243	108 282	101 936	104 879

8.3 Forecasted Income Statement

Income Statement	2015	2016	2017	2018	2019	2020
Revenues	72 809	74 259	76 316	79 028	82 458	86 692
<i>Energy</i>	24 648	25 047	25 581	26 259	27 090	28 088
<i>Healthcare</i>	12 636	12 963	13 388	13 920	14 570	15 351
<i>Industry</i>	15 515	15 851	16 363	17 067	17 982	19 139
<i>Infrastructure & Cities</i>	18 492	18 881	19 466	20 264	21 297	22 597
<i>Other</i>	1 519	1 535	1 552	1 569	1 586	1 604
Cost of Goods Sold	-49 678	-50 667	-52 071	-53 921	-56 261	-59 151
Gross Profit	23 131	23 592	24 245	25 107	26 197	27 542
Selling General and Administrative Expenses	-10 569	-10 780	-10 500	-10 624	-10 826	-11 109
R & D Expenditures	-4 117	-4 162	-4 208	-4 254	-4 301	-4 348
Other Operating Income	547	557	573	593	619	651
Other Operating Expenses	-291	-297	-305	-316	-330	-347
EBITDA	8 700	8 910	9 805	10 505	11 359	12 388
Depreciation and Amortization Expense	-2 594	-2 741	-2 899	-3 074	-3 269	-3 486
EBIT	6 106	6 170	6 907	7 431	8 089	8 902
Net Interest Expenses	-331	-306	-322	-113	110	353
<i>Interest Income</i>	1 018	1 035	1 017	1 244	1 489	1 756
<i>Interest Expenses</i>	-1 350	-1 341	-1 338	-1 357	-1 379	-1 403
Other Financial Expenses	-112	-112	-112	-112	-112	-112
Income From Investments Using the Equity Method	0	0	0	0	0	0
Income from Continuing Operations Before Income Taxes	5 663	5 751	6 473	7 206	8 087	9 143
Income Tax	-1 589	-1 614	-1 816	-2 022	-2 269	-2 565
Net Income	4 074	4 137	4 657	5 184	5 818	6 577
Minority Interests	111	113	127	141	158	179
Net Income Attributable to Shareholders	3 963	4 025	4 530	5 043	5 660	6 398

8.4 Forecasted Balance Sheet

Balance Sheet	2015	2016	2017	2018	2019	2020
Assets						
Cash and Equivalents	8 141	7 999	9 787	11 713	13 819	16 152
Available For Sale Financial Assets	935	945	956	966	977	988
Trade and other Receivables	14 528	14 817	15 228	15 769	16 453	17 298
Other Current Financial Assets	3 323	3 360	3 397	3 434	3 472	3 510
Inventories	15 097	15 398	15 825	16 387	17 098	17 976
Other Current Assets	1 259	1 285	1 320	1 367	1 426	1 500
Income Tax Receivables	744	752	760	769	777	786
Assets Held For Disposal	3 413	3 451	3 489	3 527	3 566	3 605
Total Current Assets	47 441	48 007	50 761	53 931	57 588	61 814
Goodwill	17 783	17 783	17 783	17 783	17 783	17 783
Other Intangible Assets	4 560	4 560	4 560	4 560	4 560	4 560
Property Plant & Equipment - Net	9 829	10 025	10 303	10 669	11 132	11 703
<i>Accumulated Depreciation</i>	<i>-16 111</i>	<i>-18 039</i>	<i>-20 124</i>	<i>-22 385</i>	<i>-24 841</i>	<i>-27 514</i>
<i>Property Plant & Equipment - Gross</i>	<i>25 940</i>	<i>28 064</i>	<i>30 427</i>	<i>33 054</i>	<i>35 973</i>	<i>39 218</i>
Investments Accounted for Using the Equity Method	3 230	3 266	3 302	3 338	3 375	3 412
Other Financial Assets	18 619	18 823	19 030	19 240	19 451	19 665
Deferred Tax Assets	3 486	3 525	3 563	3 603	3 642	3 682
Other Assets	897	907	917	927	938	948
Total Non-current Assets	58 405	58 889	59 458	60 119	60 881	61 754
Total Assets	105 846	106 896	110 219	114 051	118 469	123 568
Liabilities						
Short-Term Borrowings and Current Maturities of Long-Term Debt	2 952	2 946	2 988	3 035	3 090	3 154
Accounts Payable	7 565	7 715	7 929	8 211	8 567	9 007
Other Current Financial Liabilities	1 581	1 599	1 616	1 634	1 652	1 670
Current Provisions	4 579	4 630	4 681	4 732	4 784	4 837
Income Taxes Liabilities	2 061	2 084	2 107	2 130	2 154	2 177
Other Current Liabilities	18 863	19 239	19 772	20 474	21 363	22 460
Liabilities Associated With Assets Held For Sale	1 390	1 405	1 421	1 436	1 452	1 468
Total Current Liabilities	38 992	39 618	40 513	41 653	43 062	44 773
Long Term Debt	17 861	17 824	18 074	18 361	18 693	19 078
Pos-employment Benefits	9 610	9 715	9 822	9 930	10 039	10 150
Deferred Tax Liability	522	528	534	540	546	552
Provisions	4 006	4 050	4 094	4 139	4 185	4 231
Other Financial Liabilities	1 310	1 324	1 339	1 354	1 369	1 384
Other Liabilities	2 022	2 044	2 067	2 089	2 112	2 136
Total Non-current Liabilities	35 331	35 485	35 930	36 413	36 944	37 530
Total Liabilities	74 323	75 103	76 443	78 066	80 005	82 303
Equity						
Common Stock	2 643	2 643	2 643	2 643	2 643	2 643
Capital Reserve	5 727	5 727	5 727	5 727	5 727	5 727
Retained Earnings	27 097	28 828	30 777	32 946	35 381	38 133
Other Equity	710	710	710	710	710	710
Treasury Stock	-5 214	-6 681	-6 681	-6 681	-6 681	-6 681
Total Equity Attributable to Shareholders	30 963	31 227	33 176	35 345	37 780	40 532
Minority Interests	560	565	600	639	683	733
Total Equity	31 523	31 792	33 776	35 985	38 463	41 265
Total Liabilities and Equity	105 846	106 896	110 219	114 051	118 469	123 568

8.5 Sales by Region

Region	2012	2013	2014
Europe, C.I.S, Africa, Middle East ¹	28 898	29 124	27 875
Germany	11 049	10 750	10 857
Americas ²	6 132	6 737	5 880
U.S	15 946	14 179	12 876
Asia, Australia	15 370	15 092	14 433

¹ excluding Germany

² excluding U.S

Source: Siemens Annual Report 2014

8.6 Historical Effective Tax Rate

2011	2012	2013	2014
23,2%	28,8%	28,1%	27,3%

Source: Siemens Annual Report 2014

8.7 History of Credit Ratings

	Standard & Poor's			Moody's Investors Service		
	Long Term	Outlook	Short Term	Long Term	Outlook	Short Term
2015	A+	Stable	A-1+	A1	Stable	P-1
2014	A+	positive	A - 1+	A1	Stable	P-1
2013	A+	positive	A - 1+	Aa3	negative	P -1
2012	A+	positive	A - 1+	Aa3	stable	P -1
2011	A+	positive	A - 1+	A1	positive	P -1
2010	A+	stable	A - 1	A1	positive	P -1

Source: Siemens Website

8.8 Criteria for Remaining Financial Statements Items

Income Statement	
Other Financial Expenses	Average of the last 3 years
Balance Sheet	
Assets	
Available For Sale Financial Assets	Growing with inflation
Income Tax Receivables	Average of the last 3 years
Assets Held For Disposal	Average of the last 3 years
Equity Investments In Associates/Affiliates	Average of the last 3 years
Other Financial Assets	Growing with inflation
Deferred Tax Assets	Average of the last 3 years
Other Assets	Average of the last 3 years
Liabilities	
Other Current Financial Liabilities	Average of the last 3 years
Current Provisions	Average of the last 3 years
Income Taxes Accrued/Payable	Average of the last 3 years
Liabilities Assoc With Assets Held For Sale	Average of the last 3 years
Pos-employment Benefits	Average of the last 3 years
Deferred Tax Liability	Average of the last 3 years
Provisions	Average of the last 3 years
Other Financial Liabilities	Average of the last 3 years
Other Liabilities	Average of the last 3 years
Equity	
Common Stock	Growing with inflation
Capital Reserve	Growing with inflation
Other Equity	Average of the last 3 years

8.9 Moody's Probability of Default

Rating	One-Year PD
Aaa	0,00%
Aa	0,01%
A	0,02%
Baa	0,18%
Ba	1,18%
B	5,41%
Caa-C	19,90%

Source: Moody's Website

8.10 Siemens's Peer Group

Name	Market Capitalization	Sales - 5 Yr CAGR	Beta	ROE	ROIC	D/E	Recommendations	P/E	EV/EBITDA	P/B
SIEMENS AG-REG	85 034 120 000	1,8%	0,97	18,19	9,45	32%	3,50	13,75	11,30	2,46
Name/Sector	Market Capitalization	Sales - 5 Yr CAGR	Beta	ROE	ROIC	D/E	Recommendations	P/E	EV/EBITDA	P/B
Energy										
ALSTOM	9 897 969 675	-20,8%	0,77	8,43	3,38	58%	3,65	20,17	10,30	2,10
ABB LTD-REG	48 352 311 668	4,3%	0,94	14,85	11,36	16%	3,11	19,26	9,17	3,12
NIBE INDUSTRIER AB-B SHS	2 593 639 954	14,6%	1,02	16,18	8,46	35%	2,63	25,35	15,91	4,16
SCHNEIDER ELECTRIC SE	45 402 684 275	10,5%	1,22	10,51	9,23	22%	3,46	21,79	11,88	2,00
SMITHS GROUP PLC	7 033 457 640	2,1%	1,02	17,10	17,19	25%	2,78	20,32	8,77	3,82
WARTSILA OYJ ABP	8 365 676 638	1,4%	1,10	18,20	16,65	8%	2,96	21,64	13,03	4,30
							Median	20,98	11,09	3,47
							Average	21,42	11,51	3,25
Industry										
THYSSENKRUPP AG	15 251 902 614	1,4%	0,94	11,33	8,05	65%	2,90	42,35	7,36	5,20
ABB LTD-REG	48 352 311 668	4,3%	0,94	14,85	11,36	16%	3,11	19,26	9,17	3,12
SCHNEIDER ELECTRIC SE	45 402 684 275	10,5%	1,22	10,51	9,23	22%	3,46	21,79	11,88	2,00
RHEINMETALL AG	2 032 646 096	8,0%	1,03	3,40	4,49	47%	3,86	65,13	7,73	1,73
SMITHS GROUP PLC	7 033 457 640	2,1%	1,02	17,10	17,19	25%	2,78	20,32	8,77	3,82
							Median	21,79	8,77	3,12
							Average	33,77	8,98	3,18
Infrastructures										
ABB LTD-REG	48 352 311 668	4,3%	0,94	14,85	11,36	16%	3,11	19,26	9,17	3,12
ALSTOM	9 897 969 675	-20,8%	0,77	8,43	3,38	58%	3,65	20,17	10,30	2,10
BEKAERT NV	1 724 567 884	5,4%	0,94	N.A.	3,91	85%	3,00	17,66	8,05	1,16
LEGRAND SA	14 270 680 830	5,0%	0,93	15,68	9,98	12%	3,45	25,21	13,86	3,47
SCHNEIDER ELECTRIC SE	45 402 684 275	10,5%	1,22	10,51	9,23	22%	3,46	21,79	11,88	2,00
							Median	20,17	10,30	2,10
							Average	20,82	10,65	2,37
Healthcare										
KONINKLIJKE PHILIPS NV	26 990 143 945	1,4%	1,09	3,76	3,30	24%	3,41	85,41	16,22	1,97
NOBEL BIOCARE HOLDING /	2 184 136 743	1,3%	0,78	15,66	11,33	6%	3,00	38,36	23,62	5,83
ELEKTA AB-B SHS	3 625 383 873	8,4%	0,83	17,87	10,86	15%	3,05	28,31	17,92	4,67
SMITHS GROUP PLC	7 033 457 640	2,1%	1,02	17,10	17,19	25%	2,78	20,32	8,77	3,82
							Median	33,34	17,07	4,24
							Average	43,10	16,63	4,07

8.11 Dresser-Rand's Peer Group

Name	Mkt Cap (USD)	Sales - 5 Yr CAGR	Beta	ROE	ROIC	D/E	Recommendation	P/E	EV/EBITDA	P/B
DRESSER-RAND GROUP INC	6 377	0,6%	0,42	9,45	7,55	0,17	2,50	41,89	18,86	4,89
Name	Mkt Cap (USD)	Sales - 5 Yr CAGR	Beta	ROE	ROIC	D/E	Recommendation	P/E	EV/EBITDA	P/B
BOURBON SA	1 389	15,4%	1,05	4,88	2,62	1,19	2,69	16,76	7,43	0,79
EXTERRAN PARTNERS LP	1 560	25,5%	0,65	9,76	8,77	0,97	3,89	21,10	9,46	2,22
BRISTOW GROUP INC	2 103	8,7%	0,32	5,78	5,11	0,36	3,89	19,06	11,14	1,25
TENARIS SA	17 714	6,6%	0,53	8,96	8,14	0,07	3,00	15,46	6,38	1,38
TECHNIP SA	7 886	16,9%	0,72	10,39	8,57	0,40	3,37	16,07	4,19	1,54
NATIONAL OILWELL VARCO INC	20 157	9,7%	0,41	10,65	8,48	0,21	3,29	9,00	5,14	1,08
BRISTOW GROUP INC	2 111	8,7%	0,34	5,78	5,11	0,36	3,89	19,13	11,14	1,25
FORUM ENERGY TECHNOLOGIES IN	1 939	0,0%	1,63	12,03	8,68	0,27	3,80	11,74	7,47	1,39
FRANK'S INTERNATIONAL NV	3 201	0,0%	0,72	12,86	15,43	0,00	3,65	20,56	6,78	2,62
SPX CORP	3 122	2,7%	1,45	3,60	5,13	0,43	3,67	25,76	15,23	1,85
SAPURAKENCANA PETROLEUM BHD	4 615	0,0%	1,43	12,92	6,06	1,06	4,09	11,59	10,20	1,38
HELMERICH & PAYNE	8 181	15,1%	0,88	14,68	13,36	0,08	3,56	12,38	4,32	1,64
HALLIBURTON CO	39 438	13,4%	1,37	15,25	11,54	0,21	4,22	12,28	7,44	2,52
CAMERON INTERNATIONAL CORP	9 970	11,0%	0,94	16,15	4,95	0,33	4,12	11,82	9,58	2,37
							Median	15,76	7,45	1,47
							Average	15,91	8,28	1,66

8.12 Executive Summary

Recommendation	Neutral
Target Price (€)	99,5
Date of Price	27-Feb-15
Share Price (€)	99,4
Market Capitalization (€)	83 020

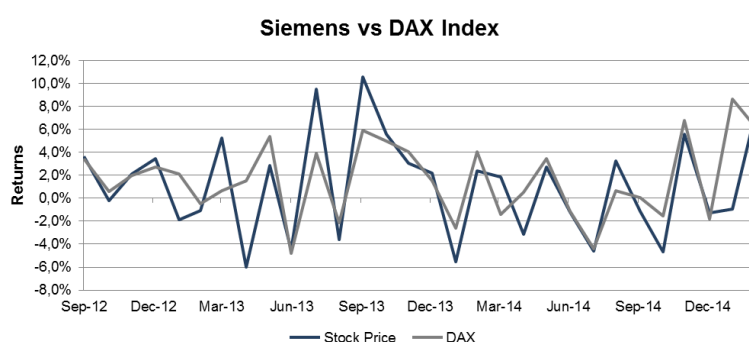
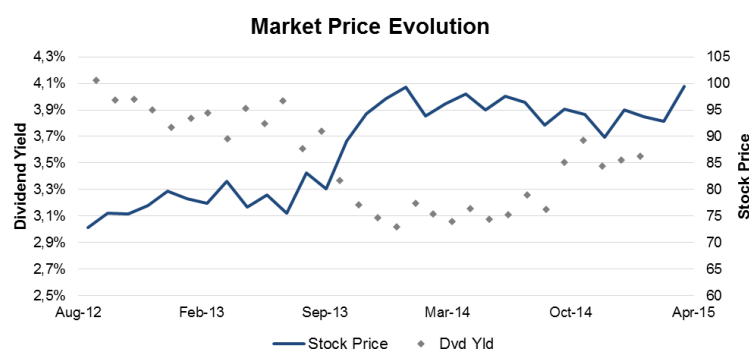
Equity Research

Analyst: Bernardo Santos Silva

March 2015

Siemens A.G is a German multinational conglomerate situated in the Capital Goods industry where it stands as the largest in Europe. In the last years, this company has been under a period of several acquisitions and divestments followed by revenue stagnation. The results of 2014 confirmed this revenue trend although Siemens presented increases in profitability, with a 25% growth in Net Income comparing with 2013.

- The release of the strategic plan “Vision 2020”, in May, set the strategic focus of Siemens for the future as well as several measures to improve profitability. The company intends to reduce operational costs by €1,000 million, to accomplish this, some middle layers of management are going to be eliminated which will cause that 30% of the total workforce will be from outside Germany until 2020. Additionally this plan includes a 4,000 million Share Repurchase Program to be completely executed until 2016.
- In September, the company announced the acquisition of Dresser-Rand for €5,800 million, the deal is expected to be completed in the summer of 2015 if no regulatory constraints are raised.



Million Euros	2011	2012	2013	2014	E2015	E2016	E2017	E2018	E2019	E2020
Sales	73 275	78 296	73 445	71 920	72 809	74 259	76 316	79 028	82 458	86 692
Gross Margin	33,7%	31,9%	31,2%	32,2%	31,8%	31,8%	31,8%	31,8%	31,8%	31,8%
EBITDA margin	14,6%	12,5%	11,0%	12,7%	11,9%	12,0%	12,8%	13,3%	13,8%	14,3%
EBIT Margin	11,3%	9,0%	7,2%	9,4%	8,4%	8,3%	9,1%	9,4%	9,8%	10,3%
Profit Margin	8,6%	5,9%	6,0%	7,7%	5,6%	5,6%	6,1%	6,6%	7,1%	7,6%
Book value Debt Ratio	5,2%	9,1%	11,0%	12,3%	12,2%	12,3%	10,7%	9,0%	7,3%	5,5%
Interest Coverage ratio	4,82	4,08	6,75	8,81	4,20	4,29	4,84	5,31	5,87	6,51
Dividend payout	42,8%	56,7%	59,1%	50,4%	66,4%	58,2%	58,2%	58,2%	58,2%	58,2%
Earnings per Share	6,98	5,06	5,08	6,43	4,88	4,96	5,58	6,21	6,97	7,88

Forecasts

- According to the company, 2015 is still not the year where it is expected for revenues to grow. That year is expected to be 2016. Taking that into consideration, this valuation projects a real CAGR of 1.9% until 2020 for total sales where the major drivers of this growth are the sectors of Infrastructures and Cities and Industry.
- Siemens's operations are expected to enhance its profitability due to the foreseeable cuts and also economies of scale associated with the increased volume of sales.
- The impasse and delay around Dresser-Rand acquisition is increasing its price per share due to the ticking fee feature included in the deal. The confirmation of this delay or even the cancelation of the acquisition will create a loss of value between € 400 Million and € 2,638 Million.

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