

Equity research – Dimpomar, Lda.
Case study

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Abstract – English

The purpose of this thesis is to assess the value of Dimpomar, a privately owned company. In order to reach reasonable results and perform the valuation, the theoretical background was first presented regarding the several valuation methods, followed by a company presentation, industry analysis and the analysis of the financial indicators and situation of the company.

The valuation methods used in order to reach the enterprise value, firm value, equity value and price per share value were the Discounted Cash Flow and the Relative Valuation (Multiples). The fact that these two methods were applied, allowed the comparison of Dimpomar with the peer group, having more arguments to justify the obtained value of Dimpomar, which was an enterprise value of 13,784,962€ and a price target of 177.4€.

To conclude, this work provides a solid base of analysis for a possible exit through an IPO (initial public offer).

Keywords: equity valuation, discounted cash flow valuation, free cash-flow to firm, relative valuation, multiples valuation, enterprise value, firm value, equity value, price target, Portugal, IPO

JEL Classification: G30 (Corporate Finance); M41 (Accounting); O22 (Project Analysis)

Abstract – Portuguese

Esta tese tem como objetivo avaliar a Dimpomar, Lda., empresa não cotada. De modo a obter um resultado sensato e efetuar a avaliação, numa primeira fase foram apresentados os conceitos e fórmulas teóricos relativamente aos diferentes métodos de avaliação, seguidos por uma apresentação da empresa, análise do setor e análise dos indicadores e situação financeira da empresa.

Os métodos de avaliação usados de modo a chegar ao valor da empresa, valor da firma, valor do capital próprio e valor das ações foram os do *discounted cash flow* e o método de avaliação por múltiplos (*relative valuation*). O facto de ambos os métodos terem sido aplicados, permitiu comparar a Dimpomar com o grupo de pares, e desta forma ter mais argumentos que justifiquem o valor da avaliação obtido da mesma. O valor da empresa final obtido foi de 13,784,962€ e o preço por ação de 177.04€.

Para concluir, este trabalho providencia uma base sólida de análise para o lançamento de uma possível OPA.

Palavras-chave: avaliação de empresas, discounted cash flow valuation, free cash-flow to firm, relative valuation, avaliação por múltiplos, enterprise value, firm value, valor do capital próprio, preço por ação, Portugal, OPA

Classificação JEL: G30 (Finanças Corporativas); M41 (Contabilidade); O22 (Análise de Projetos)

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List of abbreviations

APV – Adjusted Present Value

CAGR – Compound Annual Growth Rate

Capex – Capital Expenditures

CAPM – Capital Asset Pricing Model

DDM – Dividend Discount Model

CFO – Chief Financial Officer

CEO – Chief Executive Officer

EBIT – Earnings Before Interests and Taxes

FCFF – Free Cash Flow to the Firm

IPO – Initial Public Offer

WACC – Weighted Average Cost of Capital

G – Perpetual Growth

R_f – Risk Free Rate

R_d – Cost of Debt

R_e – Cost of Equity

EV – Enterprise Value

ROS – Return on Sales

ROA – Return on Assets

ROE – Return on Equity

DSR – Days Sales in Receivables

DSP – Days Sales in Payables

E/A – Equity to Assets

Introduction

Dimpomar is a privately held company, with a consolidated presence in the extraction and transformation of natural stone market with a strong international presence.

The aim of this case study is to determine the enterprise/firm value of Dimpomar, as well as the intrinsic value of its shares, with the intention of proposing an exit through an IPO. The dissertation provides all the necessary and available information for a precise result/analysis by addressing all the required issues and a thorough equity research analysis. It should be noted that a valuation is subjective and dependent of several assumptions that may vary from person to person. In addition, the vast majority of theory found in scientific articles and books apply to publicly traded companies and not privately held, making this valuation even more challenging.

In a first stage, the literature review will be conducted, where the main studies and theoretical models from several authors will be systemized regarding valuing a company, as well as its main advantages, disadvantages and applicability.

In a second stage, Dimpomar's history, strategy, and future goals are presented.

After that, an industry analysis will be conducted which allows to identify Dimpomar's critical success factors that affect its performance and, consequently, its value (a SWOT and a Five Forces of Porter analysis will be performed).

Additionally, an analysis of the financial situation/indicators of Dimpomar will be carried out so the evolution of its efficiency, profitability, liquidity, solvency and growth can be observed.

Finally, after having collected all the required information and assumptions, the Free Cash Flow to the Firm (FCFF) and the Relative method will be developed, making it possible to reach the company and the shares value

1. Literature Review

1.1. Brief Overview

Damodaran (2012) claims that every asset has a value. Assets valuation, considered the heart of finance, refers in this case to the process of determining the fair market value of a company. According to the Internal Revenue Service (IRS) of the US, it is the “price at which the property would change hands between a willing buyer and a willing seller when the former is not under any compulsion to buy and the latter is not under compulsion to sell, both parties having reasonable knowledge of relevant facts” (Natalwala 2011).

Valuation plays a key role in the world of corporate finance, for instance in portfolio management since it allows for investors and analysts to identify companies whose shares are being traded below their actual value, with the hope that their portfolios with several undervalued stocks will do better than the market. Also in corporate finance since the decisions made by companies regarding which projects to take, how to finance them, their dividend policy, are directly related to its value, allowing them to better understand this relationship and make decisions that will increase value (Damodaran 2012). It basically also allows investors to decide whether or not to sell, buy or hold shares, by weighting the value obtained with the share’s price on the stock market and comparing it between companies; to justify the intended offering price to the public, in a public offering; strategic planning, regarding which business to sell and continue. Finally, to determine the highest price the buyer should be willing to pay and the lowest price at which the seller should be able to sell, in mergers and acquisitions. It is also indispensable since with it, identifying sources of economic value and destruction within a company are possible (Fernández 2007). According to Damodaran (2012), valuations are subjective, an estimate, since there are assumptions that have to be made about economy and the future of the company. In addition, preconceptions and biases brought by analysts and investors to the process will have an influence in the value obtained. These are inevitable due to how exposed we are to information about the firm coming from external sources.

1.2. Methods of valuation

As previously stated, valuations are uncertain regarding estimated value and actual value, subjective, and an estimate. Despite there being some common characteristics shared by the models, there are always different assumptions that must be made, given different models. Due to this, Benninga and Sarig (1997) consider that it is better to use more than only one estimation model when valuing a company since if these come up to similar estimated results, the reliability of the valuation increases. In fact, according to Young, M., Sullivan, P., Nokhasteh, A., and Holt, W. (1999), all valuation methods should have a similar output since “most approaches are, in truth, different expressions of the same underlying model”. The most suitable model for the company should then be chosen from the different estimated results, considering the company environment and the available information.

According to Damodaran (2012), in general terms, valuation can be approached in three different ways: 1) Discounted Cash Flow Valuation; 2) Relative Valuation; 3) Contingent Claim Valuation, which will be analysed in detail in the next section, and used for Dimpomar’s valuation.

Table 1 – Different Valuation Methods

Discounted Cash Flow Valuation Model	Relative Valuation Model	Contingent Valuation Model	Claim
Equity valuation:	Multiples:	Option Pricing Model:	
. Dividend Discount Model (DDM);	. Price Earnings Ratio;	. Binomial	
. Free Cash Flow to Equity (FCFE);	. Price to Book Equity Ratio;	. Black- Scholes	
Firm Valuation:	. Price to Sales Ratio;		
.Free Cash Flow to Firm (FCFF);	. EV to EBITDA;		
.Economic Value Added (EVA);	. EV to Capital Ratio;		
Adjusted Present Value (APV)	. EV to Sales.		

Source: Damodaran, A. (2012). Investment valuation. 3rd ed. Hoboken: John Wiley & Sons; Damodaran, A. (2006), Valuation Approaches and Metrics: A Survey of the Theory and Evidence, Stern School of Business, New York University

1.2.1. Discounted Cash Flow Valuation

As stated by Damodaran (2006) “ in Discounted Cash Flows Valuation, the value of an asset is the present value of the expected cashflows on the asset, discounted back at a rate that reflects the riskiness of these cashflows.”. As mentioned by the author, cash flows vary given different assets and the discount rate is higher as the risk of the asset increases.

Despite not being the most used approach in real life it is extremely important since its fundamental's understanding is considered to be the underlying basis for building the Relative Valuation approach and apply option pricing models to value asset. (Damodaran 2012).

The general formula for the DCF methodology comes as follows:

$$\sum_{t=1}^{t=n} \frac{CF_t}{(1+r)^t}$$

Where:

n = lifetime of the asset

CF_t = Cash Flow generated in period t

r = Discount rate that reflects the riskiness of the estimated cash flows; cost of capital

(see for example, Fernández 2007).

As mentioned by Damodaran (2012), with this valuation methodology we arrive at an estimation of the intrinsic value of an asset, that is, the value that would be attributed to the company by an impartial analyst. Also, despite the existence of thousands of DCF models, the author divides them in three groups: Equity Valuation; Firm Valuation and Adjusted Present Value (APV). These will be discussed in the next section.

1.2.1.1. Equity Valuation

In equity valuation models, analysts only assess/value the equity that is in stake in the business, which includes, not only equity, but also other claimholders in the firm, such as bondholders, stockholders, etc. The value of the equity is obtained by considering that the expected cash flows belong to the equity holders and discounting them at the cost of

equity, that is, the rate of return required by equity investors in the firm (Damodaran 2012). This category can be divided in two different models: FCFE; DDM.

- FCFE

The free cash flow to equity methodology values a company's equity by discounting the cash flows that are expected to shareholders (after remunerating debt holders) at the expected cost of equity. It gives the free cash flow available to distribute for the shareholders after paying all expenses (Damodaran, 2006 and 2012).

Its definition comes as follows:

Free Cash Flow to Equity = Net Income – Capital Expenditures + Depreciations – Change in Non-Cash Working Capital + (New Debt Issued – Debt repayments)

Based on the above, the value of equity can be obtained using the discount rate that represents the return expected by the shareholders, who support the equity risk, shown as follows:

$$Value\ of\ Equity = \sum_{t=1}^{t=n} \frac{FCFE_t}{(1 + Re)^t}$$

Where:

$FCFE_t$ = Cash Flow generated by the company

R_e = Cost of Equity

According to Damodaran (1994) there are several reasons which explain why some firms pay out to stockholders as dividends less than what they actually have available in free cash flows to equity, such as, for instance:

- 1) Need for future investment: it is understandable that a firm might want to hold on to some of its FCF in order to be able to support future expected increases in capital expenditures or when it is unsure regarding its future financial needs;
- 2) Tax factors: If capital gains are being taxed at a lower rate than dividends;

- 3) Desire for stability: in a general way, companies tend to keep the payment of dividends stable. This is mainly due to the fact that they usually are very reluctant to reduce dividends in some cases they have to, and so, also refusing to increase dividends even when FCFE goes up, especially if they are unsure whether they will be able to maintain these higher dividends or not. Otherwise it would lead to a lag between dividends and earnings increases;
- 4) Managerial self-interest: if there is for instance the desire from the managers to increase the size of the company in order to build an empire. Also, management may want to be able to remain in control during periods when earnings may drop, by building a cash cushion.

- DDM

The Dividend Discounted Model values a firm with the present value of the expected dividends that will be received by the shareholders in the future. In general, the value per share of stock is given by:

$$\text{Value per share of stock} = \sum_{t=1}^{t=n} \frac{E(DPS)_t}{(1 + Re)^t}$$

Where:

$E(DPS)_t$ = Expected Dividends per share

Re = Cost of equity

However, due to the fact that it is not possible to project future dividends in a perpetual way, some assumptions must be considered and applied in the valuation, for instance, the Gordon Growth Model (or Constant Growth Model). This was developed in 1962 and it assumes, for “steady state” firms, that the dividends increase at a constant annual rate, eternally. (Danielson and Heck, 2014). The model can be written as:

$$\text{Value of Stock} = \frac{D1}{Re - g}$$

Where:

D_1 = Expected dividends to be paid next year

R_e = Cost of equity

g = Expected perpetual growth rate

In order to overcome the limitation imposed by this model of underestimating the value of the stock in companies that accumulate money in the process of paying dividends, by paying out less than they can afford, there is an extension to it: The Two-Stage Dividend Discount Model, that assumes that there is an initial period lasting n years where the growth does not remain stable and subsequent one where the growth rate is stable, lasting forever.

These two models, FCFE and DDM, are compared by Damodaran (2012), who refers that they will provide the same value to the company if the value of the dividends is beyond the FCFE and considering the excess cash ($FCFE - \text{Dividends}$) is invested in financial assets that yield a net present value of zero.

1.2.1.2. Firm Valuation

In firm valuation models the entire firm is valued, either by discounting the free cash flows to all the shareholders or creditors in the firm by the weighted average cost of capital (cost of capital approach) or by using the adjusted present value (APV) approach, that is, by adding the marginal impact of debt on value to the unlevered firm value (Damodaran 2012) (Kaplan and Ruback, 1995). This category can be divided in two different models: FCFF, which will be referenced in this project, and the Economic Value Added (EVA).

- Free Cash Flow to the Firm – FCFF

The FCFF model is equivalent to the sum of the cash flows that are entitled to all the holders of the firm.

$$FCFF = EBIT (1 - \text{Tax rate}) + \underbrace{\text{Depreciation} - \text{Capital Expenditure} - \Delta \text{Working Capital}}_{\text{Reinvestments made by the firm for growth}}$$

Many authors defend different purposes for this model, for instance, Graham and Harvey (2001) argue that it is one of the most used valuation methods that works better in target debt to ratio situations. Also, Damodaran (2006 and 2012) defends that this model should be used in companies that have a fixed capital structure; contrary to Koller et al (2005), who claims that it should be only used for valuating companies with multiple businesses.

Using the FCFF model, the value of the levered firm is given by discounting the unlevered cash flows at the firm's weighted average cost of capital (WACC).

Thus:

$$Value\ of\ the\ firm = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1 + WACC)^t} + \frac{FCFF_n + 1/(WACC - g)}{(1 + WACC)^n}$$

1)

2)

Where:

FCFF = Free cash flow to the firm in year t

WACC = Cost of capital

g = Expected growth rate of the cash flows

This formula is divided into two sections: the first one "1)" represents the most general version of the model that can be calculated by discounting the cash flows up to a certain selected date (n). The second one "2)" is taken into account if the firm starts growing at a steady growth rate, after n years. It computes the terminal value (TV), that is, the present value of all cash flows, at a future point in time, when a stable growth rate is expected (Damodaran, 2012).

- WACC

As mentioned above, when calculating cash flows, one of the most commonly-used discount rate is the weighted average cost of capital. It is a rate of return that represents the average of the after-tax costs of different sources of capital (stock, bonds, debt, equity), with each of these weighted proportionally by the capital structure it represents. In other terms, it is the average cost of raising financing by the company, either through debt and equity sources. Its formula comes as follows:

$$WACC = Re \times \frac{E}{E + D} + Rd \times \frac{D}{E + D} (1 - Tc)$$

Where:

Re = Cost of equity

Rd = Cost of debt

E = Equity

D = Debt

Tc = Corporate tax rate

In the paragraphs that follow, the WACC variables will be explained in detail:

- Cost of Equity (Re)

The cost of equity is the rate of return that is required by investors on an equity investment in a company. In other words, it is the premium expected by the investors, for taking equity risk in the investment (Damodaran, 2012). According to the author, the Capital Asset Pricing Model (CAPM) introduced by Sharpe (1964), is by far the most used for calculating the cost of equity. This model takes into consideration the riskless rate, which is summed by the risk premium, depending on beta. There is another worth-mentioning model, the Fama & French Three Factor Model (Fama and French, 1992), that, instead of

only identifying beta as the sole risk factor in expected stock returns, it also includes two additional risk factors: market capitalisation and book-to-market ratio. Although, this model has raised concerns regarding data mining, that is, that it provided an empirical path that fits the particular set of data used in the research. According to Batholdy and Peare (2002), the possible small gains that may derive from the three factor model do not justify the extra work that comes with including two more factors. Despite the fact that some research favours this model, CAPM is still arguably the standard and most used one for estimating the rate of return.

The cost of equity can then be obtained as follows:

$$\text{Cost of equity} = R_f + \beta_i (R_m - R_f)$$

Where:

R_f = Risk free interest rate

β_i = Beta

R_m = Expected market return

$R_m - R_f$ = Market Risk premium

In theory, a riskless asset is one whose actual returns on investment are always equal to the returns the investors expect to make over the time that they hold the asset. Risk free interest rates are associated with the non-existence of default risk and reinvestment risk (Damodaran, 2008). According to the author, the only assets meeting these requirements are government securities, since they are in control of currency. Given different economies, different rates should be used, for instance, when performing a valuation of a European company, a German zero coupon bond should be considered, with a maturity equal to the cash flows being discounted, whereas if the company is located in the United States of America, a treasury bond should be considered. Actually, the financial markets consider that, on a European level, the German Government bonds are the closest ones to be considered without risk, rated AAA by Moody's, Standard & Poor's and Fitch, in opposition to the Portuguese ones, rated BBB-, explaining why the latter ones were not used. Although, according to Brealey and Myers (2010), these assumptions come with a limitation, that is, the fact that it is mathematically possible that the USA and Germany

default, meaning that the treasury bills and coupon bonds should not be regarded as 100% risk-free. Despite this, given the fact that this is extremely unlikely to happen, they are still considered for obtaining the risk free rate.

In the CAPM approach, according to Damodaran (2012), beta “is the risk that the investment adds to a market portfolio” and since it cannot be directly observed in the market, it is necessary to take several assumptions in order to reach it. It is also considered to measure the sensitivity of the asset’s return to variation in the market return. (Fama and French, 2004). The unlevered beta is referred to as the asset beta since it is obtained considering the nature of the company’s products and services and its operating leverage, without taking its debt into account and the benefits associated with it in its’ capital structure. Whereas the levered beta, also referred as the equity beta, is the beta of a firm with financial leverage.

The beta can be estimated in two different ways: using historical data on market prices; using the particular characteristics of the investment or accounting data. The first one consists in a regression analysis, assessing the tendency of the returns of the investment relatively to the fluctuations on a market index (S&P 500, for instance). Given the fact that Dimpomar is privately owned, there is no historical data on market prices available. Consequently, as an alternative to regression, the bottom-up beta approach should be used. As stated by Damodaran (2012), this method assumes that we can put together the beta of two assets in order to obtain the weighted average of the individual assets betas. This means that by weighting the average of the betas of all businesses the company is in, the beta of the firm can be obtained.

According to Goedhart et al. (2005), companies in the same industry face similar operating risks and, consequently, similar operating betas. Therefore, this method adopts the unlevered beta of the industry, which formula, considering the beta average and D/E average of the comparable firms, comes as follows:

$$\beta u_{business} = \frac{\beta_{comparable\ firms}}{[1 + (1 - t) \left(\frac{D}{E} ratio_{comparable\ firms}\right)]}$$

where:

βu = Beta unlevered

t = tax rate

The comparable firms/peer group should be a group of 6-12 publicly traded companies (so that a substantial amount of estimation error is still saved) that operate in the same sector and that present close financial conditions than the company being valued.

Taking into consideration the different businesses where the company operates:

$$\beta u_{firm} = \sum_{j=1}^{j=k} \beta u_j \times Value\ Weight_j$$

Where:

K = number of different businesses the company operates in.

Finally, according to Hamada (1972), the Levered Beta can be obtained by adjusting the beta to the company's financial leverage (D/E ratio) and from its unlevered beta, as follows:

$$\beta L = \beta u [1 + (1 - t) \left(\frac{D}{E}\right)]$$

Where:

βL = Beta levered

βu = Beta unlevered

t = tax rate

D/E = Debt-to-equity ratio

The beta can assume the following range of values:

$\beta < 1$, meaning that the price of the company's stock is less volatile, fluctuates less than the market. Despite less risky, it is also less likely to offer high returns.

$\beta = 1$, which means that the price of the company's stock will follow the market's trend.

$\beta > 1$, that is, the price of the company's stock is more volatile and has higher price swings than the market as a whole.

The risk premium consists in the difference between the return that is expected by investors and the risk-free rate. In other words, it is the extra return that investors would demand for switching money from a risk-free investment to one with average risk (Damodaran, 2012). There are three standard approaches regarding how to calculate the risk premium: the survey approach, where managers and investors are requested to estimate the future risk premium; the implied approach, where the future risk premium implied by current stock prices, can be estimated by using a basic discounted cash flow model and current stock index levels. Finally, the most commonly used, the historical return approach, where the risk premium corresponds to the difference between the estimation of the average returns earned on stock over an extended period of time and the returns earned on a default-free such as, for instance a government security. (Fernandez, 2004) (Damodaran, 2006).

- Cost of Debt (Rd)

The cost of debt estimates the current costs the firm has when borrowing funds to provide funding to investment projects. It is determined by summing the riskless rate with the default risk of the firm, taking into consideration the tax advantage associated with debt, which increases as the tax rate goes up (Berk and DeMarzo, 2011).

The best scenario of estimating the cost of debt occurs when the firm is widely trading long-term outstanding bonds. The cost of debt corresponds to a yield that is obtained by connecting the market price of the bond together with its coupon and maturity. Although, if a firm is not rated, Damodaran (2012) suggests that by either assessing its most recent

bank borrowing history to get an idea of the types of default spreads being charged, or by estimating a synthetic rating, that is, assigning a rating to a company based on its financial ratios, it is possible to come up with a cost of debt.

1.2.1.3. Adjusted Present Value Model – APV

The APV is an alternative approach to firm valuation that adds the effect on value of debt (tax benefits – bankruptcy costs) to the unlevered firm value, which is estimated at different values of debt. The debt is added to the unlevered firm while taking into consideration the net effect on value, that is, the benefits and costs of borrowing.

APV is mostly based on the work and theorem developed by Modigliani and Miller (1958 and 1963) who focused their studies on the consequences of leverage on the firm's value. Their first proposition comes as follows:

$$VL = \text{Value on the unlevered firm } (Vu) + \text{Value of tax shields } (Vts)$$

It basically defends that in a perfect market with the non-existence of taxes, the value of the firm is not dependant on its capital structure. Notwithstanding, in the presence of taxes, the interest's tax shields serve as an incentive on taking debt.

Later on, Myers (1974), develops the actual APV model, which is presented by Damodaran (2006) as follows:

Enterprise Value (EV) = Value on the unlevered firm (Vu) + Present value of expected interest tax shields – Present value of expected bankruptcy costs

Given the value on the unlevered firm as:

$$Vu = \frac{FCFF1}{1 + rd} + \frac{FCFF2}{(1 + rd)^2} + \dots + \frac{FCFFn + \text{Terminal Value } n (TVn)}{(1 + rd)^n}$$

$$TVn = \frac{FCFFn \times (1 + g)}{Rd - g}$$

Where:

FCFF_n = After tax operating cash flow to the firm generated in the period n

R_d = Cost of capital

g = Expected growth rate of the cash flows

and, the PV of the expected interest tax shields:

$$PV \text{ of interest tax shields} == \sum_{t=1}^{t=\infty} \frac{\text{tax rate } t \times \text{interest rate } t \times \text{debt } t}{(1 + rd)^t}$$

Consequently, it is understandable that the biggest advantages of this approach over the cost of capital is that it allows the analyst to separate the effects of debt in different components, allowing the usage of different discount rates for each; also, the debt ratio is not assumed to remain unchanged forever like it is in the cost of capital approach. Additionally, due to the fact that it consists in valuing a company by separating the value of the assets and the one created by a financial structure that is favourable, it allows to realize how much the asset is worth and where the value is coming from; it is extremely transparent regarding adjustments to the discount rate. In spite of this, it is very complex to calculate the cost of bankruptcy, explaining why these are ignored by many analysts (Luehrman, 1997) (Myers, 1974).

1.2.2. Relative Valuation Model

While the discounted cash flow valuation takes into consideration the cash flow, growth and risk characteristics of the asset in order to find its value, the relative valuation's objective consists in finding the value of an asset, based on the pricing of identical/comparable assets in the marketplace. This can be done by standardizing values relative to earnings, cash flows, book value, or the revenues they generate. (Damodaran, 2012).

As stated by Damodaran (1994) this model works, generally, by concluding the following steps:

1. Gather a group of comparable peers/companies from the same industry;
2. Obtain their multiples, considering that the average of peer group will be considered as the industry average value;
3. Calculate the relative value of the company being valued by applying its actual data to the average obtained in step 2, that is, by correcting any differences regarding specific features of the asset.

Table 2 – Multiples Valuation Approaches

Earnings Multiples	Book Value Multiples	Revenue Multiples	Sector-Specific Multiples
Price/Earnings Ratio (PE)	Price/Book Value (of equity)	Price/Sales per Share	Price/Kwh
Value/EBIT	Value/Book Value of Assets	Value/Sales	Price per ton of steel
Value/EBITDA	Value/Replacement costs		
Value/FCFF			

Source: Damodaran, A., (2002), Investment Valuation: Tools and Techniques for Determining the Value of Any Asset, Second Edition, New York: John Wiley & Sons

As stated before, according to Damodaran (2006) a company can be considered comparable to another if they present similar background, size, risk, potential growth and cash flows.

Valuations based on multiples a) do not require as many assumptions as DCF valuations; b) are simpler to present to clients, and c) reflect the conditions of the market, due to the presentation of the relative value of the asset instead of the intrinsic one. Despite these, a few limitations should also be taken into consideration. For instance, even though two comparable companies do not necessarily need to be in the same industry, if this is the case, this method can be extremely difficult to implement. In order to overcome this, analysts will look for similar assumptions used by companies or consider that all companies present in the market are comparable and control their differences using statistics techniques.

Furthermore, it is also emphasized by Damodaran (2002) that estimates can sometimes end up being inconsistent, since, due to the simplicity of this method, some variables like the level of risk, growth and potential of cash flow can be disregarded. Additionally, it is

also possible that multiples are manipulated or that assets are sub or overestimated, due to the fact that the context of the market reflects the valuation directly.

In order to overcome these drawbacks it is suggested by Fernández (2002) that multiples should be used in a second stage of the valuation: after the valuation if performed using a different method. In fact, after making a comparison with the multiples of comparable firms, analysts can assess the valuation and identify the differences between the firm being evaluated and the others it was compared to.

1.2.3. Contingent Claim Valuation Model

A contingent claim or an option is “a claim that pays off only under certain contingencies – if the value of the underlying asset exceeds a prespecified value for a call option or is less than a prespecified value for a put option” (Damodaran, 2012).

The most widely option pricing models used are the binomial and the black-scholes, which are utilized to “measure the value of assets that share option characteristics” (Damodaran, 2006), such as, for instance, patents. An asset has option characteristics when a) it derives its value from the value of other assets and b) its cash flow is contingent on the occurrence of specific events. The present value of the expected cash flows of these specific assets/options will present their true value.

This methodology increases a company’s flexibility to analyse investment or operational decisions such as postponing an investment or expanding production. Despite this, there are some limitations as well, such as, for instance, the fact that variance assumptions and dividend yields are only contested when in the presence of an asset with a long life and not in the short term. Also, when the asset is not listed in the stock market, the assumptions have to be estimated since it is not possible to take them from the capital markets.

1.2.4. Asset-Based Valuation Model

Some analysts argue that by aggregating the value of a firm’s individual assets it is possible to get to the company’s value. This can be done through three methods, the first one being the liquidation value that can be obtained by aggregating the proceeds from the

estimated sales of a firm's assets. The second, replacement cost, consists in estimating how much would the cost be to a company to replace all of its assets, at that moment. Finally, the book value, that considers that the value of a company's assets corresponds to its accounting book value, with adjustments to the book value as necessary.

In order for analysts to estimate value using this model, the discounted cash flow, relative, or option pricing models should not be discarded. Indeed at least one of them is required beforehand in order to get to the replacement and liquidation values. In addition, given the fact that accounting standards can vary according to different sectors and countries, comparability between these companies can be questioned, allied to the possibility of being in the presence of manipulated accounting, that will result in an also manipulated company/asset value.

2. Presentation of Dimpomar – Rochas Portuguesas Lda.

2.1. Brief Overview

Dimpomar is a privately-held company whose main purposes consists in the extraction and manufacturing of natural stone, marble stone and limestone. It is headquartered in Vila Viçosa, in the centre of the biggest Portuguese stone extraction area, where it has a marble quarry, a production factory and the commercial, logistic, financial and R&D departments, the latter having been constructed in 2013. It has a warehouse in Sintra.

With a manufacturing area of more than 10.000 m² and around 80 employees, Dimpomar, with the required experience and its transformation capacity, supplies natural stone, not only in blocks, plates and tiles, but also in any other required formats for many projects.

2.2. History of Dimpomar – Rochas Portuguesas Lda

The company was founded in 1980 by its still current majority shareholder - Luís Carlos Bernardo de Sousa, with a participation of 74.50%, who obtained his bachelor degree in Mining engineering at Instituto Superior Técnico. After the construction of all the required infrastructures and technologies, the company starts commercializing tile and serrated plate.

In 1984, due to market demand, Dimpomar increased the size of its facilities and updated the technological park.

Four years later, in order to make the production more flexible and allow a diversification of products offered to the market, the company started the construction of a new production pavilion, which started its activity in 1990. This allowed the company to produce in a customized way instead of only standard.

In 1991, a new modernization investment of the technological park was made and created a maintenance mechanical workshop, due to its large dimensions.

In 2005, Dimpomar, being conscious of the market's increasing demand for diversification, differentiation and in order to give an answer to an important market niche (architects, projectists, designers and final consumers), it created and registered its own commercial brand Tons de Pedra (Stone tones). This company's branch takes advantage

of the transformation know-how and is dedicated to the importation of stone from all around the world, selling it in the national and external market. Being aware that the main motivators for demand of natural stone in Portugal are public contracts, construction of residences and restoration of buildings that imply a high number of small works, the creation of the Tons de Pedra brand matches the inauguration of a warehouse in Pêro Pinheiro (where there is a concentration of companies from the natural stone sector).

Today, Dimpomar – Rochas Portuguesas, transforms and comercializes marbles and limestones, in blocks, serrated or polished plate, standard tiles, skirting, window sills, tabletops, washbasin tops and any other customized work.

2.3. Strategy and future goals

The strategical and commercial vision of the company's managers has allowed the business to grow in a sustainable way over the time. Ever since its foundation, Dimpomar, in a logic of learning and penetrating the external markets, always associated itself to commercial missions of participating in fairs. These are organized by organisms which represent the sector (Assimagra, Cevalor, etc) and the AICEP Portugal Global, a public identity of the government of Portugal whose goal is to attract foreign investment to Portugal and support the internationalization of Portuguese companies in the global economy.

Consequently, ten years ago, after starting to feel comfortable in the internationalization processes, the company began to participate with its own stands at some of the most important worldwide fairs of the industry and to prospect the market in countries which held strong commercial attractiveness.

In the meanwhile, it kept its' participation in promotional and internationalization projects since it considers that the cooperation between companies and associations or other entities is crucial for Dimpomar's and the sector's competitiveness. For instance, the participation in the Fileira dos Materiais de Construção project, represented by Assimagra (Associação dos Industriais de Mármore, Granito e Ramos afins). Also, more recently, the participation in the project Primeira Pedra, an international programme of experimental research about the potentialities of the usage of Portuguese stone

coordinated by Assimagra, with the important sponsorship of the President Marcelo Rebelo de Sousa.

Furthermore, in 2013, the company began an investigation process of product innovation, processes, waste management that pretends to keep developing in the years to come. The main factors behind Dimpomar's motivation were the following:

- ecological footprint, with the need of reducing/managing waste;
- the technical challenges related to reducing the weight of the products offered and the competitive advantage those reductions on thickness would bring to the company (bigger profitability per m³);
- Investigation and development of the production process in 3D

In 2015, Dimpomar became a more sustainable company, by installing a system of energy production for self-consumption from renewable resources, reducing its dependency for energy consumption coming from public electricity network.

Furthermore, and in order to meet its strategical options, Dimpomar – Rochas portuguesas, is going to participate in the following future international fairs:

- Stone Xiamen Fair, in Xiamen, China

The company has been participating in this fair since 2009, and the result has been networking and the increase of sales. This action allowed the company to realize that it has the space and capacity to grow in this market. Actually, in 2010 this market became the main exportation destination of the company, having surpassed the USA. Additionally, China currently possesses one of the fastest growing economies in the world, with an average economic growth of almost 10%. This country also greatly lacks in marble resources, which is favourable for Dimpomar since China is one of the biggest importers of raw material in the world.

- Coverings, in Chicago, USA;

USA represents an extremely important market for the company and the efforts to invest in it are extremely important, because not only it is positioned worldwide as one of the biggest consumers and importers of Natural Stone, but also since it is the world's largest economy. The fact that Dimpomar has such a consolidated knowledge about this market is also an important factor.

- Marmomacc 2016, in Verona, Italy:

Important fair that is mostly visited by many buyers from Italy, Arabia, Germany and countries from Central Europe. The presence in this fair, contributes to the reinforcing of Dimpomar's presence in Italy, Germany and Arab markets;

- The Natural Stone Show, in London, United Kingdom;

This market has been gaining great recognition over the last number of years, currently being Dimpomar's third main client. This fact, allied with the permanence of its attractive conditions, motivate the company to invest in reinforcements of customer loyalty and growth (obtaining new clients). Furthermore, the UK has been registering a significant growth in the consumption of ornamental stones, mainly marble (mainly for toilets and fireplaces). This is the only Natural Stone fair in the country, and is sought after by hundreds of national manufacturing companies, looking for semi-manufactured raw materials semi-manufactured, and for distributors and civil constructors looking for customized works in marble.

- Kazbuild 2016, in Almaty, Kazakhstan.

Finally, in 2016 the company participated in the project of logistics, organizational, digital economy, information and communication technologies

2.3.1. Values

Dimpomar's values consist in the following:

- Reconciling the interests of the company that has been continuously growing, by innovating and investing in the means and the people, taking the environment into consideration;
- Investing in the formation, inclusiveness and motivation of the employees;
- Stablishing solid partnerships with the clients, suppliers and R&D entities;
- Complying with the legislation and regulatory requirements associated with the products and the activities of the company, as a stimulation of the competitiveness;

- Developing the company in a sustainable way taking into consideration modern management strategies, valuing the immaterial aspects of competitiveness.

2.3.2. Mission

Dimpomar's mission is to develop a sustainable business, promoting, valuing and evolving its know-how in the transformation and distribution of natural stone, marble and limestone, in addition to building to building an efficient, modern, innovative and profitable organization, in harmony with its social responsibility and ecological commitments.

2.3.3. Vision

To remain a relevant company in the sector, recognized by the diversity and quality of the produced products, innovation capacity, respect for the environment and stablishing and maintaining trusting relationships and commitment in satisfying its client's objectives, in a scope of partnerships.

2.3.4. SMART objectives

The important strategical SMART (specific, measurable, agreed upon, realistic and time-based) objectives defined by the company in order to obtain competitive advantage are the following:

- 1) always find solutions for the needs of the clients, based on quality, delivery capacity and price;
- 2) continuous technological innovation through the means and methods that will lead to higher levels of productivity, trust, safety, with the least possible environmental impact;
- 3) permanent development of new competitive products, and maintenance of the existing ones in order to comply with the clients expectations;
- 4) continuous improvement of the products, processes and systems to reduce their cost, performance requirements, environmental impact and hygiene, safety; maximize the exploitation of raw materials in the transformation process;

- 5) promote the production's flexibility and reinforce the recycling capacity of the materials;
- 6) optimize internal efficiency through productivity improvements versus capacity and optimize innovation in the industrial and services processes;
- 7) optimize as well the energetic efficiency with the production of green energy from renewable resources, reducing significantly the energy consumption and the producing costs;
- 8) reinforce the efforts of the business to become more and more international and the diversification of markets, consolidating the current external markets and looking to enter new markets, such as, for instance, India and Kazakhstan;
- 9) invest in human resources qualification as a sustainable condition for the business;
- 10) seek that all actions are reflected in consolidated growth of the business volume, added value, and optimization of costs;
- 11) build a privileged position in the market by creating long term value, innovating of the processes and products, penetration in new markets and clients segments;
- 12) reach operational excellence, giving privilege to the efficiency of internal processes, considering that in this market the leaders are the ones that respect delivery dates, quality of the products and minimize costs.

In this context, the measurable objectives come as follows:

- Business Volume: growth rate of 20% by 2020;
- Growth Value Added (GVA): increase of 10% by 2020;
- Reinforced the weight of exportation: more than 90% by 2020;
- Sales through online stock: 15% of total sales;
- Diversity of external markets: +3 by 2020;
- Improve the gross margin: 10% by 2020;
- Reduction in 33% of the electricity consumption in 2020;
- Creation of qualified employment: +2 by 2020

2.3.5. Critical success factors of Dimpomar

- Innovation

Innovation is one of Dimpomar's strategical options. The activity of conception and development of new products is the responsibility of the department of "Development and Innovation". The company's aim is to be in the frontline of innovative solutions and be recognized as a source of innovation in the cluster "ornamental and industrial rocks", with a National interest recognized by the government.

In times of high uncertainty and change, it is vital to invest in new knowledge in order to create a sustainable culture of innovation that differentiates the company. Thus, Dimpomar has been privileging activities of innovation in network (involving other services, clients, suppliers and commercialization groups), so it can meet its clients' needs and develop new business opportunities. In fact, the company integrates several associations and centres of knowledge transfer, like Assimagra, Associação Valor Pedra and Cevalor. Each project has to bring added value to the client, ensuring the quality of the product/service and that tendencies are met. A few characteristics of the client of the future are: a high sense of aesthetics; compare more and buy from all around the world; be highly informed about what is wanted and prioritize the companies that provide critical information online; as well as buying online more. Dimpomar goes beyond the market, anticipating its evolution and finding out new needs and functionalities. The concretization of the innovation policy of the company is centred around the accumulation of technological capabilities and know-how obtained through investigation and development of new solutions to meet the demands of its clients. Technological innovation allows Dimpomar to produce goods and services with differentiation and with strong interest to the global market.

- Products/Consumptions

The super-efficient use of resources and the offer of products that can compete with the ceramic products are essential to keep the company in a good competitive position.

- Innovation and improvement of organizational and management capabilities

The reengineering of the organizational and management capabilities of the company, supported by the implementation of an Enterprise Resource Planning (ERP) that led to a

profound reorganization of the company, unifying all areas, simplifying the operations and integrating all processes. This platform made it easier to develop and engineer the products and services, improvement of the processes and reduction of the operational costs. In addition, the system of green energy production for self-consumption is an essential factor for the sustainability of the company, contributing to Marketing gains and improving the competitive positioning of Dimpomar – Rochas Portuguesas.

- Innovation in Marketing

The innovation in the communication with the market and online trading are also critical success factors.

2.3.6. SWOT analysis

In order to define the market position and market share owned by Dimpomar Lda, it is relevant to use one of the most classical models, the SWOT analysis:

Table 3 – SWOT Analysis

INTERNAL FACTORS	
STRENGTHS (+)	WEAKNESSES (-)
1. Strong managerial strategic vision;	1. System of control and treatment of information disintegrated and with insufficient quality;
2. Managerial structure organized and led by qualified managers and employees;	2. Non-existence of a model of evaluation and control of the company's strategy;
3. Quality of the management is evidenced by an excellent financial and economic situation;	3. Weak development of the information technologies in what respects the control of the internal processes and link to the market;
4. Equipment technologically developed to the sector's level;	4. Weak mobility regarding information access (it is not possible to share business information in different gadgets such as for example tablets and smartphones);
5. Investment in research and technological development (R&TD);	5. Weak capability of identifying the main operational costs;
6. Capacity of developing new products;	6. Non-existence of an integrated system of monitoring, visualization and control of the productive process;
7. Awareness that the critical success factor for the company is mainly the offer of differentiated products with high added value;	Insufficient human resources in Marketing and R&D.
8. Long term and healthy relationship with suppliers;	
9. Continuous encouraging and stimulation of all company's employees, promoting professional formation in all areas.	

EXTERNAL FACTORS	
Opportunities	Threats
1. China, despite being the main competitor of the Portuguese natural stone, is in a high growth stage and registers increased rates of civil construction;	1. Stagnation of some markets where the company operates, due to cyclical recession in civil construction, for instance in the USA;
2. Penetration in new international markets with strong growth;	2. Penetration in the markets where Dimpomar operates of new countries, with lower price strategies;
3. Worldwide growth of the high-end segments, such as the marble one;	3. The continuous appearing of substitute products, imitating the stone, but with less quality;
4. The culture of preference for the natural/environmental friendly in the developed countries;	4. Growth for limestones demand, in detriment of marbles;
5. Global growth of the niche markets related with design pieces/ art pieces	

Source: Author

2.4. Industry Analysis

The sector of the natural stone comprehends the extraction and manufacturing for ornamental or industrial purposes. This way, two subsectors can be highlighted: the one of the ornamental stones – marble, granite, shale and slates, and the one of the industrial stones – limestone, plaster, clay, sand, crushed stone, kaolin and other clays.

In Portugal, the Natural Stone presents in terms of exportation, some relevant competitive advantages, such as:

- Portuguese traditions contribute to a know-how about the industry that only a few others can match;
- a lot of stone reserves in favourable conditions of exploitation;
- the quality of the Portuguese natural stone is recognized by the biggest and more demanding markets that operate in the sector;

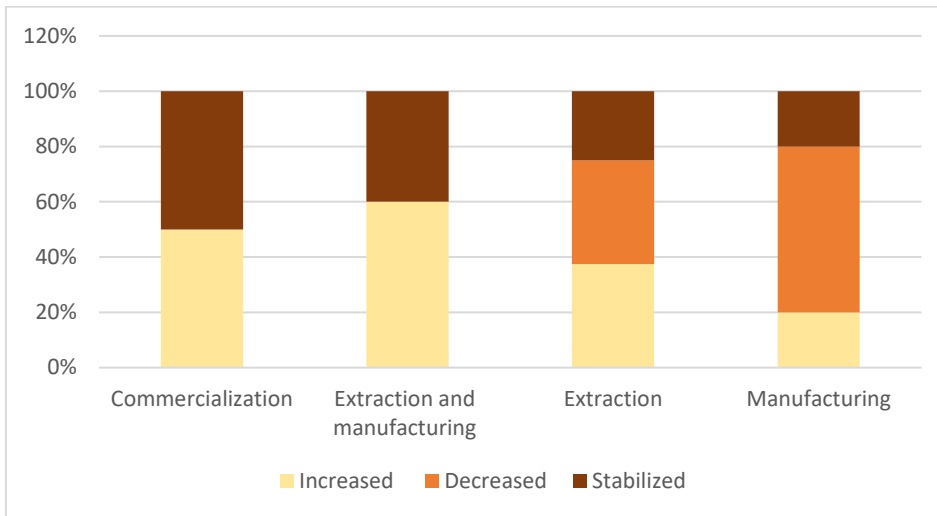
- the technological development revealed in the entire value of chain has allowed the construction of new machines and equipment, empowering innovation and competitiveness ;
- the creation of the natural stone cluster empowers the cooperation and communication between the several organizations and companies from the sector, helping to transmit essential information to the development of R&D activities and market intervention.

Over the last two decades we have been witnessing a progressive implementation of manufacturing companies, which has contributed to the appreciation of the endogenous resources, and to an industrial base increasingly technologically demanding, human resources qualification and commercial and marketing aggressive in order to guarantee a competitive positioning in the market.

In 2016, ASSIMAGRA launched for the first time a study entitled Barómetro Económico – posicionamento das empresas e perspectivas de evolução, which will be presented in the following section in order to better understand the economic reality of the marble industry, as well as the expectations and tendencies. The data that follows is related to 2015 and not 2016 since the latter is not yet available. The panel of participants was obtained through a selected sample of 20 companies of reference in the sector dedicated to the extraction, manufacturing and commercialization of marble in Vila Viçosa and Borba regions, who answered a questionnaire made in the second quarter of 2016.

Some of the main conclusions were the fact that there was an increase of the sales volume in 40% of the companies, when comparing to 2014, due to mainly market diversification and vertical integration. The 30% of the companies that observed a decrease in sales, justify it mainly due to the deterioration of the external markets environment or due to the fact that those companies only operate as extractors or manufacturers (See Table IV).

Table 4 – Sales Volume evolution per sub-activity level



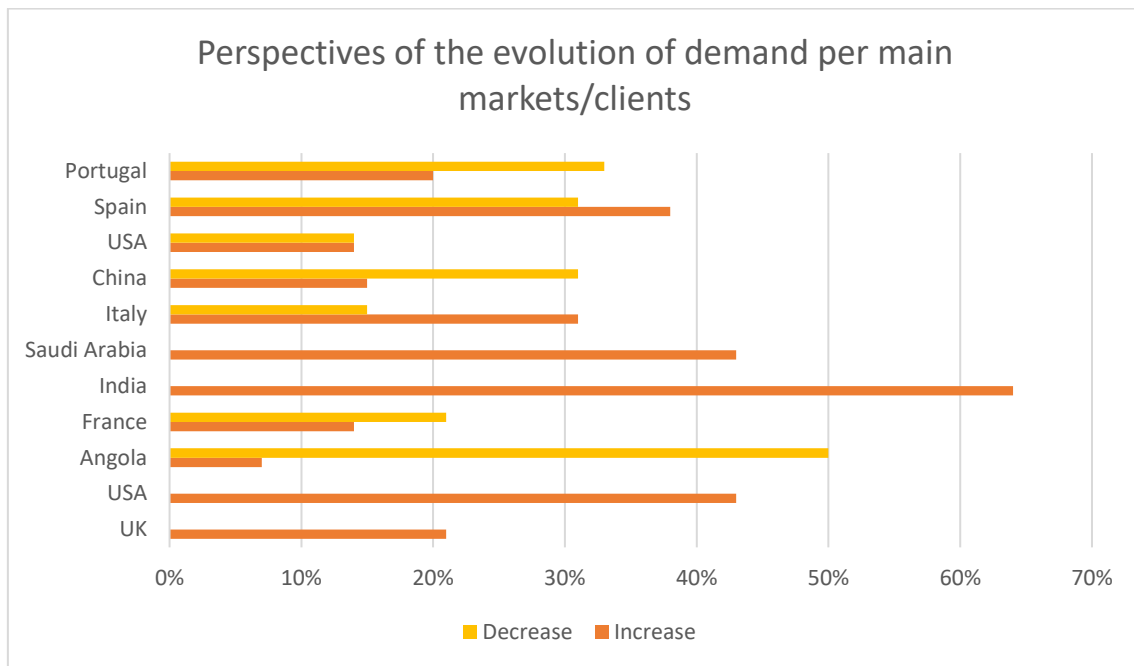
Source: Author

Additionally, 95% of the marble entrepreneurs expect a growth in their business for the year of 2016, while 5% expect a decrease in profit. Exports have a high weight on total income, and it is expected to keep increasing.

Furthermore, in their opinion, the main barrier penalizing the company's international operations are energetic costs, political and market stability, taxation and transportation costs. The biggest competitors for the immediate future are Turkey, Italy and Spain, followed by Greece and China. For half of the companies, there are perspectives of short-term investment, mainly related to technological changes.

In what concerns the international demand for marble, projections point to an increase in the following years by 60% of the inquired companies. The most susceptible country to provide an increase in external demand is India, a market that until this moment has been residual for the national marble, followed by Saudi Arabia and the USA. The Angolan market is the one for which a bigger tendency for decrease has been perceived, followed by China, Spain and the internal market (Table V).

Table 5 – Perspectives of the evolution of demand per main market/clients



Source: Author

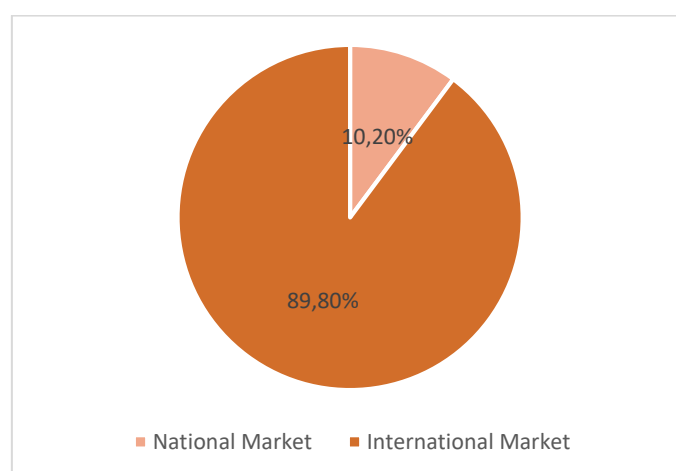
Regarding Dimpomar, it gained a notorious position of reference in the natural stone sector, and has been able to keep that position due to constant concern in adopting the most efficient production techniques, the most modern managerial models and by investing in specialized employees and on their continuous formation.

16% of Dimpomar’s sales are allocated to the national market, whereas 19% for the community market, and 65% to the extra community.

In a commercial perspective, participating with its own stands in the main worldwide fairs, Dimpomar has been a pioneer in its sector, coupled with its presence online through a website that presents the company and its products.

Additionally, the company has strong diversification policies of exportation to other markets (25 countries). The figure and table below illustrate the percentage of economic activity in the national and the international market, and the percentages in the international markets, respectively:

Table 6 – National and International economic activity



Source: Author

Table 7 – International Economic Activity per market (2016)

International markets	%
China	20,76
USA	15,92
UK	14,97
Hong Kong	8,13
Canada	4,29
Morocco	4,20
Saudi Arabia	3,07
Taiwan	2,84
United Arab Emirates	2,10
Sweden	2,02
Egypt	1,65
Jordan	1,58
Israel	1,47
Kuwait	1,35
Italy	1,33
India	1,15
Lebanon	0,56
France	0,53

Source: Author

2.4.1. Porter's Five Forces Analysis

Porter first introduced the Porter's five forces analysis in 1979. According to the author there are five main factors that can influence an industry: rivalry among existing competitors; bargaining power of buyers; threat of new entrants; bargaining power of suppliers; and threat of substitute products or services. These help the company in clarifying its current competition level in a certain industry.

2.4.1.1. Rivalry among existing competitors – High

Globally, Dimpomar has to compete directly with countries like China and India who have been competing with low price strategies. Internationally, being a manufacturing company, Dimpomar competes with other companies in the industry, mainly from Spain and Italy, whose strategy is based on product quality and differentiation.

Nationally, Dimpomar competes with all companies from the extraction and transformation of the marble and limestone sector, mainly in the Alentejo, Porto Mós and Pinheiro areas. Its' brand Tons de Pedra (import and sales to the national market) has found competitors in the companies who have been specializing in commercialization (working as warehouses).

With the national economic conjuncture, small and medium enterprises have increasingly been practicing lower price strategies, creating difficulties for Dimpomar. In order to react to these, the firm has been betting on differentiation and product quality strategies.

2.4.1.2. Bargaining power of buyers – Medium/High

Dimpomar's clients vary according to different segments: blocks are for sale to manufacturing companies (35%) and for exporting; semi-manufactured serrated and polished plate for sale to other manufacturing companies and stockists (15%); standard goods (tiles) for sale to distributors (30%); and customized works to answer the needs of civil constructions (20%). The distribution channel is mostly direct.

In the internal market, a strong dependency on the civil construction sector is verified, and, consequently, it is dependant on the economic conjuncture. In the external market,

since the current number of competitors is extremely high and the distribution system is rudimentary (mostly by placing orders), client loyalty is reduced and their bargaining power high – a change of suppliers does not come with significant costs for them.

2.4.1.3. Threat of new entrants – Low

Entrance in this market requires very high capital availability in order to make the initial investments. Additionally, there are tight legal restrictions regarding environmental and safety at work.

2.4.1.4. Bargaining power of suppliers – Low

There is a strong link between extractors and transformers of natural stone since the sector companies usually have both activities. For this reason, the bargaining power of suppliers is low.

2.4.1.5. Threat of substitute products – High

There is a high threat of substitute products, especially in the ceramics industry, with large companies always at the forefront of technological innovations, allowing these to present high quality products at a very competitive price.

It is very important for Dimpomar, in order to remain competitive in the market, to adopt a continuous and active internationalization policy that allows the consolidation of the international levels. To intensively improve the internal processes that provide critical information to the company (such as, for instance, intensive characterization of each stock product to the commercial department; analysis and projections in order to take managerial decisions, etc). Also, to continue with the efforts of market diversification in order to ensure the sustainability of the business volume and to promote a deep innovation in the websites Tons de Pedra and Dimpomar, since these do not sell online yet, do not

promote the online purchase and are not integrated with the internal system of product/stock management.

Finally, after analysing the five forces of porter, it can be concluded that the sector is averagely attractive. In its favour, there is the fact that both the bargaining power of suppliers and threat of new entrants are low. Additionally, the high quality and durability of the marble extracted in *Alentejo*, allows for higher prices. Against it, the high threat of substitute products in the ceramics industry, the fact that the bargaining power of buyers is medium/high, and the strong competition for instance with italian, indian and chinese products, which are sold with low price strategy. Given all this factors, a score of 3/5 was given regarding the attractiveness of the industry.

3. Financial Statement Analysis

Before valuating Dimpomar, a brief financial statement analysis will be applied, which enables a better understanding of the company's financial health and a more effective decision-making. This section will be divided into 6 distinctive parts: Profitability analysis, Efficiency analysis, Liquidity analysis, Solvency analysis, financial analysis and Growth Analysis.

3.1. Profitability Analysis

Table 8 – Profitability Ratios

Dimpomar	2014	2015	2016
ROS	10%	5%	6%
ROA	6%	3%	3%
Gross Margin	57%	56%	61%
Net Profit	7%	4%	5%
Debt ratio	15%	13%	16%
ROE	7%	3%	4%

Source: Author

The net profit margin shows the fraction of each euro in revenues that is available to equity holders after the firm pays interest and taxes and can be calculated by dividing the Net income by the Sales. In 2016, the net profit was 6%, which means that for every 100€ generated in revenues, 5€ remained in income.

A firm's gross margin reflects its ability to sell a product for more than the cost of producing it and to what extent it is able to charge a mark-up. Dimpomar's gross margin increased from 57% in 2014 to 61% in 2016.

Because there are additional expenses of operating a business beyond direct costs of goods sold, Return on Sales or operating margin is another important ratio, which is equal to the EBIT over Net sales. It measures the profit that comes from the operational activity for each Euro of sales. In other words, it means that, in 2016, Dimpomar was able to retain 6 cents in operating return, for each Euro obtained from sales. A small ratio like this indicates that the company has the ability to generate profit when revenue decreases.

The Return on Assets (ROA) is another important indicator that shows how profitable the company is, related to total assets. The data shows that from 2014 to 2015 the ROA decreased from 6% to 3%, from when it remained stable, meaning that Dimpomar has become less efficient at using its assets to generate earnings.

It can also be observed, by dividing the total liabilities by the total liabilities and total equity (Debt ratio) that the company is about 16% debt financed. From the fiscal year 2015 to 2016, the debt increased from 1,686€ to 48,594€. 100% of Dimpomar's debt is short term. The value from 2015 corresponds to payments made by credit card, payed in 2016. The amount from 2016 corresponds to: 3.593,95€ of payments made with credit card; and the 45.000€ related to three banking "letras" emitted by a client for the payment of invoices that had in debt, making the commitment of paying them within 3 months, value that Dimpomar got from the bank in the meanwhile. The net debt ratio of the company in the fiscal year 2016 was of -4,268,832 (48,594-4,317,426) which means the company has a high ability of paying its debt when due.

It is also worth mentioning that, regarding its financial structure, Dimpomar has been financing its growth mainly with equity, with a debt-to-equity ratio of approx. 20% in the fiscal year of 2016. The financial strength seems ensured by the company, since it has 80% more Equity than the total Liabilities.

In addition, it is worth highlighting that the working capital of Dimpomar has been positive and very high for the last years (1,528,699€) which also reinsures that the company is in equilibrium in the short term.

The last ratio of the table, Return on Equity (ROE), one of the most important ones since shareholders are concerned about how profitable the firm is per euro of stockholders' equity. It measures how efficiently a firm is able to find profitable investment opportunities. In the last three years, the Return on Equity of Dimpomar decreased from 7% to 4%. This means that for every 100€ of stockholder's equity the firm made 4€, in 2016. It is important to notice that the ROE is in book value terms and it does not reflect what an investor would have to pay for its share of the equity (market value of equity).

3.1. Efficiency Analysis

Table 9 – Efficiency Ratios

Dimpomar	2014	2015	2016
Day's sales in receivables (DSR)	101	110	37
Day's sales in payables (DSP)	42	47	85
Inventory Days	109	107	148

Source: Author

The DSR indicates the speed at which Dimpomar turns its sales into cash, and be obtained by dividing the Receivables by the Annual sales (excluding the VAT since it was not possible to obtain which sales where in Portugal and which were international), times 365 days for 2014 and 2015, and 366 for 2016. In 2016, two apartments were sold (1,175,000€), with a fairly long collection period. Although, this payment is not related to the core activity, and so, that amount has to be subtracted from the 1,776,121€ (receivables). This way, the average length of time each customer takes to pay is 37 days.

The DSP estimates the average of day's credit taken from suppliers. It has been increasing from 42 days in 2014 to 85 days in 2016, which is favourable since these are the days that Dimpomar, on average, takes to pay its suppliers and it reduces the funding requirement for working capital by cushioning the credit extended to customers. It can be calculated by dividing the payables by the annual purchases, and multiplying that value by 365 or 366.

Lastly, the Inventory days gives the effectiveness of inventory management, the lower it is, the faster the cash is collected. In 2016, 148 was the average number of days that capital was tied up in inventory.

3.2. Liquidity Analysis

Table 10 – Liquidity Ratios

Dimpomar	2014	2015	2016
Current Ratio	5.17	6.24	4.95
Quick Ratio	4.30	5.38	4.24

Source: Author

The current ratio gives the short term solvency of the business. If above 1, then the company is solvent in the short term. This ratio decreased from 5.17 in 2014 to 4.95 in 2016, which means that, last year, Dimpomar had 4.95€ in current assets for every 1€ in current liabilities.

The quick ratio tests solvency if the company had to repay all of its current liabilities overnight assuming it would not be able to sell inventory, since they may be less liquid compared to other current assets and it takes longer to convert them to cash if the company would need to repay all of its current liabilities. It is calculated by dividing the quick assets (current assets – inventories) by the current liabilities. The 4.24 in 2016 shows that Dimpomar, in the case of experiencing a cash shortfall in the near future, would still be able to cover its current liabilities with its quick assets. The table above shows that there is not a big difference between the current and quick ratio, suggesting that inventories account for a small proportion of the company's current assets.

3.3. Solvency Analysis

Table 11 – Solvency Ratios

Dimpomar	2014	2015	2016
E/A	85%	87%	84%
Times Interest Earned	203,00	1074,41	387,41

Source: Author

The Equity to Assets ratio indicates that the proportion of Equity has remained stable since 2014 at around 85%. This is a high value which means that the company does not have a high leverage, and thus, a large percentage of its assets are their own.

Times Interest Earned or interest coverage ratio measures, by dividing the EBIT by the interest expenses, the firm's ability to make interest and debt service payments, since it indicates the number of times Dimpomar can pay its interests with its income before tax.

As can be observed in the above table, this ratio is considerably high, which means the company has a great capacity of meeting its debt obligations with its earnings before interests, taxes and depreciations.

3.4. Growth Analysis

Table 12 – Growth Ratios

Dimpomar	3-year compound growth rate
Sales	-12%
EBITDA	-10%
EBIT	-17%
Net Income	-20%
Total Assets	5%
Equity	5%
Liabilities	8%

Source: Author

Analysing EBITDA, in the financial year 2016 the company totalled 651,896€ compared to 651,554€ in 2015, although, a more significant drop was registered from 2014 (1,086,224€) to 2015. This decrease, influenced by the economic crisis, resulted in an EBITDA margin of 10% in the financial year 2016 and a CAGR of -10%.

Despite a CAGR EBIT of 17%, the CAGR of EBITDA is higher than the CAGR of Sales, which means that the operating leverage effect on Dimpomar is positive. The company, by making sales in a profitable way, is able to achieve a high gross margin and few fixed and variable costs. Since the compound annual growth rate of the net income is moderately lower than the compound annual growth rate of the EBIT (-20% and -17%, correspondingly), it can be concluded that the only increase of taxes and interest in 2014 had a moderate effect on the results.

The fact that CAGR Assets is considerably higher (5%) than the CAGR Sales (-12%), means that the company's asset turnover ratio has also been decreasing (from 103% in 2013 to 59% in 2016). Dimpomar has become less efficient regarding using its assets to generate sales, which can be due to production or management problems.

CAGR Equity and Liabilities follows the same trend as CAGR Assets with an increase, being the latter the most noticeable one – 8%, over the last 3 years. Generally, the company. This is mainly due to the increase of nearly 300,000€ in the accounts payable, from 2015 to 2016, that can be explained by the increase of inventories of 176,780€ and the improvement of the day's sales in payables, as seen before.

Table 13 - Turnover Historical Growth (in €)

Dimpomar	2013	2014	2015	2016
Sales of goods	3,073,437	3,003,621	2,302,662	1,930,771
Δ%	n.a.	-2%	-23%	-16%
Sales of finished goods	5,425,909	4,980,798	4,297,402	3,712,057
Δ%	n.a.	-8%	-14%	-14%
Delivery of services	259,088	178,753	140,607	242,997
Δ%	n.a.	-31%	-21%	73%
Total Turnover	8,758,434	8,163,172	6,740,671	5,885,824
Δ%	n.a.	-7%	-17%	-13%

Source: Author

Where:

Sales of goods: Sales of blocks; products without any transformation; buy the block and sell the block;

Sales of finished goods: Goods manufactured in the factory: plate, tile, pieces;

Delivery of services: mainly tile polishing services that the factory provides to the clients.

The table above shows that in the fiscal year of 2016, Dimpomar presented a turnover of 5,885,824€, a decrease of 23% compared to the fiscal year 2013 and of 13% comparing to the fiscal year 2015. This reduction is more significant in the account “Sales of goods” which contributed to a reduction of 16%, while the account Sales of finished goods, for a reduction of 14%. Delivery of services registered an increase of approx. 73%.

This reduction in sales can be explained mainly due to the economic conjuncture/financial and economic crisis that Portugal and the rest of the world has been experiencing, especially the industry where the company is inserted - civil construction. With it, the main indicators of the sectors dropped, for instance, the number of companies, the number of employees and the business growth.

This is a sector that has a strong influence in the national economy since it supplies with the necessary goods to build infra-structures, hotels, etc, and, as such, the entry of new companies is appealing. Indeed there is too much offer for the demand, and the companies that practice lower prices may have seen their sales increasing due to this. This is also the reason why, as mentioned in a previous section, Dimpomar should invest more in its internationalization (the volume of sales of Dimpomar is much higher in the external market).

Dimpomar’s Net Income in 2016 was approx. 292,706€, a decrease of 12% comparing to the previous year.

Regarding investments, in the FY2016 Dimpomar bought a stone cutting machine “cnc” with the value of 158,459.25€ that will bring added value to the production and its increase. In 2015, the major investment was of 94,500€ of a photovoltaic power plant which shows Dimpomar’s concern in using more renewable energies and reducing its costs. It is also notable that in 2013, the main investments concerned replacement of old

equipments and a stone cutting machine “cnc” for 134,325.45€ in order to increase the production capacity and its value.

To conclude this section, should be highlighted that Dimpomar’s permanent capital is more than enough to cover the value of the fixed assets and the company has enough cash to keep supporting the business and to operate in the long term.

4. Company Valuation

4.1. Methodology

In order to assess the value of Dimpomar two valuation methods were used: *Free Cash Flow to the Firm* (FCFF) and *Multiples Valuation*. As explained in the literature review, FCFF is a Discounted Cash Flow (DCF) method, whereas the Multiple Valuation refers to relative valuation, which will complement the values obtained through the FCFF. It is also worth mentioning that this valuation is made based on the assumption that the company has the resources needed to continue its operations indefinitely and in a continuous way.

4.2. Discounted Cash Flow Method

Despite the fact that, as previously stated, the DCF being the most frequently used method by investors, accurate forecasts and assumptions that will influence the preciseness of this methodology were taken into consideration.

Regarding the time horizon for the projections, an explicit period of 5 years was set, since after this period would be unreasonable to speculate. It was also assumed that after 2021, Dimpomar would reach maturity, operating in a more stable way, with an assumed growth rate to perpetuity (g_n) of 3%. The determination of all cash flows was made in Euros.

4.3. Assumptions/Key Projections

With the purpose of assessing the company’s value, a set of assumptions on the projections of the financials present in the calculation of the FCFF and the discount rate were defined.

Given the fact that Dimpomar lacks updated projections on their business plan and the changing environment in the natural stone extraction industry in the last few years (large increase in competition), it was considered more appropriated to carry out the 5-year projection based on the 3 last years of records.

4.3.1. Revenues

Firstly, in order to obtain a suitable forecast, the company's website was searched and even through direct contact with the CFO regarding the company's revenue goals, in order to be able to compare them to the past year's average of the revenue's growth. However, this information was not available.

As can be seen in Appendix 1, Dimpomar's revenue has been decreasing for the past 3 years, and the growth, despite having presented a significant increase from 2014 to 2015 (from -4.32% to -16%) showed a decrease from 2015 to 2016 (from -16% to -10.38%, correspondingly). In 2014 the Company achieved its peak in sales mainly due to the fact that it was purchasing product (blocks of stone) from other companies and then selling it to the Chinese market obtaining great margins. It has been decreasing because of the increase of competitors in the Portuguese market and since the Chinese market has become saturated, presenting much lower growth rates. Additionally, this purchase/sell to the Chinese market stabilized from 2016/2017 due to the fact that the Chinese started to have a better understanding of the Portuguese limestone market, coming themselves to the country in order to make the purchases (instead of having an intermediary like Dimpomar). Given this, and assuming the continuing improvement in qualification of workers, the investments made to improve the equipment and the capability of making personalized products, we can assume a growth rate of 2% for the upcoming years and perpetuity, in the stone transformation sector (since it was also the previous tendency).

These projections were also made considering the Company will continue with its aggressive internationalization/exports strategy.

4.3.2. Operational Costs

The operational costs are the ones that the company has in order to perform its day to day activities (such as, for instance, personnel expenses, external services and supplies rendered, provisions and impairment losses, cost of sales, and so on so forth).

A company's cost distribution depends on whether it offers services or products, if it needs a lot of assets (> depreciation), etc. Dimpomar's main operational costs are the cost of goods sold. As it can be observed in Appendix 2, the operational costs in the past 3 years were stable and considerable, representing on average 89% of revenue, which is considered a fair operational percentage for a mature company, since it can obtain decent profit margins as expected from an economy of scale.

Given this and due to lack of additional information, the operational costs were projected based on its average percentage of Dimpomar's revenues in the past years (89%).

4.3.3. Capital Expenditure and Depreciations

Capital Expenditure or CAPEX are the funds that a company use to acquire, upgrade or maintain physical assets. It is often used to initiate new projects or investments. On the contrary to operating expenses, capital expenditures cannot be fully tax-deducted in the same year in which the expenses occur.

Regarding depreciation and amortization, these are the expenses with tangible and intangible assets during their useful life, respectively. Since these values are not disaggregated in Dimpomar's Income Statement, they were analysed as a whole. The values of Tangible, Intangible and of Depreciations and Amortizations of the past 3 years come as follows (€):

Table 14 – Dimpomar's Depreciations and Amortizations

	2014	2015	2016
Tangible Assets	1,753,863	1,713,037	1,653,396
Intangible Assets	2,532	686	17,527
Depreciations and Amortizations	287,032	289,619	296,490

Source: Author

The following assumptions were made in order to estimate both the value of the Depreciations and Capex (see Appendix 3):

- Regarding the value of the tangible/intangible assets, these were projected considering the average percentage of tangible assets that result from the company's revenue from the last 3 years. The obtained ratios were 23.26% and 0.10% correspondingly;
- Concerning the Depreciation and Amortization, the last three years average of depreciation and amortization in relation to the tangible and intangible assets of the period were applied;
- The CAPEX was forecasted using the following formula:

$$CAPEX = (Tangible\ Assets_t - Tangible\ Assets_{t-1}) + Depreciations_t$$

4.3.4. Non-cash Working Capital

According to Damodaran (2006) the working capital is equal to the difference between Current Assets and Current Liabilities. Although, for valuation purposes, the non-cash working capital should be used, excluding cash and other financial instrument with high liquidity and short maturities from the current assets. As for the current liabilities, the value of short term debt should be excluded.

The value of the non-cash working capital was obtained as a percentage of revenue. The forecasts was made according to the average of that percentage for the past 3 years (see Appendix 4).

4.3.5. WACC

The weighted average cost of capital (WACC), or cost of capital, is going to be our used discount rate and it combines both the cost of debt and the cost of equity.

4.3.5.1. Cost of Debt

Given the fact that Dimpomar is purely self-financed, meaning that it generates its growth capital from its own income instead of acquiring from external sources, the cost of debt was considered to be 0. Additionally it was considered that this will not change in the

mid/long term. The main advantage of this financing method is that there is no obligation to repay the money acquired. Given this, the WACC will be equal to the cost of equity.

Although, as a note, it is important to add that the company has in its balance sheet, under the account “short term loans” an amount of 45.000€. This is related to a receivable from a client that, since they did not have the money at the time, delivered a “Letra bancária” to Dimpomar. The Company wanted to receive that money, so they went to the bank and received it. The client then paid the bank the same amount in the beginning of 2018. Since this is not considered a borrowing of funds to provide funding to investment projects, where spreads and interests are charged, it was not taken into consideration for the cost of debt.

4.3.5.2. Cost of Equity

As mentioned in the literature review, the cost of equity (R_e) will be calculated using the Capital Asset Pricing Model (CAPM), which takes into consideration the risk free rate, the risk premium and the Beta.

- Risk free rate

As the name implies, risk free rate is associated with an asset, whose default risk and reinvestment risk is non-existent. As stated in the literature review, the only assets meeting these requirements are government bonds. According to Damodaran (2008), investors should use a 10-year risk-free rate when valuing business with an indefinite horizon. In fact, not only the difference between a 5 year, a 10 year and a 30 year bond rates is very small, but it is also much easier to estimate default spreads and market risk premiums with the 10-year government bond than with the others. It is then claimed that the former should be considered as the risk free rate in mature markets, rather than the latter.

It is considered by the financial markets that, on a European level, the German Government bonds are the closest ones to be considered without risk (rated AAA by Moody's, Standard & Poor's and Fitch). A risk-free rate of 0,28% was then considered

in accordance to the yield on German 10-year bonds on the 6th July 2018, since it is the closest to a risk free asset.

- Market Risk Premium

The market risk premium was obtained through the Country Default Spreads and Risk Premiums table updated by Damodaram in January 2018. In table XV it is possible to observe the countries where Dimpomar's international presence is more noticeable (exports) and Portugal. The table summarizes the updated bond ratings per country, the default spread, the country risk premiums, and the total equity/market risk premium. Since the company is fully Portuguese with all the manufacturing plants located in the same country, Portugal's total market risk premium defined by Damodaram will be the one considered as the risk premium (7,96%).

Table 15 – Damodaran's country default spread and risk premium

Country	Moody's rating	Rating-based Default Sprea	Total Equity	Country Risk Premium
China	A1	0.72%	5.89%	0.81%
United States	Aaa	0.00%	5.08%	0.00%
United Kingdom	Aa2	0.51%	5.65%	0.57%
Hong Kong	Aa2	0.51%	5.65%	0.57%
Canada	Aaa	0%	5.08%	0%
Morocco	Ba1	2.56%	7.96%	2.88%
Saudi Arabia	A1	0.72%	5.89%	0.81%
Taiwan	Aa3	0.62%	5.78%	0.7%
United Arab Emirates	Aa2	0.51%	5.65%	0.57%
France	Aa2	0.51%	5.65%	0.57%
Poland	A2	0.87%	6.06%	0.98%
Spain	Baa2	1.95%	7.27%	2.19%
Portugal	Ba1	2.56%	7.96%	2.88%

Source: Damodaran's website - <http://pages.stern.nyu.edu/~adamodar/>, visited on june

2018

- Beta and peer group

As mentioned in the literature review given the fact that Dimpomar is not a publicly traded company, the bottom-betas approach will be used since it does not require past prices of the firm.

In order to estimate the Beta of Dimpomar, in a first stage the different types of businesses in which the company operates in must be categorized. Given the fact that the only

industry/business in which Dimpomar operates is the one of extraction and transformation of natural stone, the unlevered Beta (B_u) of the business will be equal to the unlevered beta of the firm.

Secondly, the Beta of the peer group/comparable firms – a group of 8 publicly traded companies that operate in the same sector, also in a mature stage and the closest to Dimpomar’s financial condition – was obtained. This is important, not only to get to the Beta, but also in order to perform the multiples valuation. The values of the peer group and the calculation of the Beta can be found in Table XI. According to Damodaran (2012), when considering 8 firms for the peer group a substantial amount of estimation error is still being saved.

Yahoo Finance provided the values of Beta and the Balance Sheet, which allowed the calculation of the values of the Debt/equity ratio. The tax rate was obtained through the KPMG’s Corporate tax rate table (per country), which was needed for the calculation of the unlevered beta of the business/firm.

The unlevered and levered beta of the firm were then calculated using the formulas previously presented.

Table 16 – Estimation of Dimpomar’s Beta

Company	Country	Tax Rate	Stock Market	Beta	Debt/equity	Debt/equity	β_u Business	β_u Firm	β_L
United States Lime & Minerals	United States	40%	NASDAQ	0.88	0.1130				
Pokarna Limited	India	35%	BSE	1.34	1.6703				
Granite Constructions	United States	40%	NASDAQ	1.36	0.9302				
Solid Stone Company	India	35%	BSE	0.42	1.3511				
Aro Granite Industries	India	35%	BSE	1.25	0.7801				
Elegant Marbles and Grani	India	35%	BSE	0.89	0.1349				
Orient Bell	India	35%	NSE	1.62	0.9431				
Cemex	United States	40%	NASDAQ	1.32	1.9893				
Dimpomar	Portugal	21%	Euronext	1.135	0.9890	0.1972	0.6372	0.6372	0.7364

Source: Author

Where:

a – Information taken from yahoo finance

b – Average of the Peer Betas, used in the Beta Unlevered formula

c – Information taken from KPMG’s coporate tax table

d – Calculated using the information taken from Yahoo Finance (Balance Sheet)

e – Average of the Peer Debt/Equity, used in the Beta Unlevered formula

f – Actual Dimpomar's Debt/equity, used in the Beta Levered formula.

- WACC

After all the assumptions were applied and all the necessary components of the WACC were calculated, the value of the WACC was assessed, which resulted in 5% (see table XVII).

Table 17 – WACC Inputs

WACC	
Debt (2016)	1,648,831
Equity (2016)	8,360,790
Corporate Tax	0.21
Cost of Debt	0
Cost of Equity	0.06
Rf	0.0028
Bi	0.7364
Rm-Rf	0.0796
WACC	5%

Source: Author

4.3.6. FCFF

Taking into consideration all the assumptions, the FCFF was estimated and can be found in Appendix 5.

As we can see, the company had already reached its maturity, presenting a stable growth.

The value of the firm can now be obtained by subtracting the present value (PV) for the explicit forecast period (5 years forecast), and the present value of terminal value, representing the value to perpetuity, with a stable growth rate.

Table 18 – Dimpomar’s Enterprise Value

	2017 F.	2018 F.	2019 F.	2020 F.	2021 F.	Perp.
FCFF	298,668	270,132	348,157	264,495	306,225	318,999
WACC	5%	5%	5%	5%	5%	
Discounted FCFF	284,446	245,018	300,751	217,601	239,935	

PV Explicit Period	1,287,750
PV Perpetuity	12,497,203
Total PV of CFs	13,784,953

Source: Author

4.4. Valuation Result

After the calculation of Dimpomar’s Enterprise Value (13,784,953€), the Firm Value of the company was estimated, by adding the value of non-operating assets, that is, the financial investments and Cash and Equivalents.

Subsequently the company’s Equity Value was obtained by removing the financial debt.

According to the Annex 17 of Dimpomar’s Financial Statements the company is composed of 99.760 shares with a face value of 1€. The intrinsic value of each share of Dimpomar is then 177,04€ (See Table XIX). It is possible to observe the value that each shareholder has, on Appendix 6.

Table 19 – Dimpomar’s value

Enterprise Value	13.784.962
(+) Cash and Equivalents	4.317.426
(+) Financial Investments	722.847
Firm Value	18.825.235
(-) Debt	1.163.370
Equity Value	17.661.865
Shares outstanding	99.760
Price Target	177,04

Source: Author

Due to the fact that the valuation obtained depends greatly on the assumptions made (which may or may not be actually verified in the future), it is necessary to perform a sensitivity analysis in order to notice, after a variation in certain variables previously used, how the price per share responds.

4.5. Sensitivity Analysis and Relative Valuation

As stated, given the fact that the assumptions made cannot be 100% accurate, a sensitivity analysis will be presented, in which we consider changes to the values of the operational costs for perpetuity, given also different values of the growth rate for perpetuity, in a ceteris paribus basis. These were chosen based on the impact they have on the final value of the company and since they are the most likely to change. Additionally, these are the variables that the company is more capable of controlling.

Table 20 – Sensitivity Analysis

Op. Costs (% of Revenue)							
g (growth rate)	87.5%	88%	88.5%	89.41%	89.50%	90%	90.50%
1.50%	152.45	144.82	137.20	123.36	121.95	114.33	106.70
2%	168.48	159.78	151.08	135.29	133.68	124.98	116.28
2.50%	190.93	180.72	170.52	151.99	150.11	139.90	129.70
3%	224.6	212.14	199.67	177.04	174.75	162.28	149.82
3.50%	280.72	264.49	248.26	218.80	215.81	199.59	183.36
4%	392.95	369.20	345.44	302.32	297.94	274.19	250.44
4.50%	729.65	683.32	636.99	552.86	544.33	498	451.67

Source: Author

It is possible to see in table XX, that Dimpomar, given different growth rates and operational costs for perpetuity, in the worst-case scenario (1.5% variation of the perpetual growth and operational costs), despite generating a decrease of roughly 40% on the stock price of the Company, would still have a high stock price of 106.70€.

The sensitivity analysis corroborates the results obtained from the Dimpomar's valuation.

In order to complement the results obtained through the DFC model, the multiple valuation was then performed, which allows, according to the average multiple of the peers, to define a new valuation. Despite the difference in size, the same peer group was used as the one in the DFC model, since it still allows having a good perception of Dimpomar's value.

The values, extracted from Yahoo Finance, can be found in Appendix 7.

As expected, the multiples of the peer group represent a disperse area of variation. Given this fact, 8 companies were used for the peer group instead of 6 or 4, since this number would provide us with a less representative average of the industry.

It can be observed that Dimpomar's multiples are higher than the industry's average, meaning it has a very good performance regarding its competitors.

Furthermore, a new valuation of the company can be obtained, by applying the average multiple obtained from the peers, to the values of Dimpomar. This will allow a comparison between the values acquired through the DCF model and the ones from the multiples (Appendix 8). After performing the relative valuation using the average multiples of the companies who operate in the same sector, Dimpomar is valued between 9,370,497€ and 10,922,515€ (132.79€/Share and 148.35€/Share correspondingly).

Finally, a breakeven analysis was performed, which gives the point where Dimpomar produces the same amount of revenues and expenses, during the year 2016. As it can be seen in table XXI, it corresponds to 5.611.919€. Since Dimpomar's revenue greatly surpassed that amount in 2016 (meaning that revenue was more than enough to cover all the costs), the breakeven point can serve as an indicator for investors, regarding how profitable the company already is.

Table 21 – Breakeven point

Dimpomar	2016
Revenue (1)	6.462.412
Variable costs (2)	3.768.851
Fixed costs (3)	2.339.072
Contribution margin (4) = (1) - (2)	2.693.561
<u>Breakeven point % (5) = (4)/(1)</u>	0,42
<u>Breakeven point value (6) = (3)/(5)</u>	5.611.919

Source: Author

Conclusion

This dissertation attempts to find the proper value of Dimpomar, Rochas Portuguesas Lda., a non-listed company with an already consolidated presence in the market. It should be considered that a company's valuation is very subjective, due to its dependency of a numerous set of assumptions. Perspectives on which is the best methodology and assumptions to use may vary from person to person. Also, the fact that the vast majority of scientific articles and books refer to valuation of publicly traded companies and not privately held ones, made the completion of this case study even more challenging. Notwithstanding, to mitigate these constraints, the best suitable methodologies and practices of business valuation were used in this Dissertation, incorporating a strong theoretical knowledge to different market perspectives and the current company situation. In addition, most forecasts were discussed with the CFO of the company, who is in the possession of privileged information.

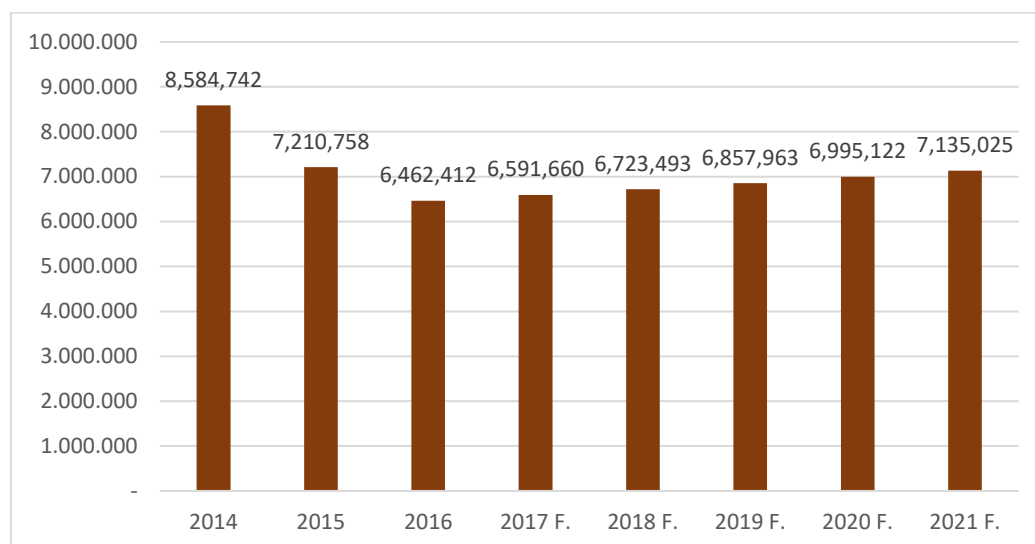
Dimpomar is a reference of a mature company in the extraction and transformation of natural stone industry, whose strategy is to increase sales through penetration in external markets and improve its offering of customized products. It is expected to continue growing in a sustainable and continuous way in the upcoming years, despite some threats such as for instance, the increase of competitiveness and the decline of sales to the Chinese market.

In order to value the company, the DFC methodology was used, complemented with a multiple valuation which allowed to compare Dimpomar to the peer group and to assess a different company value based on the average of the peer. Both of these had a similar result, ranging from 9,370,497€ to 13,784,962 of Enterprise Value. The intrinsic value obtained for Dimpomar was 177.04€. Additionally, a sensitivity analysis was performed from which could be observed that the market multiples of Dimpomar are higher than the average of peers, corroborating the fact that, despite the possibility of growth still being present, Dimpomar has a very good performance and presents itself as an appealing investment opportunity for the investors.

In conclusion, this dissertation can be beneficial to study and analyze a potential IPO of Dimpomar Lda., which could result in obtaining an extensive source of funds.

Appendixes

Appendix 1 – Dimpomar’s revenue forecast



	2014	2015	2016	2017 F.	2018 F.	2019 F.	2020 F.	2021 F.	Perpetuity
Revenue	8,584,742	7,210,758	6,462,412	6,591,660	6,723,493	6,857,963	6,995,122	7,135,025	7,277,725
Growth	n.a	-16.00%	-10.38%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

Appendix 2 – Dimpomar’s Operational Costs forecast

	2014	2015	2016	2017 F.	2018 F.	2019 F.	2020 F.	2021 F.	Perp.
Revenue	8,584,742	7,210,758	6,462,412	6,591,660	6,723,493	6,857,963	6,995,122	7,135,025	7,277,725
Operational Costs	7,498,518	6,559,204	5,810,516	5,893,464	6,011,334	6,131,560	6,254,191	6,379,275	6,506,861
Operational Costs in % of Revenue	87%	91%	90%	89%	89%	89%	89%	89%	89%

Appendix 3 – Dimpomar’s CAPEX forecast

	2013	2014	2015	2016	2017 F.	2018 F.	2019 F.	2020 F.	2021 F.	Perp.
Revenues	89,72,340	8,584,742	7,210,758	6,462,412	6,591,660	6,723,493	6,857,963	6,995,122	7,135,025	7,277,725
Intangible Assets	3,886	2,532	686,000	17,527	6,817	6,953	7,092	7,234	7,379	7,526
% revenue		0.03%	0.01%	0.27%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
Tangible Assets	1,865,502	1,753,863	1,713,037	1,653,396	1,533,033	1,563,694	1,594,968	1,626,867	1,659,405	1,692,593
% revenue		20.43%	23.76%	25.58%	23.26%	23.26%	23.26%	23.26%	23.26%	23.26%
Depreciation and Amortization	274,820	287,032	289,619	296,490	261,703	266,937	272,276	277,722	283,276	288,942
% of intangible and tangible assets		16.34%	16.90%	17.74%	17.00%	17.00%	17.00%	17.00%	17.00%	17.00%
CAPEX		175,392	248,793	236,849	141,340	297,598	303,550	309,621	315,813	322,130

Appendix 4 – Non-cash Working Capital forecast

	2014	2015	2016	2017 F.	2018 F.	2019 F.	2020 F.	2021 F.	Perp.
Non-cash Working Capital	2,249,130	2,135,819	1,605,975	1,772,499	1,823,432	1,802,761	1,872,302	1,906,794	1,935,325
% Revenues	26.20%	29.62%	24.85%	26.89%	27.12%	26.29%	26.77%	26.72%	26.59%

Appendix 5 – Dimpomar's FCFE estimation

	2017 F.	2018 F.	2019 F.	2020 F.	2021 F.	Perp.
(+) Revenues	6,591,660	6,723,493	6,857,963	6,995,122	7,135,025	7,277,725
(-) Operational costs	5,893,464	6,011,334	6,131,560	6,254,191	6,379,275	6,506,861
% of revenue	89%	89%	89%	89%	89%	89%
(-) Depreciation & amortization	261,703	266,937	272,276	277,722	283,276	288,942
EBIT	436,492	445,222	454,127	463,209	472,473	481,923
t	21%	21%	21%	21%	21%	21%
EBIT * (1-T)	344,829	351,726	358,760	365,935	373,254	380,719
(-) CAPEX	141,340	297,598	303,550	309,621	315,813	322,130
(+) Depreciation & Amortization	261,703	266,937	272,276	277,722	283,276	288,942
(-) Change in non cash WC	166,524	50,933	-20,671	69,541	34,492	28,531
FCFE	298,668	270,132	348,157	264,495	306,225	318,999

Appendix 6 – Shareholder's value

31.12.2016	Number of Shares	Total Value
Luís Carlos Bernardo de Sousa	74,321	13,158,034
Luís Mascarenhas Cabral Bernardo de Sousa	8,480	1,501,251
Maria Mascarenhas Cabral Bernardo de Sousa	8,480	1,501,251
Margarida Mascarenhas Cabral Bernardo de Sousa	8,480	1,501,251

Appendix 7– Multiple Valuation

Company	1) Market Cap. (Millions €)	2) Enterprise Value (Millions €)	3) Enterprise Value/Revenue	4) Enterprise value/EBITDA
United States Lime & Minerals	387	325	2.64	9.65
Pokarna Limited	61	87	2.04	6.87
Granite Constructions	2,126	1,708	0.65	10.5
Solid Stone Company	6	7	0.74	12.11
Aro Granite Industries	11	24	0.91	14.06
Elegant Marbles and Grani	7	7	2.46	63.53
Orient Bell	43	50	0.62	8.21
Cemex	8,029	17,101	1.54	9.11
Peer Average	1,334	2,414	1.45	16.76
Dimpomar	-	14	2.13	21.15

or 13,784,953 €

- 1) Shares outstanding is taken from the most recently filled quarterly or annual report and market cap is calculated using shares outstanding
- 2) Data derived from multiple sources or calculated by Yahoo Finance
- 3) Data derived from multiple sources or calculated by Yahoo Finance
- 4) EBITDA is calculated by Capital IQ using methodology that may differ from that used by a company in its reporting.

Appendix 8 – Firm value through multiple valuation

Dimpomar	2016	2016
Revenue	6,462,412	EBITDA 651,896
Average (EV/Revenue)	1.45	Average (EV/EBITDA) 16.755
Enterprise Value (EV/Revenue)	9,370,497	Enterprise Value (EV/EBITDA) 10,922,515

Appendix 9 – Balance Sheet

EUR	2013	2014	2015	2016
ASSETS:				
NON-CURRENT ASSETS:				
Tangible Fixed Assets	1,865,502	1,753,863	1,713,037	1,653,396
Investment Properties	181,510	173,228	169,866	95,762
Intangible Assets	3,886	2,532	686	17,527
Financial Participations	2,494	6,976		
Other Financial Investments		98,060	105,541	99,936
Deferred Tax Assets	8,307	30,591	11,222	
Total Non-Current Assets	2,061,699	2,065,250	2,000,353	1,866,622
CURRENT ASSETS:				
Inventories	1,577,426	1,165,148	998,122	1,174,902
Accounts Receivables	3,002,302	2,263,064	2,030,904	1,776,121
Advance Payments to Suppliers	3,847	27,107		
State and Other Public Entities	122,837	75,814	227,408	127,388
Other receivables	11,524	22,585	7,838	91,748
Deferrals	28,177	19,842	29,459	32,502
Financial assets for trading		203,808	887,434	622,911
Cash and Equivalents	1,730,886	3,348,439	3,049,935	4,317,426
Total Current Assets	6,477,000	7,125,809	7,231,101	8,142,999
Total Assets	8,538,699	9,191,060	9,231,454	10,009,621
SHAREHOLDERS' EQUITY:				
Subscribed Capital	99,760	99,760	99,760	99,760
Legal Reserves	57,559	57,559	57,559	57,559
Other Reserves	402,051	402,051	552,051	667,401
Retained earnings	6,093,906	6,659,038	7,085,240	7,231,138
Revaluation Surplus	14,615	13,872	12,991	12,226
Net Income	564,389	575,321	260,483	292,706
Total Shareholder's Equity	7,232,279	7,807,601	8,068,084	8,360,790
LIABILITIES:				
NON-CURRENT LIABILITIES:				
Deferred Tax Liabilities	4,743	4,027	3,771	3,550
Total non-current Liabilities	4,743	4,027	3,771	3,550
CURRENT LIABILITIES:				
Accounts Payable	511,385	405,919	422,102	710,244
Advances from clients	348,878	276,484	335,212	492,503
State and Other Public Entities	124,160	261,597	79,684	82,614
Short term Loans	2,409	55,000	1,686	48,594
Other Current Liabilities	313,942	380,432	320,914	311,326
Deferrals	905			
Total Current Liabilities	1,301,677	1,379,432	1,159,599	1,645,281
Total Liabilities	1,306,420	1,383,459	1,163,370	1,648,831

Appendix 10 – Income Statement

EUR	2013	2014	2015	2016
Revenues (somar os 2 de baixo e os outros q são a somar)	8,972,340	8,584,742	7,210,758	6,462,412
Cost of Sales	4,485,409	3,915,058	3,413,638	2,897,664
Gross Profit	4,486,931	4,669,684	3,797,120	3,564,747
Operating Fixed Costs (somar os q tem menos)	3,592,430	3,583,460	3,145,566	2,912,851
EBITDA	894,501	1,086,224	651,554	651,896
Depreciation and Amortization	274,820	287,032	289,619	296,490
EBIT	619,681	799,192	361,935	355,406
Interest Expense	2,008	3,937	337	917
EBT	617,673	795,256	361,598	354,489
Taxation	53,283	219,934	101,115	61,783
Net Income	564,389	575,321	260,483	292,706
Δ%	n.a	2%	-55%	12%

References

Academic Articles and Books

- Bartholdy, J. & Peare, PP. 2002. *Estimation of Expected Return: CAPM vs Fama and French*, Aarhus School of Business;
- Benninga S. Z. and Sarig O. H. 1997. *Corporate Finance – a valuation approach*, McGraw Hill;
- Berk, J., and DeMarzo, P. 2011. *Corporate Finance: The Core*, Pearson Education Limited;
- Damodaran, A. 1994. *Damodaran on Valuation: Security Analysis for Investment and Corporate Finance*. First Edition, John Wiley & Sons, Inc.;
- Damodaran, A. 2002. *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, Second Edition, New York: John Wiley & Sons;
- Natalwala, H. 2011. *Business Valuation Needs & Techniques*, pp.5-12.;
- Damodaran, A. 2006. Valuation Approaches and Metrics: A Survey of the Theory and Evidence, *Stern School of Business*, New York University;
- Damodaran, A. 2008. What is the riskfree rate? A Search for the Basic Building Block, *Stern School of Business*;
- Damodaran, A. 2012. *Investment Valuation*. 3rd ed. Hoboken: John Wiley & Sons;
- Danielson, M. and Heck, J. 2014. The perpetual growth model and the cost of computational efficiency: Rounding errors or wild distortions? *Financial Services Review*: 189-206.;
- Fama, Eugene F., and French, Kenneth R. 1992. The cross-section of expected stock returns, *The Journal of Finance*.
- Fama, Eugene F., and French, Kenneth R. 2004. The capital asset pricing model: Theory and evidence, *Journal of Economic Perspectives*: 25-46.;
- Fernández, P. 2002. “Valuation using multiples. How do analysts reach their conclusions?”, *IESE Business School*, University of Navarra; working paper 450;
- Fernández, P. 2007. Company valuation methods. The most common errors in valuations. *IESE Business School*, University of Navarra;
- Graham, J. R. and Harvey, C. 2001. The theory and practice of corporate finance: Evidence from the field, *Journal of Financial Economics*, 60: 187-243;
- Hamada, R. S. 1972. The effect of the firm’s capital structure on the systematic risk of common stocks. *Journal of Finance* 27: 435-452;
- Kaplan, S., Ruback, R. 1995. “The valuation of cash flow forecasts: An empirical analysis”, *Journal of Finance*, Vol. 50, No. 4;

- Kaplan, S. N., and R. S. Ruback. 1996. "The market pricing of cash flow forecasts: Discounted cash flow vs. The method of comparables." *Journal of Applied Corporate Finance* 8, no. 4: 45–60;
- Koller, T., Goedhart, M. and Wessels, D. 2005. *Valuation: Measuring and Managing the Value of Companies*, Fifth Edition, New Jersey: John Wiley & Sons;
- Luehrman, T.A. 1997. "Using APV: A better tool for valuing operations". *Harvard Business Review*: 3-10;
- Modigliani, F. and Miller, M., (1958) The Cost of Capital, Corporation Finance and the Theory of Investment, *The American Economic Review*, v48, no 3: 261-297;
- Modigliani, F. and Miller, M. H. 1963. Corporate income taxes and the cost of capital: a correction, *The American Economic Review*, Vol. 53, No. 3 (June 1963): 433-443;
- Myers, S. C. 1974. Interactions of corporate financing and investment decisions-implications for capital budgeting, *The Journal of Finance*, v 29, no. 1 (Mar., 1974): 1-25;
- Porter, Michael E. 2008. "The five competitive forces that shape strategy"; *Harvard Business Review*, Reprint R0801 E: 1-18;
- Ross S. 1976. The arbitrage theory of capital asset pricing, *The Warton School*: 341-359;
- Sharpe, W.F. 1964. Capital asset prices: A theory of market equilibrium under conditions of risk, *The Journal of Finance*, v.19, no.3: 425-442.;

References from the Internet

- Yahoo Finance: <https://finance.yahoo.com/>
- Bloomberg (government bonds):
<https://www.bloomberg.com/markets/rates-bonds/government-bonds/germany>
- Damodaran's website (Peer group):
http://people.stern.nyu.edu/adamodar/New_Home_Page/TenQs/TenQsBottomupBetas.htm
- Damodaran's website (market risk premium):
http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html
- KPMG corporate tax rates table:
<https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html>