

**VALUATION OF A PORTUGUESE COMPANY:
NOVABASE, SGPS**

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Resumo

Novabase é a empresa portuguesa líder em Tecnologias de Informação e está presente em mais de 35 países. Esta empresa opera em dois segmentos de negócio – Soluções Empresariais e Capital de Risco – e está cotada na bolsa de valores Euronext Lisboa.

O objetivo desta tese é determinar o valor das ações da Novabase.

A avaliação foi baseada em três modelos de avaliação: *Discounted Cash Flow (DCF)*, através do *Free Cash Flow to the Firm; Economic Value Added (EVA)*; e avaliação relativa (múltiplos e comparáveis).

Para melhor enquadrar esta avaliação foi feita uma análise da empresa e seus principais concorrentes, uma análise do ambiente macroeconómico e uma análise da indústria principal da Novabase.

A avaliação pelo modelo DCF resultou num valor por ação de 1,87 euros, enquanto através do modelo EVA foi obtido um valor por ação de 2,10 euros. A avaliação relativa apresentou um valor mais baixo para as ações da Novabase, resultando num preço das ações médio de 1,83 euros.

A análise de sensibilidade para o DCF e EVA foi feita para avaliar o impacto dos principais pressupostos, como taxa de crescimento perpétuo e taxa de desconto, nos valores das ações obtido.

Por fim, os resultados da avaliação foram comparados com os valores de mercado no final de 2017 e no final de agosto de 2018 (3,05 euros e 2,72 euros, respetivamente); e com as recomendações e valores da avaliação dados pelo BPI e IM Valores SV (2,75 euros e 2,50 euros, respetivamente).

A recomendação final é de **Venda**.

Palavras-chave: Avaliação de empresas, *Discounted Cash Flow*, *Economic Value Added*, múltiplos e comparáveis

Classificação JEL: G30, G32

Abstract

Novabase is the Portuguese leader in the Information Technology industry and it is present in more than 35 countries. This company operates in two business segments – Business Solutions and Venture Capital – and is listed on the Euronext Lisbon stock exchange.

The aim of this thesis is to determine the value of Novabase' shares.

The valuation was based on three valuation models: Discounted Cash Flow (DCF), through the Free Cash Flow to the Firm; Economic Value Added (EVA); and relative valuation (multiples and comparables).

To better frame this valuation was made an analysis of the company and its main competitors, an analysis of the macroeconomic environment and an analysis of the Novabase's main industry.

The valuation using the DCF model resulted in a share value of 1,87 euros, while through the EVA model was obtained a value per share of 2,10 euros. The relative valuation presented a lower value for the Novabase' shares, resulting in an average share price of 1,83 euros.

A sensitivity analysis for the DCF and EVA was made to assess the impact of the main assumptions, such as perpetual growth rate and discount rate used, in the share values obtained.

Lastly, the results of the valuation were compared to the market values at the end of 2017 and at the end of August of 2018 (3,05 euros and 2,72 euros, respectively); and to the valuation recommendations and values given by BPI and IM Valores SV (2,75 euros and 2,50 euros, respectively).

The final recommendation given is **Sell**.

Keywords: Company Valuation, Discounted Cash Flow, Economic Value Added, multiples and comparables

JEL Classification: G30, G32

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Index

Resumo.....	I
Abstract	II
Acknowledgements	III
1. Introduction	1
2. Literature Review	2
2.1. Valuation	2
2.2. Valuation Models	2
2.2.1. Discounted Cash Flow Model	2
2.2.1.1. Free Cash Flow to the Firm.....	3
2.2.1.2. Free Cash Flow to Equity	5
2.2.1.3. Dividend Discounted Model	5
2.2.1.4. Adjusted Present Value Model.....	6
2.2.2. Economic Value Added Model	6
2.2.3. Relative Valuation (Multiples).....	7
2.2.4. Contingent Claim Valuation.....	8
3. Company Overview.....	9
3.1. History.....	9
3.2. Business Segments	9
3.2.1. Business Solutions.....	9
3.2.2. Venture Capital	10
3.3. Geographical Presence	10
3.4. Strategy.....	10
3.5. Financial Performance.....	11
3.6. Stock Performance, Shareholder Structure and Dividend Policy	13
3.6.1. Stock Performance	13
3.6.2. Shareholder Structure	14
3.6.3. Dividend Policy	14
3.7. Competitors	14
3.8. SWOT Analysis.....	17
4. Macroeconomic Environment and Industry Overview	19
4.1. Macroeconomic Environment	19

4.1.1. Europe	19
4.1.2. Africa.....	20
4.2. Industry Overview	21
5. Valuation	24
5.1. Methodology	24
5.2. Assumptions	24
5.2.1. Turnover	24
5.2.2. Operating Costs	25
5.2.3. Depreciation and Amortization	26
5.2.4. Capital Expenditures	27
5.2.5. Working Capital	27
5.2.6. Invested Capital.....	28
5.2.7. Tax Rate	28
5.2.8. Weighted Average Cost of Capital.....	29
5.2.8.1. Capital Structure.....	29
5.2.8.2. Cost of Debt	29
5.2.8.3. Cost of Equity.....	30
5.3. DCF Model – Free Cash Flow to the Firm.....	31
5.3.1. Enterprise Value	31
5.3.2. Equity Value.....	33
5.3.3. Sensitivity Analysis.....	34
5.4. Economic Value Added Model	34
5.4.1. Market Value Added	35
5.4.2. Equity Value.....	36
5.4.3. Sensitivity Analysis.....	36
5.5. Relative Valuation (Multiples).....	37
5.5.1. Peer Group.....	37
5.5.2. Multiples.....	37
5.6. Valuation Results	39
6. Conclusion.....	40
Bibliography.....	41
Appendixes.....	43
Appendix 1. Consolidated Statement of Profit and Loss.....	43

Appendix 2. Consolidated Statement of Financial Position	43
Appendix 3. Consolidated Statement of Cash Flows	45
Appendix 4. Financial Indicators.....	46
Appendix 5. Shareholder Structure.....	46
Appendix 6. Competitors.....	46
Appendix 7. Average Price per Share: December 2017	47
Appendix 8. Debt Beta	47
Appendix 9. Levered Beta	47
Appendix 10. NOPLAT	48
Appendix 11. Non-Business Assets.....	48
Appendix 12. Net Debt.....	48
Appendix 13. Net Income Forecast	48

Index of Figures

Figure 1. Turnover <i>per</i> Business Segment	11
Figure 2. EBITDA <i>per</i> Business Segment	12
Figure 3. Net Profit.....	12
Figure 4. Novabase and PSI-20 Stock Performance	13
Figure 5. Dividends Paid	14
Figure 6. Novabase and Comparable Firms Stock Performance.....	17
Figure 7. Real GDP Growth: Europe	19
Figure 8. Macroeconomic Indicators: Portugal	20
Figure 9. Macroeconomic Indicators: Angola.....	20
Figure 10. Macroeconomic Indicators: Mozambique	21
Figure 11. Worldwide IT Spending: 2013 - 2017	21
Figure 12. Worldwide IT Spending by Segment: 2017.....	22
Figure 13. Worldwide IT Spending Forecast: 2018 - 2019.....	22

Index of Tables

Table 1. SWOT Analysis.....	18
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Table 2. Turnover Forecast.....	25
Table 3. Cost of Sales Forecast	25
Table 4. External Supplies and Services Forecast.....	26
Table 5. Employee Benefit Expense Forecast	26
Table 6. Other Operational Costs Forecast.....	26
Table 7. Depreciation and Amortization Forecast.....	27
Table 8. Capital Expenditures Forecast	27
Table 9. Working Capital Forecast.....	28
Table 10. Invested Capital Forecast	28
Table 11. After-tax Cost of Debt	29
Table 12. Cost of Equity.....	31
Table 13. Weighted Average Cost of Capital.....	31
Table 14. Discounted Cash Flow Model: Free Cash Flow to the Firm.....	32
Table 15. Discounted Cash Flow Model: Terminal Value	32
Table 16. Discounted Cash Flow Model: Enterprise Value	33
Table 17. Discounted Cash Flow Model: Equity Value.....	34
Table 18. Sensitivity Analysis - Discounted Cash Flow Model.....	34
Table 19. Economic Value Added Model: Economic Value Added.....	35
Table 20. Economic Value Added Model: Terminal Value	35
Table 21. Economic Value Added Model: Market Value Added	36
Table 22. Economic Value Added Model: Equity Value	36
Table 23. Sensitivity Analysis - Economic Value Added Model.....	37
Table 24. Relative Valuation: Multiples.....	38
Table 25. Relative Valuation: Enterprise Value	38
Table 26. Relative Valuation: Equity Value.....	39
Table 27. Valuation Summary.....	39

Abbreviations List

APV – Adjusted Present Value

BdP – Banco de Portugal

BS – Business Solutions

CAPEX – Capital Expenditures

CAPM – Capital Assets Pricing Model

D – Debt

DCF – Discounted Cash Flow

DDM – Dividend Discounted Model

DPS – Dividend Per Share

E – Equity

EBIT – Earnings Before Interests and Taxes

EBITDA – Earnings Before Interest, Taxes, Depreciation and Amortization

EMEA – Europe, Middle East and Africa

EV – Enterprise Value

EVA – Economic Value Added

F – Forecast

FCFE – Free Cash Flow to Equity

FCFF – Free Cash Flow to the Firm

g – Growth rate

GDP – Gross Domestic Product

IC – Invested Capital

IMF – International Monetary Fund

IMS – Infrastructures and Managed Solutions

IPQ – Instituto Português da Qualidade

IT – Information Technology

k_d – Cost of Debt

k_e – Cost of Equity

MVA – Market Value Added

NOPLAT – Net Operating Profit Less Adjusted Taxes

PER – Price to Earnings Ratio

PP&E – Property, Plant and Equipment

r_0 - Unlevered cost of Equity

R_f – Risk free rate

ROIC – Return on Invested Capital

R&D – Research and Development

SGPS – Sociedade Gestora de Participações Sociais

SWOT – Strengths, Weaknesses, Opportunities and Threats

T – Tax rate

TV – Terminal Value

VC – Venture Capital

WACC – Weighted Average Cost of Capital

β_L – Beta Levered

1. Introduction

Novabase is the Portuguese company leader in Information Technology and it offers solutions by combining engineering, management, human sciences and design. This company operates in more than 35 countries and is listed on the Euronext Lisbon stock exchange since 2000.

This thesis aims to value Novabase and to determine the true value of its shares, using the most appropriate valuation models.

This thesis includes five sections following the introduction. The subsequent section, Literature Review, contains a description of the main valuation models as well as a revision of the related literature. Section 3 presents a general analysis of the company and its performance in the last years. In section 4 is conducted an overall analysis of the markets with a focus on the company results and on the analysis of the industry in which Novabase operates. In section 5 are applied the main models of valuation and described the respective assumptions. Finally, in section 6 the results of the different methods are compared.

2. Literature Review

2.1. Valuation

The valuation of a company allows us to understand what the company's true value is. When aligned with which are the value drivers it leads to more informed decision making and a better management of the company's resources. Which, consequently, leads to a better performance (Damodaran, 2012; Luehrman, 1997a).

The value reached by the valuation of a company, although it depends on some subjective factors, reflects the market expectations of future performance (Mota *et al.*, 2012; Koller *et al.*, 2010).

According to Damodaran (2012), the disagreement in many fields of valuation led to the development of different approaches to estimate value, with distinct assumptions on what determines value.

2.2. Valuation Models

There is a broad variety of models, from simple to complex, to value companies. Despite the different assumptions, they have common characteristics and, therefore, can be divided into larger common groups (Damodaran, 2012).

According to Damodaran (2015) there are three main valuation approaches: Discounted Cash Flow (DCF) Valuation, Relative Valuation and Contingent Claim Valuation.

In this literature review, a fourth valuation will be added to Damodaran's three approaches: the Economic Value Added (EVA) Model, which is a reformulation of the DCF model (Mota *et al.*, 2012).

2.2.1. Discounted Cash Flow Model

The Discounted Cash Flow Model is one of the more used method to value a company. Its foundations led to the creation of several valuation models (Damodaran, 2012; Koller *et al.*, 2010).

According to this model, the value of a company is equal to the present value of the stream of future cash flows discounted at a rate that reflects the cash flows' risk (Fernandez, 2015).

Damodaran (2012) divides this model in three approaches: firm valuation, through the Free Cash Flow to the Firm (FCFF); equity valuation, using the Free Cash Flow to Equity (FCFE) or the Dividend Discounted Model (DDM); and the Adjusted Present Value (APV) Model.

2.2.1.1. Free Cash Flow to the Firm

The firm valuation approach, first mentioned by Modigliani and Miller (1958), is valued through the free cash flow to the firm, that is, the cash flow available to shareholders and debt holders, therefore prior to debt payments, and after reinvestment needs (Damodaran, 2005). It can be written as follows:

$$\begin{aligned} \text{FCFF} = & \text{NOPLAT} + \text{Depreciation} - \text{Capital Expenditures} & [1] \\ & - \text{Variation in Working Capital} \end{aligned}$$

The enterprise value is, then, given by discounting, at the weighted average cost of capital (WACC), the free cash flow to the firm and the terminal value (TV). The latter represents the value of the period after the valuation horizon that assumes the stability of the firm, considering a perpetuity with a stable growth rate (g), which has to be lower than the growth rate in the economy (Damodaran, 2015; Mota *et al.*, 2012):

$$\text{Enterprise Value} = \sum_{t=1}^{t=n} \frac{\text{FCFF}_t}{(1 + \text{WACC})^t} + \frac{\text{TV}_n}{(1 + \text{WACC})^n} \quad [2]$$

where,

$$\text{TV}_n = \frac{\text{FCFF}_{n+1}}{\text{WACC} - g} \quad [3]$$

Weighted Average Cost of Capital

The weighted average cost of capital is the opportunity cost on similar investments with a similar risk profile.

The WACC should be used as the discount rate to discount cash flows when valuating the enterprise value, since it reflects the cost of raising both debt and equity to finance the company, in proportion to their use (Damodaran, 2005).

This cost is computed using the company's capital structure and estimates of the cost of equity (k_e) and the cost of debt (k_d) after-tax, capturing the value of tax shields associated with debt (Koller *et al.*, 2010; Luehrman, 1997a). It can be written as follows:

$$WACC = \frac{E}{E + D} \times k_e + \frac{D}{E + D} \times k_d \times (1 - T) \quad [4]$$

The cost of equity, that is, the rate of return required by shareholders, can be estimated using: the capital asset pricing model (CAPM), the Fama-French three-factor model or the arbitrage pricing theory model (Koller *et al.*, 2010).

The most common approach is to use the CAPM that explains the relation between return and risk, despite the empirical problems associated with its application (Fama *et al.*, 2004).

Damodaran (2017, 2008) divides the cost of equity in three components: the risk free rate (R_f); the risk premium, achieved by multiplying the equity risk premium by the beta of the stock (β_L); and the country risk premium:

$$k_e = R_f + \beta_L \times [E(R_m) - R_f] + \text{Country Risk Premium} \quad [5]$$

The value of the company to the shareholders is given by adding to the enterprise value the value of non-operating assets, such as cash or marketable securities; and deduct the value of non-equity claims, including debt (Koller *et al.*, 2010; Damodaran, 2005):

$$\text{Equity Value} = \text{EV} + \text{Non - Business Assets} - \text{Non - Equity Claims} \quad [6]$$

According to Damodaran (2005), the main advantages of this model are that the changes in the company's capital structure are easy to implement in the discount rate and the cash flows related to debt may not be explicitly considered in the cash flows computation. But the main problems are that it is based on forecasts and the need for information about debt ratios and interest rates to estimate the discount rate.

2.2.1.2. Free Cash Flow to Equity

The free cash flow to equity approach assumes that the value of a company is given by the present value of the expected free cash flows available to the shareholders, that is, the cash flows after meeting reinvestment needs and debt payments, discounted at the rate of return required by shareholders (Fernandez, 2015; Damodaran, 2005):

$$\begin{aligned} \text{FCFE} = & \text{Net Income} + \text{Depreciation} - \text{Capital Expenditures} \\ & - \text{Variation in Working Capital} + \text{Variation in Debt} \end{aligned} \quad [7]$$

The value of the company can be written as follows:

$$\text{Equity Value} = \sum_{t=1}^{t=n} \frac{\text{FCFE}_t}{(1 + k_e)^t} + \frac{\text{TV}_n}{(1 + k_e)^n} \quad [8]$$

where,

$$\text{TV}_n = \frac{\text{FCFE}_{n+1}}{k_e - g} \quad [9]$$

2.2.1.3. Dividend Discounted Model

According to the dividend discounted model, the value of a company is equal to the present value of dividends, that is, the cash flows that the shareholders expect to obtain in the future, discounted at the cost of equity (Fernandez, 2015; Larrabee *et al.*, 2013). It can be written as follows:

$$\text{Equity Value} = \sum_{t=1}^{t=n} \frac{E(\text{DPS}_t)}{(1 + k_e)^t} + \frac{\text{TV}_n}{(1 + k_e)^n} \quad [10]$$

where,

$$\text{TV}_n = \frac{E(\text{DPS}_{n+1})}{k_e - g} \quad [11]$$

This model is simple and intuitive to apply and requires few assumptions to forecast dividends. But it can be manipulated through holding back cash or paying more dividends than available cash (Damodaran, 2005).

2.2.1.4. Adjusted Present Value Model

In the adjusted present value model, first presented by Stewart Myers, the value of a company can be estimated by adding two values: the value of the company if only financed with equity, that is, if the company has no debt; and the value of the tax shields, that is, the side effects, given by the company being financed with debt (Fernandez, 2015; Damodaran, 2005). It can be written as follows:

$$APV = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1 + r_0)^t} + \sum_{t=1}^{t=n} \frac{Tax\ rate_t \times Interest_t}{(1 + k_d)^t} \quad [12]$$

Luehrman (1997b) describes the APV as an alternative to the WACC, stating that the DCF model using as the discount rate the WACC is obsolete. This model is versatile and reliable and, when compared with the WACC of the DCF model, it relies on less assumptions.

2.2.2. Economic Value Added Model

In recent years, the Economic Value Added¹ model has been gaining popularity even though the concept on which is based – residual income or economic profit - is not new (Brealey *et al.*, 2011).

The EVA evaluates the performance of a company indicating if it is creating or destroying value by measuring the difference between the profitability and the cost of the invested capital (Mota *et al.*, 2012):

$$\begin{aligned} EVA &= NOPLAT - Invested\ Capital \times WACC \\ &= (ROIC - WACC) \times Invested\ Capital \end{aligned} \quad [13]$$

¹ EVA is a registered trademark of Stern Stewart & Company

Associated with EVA is the Market Value Added (MVA). This model measures the value created in the past by the company and the value that is expected to be created (Mota *et al.*, 2012). It can be written as follows:

$$MVA = \sum_{t=1}^n \frac{EVA_t}{(1 + k_e)^t} + \frac{TV_n}{(1 + k_e)^n} \quad [14]$$

where,

$$TV_n = \frac{EVA_{n+1}}{k_e - g} \quad [15]$$

This model, by allowing accountability and perceiving the areas of value creation, aligns the interests of managers and shareholders (Stern *et al.*, 2001). But the main issue is that it requires an adaptation of the company statements, which can be costly (Brealey *et al.*, 2011).

2.2.3. Relative Valuation (Multiples)

The relative valuation, determines the company's implied value through the average of common variables – multiples – of the comparable firms – a peer group – within the same industry and with similar risk and growth potential. This model can perform as a complement to other models, such as the DCF model (Fernández, 2015; Damodaran, 2005).

Damodaran (2015) divides this valuation in four categories: multiples based on earnings, some of which are the price/earnings ratio or the EV/EBITDA ratio; multiples based on book value, including the price/book value or the EV/IC ratio; multiples based on revenues, such as the price/sales ratio or the EV/sales ratio; and multiples specific to a sector.

This valuation is easy to apply and intuitive and can be useful to identify the value drivers of the industry or to compare performances between companies. But the main problem is which firms to select and which multiples should be used in the valuation exercise since it will influence the final valuation outcome (Mota *et al.*, 2012; Koller *et al.*, 2005).

2.2.4. Contingent Claim Valuation

In 1973, Black and Scholes (1973) developed a model for option pricing that relied on the idea that we can value a security based on a portfolio of traded securities – replicating portfolio – with future cash flows that perfectly mimic that security (Koller *et al.*, 2010).

Recently, the notion of “replicating portfolio” has been adopted by corporate valuation to capture a more realistic value of the managerial flexibility (Larrabee *et al.*, 2013). Thus, the value of a company can be written as follows:

$$EV = \text{Present Value of discounted future cash flows} + \text{Value of Flexibility} \quad [16]$$

This valuation allows us to consider and value opportunities, such as abandonment or expansion, that other models do not capture. It can also provide new information about the value drivers of the company as well as reduce the risk (Brealey *et al.*, 2011; Copeland, 1998). However, it requires information difficult to obtain and its applicability depends on other valuation methods. Therefore, it works as a complementary method to traditional approaches, such as the DCF model (Koller *et al.*, 2010).

3. Company Overview

3.1. History

Novabase was founded in 1989 as a software-house and in 1994 it became the first company in the software development market in Portugal to obtain the NP EN ISO 9001 quality certification by IPQ.

Since the second half of the 1990s, Novabase has positioned itself as a system integrator specialized in the development of customized solutions. Over the years, the company has diversified its offer through the construction of a network of specialized companies and through acquisitions such as the provision of Advanced Infrastructures, in 2002, or the solutions for Digital TV, in 2004.

In recent years, Novabase has become the Portuguese leader in Information Technology and has invested around 40 million euros in Research & Development to provide solutions for the energy, financial services, government, telecommunications and transportation industries.

Novabase's vision is to make people's lives and businesses simpler and happier through technology by creating solutions focused on people.

3.2. Business Segments

Novabase currently operates in two business segments: Business Solutions and Venture Capital.

In 2017, the Business Solutions segment represented 96% of the company's turnover (97% in 2016), while the Venture Capital segment represented the remaining 4% (3% in 2016).

3.2.1. Business Solutions

The Business Solutions segment offers solutions that are tailored to the client's business, combining different competencies with business expertise, design and technological know-how.

This segment of Novabase is divided into four industries: financial services, which provides business solutions for banks, insurance companies and capital markets; government; transports; and energy.

3.2.2. Venture Capital

The Venture Capital segment develops a corporate capital activity through Novabase Capital. This venture capital firm was created in 1993 and identifies and supports Portuguese Information and Communications Technology ventures in early development or expanding stages which may have potential value and synergies with Novabase, offering to those ventures technical, logistical and business support.

Novabase Capital currently has 4 venture capital funds: Novabase Capital Venture Capital Fund, Novabase Capital Inovação e Internacionalização Venture Capital Fund, I Start I Venture Capital Fund and Novabase Capital + Inovação Fund.

3.3. Geographical Presence

Novabase has offices in eight countries – Angola, Belgium, Mozambique, Portugal, Spain, Turkey, United Arab Emirates and United Kingdom – and projects in more than twenty two countries, within four different continents.

In 2017, 46% of Novabase's turnover was generated in Portugal (59% in 2016), while 54% of the company's turnover was generated abroad (41% in 2016). Europe accounted for 69% of Novabase's international business (66% in 2016).

3.4. Strategy

In recent years, Novabase has sought to restructure its business to a higher quality and more sustainable business, which led, in 2016, to the sale of its business in the Infrastructures & Managed Services segment. This segment was specialized in engineering solutions and IT management in particular areas that involves infrastructure outsourcing.

Other changes were made in order to transform the company's business through geographic diversification of risk, reducing its presence in more volatile regions; and investment in specialized products and services, through large investments in R&D.

This strategy will continue to be followed in the coming years.

3.5. Financial Performance

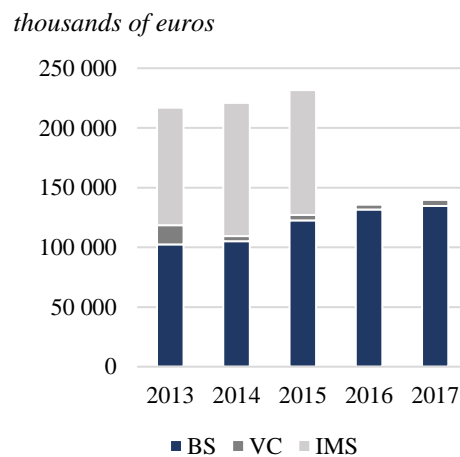
Turnover

Novabase's turnover has been growing in the last years as a consequence of the company's international strategy, reaching 231,6 million euros in 2015.

As exhibited in figure 1, in 2016 this amount changed as a result of the sale of the Infrastructures & Managed Services segment, decreasing to 135,7 million euros, even though the growth trend in the remaining segments continued.

In 2017 there was a growth of 3% in value, reaching a turnover of 139,7 million euros, of which about 96% belong to the Business Solutions area.

Figure 1. Turnover *per* Business Segment



Source: Novabase Annual Report

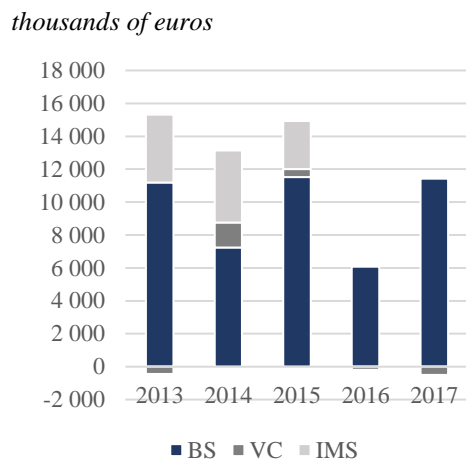
EBITDA

The EBITDA of Novabase remained constant from 2013 to 2015, reaching a value of 14,9 million euros in 2015.

As shown in figure 2, this value decreased substantially (around 60%) in 2016 influenced by the extraordinary cost registered in a project (7 million euros), reaching 5,9 million euros.

In 2017, the EBITDA recovered to 10,9 million euros, despite the negative contribution in the last two years of the Venture Capital segment.

Figure 2. EBITDA *per* Business Segment



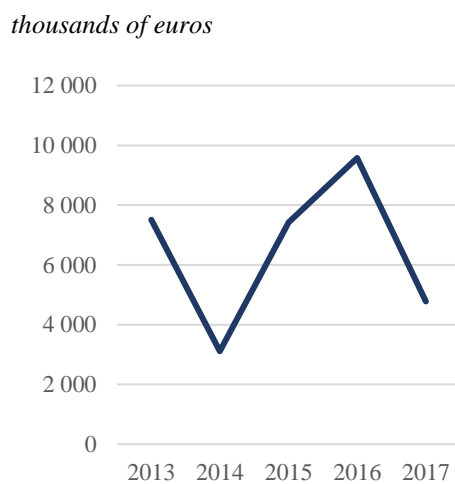
Source: Novabase Annual Report

The EBITDA margin increased to 7,8% in 2017, compared to the 4,4% registered in the previous year, reaching the highest value of profitability in the last five years.

Net Profit

As visible in figure 3, Novabase's net profit increased from 2014 to 2016, reaching 9,577 million euros in 2016. But in 2017 this value fell to its half due to the sale of the IMS segment in 2016.

Figure 3. Net Profit



Source: Novabase Annual Report

The earnings per share decreased to 0,15 euros per share in 2017, compared to the 0,31 euros per share recorded in 2016 (see appendix 4).

3.6. Stock Performance, Shareholder Structure and Dividend Policy

3.6.1. Stock Performance

Novabase has been listed on the Euronext Lisbon stock exchange since July 2000 and, since May 2015, has been part of Tech 40, a Euronext international technology index that distinguishes innovative European listed companies.

In March 2013 Novabase returned to the main Portuguese index – PSI-20 –, from which it had left in July 2007 for not meeting the requirements (the main being the liquidity of the shares), leaving three months later, in July 2013. In March 2017 Novabase returned to PSI-20, leaving the index one year later, in March 2018.

Since 2013, Novabase’s stock has appreciated 31%, compared to a devaluation of 20% in the PSI-20 index.

As exhibited in figure 4, in recent years Novabase has presented a performance similar to that of the Portuguese index, but in the last year it has presented a better performance than that of the PSI-20 (22% gain comparing to a 15% gain in the national index).

Figure 4. Novabase and PSI-20 Stock Performance



Source: Bloomberg

3.6.2. Shareholder Structure

The capital of Novabase is 15 700 697 euros, represented by 31 401 394 shares, each with a nominal value of 0,5 euros.

The main shareholders of Novabase (see appendix 5) are the subscribers of the Novabase shareholders' agreement, which has ensuring a stable environment regarding the management of the company. Those subscribers hold 39,97% of the share capital. The Partbleu SGPS and the IBIM2 Limited hold 10,13% and 5,13% of the shares, respectively.

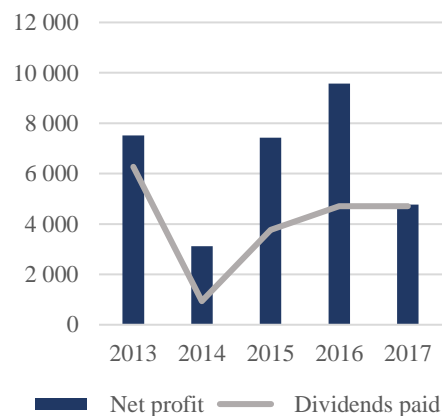
3.6.3. Dividend Policy

Since 2014, Novabase has a dividend policy of distributing a dividend of at least 30% of the group's consolidated net profit of each financial year.

In the last years, the value of the dividends paid has been increasing. In 2018, Novabase paid a dividend of 4,7 million euros (0,15 euros per share), which corresponded to 98% of the consolidated net profit of 2017.

Figure 5. Dividends Paid

thousands of euros



Source: Novabase Annual Report

3.7. Competitors

Novabase can be compared to six European companies that provide IT services, which, despite of having different sizes, they all show a similar business profile: Alten, Altran Technologies, Atos, Capgemini, Indra Sistemas and Tieto (see appendix 6).

Alten

The French company Alten was founded in 1988 and is currently the market leader in R&D outsourcing in France.

It offers engineering and technology consultancy, networks, telecoms, multimedia and information systems services for the Aeronautics & Space, Defense & Security, Automotive, Rail & Naval, Medias & Telecom, Energy, Life Sciences & Healthcare and Finance & IT services industries in about 20 countries.

Alten is listed on the Euronext Paris stock exchange since 1999 and is part of the SBF 120, the IT CAC 50 and MIDCAP 100 indexes.

Altran Technologies

Altran Technologies is a French company founded in 1982 and is currently a global leader in engineering and R&D services. It is listed on the Euronext Paris stock exchange and is part of the SBF 120, the CAC MID 60 and the Stoxx Europe 600 indexes.

Altran Technologies offers consulting, digital, engineering, world class centers, industrialized GlobalShore® and innovative product development services in the Automotive, Aeronautics, Space, Defense & Naval, Rail, Infrastructure & Transportation, Energy, Industrials & Electronics, Life Sciences, Telecom & Media and Finance & Public Sector industries in more than 30 countries.

Atos

The French company Atos was founded in 1997 from the merger of two French IT services companies – Axime and Sligos – and it is currently the market leader in digital services.

This company offers cloud, infrastructure & data management, business & platform and transactional services in the Energy & Utilities, Financial Services, Healthcare, Manufacturing, Retail, Transport & Hospitality, Public Sector, Defense & Education, Sports & Major Events and Telecom & Media industries in more than 70 countries.

Atos is listed on the Euronext Paris stock exchange and is part of the CAC 40 index.

Capgemini

The global leader in consulting, technology and outsourcing services Capgemini was founded in France in 1967.

Capgemini offers services in the transformation & innovation, digital, cloud, technology operations, business solutions and cybersecurity & risk areas in the Aerospace & Defense, Automotive, Consumer Products & Retail, Electronics & High Tech, Government & Public Sector, Healthcare & Life Sciences, Insurance, Media & Entertainment, Natural Resources, Telecoms, Transportation & Distribution and Utilities industries in about 40 countries.

The French company is listed on the Euronext Paris stock exchange and is part of the CAC 40, Euronext 100, Euro STOXX, SBF 120 and Next CAC 70 indexes.

Indra Sistemas

The Spanish company Indra Sistemas was founded in 1993. It is currently the leading consulting and technology company in Spain and Latin America and the second largest European company, in terms of market capitalization, in its sector.

Indra Sistemas offers consulting and technological solutions, IT outsourcing and Business Process Outsourcing for the Transport & Traffic, Energy & Industry, Healthcare, Finance & Insurance, Security & Defense and Telecom & Media industries in more than 140 countries.

This company is listed on the Madrid stock exchange since March 1999. It is also listed on the Dow Jones STOXX Broad Market, Dow Jones Sustainability World and Dow Jones Sustainability Europe indexes and on the STOXX Europe Technology and IT Services indexes.

Tieto

Tieto is a Finnish company founded in 1968 and is currently one of the largest IT service providers in Finland and in the Nordic countries. It is listed on the Helsinki Stock Exchange since 1984, in the Stockholm stock exchange since 1999 and is a part of the NASDAQ OMX index.

This company offers application services, business application platforms, business process services, consulting services, infrastructure services, DevOps, end user services, outsourcing and product development services in the Energy & Utilities, Financial Services, Forest, Healthcare & Welfare, Logistics, Manufacturing, Oil & Gas, Public Sector, Retail & Wholesale and Telecom & Media industries in more than 20 countries.

As seen in figure 6, in the last three years, Novabase underperformed its main peers, maintaining a performance similar to Indra during this period. In the last year, the firm with the best performance was the France-based Alten.

Figure 6. Novabase and Comparable Firms Stock Performance



Source: Bloomberg

3.8. SWOT Analysis

The following table shows Novabase’s competitive position in the market, using the SWOT approach.

Table 1. SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Portuguese market leader in IT ▪ Integrates Tech 40, an Euronext index that distinguishes innovative European listed companies ▪ Employees with specialized know-how 	<ul style="list-style-type: none"> ▪ Need for geographic diversification
Opportunities	Threats
<ul style="list-style-type: none"> ▪ New markets ▪ Emerging needs for IT services 	<ul style="list-style-type: none"> ▪ International competition ▪ Geopolitical barriers to entry ▪ Political risks, particularly in Africa

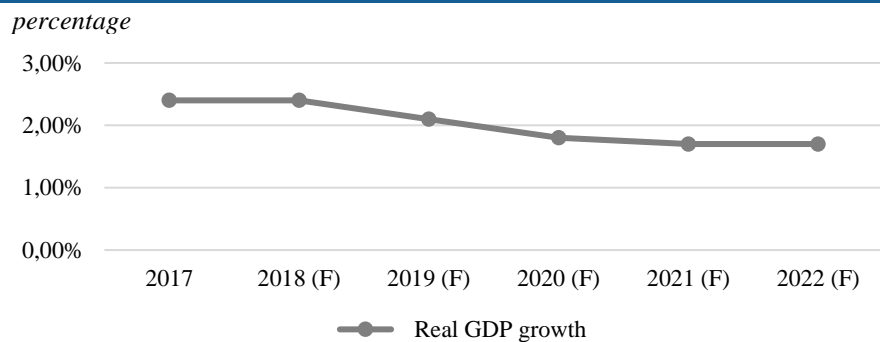
4. Macroeconomic Environment and Industry Overview

4.1. Macroeconomic Environment

4.1.1. Europe

According to the IMF, the European economy grew by 2,40% in 2017, as a reflection of an increase in private consumption and investment, but in the upcoming years this growth will decelerate, with the GDP growth expected to reach 1,40% by 2022.

Figure 7. Real GDP Growth: Europe



Source: IMF World Economic Outlook

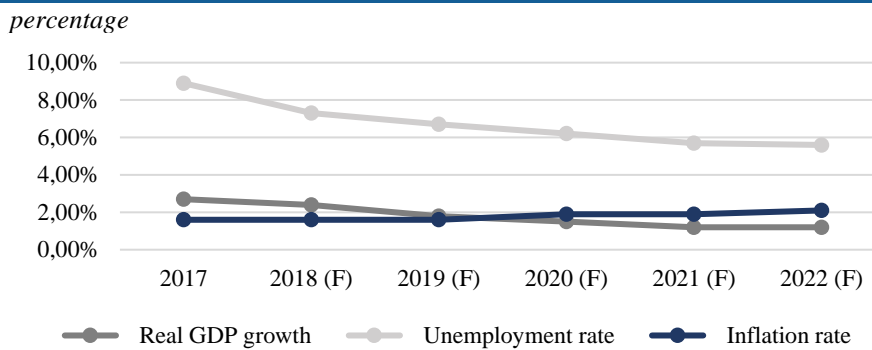
Portugal

The Portuguese economy has been recovering in the last years and is expected to continue to expand at a slower pace in the following years.

According to the BdP (2018), the Portuguese GDP increased 2,70% in 2017 due to an increase in goods and services exports and in private consumption, as well as a favorable economic and financial environment. But in the upcoming years the Portuguese economy is expected to reduce its growth to 1,20% by 2022, in line with the projections for the European economy.

According to the projections of the IMF, the unemployment rate is expected to decrease in the following years to 5,60% by 2022.

The value of the inflation rate should not change in relation to the value of 2017 - 1,60% - in the next two years, increasing to 2,10% by 2022.

Figure 8. Macroeconomic Indicators: Portugal

Source: IMF World Economic Outlook

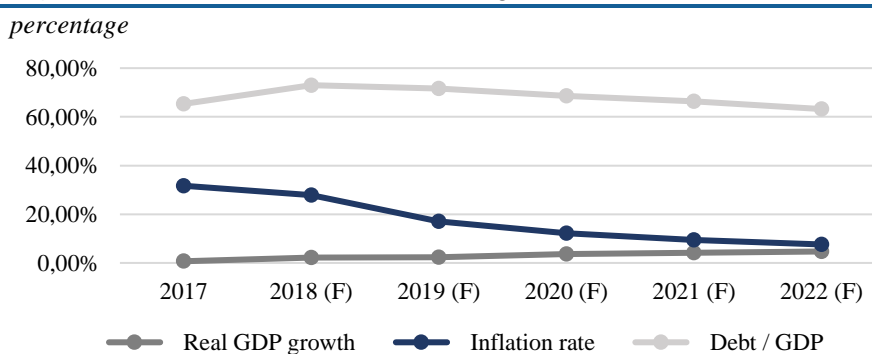
4.1.2. Africa

Angola

The Angolan economy is recovering from the negative economic growth in 2016 and its weak growth in 2017, due to the sharp decline in oil prices and the dependence of its economy on oil revenues. The IMF forecasts an increase of 2,20% in 2018, which is expected to reach 4,70% by 2022.

The inflation rate rose, in 2016, to the highest value of the last years, reaching 32,40%, due to the depreciation of kwanza and the increase in food costs. This value is expected to decrease to 27,90% in 2018 and to reach 7,60% by 2022.

The public debt estimated as 65,30% of GDP in 2017 is expected to increase in 2018 and reach 63,20% of GDP by 2022.

Figure 9. Macroeconomic Indicators: Angola

Source: IMF World Economic Outlook

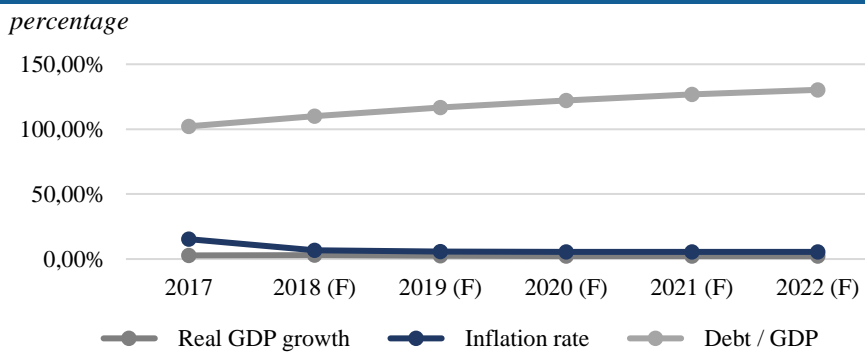
Mozambique

According to the IMF the economy in Mozambique grew 2,90% in 2017, a value far from the average growth of 7,5% between 2000 and 2015. The Mozambican economy is expected to decelerate its growth in the next years, despite the debt crisis, reaching a 2,2% growth by 2022.

The inflation rate of 19,20% in 2016 is expected to continue to decrease in the next years, reaching a stable value of 5,50% by 2020.

The value of public debt has reached 102,20% of GDP in 2017 and this unsustainable value is expected to increase to 130,30% of GDP by 2022.

Figure 10. Macroeconomic Indicators: Mozambique

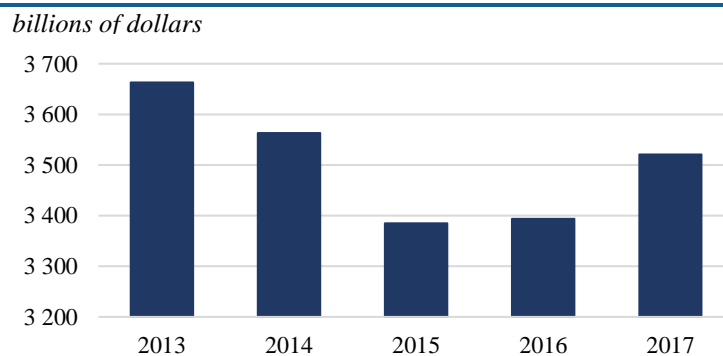


Source: IMF World Economic Outlook

4.2. Industry Overview

The IT industry and the speed at which it changes have transformed the way of doing business. According to Gartner (Stamford, 2018), the worldwide spending on IT has been increasing since 2015, reaching 3,5 trillion dollars in 2017.

Figure 11. Worldwide IT Spending: 2013 - 2017

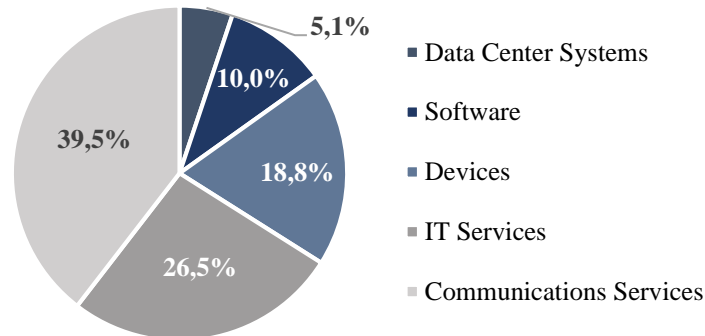


Source: Gartner

As seen in figure 12, the IT industry can be divided into five main segments: Data Center Systems, Software, Devices, IT Services and Communications Services. In 2017, the Communications Services and the IT Services segments had a larger market share of the industry, representing 39,5% and 26,5%, respectively.

Figure 12. Worldwide IT Spending by Segment: 2017

billions of dollars



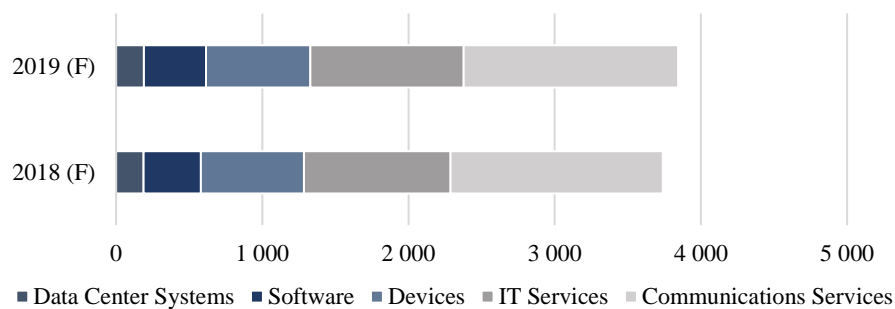
Source: Gartner

Gartner estimates that worldwide IT spending will reach 3,7 trillion dollars by 2018, increasing 6,2%: 3,7% in Data Center Systems, 11,1% in Software, 6,6% in Devices, 7,4% in IT Services and 4,3% in Communications Services. This strong growth is strongly influenced by the declining US dollar.

For 2019, Gartner estimates a lower level of growth, 2,8%. This include 1,1% in Data Centers Systems, 8,4% in Software, 1,3% in Devices, 4,6% in IT services and 1,1% in Communications Services.

Figure 13. Worldwide IT Spending Forecast: 2018 - 2019

billions of dollars



Source: Gartner

For EMEA, the IT spending is expected to exceed 1 trillion dollars in 2018, an increase of 4,9% from 2017, strongly influenced by currency effects and political uncertainty.

The segments that are expected to have a better performance are the Software, Devices and IT services segments, where it is expected a growth of 10,5%, 4% and 6,4%, respectively.

The IT services segment has been increasing and is expected to reach 1 trillion dollars by 2018, reflecting the trend in businesses to reduce spending on IT hardware and increase spending on IT as a service.

5. Valuation

5.1. Methodology

From the models discussed in the Literature Review, the DCF model is the most popular and accurate method to value companies. Within this model, the most common approach is the Free Cash Flow to the Firm due to its flexibility and ease of application (Damodaran, 2005).

The Economic Value Added model, which has gained popularity in recent years, allows not only to evaluate the performance of a company but also to analyze if it creates or destroys value, combining the interests of managers and shareholders (Mota *et al.*, 2012)

The Relative Valuation performs as a complement to the DCF valuation and can be useful in making more accurate forecasts, by comparing the company's performance with the performance of its peers (Koller *et al.*, 2005).

Thus, the valuation of Novabase will be based on the Discounted Cash Flow model, through the Free Cash Flow to the Firm approach, the Economic Value Added model and complemented by the Relative Valuation.

5.2. Assumptions

To determine the fair value of Novabase, some assumptions were taken into consideration for the explicit period of valuation – between 2018 and 2022 – and for the terminal value. These assumptions are explained in detail below.

5.2.1. Turnover

The turnover of Novabase is the result of the amount of sales and services rendered in the current two business areas of the company: Business Solutions and Venture Capital.

In 2016 and 2017, the services rendered represented 99,9% of total turnover, while the sales represented only 0,1%. In the upcoming years, these weights are expected to remain unchanged.

Given the recent restructuring of the company and the sale of the IMS segment, a revenue forecast based on historical values would lead to a misvaluation of the revenues. Thus,

Novabase's turnover forecast is based on a 3% growth forecast for the period from 2019 to 2021, given by Gartner, for the evolution of IT spending, globally and in EMEA.

Table 2. Turnover Forecast

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
Sales	164	169	174	179	184
Services Rendered	143 750	148 062	152 504	157 079	161 792
Turnover	143 914	148 231	152 678	157 258	161 976
<i>% growth</i>	3,0%	3,0%	3,0%	3,0%	3,0%

5.2.2. Operating Costs

After estimating the value of turnover for the period under analysis, becomes easier to determine the value of the operating costs, since these are directly or indirectly related with the turnover.

Cost of Sales

With the decrease of the value of sales in 2016, the cost of sales also declined due to the strong correlation between both values.

Therefore, the cost of sales is forecasted as a percentage of sales using the average historical weight values of the last two years.

Table 3. Cost of Sales Forecast

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
Cost of Sales	36	37	38	40	41
<i>% sales</i>	22,1%	22,1%	22,1%	22,1%	22,1%

External Supplies and Services

The external supplies and services include the values of subcontracts and the values of supplies and services, such as commissions and consultancy fees; transportation, travel and accommodation expenses; or rents.

This value is estimated as a percentage of services rendered, considering the average historical weight values of the last five years, which have been varying between 34,4% and 40,4%.

Table 4. External Supplies and Services Forecast

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
External Supplies and Services	54 592	56 230	57 917	59 654	61 444
<i>% services rendered</i>	38,0%	38,0%	38,0%	38,0%	38,0%

Employee Benefit Expense

The amount of employee benefit expense comprises expenses with board members remuneration, employees' salaries and wages, social security charges and others.

This expense with employee benefits is forecasted as a ratio of the services rendered using the historical weights of the last five years, which varied between 53,3% and 58,9%.

Table 5. Employee Benefit Expense Forecast

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
Employee Benefit Expense	81 800	84 254	86 781	89 385	92 066
<i>% services rendered</i>	56,9%	56,9%	56,9%	56,9%	56,9%

Other Operational Costs

The other operational costs include the values of other gains and losses, such as warranties and legal claims provisions, extraordinary costs and impairments.

The forecasted value, for the explicit period, for the other operational costs is based on the average historical values of the last five years of its weight on the turnover.

Table 6. Other Operational Costs Forecast

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
Other Operational Costs	195	201	207	213	219
<i>% turnover</i>	0,1%	0,1%	0,1%	0,1%	0,1%

5.2.3. Depreciation and Amortization

The values of depreciation and amortization relate to depreciation of property, plant and equipment, such as building, basic equipment and transport equipment; and to amortization of intangible assets, like industrial property and other rights and internally generated intangible assets.

In the last five years, the value of depreciation and amortization fluctuated between 2,3% and 2,8% of the value of turnover. For the explicit period, this value is expected to represent 2,5% of the turnover.

Table 7. Depreciation and Amortization Forecast

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
Depreciation and Amortization	3 661	3 771	3 884	4 000	4 120
<i>% turnover</i>	2,5%	2,5%	2,5%	2,5%	2,5%

5.2.4. Capital Expenditures

The company's investment in fixed assets with the purpose of acquiring and maintaining them – capital expenditures –, includes the net investment in property, plant and equipment and the investment in intangible assets, which include the investment in R&D and the work in progress.

This investment, in the last five years, has been representing between 0,8% and 2,4% of the turnover. It is expected, for the period between 2018 and 2022, to be estimated as the average of its percentage of turnover from the last five years.

Table 8. Capital Expenditures Forecast

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
CAPEX	2 244	2 312	2 381	2 453	2 526
<i>% turnover</i>	1,6%	1,6%	1,6%	1,6%	1,6%

5.2.5. Working Capital

The value of working capital represents the difference between current assets and current liabilities and can be used to measure the company's short-term liquidity.

In the current assets are included the inventory, trade and other receivables, accrued income and other current assets (which refer to prepayments of contracted services). The current liabilities include the trade and other payables and the deferred income and other current liabilities.

The working capital is estimated in accordance with their historical performance as a percentage of the turnover in the last five years.

Table 9. Working Capital Forecast

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
Working Capital	19 279	19 857	20 453	21 067	21 699
<i>% turnover</i>	13,4%	13,4%	13,4%	13,4%	13,4%
Investment in Working Capital	18 308	578	596	614	632

5.2.6. Invested Capital

The invested capital represents the funds invested in a company in its core operations. The invested capital is computed by adding the non-current business assets and the working capital.

In the non-current business assets are included the values of property, plant and equipment and intangible assets employed in the business.

The non-current business assets were estimated based on their historical performance as a percentage of the turnover in the last five years. For the PP&E it represented 4,7% and for the intangible assets this represented 13,4%.

Table 10. Invested Capital Forecast

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
<i>Non-Current Business Assets</i>					
Property, plant and equipment	6 696	6 897	7 104	7 317	7 537
<i>% turnover</i>	4,7%	4,7%	4,7%	4,7%	4,7%
Intangible assets	19 275	19 853	20 449	21 062	21 694
<i>% turnover</i>	13,4%	13,4%	13,4%	13,4%	13,4%
Working Capital	19 279	19 857	20 453	21 067	21 699
Invested Capital	45 251	46 608	48 006	49 447	50 930

5.2.7. Tax Rate

The tax rate considered in the valuation includes the Portuguese corporate tax rate of 21%, since the Portuguese market represents the biggest market of Novabase, added to a municipality surtax of 1,5% and a state surcharge that can reach 9%. Thus, the tax rate used in the valuation is 27,5%.

5.2.8. Weighted Average Cost of Capital

The opportunity cost of investing in one investment over another with the same level of risk is given by the weighted average cost of capital (WACC). This cost considers the company's capital structure and the estimates of the after-tax cost of debt and the cost of equity.

The assumptions made for each variable are described below.

5.2.8.1. Capital Structure

Market Value of Equity

The market value of equity corresponds to the market capitalization of Novabase and was computed using its number of outstanding shares – 31 401 394 shares – and the Novabase's average price per share in December of 2017 (see appendix 7) – 3,03 euros per share. This value was 95 244 thousand euros.

Market Value of Debt

The market value of debt used for the valuation was assumed to be equal to the book value of debt. This value comprises the current and non-current debt totalizing an amount of 23 744 thousand euros.

5.2.8.2. Cost of Debt

The cost of debt was calculated based on the ratio of interest expenses (737 thousand euros) over the book value of debt, producing a cost of debt of 3,10%.

The effect of the tax shields associated with debt resulted in an after-tax cost of debt of 2,25%, as seen in the table below.

Table 11. After-tax Cost of Debt

<i>thousands of euros</i>	Explicit Period
Interest Expenses	737
Book Value of Debt	23 744
Cost of Debt	3,10%
Tax Rate	27,5%
After-tax Cost of Debt	2,25%

5.2.8.3. Cost of Equity

The cost of equity was determined considering four variables: risk-free rate, levered beta, market risk premium and country risk premium.

Risk-free Rate

The risk-free rate used was the yield of the German 10-year government bond, since it is the closest to a risk-free asset in the same currency – euros - as the Novabase main market and it has a long maturity. At 29th December of 2017 this value was 0,427%.

Levered Beta

The company's beta was calculated from the unlevered beta of the computer services industry, which, according to the database of Damodaran, was 0,88.

Considering the market information, as well as Novabase's capital structure, its cost of debt and the tax rate to which it is subject, the company's levered beta was 0,94 (see appendixes 8 and 9).

Market Risk Premium

The market risk premium assumed in the cost of equity correspond to the value provided by Damodaran for a mature equity market, which was 5,08%.

Country Risk Premium

The risk premium associated to Portugal can be measured, according to Damodaran (2003), through the difference between the Portuguese 10-year government bond (1,93%) and the risk-free rate, adjusted for the additional volatility between equity and bond markets (1,12). This premium was 1,69%.

The table below reviews the values used in the computation of the cost of equity, which resulted in a cost of 6,89%.

Table 12. Cost of Equity

	Explicit Period
Risk-free Rate	0,427%
Levered Beta	0,94
Market Risk Premium	5,08%
Country Risk Premium	1,69%
Cost of Equity	6,89%

The values used in the WACC calculation are summarized in the following table. These resulted in a cost of capital of 5,94%.

Table 13. Weighted Average Cost of Capital

	Explicit Period
Market Value Equity	95 244
Market Value Debt	23 744
Tax Rate	27,5%
Cost of Debt	3,10%
Cost of Equity	6,89%
WACC	5,97%

5.3. DCF Model – Free Cash Flow to the Firm

As previously mentioned, the first model used to value Novabase is the DCF model, through the Free Cash Flow to the Firm approach, in which the cash flows are discounted at the weighted average cost of capital.

5.3.1. Enterprise Value

The value of the business, given by the enterprise value, is determined by discounting the future cash flows using the discount rate previously mentioned.

Free Cash Flow to the Firm

The free cash flow to the firm can be measured by adding to the estimated after-tax operating profit (see appendix 10) the depreciation and amortization and deducting the reinvestment

needs, which can be estimated through the capital expenditures and the investment in working capital.

Table 14. Discounted Cash Flow Model: Free Cash Flow to the Firm

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
NOPLAT	2 632	2 711	2 792	2 876	2 962
Depreciation and Amortization	3 661	3 771	3 884	4 000	4 120
Capital Expenditures	-2 244	-2 312	-2 381	-2 453	-2 526
Investment in Working Capital	-18 308	-578	-596	-614	-632
Free Cash Flow to the Firm	-14 260	3 591	3 699	3 810	3 924

Terminal Value

The value of the cash flows following the valuation period is given by the terminal value, which can be determined through a perpetuity for the free cash flows to the firm, assuming that the cash flows of the firm will grow at a constant growth rate.

Accordingly, the growth rate assumed in perpetuity is 2,4%, which corresponds to the European GDP growth rate in 2017 and the growth rate expected in 2018.

The terminal value is calculated by dividing the FCFF in 2023 by the difference between the cost of capital (WACC) and the perpetual growth rate (g). This value amounted to 112 688 thousand euros.

Table 15. Discounted Cash Flow Model: Terminal Value

<i>thousands of euros</i>	
FCFF 2023 (F)	4 019
WACC	5,97%
g	2,4%
Terminal Value	112 688

The enterprise value is then given by adding the present values of the free cash flow to the firm and the terminal value, which, as seen in the table below, amounted to 83 151 thousand euros.

Table 16. Discounted Cash Flow Model: Enterprise Value

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
Free Cash Flow to the Firm	-14 260	3 591	3 699	3 810	3 924
Terminal Value					112 688
Discount Factor	0,9437	0,8906	0,8404	0,7931	0,7485
PV Free Cash Flow to the Firm	-13 457	3 198	3 109	3 022	2 937
PV Terminal Value					84 342
Enterprise Value	83 151				

5.3.2. Equity Value

The equity value of Novabase can be computed considering the enterprise value previously calculated and adding the value of non-business assets and subtracting the values of net debt and minority interests.

Non-Business Assets

The non-business assets include the values of investments in associates, financial assets at fair value through profit or loss, held-to-maturity investments, derivative financial instruments and other non-current assets (which are related with loans to related parties). And, in 2017, these values amounted to 21 450 thousand euros (see appendix 11).

Net Debt

The value of net debt was calculated as the difference between the cash and cash equivalents and the value of long-term and short-term borrowings. In 2017, the net debt totalized 32 392 thousand euros (see appendix 12).

Minority Interests

The minority interests or non-controlling interests in 2017 represented 13 597 thousand euros.

The following table reviews the values used in the computation of the equity value of Novabase and subsequent value per share using the DCF model, through the FCFF approach. This resulted in a value per share of 1,87 euros.

Table 17. Discounted Cash Flow Model: Equity Value*thousands of euros*

Enterprise Value	83 151
Non-Business Assets	21 450
Net Debt	32 392
Minority Interests	13 597
Equity Value	58 612
Value per Share	1,87 €

5.3.3. Sensitivity Analysis

Due to the weight that the forecasts have in the result of the valuation through the DCF model, it is important to perform a sensitivity analysis to understand the impact of the main assumptions in the value per share obtained.

Thus, the assumptions analyzed are the perpetual growth rate (g) and the weighted average cost of capital (WACC), due to the impact in the final value and the uncertainty associated with the two variables. It will be considered a range between 1,4% and 3,4% and between 4,97% and 6,97%, respectively.

Table 18. Sensitivity Analysis – Discounted Cash Flow Model

<i>euros per share</i>		g				
		1,4%	1,9%	2,4%	2,9%	3,4%
WACC	4,97%	1,98	2,45	3,10	4,07	5,67
	5,47%	1,57	1,92	2,38	3,03	3,98
	5,97%	1,26	1,52	1,87	2,32	2,95
	6,47%	1,00	1,22	1,48	1,81	2,26
	6,97%	0,80	0,97	1,17	1,43	1,76

5.4. Economic Value Added Model

The value that measures the value created and the value expected to be created discounts the difference between the profitability and the cost of the invested capital of a company using the cost of equity

5.4.1. Market Value Added

The market value added is determined by discounting the future economic value added using the cost of equity as the discount rate.

Economic Value Added

The economic value added can be measured by deducting from the NOPLAT the cost of the invested capital. This cost can be calculated by multiplying the invested capital by the cost of capital, given by WACC.

Table 19. Economic Value Added Model: Economic Value Added

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
NOPLAT	2 632	2 711	2 792	2 876	2 962
Invested capital	- 45 251	- 46 608	- 48 006	- 49 447	- 50 930
WACC	5,97%	5,97%	5,97%	5,97%	5,97%
Economic Value Added	-68	-70	-72	-74	-76

Terminal Value

Similar to the DCF model, the value of the cash flows succeeding the period of valuation is given by the terminal value.

In this period, it is assumed a constant growth rate of 2,4% for the future cash flows, which corresponds to the European GDP growth rate in 2017 and the expected growth rate in 2018.

The terminal value is computed by dividing the EVA in 2023 by the difference between the cost of equity (k_e) and the perpetual growth rate (g). This value amounted to -1 740 thousand euros.

Table 20. Economic Value Added Model: Terminal Value

<i>thousands of euros</i>	
EVA 2023 (F)	-78
k_e	6,89%
g	2,4%
Terminal Value	-1 740

The market value added is then given by adding the present values of the economic value added and the terminal value, which, as seen in the table below, corresponded to -1 542 thousand euros.

Table 21. Economic Value Added Model: Market Value Added

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
Economic Value Added	-68	-70	-72	-74	-76
Terminal Value					-1 740
Discount Factor	0,9355	0,8752	0,8188	0,7660	0,7166
PV Economic Value Added	-63	-61	-59	-57	-55
PV Terminal Value					-1 247
Market Value Added	-1 542				

5.4.2. Equity Value

The equity value of Novabase can be determined by adding the values of market value added and the book value of equity, previously computed.

This value is equal to 66 027 thousand euros, which corresponds to a value per share of 2,10 euros.

Table 22. Economic Value Added Model: Equity Value

<i>thousands of euros</i>	
Market Value Added	-1 542
Book Value of Equity	67 569
Equity Value	66 027
Value per Share	2,10 €

5.4.3. Sensitivity Analysis

Similarly to the DCF model, a sensitivity analysis was performed in the EVA model to evaluate the impact of changes in some variables in the final value.

The variables considered are the perpetual growth rate (g) and the weighted average cost of capital (WACC), due to the weight of these variables in the final value and the uncertainty associated with the two values. For this analysis, was considered a range between 1,4% and 3,4% and between 4,97% and 6,97%, respectively.

Table 23. Sensitivity Analysis – Economic Value Added Model

<i>euros per share</i>		g				
		1,4%	1,9%	2,4%	2,9%	3,4%
WACC	4,97%	2,39	2,41	2,43	2,46	2,50
	5,47%	2,25	2,26	2,27	2,28	2,29
	5,97%	2,11	2,11	2,10	2,10	2,09
	6,47%	1,97	1,96	1,94	1,92	2,22
	6,97%	1,83	1,81	1,78	1,74	1,68

5.5. Relative Valuation (Multiples)

The relative valuation estimates the value of a company by looking to the average multiples of comparable firms (peer group), within the same industry and with similar risk and growth potential. This valuation model complements the results given by other models, such as the DCF model.

5.5.1. Peer Group

In order to perform the valuation of Novabase through the relative valuation, was selected a group of comparable companies that, despite having different sizes, present similar profiles.

This group includes six European companies that operate in the IT services industry: Alten, Altran Technologies, Atos Origin, Capgemini, Indra Sistemas and Tieto.

5.5.2. Multiples

Once the companies belonging to the peer group were selected, a group of multiples to be used in the valuation of Novabase was also defined. This group of multiples include the forward-looking multiples: EV/ EBITDA and PER.

Table 24. Relative Valuation: Multiples

	EV/EBITDA	PER
Alten	11,7	18,3
Altran Technologies	10,4	13,4
Atos Origin	6,95	17,1
Cap Gemini	10,7	21,9
Indra Sistemas	7,84	15,4
Tieto	9,94	17,8

Source: Thomson Reuters

Once compared the values for the different multiples for each company, Altran Technologies and Atos Origin were identified as outliers, and therefore excluded from the valuation.

Then, was computed a peer group average for each multiple and, using the EBITDA from Novabase, was calculated the enterprise value for the EV/EBITDA multiple.

Table 25. Relative Valuation: Enterprise Value

	EV/EBITDA	PER
Peer Group Average	10,05	18,35
Enterprise Value	73 238	-

Similar to the DCF model, the value of equity can be computed through the values obtained for the enterprise value, by adding the value of non-business assets and subtracting the values of net debt and minority interests.

For the PER, the value of equity was computed considering, for 2018, a value for the net income of the company of 3 601 thousand euros (see appendix 13).

Thus, the values per share were achieved through each multiple, ranging from 1,55 euros per share and 2,10 euros per share. These resulted in an average value per share of 1,83 euros.

Table 26. Relative Valuation: Equity Value

<i>thousands of euros</i>	EV/EBITDA	PER
Enterprise Value	73 238	
Non-Business Assets	21 450	
Net Debt	32 392	
Minorities Interests	13 597	
Equity Value	48 699	66 086
Value per Share	1,55 €	2,10 €
Average Share Price	1,83 €	

5.6. Valuation Results

In this thesis, three valuation models were applied to estimate the price per share of Novabase: DCF, through the FCFF; EVA; and Multiples.

Table 27. Valuation Summary

	Price per Share
Discounted Cash Flow Model - FCFF	1,87 €
Economic Value Added Model	2,10 €
Relative Valuation	1,83 €
Market Value (29 th December 2017)	3,05 €
Market Value (31 st August 2018)	2,72 €
Analysts – BPI	2,75 €
Analysts – IM Valores SV	2,50 €

As seen in table 27, the model that yielded the higher value was the EVA, with a value of 2,10 euros per share, followed by the DCF, with a price per share of 1,87 euros, and the Relative Valuation, with a value of 1,83 euros per share.

Additionally, when compared the results with the market value at the end of 2017 – 3,05 euros per share – and with the market value at the end of August of 2018 – 2,72 euros per share –, the values obtained in the valuation were substantially lower than the market values. Therefore, it is given a recommendation of **Sell**.

The recommendations given by BPI and IM Valores SV are in line with the recommendation given in this thesis – Underperform and Sell –, with the valuations of these entities resulted in a price target of 2,75 euros and 2,50 euros, respectively.

6. Conclusion

The purpose of this paper was to determine the fair value of Novabase' shares, a Portuguese company leader in IT.

The Portuguese company that offers solutions combining engineering, management, human sciences and design, has recently restructured its business to improve the quality and sustainability of its business. And, due to its strong presence in political instable regions, it has sought to diversify risk by reducing its presence in more volatile geographies.

From the different valuation models applied in this thesis the EVA model presented the higher price for the Novabase' shares (2,10 euros per share), followed by the DCF model (1,87 euros per share) and the Relative Valuation (1,83 euros per share).

When compared these results with the market values at the end of 2017 (3,05 euros per share) and in August 2018 (2,72 euros per share), it is given a recommendation of **Sell**.

This recommendation is in line with the recommendations given by BPI and IM Valores SV.

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Appendixes

Appendix 1. Consolidated Statement of Profit and Loss

<i>thousands of euros</i>	2013	2014	2015	2016	2017
Continuing Operations					
Sales	78 282	67 811	63 445	101	159
Services rendered	138 548	153 044	168 147	135 553	139 563
Cost of sales	-67 165	-61 854	-55 525	-25	-31
External supplies and services	-54 441	-59 898	-67 959	-46 563	-51 201
Employee benefit expense	-79 808	-86 305	-89 695	-79 050	-82 155
Restructuring costs	-	-1 522	-	-	-
Other gains/ (losses)	-556	1 861	-3 497	-4 111	4 580
Depreciation and amortization	-5 731	-5 917	-5 348	-3 785	-3 210
Operating Profit	9 129	7 220	9 568	2 120	7 705
Finance income	3 253	1 830	9 140	3 816	6 199
Finance costs	-3 900	-3 505	-8 357	-4 721	-6 776
Share of loss of associates	73	-90	-200	-46	-261
Gain on monetary position	-	-	-	-	955
Profit Before Income Tax	8 555	5 455	10 151	1 169	7 822
Income tax expense	693	-857	-1 745	-3 002	-1 382
Profit from continuing operations	9 248	4 598	8 406	-1 833	6 440
Discontinued Operations					
Profit from discontinued operations	-	211	-	12 881	2 696
Profit for the Year	9 248	4 809	8 406	11 048	9 136
Profit attributable to owners of the parent	7 510	3 112	7 425	9 577	4 774
Profit attributable to non-controlling interests	1 738	1 697	981	1 471	4 362

Source: Novabase Consolidated Financial Statements

Appendix 2. Consolidated Statement of Financial Position

<i>thousands of euros</i>	2013	2014	2015	2016	2017
Assets					
Non-Current Assets					
Property, plant and equipment	6 120	5 570	9 704	8 899	10 019
Intangible assets	32 095	30 663	29 304	18 104	17 162
Investments in associates	961	871	621	575	314
Financial assets at fair value through profit/loss	1 256	1 544	3 165	4 353	2 796
Held-to-maturity investments	-	-	4 554	4 859	7 713
Deferred tax assets	14 901	17 228	16 352	9 545	10 448
Other non-current assets	4 868	7 770	7 478	5 132	3 256
Total Non-Current Assets	60 201	63 646	71 178	51 467	51 708

Appendix 2. Consolidated Statement of Financial Position (continuation)

<i>thousands of euros</i>	2013	2014	2015	2016	2017
Current Assets					
Inventories	8 925	4 943	2 824	486	46
Trade and other receivables	87 975	91 645	94 519	92 712	49 745
Accrued income	12 421	22 047	21 592	15 081	16 356
Income tax receivable	2 236	2 223	2 479	3 394	1 318
Derivative financial instruments	514	88	168	19	18
Other current assets	4 470	5 148	4 743	1 886	1 546
Financial assets held for trading	5 015	-	-	-	-
Held-to-maturity investments	-	-	845	4 441	7 353
Cash and cash equivalents	32 942	20 714	24 293	35 703	56 136
Total Current Assets	154 498	146 808	151 463	153 722	132 518
Assets from discontinued operations	-	-	-	-	-
Total Assets	214 699	210 454	222 641	205 189	184 226
Equity					
Share capital	15 701	15 701	15 701	15 701	15 701
Treasury shares	-295	-29	-6	-4	-188
Share premium	43 560	43 560	43 560	43 560	43 560
Reserves and retained earnings	23 756	18 813	14 792	16 071	3 722
Profit of the year	7 510	3 112	7 425	9 577	4 774
Total Equity (owners of the parent)	90 232	81 157	81 472	84 905	67 569
Non-controlling interests	11 522	11 855	8 194	8 151	13 597
Total Equity	101 754	93 012	89 666	93 056	81 166
Liabilities					
Non-Current Liabilities					
Borrowing	14 031	9 989	19 634	18 897	16 837
Provisions	4 386	9 894	11 497	9 109	10 369
Deferred income tax liabilities	100	-	-	-	-
Other non-current liabilities	70	70	271	-	744
Total Non-Current Liabilities	18 587	19 953	31 402	28 006	27 950
Current Liabilities					
Borrowings	7 353	6 418	5 568	6 916	6 907
Trade and other payables	61 764	59 117	58 200	47 414	41 619
Income tax payable	89	967	24	6	578
Derivative financial instruments	77	1 323	160	82	-
Deferred income and other current liabilities	24 755	29 664	37 621	27 709	25 103
Total Current Liabilities	94 038	97 489	101 573	82 127	74 207
Liabilities from discontinued operations	320	-	-	2 000	903
Total Liabilities	112 945	117 442	132 975	112 133	103 060
Total Equity and Liabilities	214 699	210 454	222 641	205 189	184 226

Source: Novabase Consolidated Financial Statements

Appendix 3. Consolidated Statement of Cash Flows

<i>thousands of euros</i>	2013	2014	2015	2016	2017
Cash Flows from Operating Activities					
Cash receipts from customers	215 143	207 596	223 177	222 443	140 289
Cash paid to suppliers and employees	-204 138	-205 982	-205 211	-194 936	-135 426
Cash generated from operations	11 005	1 614	17 966	27 507	4 863
Income taxes received/ (paid)	-1 469	-586	-1 680	-3 509	2 016
Other operating proceeds/ (payments)	-2 189	-2 396	1 525	-156	643
Net Cash generated from Operating Activities	7 347	-1 368	17 811	23 842	7 522
Cash Flows from Investing Activities					
Receipts					
Proceeds on disposal of subsidiaries and associates	2 283	2 479	1 270	77	45 636
Loan repayments received from associates	498	3 343	139	-	2 154
Transactions with non-controlling interests	251	-	-	-	-
Disposal of financial assets held-to-maturity	-	-	-	1 802	3 903
Proceeds on disposal of financial assets held for trading	15 000	10 034	-	-	-
Proceeds on disposal of property, plant and equipment	46	20	241	113	140
Interest received	820	660	435	945	1 278
Payments					
Acquisition of subsidiaries and associates	-224	-286	-152	-28	-371
Loans granted to associates	-4 009	-2 902	-2 000	-	-
Settlement of derivatives	-	-	-2 364	-	-
Transactions with non-controlling interests	-151	-	-	-	-
Purchases of financial assets held for trading	-10 015	-5 019	-5 958	-4 869	-11 139
Purchases of property, plant and equipment	-1 755	-1 102	-1 490	-1 988	-721
Purchases of intangible assets	-3 406	-2 033	-1 585	-189	-324
Net Cash used in Investing Activities	-662	5 194	-11 464	-4 137	40 556
Cash Flows from Financing Activities					
Receipts					
Proceeds from borrowings	9 568	3 100	19 921	5 041	2 700
Capital contribution by non-controlling interests	2 350	35	-	-	883
Payments					
Repayments of borrowings	-4 806	-8 389	-15 478	-4 112	-6 331
Dividends paid	-18 483	-7 663	-1 342	-4 976	-21 438
Payment of finance lease liabilities	-1 551	-1 336	-1 166	-1 077	-788
Interest paid	-1 249	-1 339	-1 098	-1 013	-884
Purchase of treasury shares	-	-392	-778	-40	-1 010
Net Cash used in Financing Activities	-14 171	-15 984	59	-6 177	-26 868
Cash, cash equiv. and bank overdrafts at beginning of year	40 452	32 942	20 714	24 293	35 703
Net incr./ (decr.) of cash, cash equiv. and bank overdrafts	-7 486	-12 158	6 406	13 528	21 210
Effect from change in consolidation perimeter	-	-	-	-303	-
Effect from exchange rate fluctuations on cash held	-24	-70	-2 827	-1 815	-777
Cash, cash equiv. and bank overdrafts at end of year	32 942	20 714	24 293	35 703	56 136

Source: Novabase Annual Report

Appendix 4. Financial Indicators

	2013	2014	2015	2016	2017
EBITDA margin (%)	6,9%	5,9%	6,4%	4,4%	7,8%
ROA (%)	4,3%	3,4%	4,3%	1,0%	4,2%
ROE (%)	8,3%	3,8%	9,1%	11,3%	7,1%
EPS (€/share)	0,24	0,10	0,24	0,30	0,15
DPS (€/share)	0,20	0,03	0,12	0,15	0,15
Payout ratio (%)	83,5%	30,1%	50,7%	49,2%	98,4%

Source: Novabase Annual Report

Appendix 5. Shareholder Structure

	Number of Shares	% shares
Novabase Shareholders' Agreement	12 550 467	39,97%
Partbleu SGPS	3 180 444	10,13%
IBIM2 Limited	1 610 145	5,13%
Fernando Fonseca Santos	1 575 020	5,02%
Santander Asset Management	1 511 442	4,81%
Maria Manuela de Oliveira Marques	1 043 924	3,32%
Lazard Frères Gestion SAS	669 122	2,13%
Others	9 260 830	29,49%
Total	31 401 394	100,00%

Source: Novabase Annual Report

Appendix 6. Competitors

	Country	Market Cap
<i>IT Services</i>		
Alten	France	2,97 B
Altran Technologies	France	2,32 B
Atos Origin	France	13,05 B
Cap Gemini	France	19,77 B
Indra Sistemas	Spain	1,76 B
Novabase	Portugal	81,01 M
Tieto	Finland	2,06 B

Source: Bloomberg

Appendix 7. Average Price per Share: December 2017*euros per share*

December 1	3,07 €
December 4	3,05 €
December 5	3,00 €
December 6	3,00 €
December 7	3,00 €
December 8	3,01 €
December 11	3,03 €
December 12	3,02 €
December 13	3,02 €
December 14	3,02 €
December 15	3,03 €
December 18	3,03 €
December 19	3,05 €
December 20	3,05 €
December 21	3,06 €
December 22	3,06 €
December 27	3,05 €
December 28	3,04 €
December 29	3,05 €
Average Price per Share December 2017	3,03 €

Source: Euronext

Appendix 8. Debt Beta

	Explicit Period
Cost of debt	3,10%
Risk-free rate	0,43%
MRP	5,08%
Debt Beta	0,53

Appendix 9. Levered Beta

	Explicit Period
Levered Beta (industry)	0,97
D/E (industry)	12,25%
Tax rate (industry)	16,68%
Unlevered Beta (industry)	0,88
Debt Beta	0,53
D/E (Novabase)	24,93%
Tax rate (Novabase)	27,5%
Levered Beta (Novabase)	0,94

Source: Damodaran Database

Appendix 10. NOPLAT

<i>thousands of euros</i>	2018 (F)	2019 (F)	2020 (F)	2021 (F)	2022 (F)
Turnover	143 914	148 231	152 678	157 258	161 976
Cost of Sales	-36	-37	-38	-40	-41
External Supplies and Services	-54 592	-56 230	-57 917	-59 654	-61 444
Employee Benefit Expense	-81 800	-84 254	-86 781	-89 385	-92 066
Other Operational Costs	-195	-201	-207	-213	-219
Depreciation and Amortization	-3 661	-3 771	-3 884	-4 000	-4 120
EBIT	3 630	3 739	3 851	3 967	4 086
t	27,5%	27,5%	27,5%	27,5%	27,5%
NOPLAT	2 632	2 711	2 792	2 876	2 962

Appendix 11. Non-Business Assets

<i>thousands of euros</i>	2017
Investments in Associates	314
Financial Assets at Fair Value through Profit or Loss	2 796
Held-to-Maturity Investments	15 066
Derivative Financial Instruments	18
Other Non-Current Assets	3 256
Non-Business Assets	21 450

Appendix 12. Net Debt

<i>thousands of euros</i>	2017
Cash and Cash Equivalents	56 136
Borrowings – Repayable within One Year	-6 907
Borrowings – Repayable after One Year	-16 837
Net Debt	32 392

Appendix 13. Net Income Forecast

<i>thousands of euros</i>	2013	2014	2015	2016	2017	2018 (F)
Average EBT Margin (5 years)			3,5%			3,5%
EBT	8 555	5 455	10 151	1 169	7 822	4 967
Income Tax Expense	693	-857	-1 745	-3 002	-1 382	-1 366
Net Income	9 248	4 598	8 406	-1 833	6 440	3 601