

**FIRM SPECIFIC FACTORS INFLUENCING THE PERFORMANCE OF
YOUNG SMEs LOCATED IN ALGARVE (PORTUGAL) AND NORDLAND
(NORWAY)**

NINA SOLYUKOVA

Dissertação

Mestrado em Finanças Empresariais

Trabalho efetuado sob a orientação de:

Prof.^a Doutora Cristina Maria Viegas de Oliveira

Prof.^a Doutora Patrícia Susana Lopes Guerrilha dos Santos Pinto

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DECLARAÇÃO DE AUTORIA DE TRABALHO

Declaro ser a autora deste trabalho, que é original e inédito. Autores e trabalhos consultados estão devidamente citados no texto e constam na listagem de referências incluída.

Nina Solyukova

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RESUMO

Um dos principais objetivos das empresas é perceber o funcionamento da sua performance e as variáveis que a maximizam. Li e Simerly (2000) descrevem a performance de uma empresa como um indicador multifacetado, e Venkatraman e Ramanujam (1986) dividem a performance em três dimensões: financeira, organizacional e operacional. Para qualquer empresa é de grande importância apresentar uma boa performance desde a sua formação, visto que é essencial para assegurar a sobrevivência, o crescimento futuro sustentável, e para obter meios para investir em áreas cruciais como o *Research and Development*, estratégias de diferenciação e criação de vantagem competitiva. Ao estudar a performance das empresas no contexto da União Europeia, as pequenas e médias empresas (PMEs) ganham uma especial atenção. Isto porque estas representam uma maioria na população empresarial, empregam mais de dois terços da população ativa do setor não financeiro (European Commission, 2017) e, por isso, são vistas como um pilar de inovação e um instrumento para o crescimento económico e de empregabilidade.

O objetivo desta dissertação é estudar os fatores que podem contribuir para a performance financeira de PMEs recém-criadas, através de dados estatísticos e do modelo estatístico de regressão linear múltipla. Foram escolhidos os indicadores das empresas que refletem a capacidade financeira, operacional e as características da empresa. Desta forma, foram definidas as seguintes variáveis: i) o nível e o tipo de endividamento, ii) o tamanho da empresa expresso em logaritmo natural do número de trabalhadores e do ativo, iii) a folga de recursos financeiros, humanos e de capital na empresa, denominada por *Slack Resources*, iv) a tangibilidade do ativo, v) a taxa de crescimento das vendas e vi) a localização da empresa.

A variável localização da empresa indica se a empresa é localizada na região do Algarve (Portugal) ou Nordland (Noruega). O objetivo desta variável é testar se as empresas de cada região apresentam diferenças de performance e de características, tendo em conta o enquadramento deste estudo. Estas duas regiões foram as escolhidas para este estudo devido ao facto de apresentarem diferenças significativas, tais como em termos culturais, macroeconómicos, sistema fiscal e nível de vida. Ao mesmo tempo as duas regiões apresentam similaridades, como por exemplo, em ambas as regiões há predominância de pequenos aglomerados populacionais, atividades económicas de turismo, aquacultura, pesca

e pecuária. Além disso, uma grande parte da população europeia vive em zonas rurais e pequenas cidades, o que torna este estudo aplicável a outros países europeus.

A amostra de empresas usada no estudo é composta por 816 PME's localizadas na região de Algarve (Portugal) e 620 PME's localizadas na região de Nordland (Noruega), todas PME's formadas durante o período compreendido entre 2012 e 2014, e que continuam ativas em 2018. Os dados financeiros das PME's recolhidos são relativos aos anos de 2015, 2016 e 2017, e também os anos de 2014 e 2018 para os casos de cálculo de taxas de crescimento. Para a obtenção dos dados financeiros das empresas portuguesas foi utilizada a base de dados Amadeus, e para as norueguesas a base de dados ODIN. O número total de empresas localizadas no Algarve e em Nordland, criadas no período 2012-2014, e ativas em 2018 era mais de 12 000. Foi feita uma primeira seleção de empresas de pequena e média dimensão de acordo com a definição de PME da Comissão Europeia, e seguidamente a segunda seleção, de empresas que apresentam todos os dados financeiros necessários para calcular as variáveis do modelo estatístico deste estudo. Obteve-se uma amostra com o total de 1436 empresas de todos os setores, exceto o setor financeiro.

Para estudar a relação entre as variáveis e a performance das empresas utilizou-se o programa estatístico SPSS. Os métodos usados para a obtenção dos resultados foram a análise de estatística descritiva, a análise de estatística de grupo que subdividiu a amostra em empresas Portuguesas e Norueguesas, a análise de correlação entre as variáveis e, por fim, o modelo de regressão linear múltipla. Todas as variáveis foram calculadas para o período de 2015-2017 e depois foi calculada a sua média aritmética, seguindo o estudo de Li and Simerly (2000).

O modelo de regressão linear múltipla foi construído com a variável dependente - o rácio *Return On Assets* (ROA) - e as seguintes variáveis independentes: endividamento total, endividamento a curto e longo prazo, *slack resources*, crescimento das vendas, tangibilidade do ativo, tamanho da empresa expresso em logaritmo natural do número de empregados e logaritmo natural do ativo e a *dummy* localização. A variável de endividamento total foi mais tarde excluída do modelo estatístico de regressão, com vista a resolução do problema de multicolinearidade, visto que a influência desta variável já se encontra expressa em variáveis de endividamento a curto e a longo prazo. Obteve-se um modelo estatisticamente

significativo, com um coeficiente de determinação (R^2) de 0.245 e um coeficiente de determinação ajustado de 0.241.

A análise da estatística descritiva e de grupo demonstrou o seguinte:

- As PMEs portuguesas da amostra apresentam um ROA médio superior ao das Norueguesas, o que significa que, em média, as PMEs portuguesas têm uma melhor performance do que as Norueguesas.
- A média do endividamento total das empresas é maior em Portugal do que na Noruega, o mesmo para o endividamento de curto e de longo prazo.
- A média de *Slack Resources* das PMEs Portuguesas é positiva e maior do que a média das PMEs Norueguesas, que é negativa. Isto evidencia que as empresas Portuguesas têm tendência a manter recursos humanos, de capital ou financeiros em excedente do que o mínimo necessário, dado o nível de produção, enquanto que as empresas Norueguesas utilizam de forma mais eficiente os seus recursos.

Com a análise da regressão múltipla foi encontrado:

- Uma relação estatística positiva entre a localização e a performance. Como a variável localização é *dummy* tomando o valor um para empresas Portuguesas e zero para as Norueguesas, o que confirma a conclusão acima referida que, em média, as empresas Portuguesas da amostra apresentam uma melhor performance do que as Norueguesas.
- Uma relação negativa entre a performance e o endividamento de curto e de longo prazo.
- Uma relação negativa entre a performance e a tangibilidade do ativo da empresa. Como o nível de tangibilidade foi calculado com o rácio do ativo fixo tangível sobre o ativo total, o contrário deste rácio é uma *proxie* para a mensuração do ativo intangível. Isto demonstra que quanto maior é o ativo intangível (que é relacionado com a reputação da empresa, *know-how*, patentes, capital intelectual e outros valores sociais e ambientais), maior é a performance da empresa.

A análise dos coeficientes de correlação entre as variáveis demonstrou que:

- O endividamento de longo prazo está positivamente relacionado com a tangibilidade do ativo, visto que o ativo fixo tangível serve de valor colateral para os investidores e entidades credoras, permitindo um acesso mais fácil ao crédito.
- *Slack Resources* está positivamente correlacionado com a localização, confirmando a mesma conclusão referida na análise descritiva, sendo em média mais elevado nas empresas Portuguesas.
- *Slack Resources* está negativamente correlacionado com o endividamento de curto prazo.
- A dimensão da empresa está negativamente correlacionada com o endividamento total e de curto prazo.

Não foi encontrada evidência de relação estatística significativa entre a performance das PME's e as variáveis crescimento das vendas, o tamanho da empresa e *Slack Resources*.

Palavras-chave: performance financeira; PME's recém-formadas; determinantes da performance, localização.

ABSTRACT

One of the basic goals of the companies is to understand their productivity and their intrinsic variables for maximizing the performance. Having a good performance in the early stage is essential for newly established companies. The focus of this dissertation is to study how the financial performance of the SMEs is affected by the financial and situational factors, with special attention for the localization of the company. The sample of the study is composed by 620 Norwegian and 816 Portuguese non-financial SMEs established during the 2012-2014 period, that remain active in 2018 and its data of 2015-2017 years were analysed. Descriptive statistics, group statistics, correlation and regression model analyses were applied. The dependent variable representing profitability was ROA and the independent variables were short-, long-term and total debts, localization, slack resources index, sales growth rate, asset tangibility and size of the company. It was found a positive relationship between performance and localization, where Portuguese enterprises present on average higher profitability than Norwegians; a negative relationship between performance and both long-term and short-term debts; a negative relationship between performance and the asset tangibility. In the model of this study, there was no evidence of a statistical relationship between profitability and variables of slack resources index, sales growth rate and size of the enterprise.

Key words: financial performance; recently created SMEs; performance determinants; localization.

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LIST OF ABBREVIATIONS

ROCE – Return on Capital Employed

SME – Small and Medium Enterprises

GDP – Gross Domestic Product

EBIT – Earning Before Interest and Taxes

ROA – Return On Assets

ROS – Return On Sales

ROE – Return On Equity

EU-28 – European Union with 28 member States

EEA – European Economic Area

NOK – Norwegian Krone

NACE – Nomenclature of Economic Activities

1 INTRODUCTION

One of the basic goals of the companies is to understand their productivity and their intrinsic variables for maximizing the performance. The performance of a company is a multifaceted indicator composed of several dimensions (Li and Simerly, 2000), as financial, operational and organizational effectiveness dimensions (Venkatraman and Ramanujam, 1986). There are several tools to study the performance in these different perspectives, in financial is commonly measured by profitability (Charitou, Elfani, and Lois, 2010; Serrasqueiro and Nunes, 2008). Having a good performance in the early stage is essential for companies, being important for sustainable growth, investment in Research and Development, smart specialisation and creation of competitive advantage, among others.

When studying the performance of companies in the context of the European economy, small and medium-sized companies (SMEs) take on special attention, as seen as a pillar of change, innovation, and a tool to fight crisis and unemployment in small and developed economies (European Commission, 2017). In 2017, SMEs were representing 99.8% of the total enterprise population in EU-28, employing 66.6% of the total working population in the non-financial sector (European Commission, 2017). SMEs are defined by the European Commission as independently or privately held companies with less than 250 employees, an annual turnover of up to EUR 50 million, or a total balance sheet of no more than EUR 42 million (European Commission, 2019). European Union is funding programs that aim the promotion of entrepreneurship and growth improvement of SMEs, access to the market and strengthening dialogue and consultation with shareholders (European Commission, 2019). However, during the first years, SMEs tend to have a high failure rate due to fragile financial capacity, informal strategies and limited access to markets. Understanding firm specific determinants that influence the performance is thereby of utmost importance.

European Economic Area (EEA), defined as an international single market with free movement of labour, goods, services, and capital, is composed by 32 member states. These member states range wildly in terms of economic capacity. For instance, in 2015 the Gross Domestic Product (GDP) *per capita* in Norway was 47,8 thousand euros while in Portugal 18,8 thousand euros. Thus, it is important to develop

comparative studies inside of EEA in order to understand the productivity of different countries.

The main objective of this dissertation is to study how firm-specific factors affect the financial performance of operating SMEs established in during 2012-2014 in regions of Nordland (Norway) and Algarve (Portugal). These regions were chosen for this study due to their significant differences, e.g., in terms of culture, organizational behaviour, wages policy, tax system, localization – Algarve is located in the south of Portugal while Nordland in the north of Norway. At the same time, both regions present similarities in terms of social and demographic characteristics and the type of economic sectors, which make possible to compare them and study the differences in performance of the newly created enterprises. The main similarity is that Algarve and Nordland are regions with a predominance of small urban clusters and rural areas where the creation of new enterprises is more challenging than in metropolitan areas. Yet, in these regions, the local economy and employment are more dependent from those local SMEs. Likewise, a large part of the population in Europe is living outside of metropolitan areas, as according to Eurostat (2017) in 2015 28% of the EU-28 population lived in a rural area¹, 31.6% in intermediate regions² and 40.4% lived in the cities³. Thus, comparative research about SMEs of the Algarve and Nordland can be used as a representation for other rural and intermediate regions of the rest of Europe.

When compared with existing literature, the innovation of this research arises in the comparison of SME performances of two contrasting countries. Namely, this study identifies companies in which country demonstrates higher performance and what are the factors contributing to that. Another characteristic of this study is that it uses a sample of young Portuguese enterprises that initiated its activity during the 2012-2014 period, that are last years or the European debts crisis when several eurozone member states including Portugal were unable to repay or refinance their government debt without the assistance of third parties like the European Central Bank and the International Monetary Fund.

According to ec.europa.eu:

¹ rural population: > 50% of total population

² rural population: 20-50% of total population

³ rural population: < 20% of total population

Descriptive statistics, group statistics, correlations, and regression model analyses were applied to study the relationship between financial performance and the accountant and situational indicators of newly established SMEs. These indicators illustrate the financial and operational capacity and development of the SMEs and include short-term, long-term, and total debts, company size, slack resources, asset tangibility, sales growth rate and localization of the enterprises.

The result obtained in this paper suggests that more profitable companies tend to have lower debt levels and lower levels of fixed assets. Also, in this study was found a positive relationship between financial performance and localization of the enterprises, wherein average Portuguese enterprises were found to be more profitable than Norwegians. There was no evidence of a statistical relationship between profitability and variables of Slack Resources, Sales Growth and Size of the enterprise.

After this introduction, the next section contains the chapter about socio-economic differences between Algarve and Nordland regions, following the literature review, presenting the proposed study hypotheses. The following section describes the data, the sample, and the methodology and defines the variables. The results are analysed in the fifth section and the next section contains the discussion of the results. The last section includes the conclusions of the study, limitations and suggestions for further investigation.

2 NORDLAND-NORWAY AND ALGARVE-PORTUGAL

This dissertation seeks to compare the financial performance of recently created SMEs located in the region of Algarve and the region of Nordland. For this purpose, one of the dependent variables of the statistic model is localization. The aim of this variable is to observe if there are differences in financial performance between enterprises located in these regions and search out for the reason for those differences.

The sample used for this study is composed by a total of 1436 companies, of which 816 are located in the Algarve and the remaining 620 in Nordland. These regions bear some general similarities in terms of i) demographic characteristics, as both are located in a coastal area, away from big metropolitan areas, small settlements and villages are prevailing; ii) social and economic characteristics, as the employment is

highly dependent from small and local enterprises, the common economic activities are fisheries, aquaculture and tourism and these region hosts at least one big university and one airport.

On the other hand, it is noteworthy the contrasts between Portugal as the Southern and Norway as the Nordic country of Europe. Particularly differences in terms of culture, organizational behaviour, wages policy, tax system, among the others. The sample of this study is composed by SMEs established during the last years of the European debt crisis, when several eurozone member states, including Portugal, were unable to repay or refinance their government debt without the assistance of third parties like the European Central Bank and the International Monetary Fund. While in Norway this sovereign debt crisis was not perceived.

Table 2.1 is summarizing some of the economic and social characteristics of the Nordland and Algarve regions.

Table 2.1: Indicators of social and economic environments of Nordland and Algarve

Characteristics of the regions	Nordland	Algarve
Land area (M km ²)	36.088 (2014)	4.997 (2014)
Population	243.335 (2018)	441.469 (2017)
Population density (citizens <i>per</i> km ²)	6,7 (2018)	88,3 (2017)
Unemployment rate (country)	3.7% (2017)	6,5% (2019)
Total regional GDP (millions €)	11.579 (2015)	8.323 (2016)
Regional GDP, <i>per capita</i> (€)	47.800 (2015)	18.800 (2016)
National VAT rates (standard; intermediate; reduced)	25%; 15%; 12%	23%; 13%; 6%*
National average wage <i>per</i> month	€ 1.085,85	€ 2.722,66**

*Continental Portugal;

**NOK 36.283,39, current currency in 13/03/2019 €1=NOK 9,72

Nordland, located in the north of Norway, has a bigger land area compared to Algarve, 36M km² and 5M km² respectively, although with much lower population density than Algarve, 6,7 and 88 citizens *per* km² respectively. The unemployment rate of the labour force in Norway is lower than in Portugal, 3,7% *versus* 6,5% respectively

(OECD, 2020). Tourism is the predominant economic activity in Algarve, although agriculture and fisheries are also represented (ec.europa.eu, 2019). In Nordland, key activities are fisheries, tourism and hydroelectricity production (knoema database, 2019). GDP of the region of Nordland is slightly higher than in Algarve – €11.579M versus €8.323M -, but regarding GDP *per capita* in Nordland is much greater, €47,8M and €18,8M, respectively.

The monthly average wage in Portugal is inferior than in Norway, €1.085,85 and €2.722,66 respectively (knoema database, 2019). Another distinctive factor among these countries is the way how a minimum national salary is fixed. In Portugal, the minimum wage is debated and set by a government committee, and it is legislated under Portuguese labour law and is updated based on the costs of living, national productivity, and government's income policy. In 2019 national minimum wage in Portugal was fixed to €600 *per* month based on 14 payments in a year (Decreto-Lei n.º 117/2018, 2019). While this, Norway has no national minimum wage written in Norwegian law. Yet Norway is known as one of the countries with the highest wages in Europe, especially for non-qualified work such as cleaners, restaurant workers and manual labourers. In Norway, most of the employees belong to trade unions of their sector, that are affiliated to a national federation (Nikel, 2018). These trade unions negotiate with the government the collective agreements with fixation of an hourly rate for employees. There may be different rates distinguishing skilled from unskilled work, for overtime and young workers. For example, people employed as cleaners must be paid per hour a minimum of NOK181.43⁴ (€18,75) if they are over 18 years old and NOK133,39 (€13,79) if not. In 2017 in Portugal 42.4% of employees in the same profession received minimum national wage (Ministerio do Trabalho, 2018), which is €4.06 *per* hour when considering 40 working hours per week and minimum monthly wage in 2017 of €649,83.

The Value Added Tax (VAT) rates in Norway are higher than in Portugal. In Norway standard VAT rate for goods and services is 25%, then is following reduced taxes of 15% for foodstuffs and beverages, 12% for cultural and sporting activities, transport services and hotel accommodation (Avalara, 2019). In Portugal standard VAT rate is 23%,

⁴- currency conversion €1=NOK9.68 in 24/06/2019

intermediate is 13% for some food and beverages services, pre-cooked meals and admissions for culture and leisure shows, and 6% is the reduced rate, applicable for essential foods, periodic publications, books, pharmaceutical products, hotel accommodation, agricultural products and passenger transportation (PWC, 2018). Both Portugal and Norway have excise duties over some specific products, however, Norway is well-known as one of the countries practicing the highest excise duties, especially over products such as tobacco, alcohol drinks and sugar products.

3 LITERATURE REVIEW

3.1 Performance

Enhance performance is the basic goal of any economic activity, making it a very important area of study. The company's performance is a multidimensional indicator (Simerly and Li, 2000), determined by economic, behavioural and social paradigm (Hansen, 1989). The performance of firms, from a financial perspective, is commonly measured by profitability (Serrasqueiro and Nunes, 2008; Charitou *et al.*, 2010) therefore in this study is used an accounting-based measure for financial performance - *return on assets* ratio (ROA).

Financial performance can be affected by several elements: environmental, firm strategy, and organizational factors (Capon, Farley, and Hoenig, 1990). The present study focuses on environmental characteristics such as localization and growth of the sector, and firm organisational characteristic as debt level, slack resources, sales growth rate, asset tangibility and company size.

3.2 Leverage and debts

Enterprises use leverage *i.e.* debts for funding their activity, investments and accelerate the growth. Several studies about capital structure approach the relationship between profitability and debts of the firms. The capital structure shows how the company finances its activity, in with extent uses the equity and the debt capital. The debate is to understand what the ideal mix of equity and debt for each company and each stage of business is. The seminal work of Modigliani and Miller, (1958) about capital structure irrelevance proposition, suggest that under restrictive assumptions of perfect capital markets, tax-free economy, investor's homogeneous expectations, and no

transaction costs, capital structure is irrelevant in determining the company's value as it is determined by its real assets. However, these restrictive assumptions do not hold in real economies. Other succeeding studies have shown that capital structure may affect the value of a company and its performance (Brav, Graham, Harvey, and Michaely, 2005; Jensen and Meckling, 1976).

Currently, there are two main theories about capital structure: the trade-off theory and the pecking order theory. The trade-off theory supports the existence of an optimal capital structure, as an optimal debt ratio determined by the counterbalance of benefits and cost of debt (Ramírez and Cabestre, 2014) and which is maximizing the firm market value. In this approach, the advantage of debts to be considered are tax saving benefits and disciplinary role of debt in reducing Free Cash Flow problems, while the disadvantage is the financial distress and bankruptcy costs. The second theory, pecking order does not support the existence of an optimal debt ratio (Ramírez and Cabestre, 2014) but defends that investment is financed preferably first with internal funds, then by new issues of debt and finally with new issues of equity. This pecking order is explained by asymmetric information between company and market and the disciplinary effect exerted by the market on companies (Ramírez and Cabestre, 2014).

Following the logic of pecking order, most profitable companies tend to borrow less as they do not need external capital, same as less profitable companies run into debt as they do not have sufficient internal funds to finance their activity (Rajan and Zingales, 1995; Sporleder, 2004). Simerly and Li (2000) argue that the indebtedness may limit the strategic choices of a company, affect the ability of managers to carry out critical strategic decisions, limit the company's ability to compete, therefore harm the performance. Abor (2005) finds a positive relationship between total debts and profitability, the same for short-term debts and profitability but negative relationship for long-term debts and profitability. Serrasqueiro and Nunes (2008) found a negative relationship between the level of debts of Portuguese SMEs and their performance, suggesting that companies with higher levels of debts have a higher need to pay off the debts periodically, are less able to finance projects that could improve performance. Dalbor and Upneja (2002) in their study about restaurant firms found that enterprises

with bigger financial wealth useless long-term debts and prefer to finance their activity with short term debts.

Hence, it is defined next hypothesis:

Hypothesis 1: There is a negative relationship between debt level and the financial performance of an SME.

3.3 Slack resources

Slack in an organization can be defined as the resources that are in excess of the minimum necessary to produce a given level of organizational output (Nohria and Ranjay, 1996). George (2005: 661) describes slack as “*potentially utilizable resources of the firm that can be diverted or redeployed for the achievement of the organizational goals*”. There are different types of slack resources, such as financial capital or human resources (George, 2005), representing the retained earnings and being applied for different purposes, for instance, market expansion, secure bank loans, prevent disruptions (Tan and Peng, 2003).

Holding slack resources in abundance in the company can decrease internal control and provide ground for undisciplined and risky investments, thus contributing to financial inefficiencies (George, 2005; Nohria and Ranjay, 1996). Alternatively, slack is the unused resource that is essential to face unpredicted issues, follow innovative strategies and develop differentiation and competitiveness (George, 2005; Nohria and Ranjay, 1996), and to ensure the long survival of the firm (Tan and Peng, 2003). Prior research has shown evidence of an inverse U-shaped relationship between slack resources and performance of the company (Bromiley, 1991; Nohria and Ranjay, 1996; Tan and Peng, 2003). Slack may be essential for an enterprise but there is a limit beyond which further holding of slack became inefficient and costly for the company, which causes inefficiency in performance (Tan and Peng, 2003). Therefore, too much or too little slack has a negative correlation with performance, and a moderate level of slack has a positive correlation with performance (Tan and Peng, 2003). With the consideration that the enterprises of this study are recently created and are small and medium sized, we expect that in this stage of life slack is positively correlated with the performance of the company, thus we define next hypothesis:

Hypothesis 2: There is a positive relationship between slack resources and the financial performance of an SME.

3.4 Sale growth rate

Any business planning, investment projects, or establishment of a company's objectives starts with definitions of sales targets. The sales growth is often used to measure the firm's growth (Caballero *et al.*, 2012; Jang and Park, 2011), the performance of top managers (Brush *et al.*, 2000), being one of the dimensions of firm performance (Marques and Ferreira, 2009). Brush *et al.*, (2000) explain that sales growth is an important factor for company performance, enhancing internal motivation, constituting a basis for promotion and retaining talented employees. Moreover, the rise of cash inflow gives the possibility to invest in new equipment, innovation, technologies and upgrade the production system.

Sales growth can be a tricky indicator as must be compared with the industry sales growth, as a firm with positive sales growth but yet smaller than its industry growth present thus poor performance. Likewise, it cannot be a singular performance indicator but must be used together with other goals, as it may happen that sales growth is not capable to compensate the losses consequent from the asset or loan management. For newly created SMEs sales growth is an important component of performance, defining thus next hypothesis:

Hypothesis 3: There is a positive relationship between sales growth and financial performance of an SME.

3.5 Asset tangibility

Assets represent a financial and physical investment in the company that generate the cash inflows and can be tangible or intangible. Intangible assets, usually related to new information technology (Serrasqueiro and Nunes, 2008), are the patents, trademarks, copyrights, and other intellectual property. Tangible assets include long-term assets, such as plant, equipment, land and building, while current assets are the

account receivable, cash and inventory. Asset tangibility is the portion of fixed assets of total assets, highlighting in this way the intangible level of assets as well.

Prior empirical research identifies a positive relationship between the level of intangible assets and company performance (Gamayuni, 2015) and a negative relationship between tangible asset level and performance of an enterprise (Serrasqueiro and Nunes, 2008). Teece (1998) points out that intangible property management is essential for acquire and protect the know-how, achieve a competitive advantage, establish an ideal network, strip out the barriers of communication and have closer access to customs and suppliers. These activities, perceived as innovation, lead a company to higher performance (Ramírez and Cabestre, 2014; Teece, 1998). Internally-generated intangible assets include items of substantial value for a company, such as brand name, product development and customer relationship, which are largely absent from financial statements as they are difficult to be quantified (Lim *et al*, 2017). Lim *et al.*, (2017) study highlights that intangible assets play an increasingly determinant role in today's economy, making traditional accounting-based measurement more and more distant from reality. Nowadays there is an increasing number of enterprises that build their market value exclusively by brand reputation, knowledge, patents, intellectual capital and social or environmental concept implementation.

Based on the frame of references, it is suspected that regarding newly created enterprises, a lower percentage of tangible assets in the total assets will allow a better performance of companies. Thus, we define our next hypothesis:

Hypothesis 4: There is a negative relationship between the level of tangible assets and the financial performance of an SME.

3.6 Company size

Several studies in the literature consider that size of a company is an important variable to explain the performance. Some studies show the evidence of a positive relationship between size and performance (Pervan and Višić, 2012; Serrasqueiro and Nunes, 2008) while others defend a negative relationship (Goddard, Tavakoli, and Wilson, 2005).

The literature revealed that the company's size is associated to a higher capacity of innovation (Marques and Ferreira, 2009; Rogers, 2004), an essential condition for improvement of performance. The study of Bartelsman, Haltiwanger, and Scarpetta (2005) conclude that as bigger companies are, bigger is the probability of survival. This may be due to bigger sized companies can take advantage of scale economies and its implications, such as optimization of production, decreasing of production unit costs, generating more profits and consequently increasing the financial power to develop competitive advantage, diversify the strategies, invest in innovation and have stronger negotiating power with clients and suppliers (Pervan and Višić, 2012; Rogers, 2004; Serrasqueiro and Nunes, 2008). As well, bigger companies may have easier access and better conditions for loans, which allows them to have a suitable capital intensity and operate more efficiently in the market (Nunes and Sarmiento, 2009; Rogers, 2004). Larger companies may have access to a wider range of knowledge and human capital skills (Rogers, 2004), while entrepreneurs of smaller companies tend to have inferior management skills and as well lower education level (Nunes and Sarmiento, 2009), which may reflect in the performance.

However, a bigger size can also contribute to diminished company performance (Goddard *et al.*, 2005). Greater size can imply the need for formality in relationships among the participants in company activity and lesser management control from the owners (Goddard *et al.*, 2005; Serrasqueiro and Nunes, 2008). Generally, the firm owners are better informed about the company's characteristics and opportunities and have more capability to increase growth and efficiency than employed managers. While employed managers may follow personal benefits and be less motivated, diminishing thus the performance. Smaller companies, given the lesser rigidity of their organizational structure, may find it easier to recognize grow opportunities (Serrasqueiro and Nunes, 2008) and adapt faster to the changes in the market. Also, smaller companies may have a greater ability to adjust to the innovation process and establish a network with others (Serrasqueiro and Nunes, 2008).

Considering that this dissertation analyses the newly created enterprises, it is expected that as bigger the size higher is the performance. This because it is supposed that the majority of newly created companies did not achieve yet their optimal

production capacity or scale economies, thus they still have the potential to increase their size and enhance performance. Consequently, it is formulated the following hypothesis:

Hypothesis 5: There is a positive relationship between the size and financial performance of an SME.

3.7 Localization

One of the variables of our study is the country where companies are located – whether Norway or Portugal. We selected one region in each country with bigger economic and social similarities for data collection of SMEs: Nordland for Norway and Algarve for Portugal.

In the literature studies often use a sample composed by companies located in various countries for purposes of studying differences in variables or results, or to diversify the sample in order to obtain generalised results. The topic commonly studied in cross country analysis is the type of financing and leverage among companies in different countries (Ramírez and Cabestre, 2014). Some studies, when analysing firm-specific determinants, consider the differences across countries and classify countries into categories, for example the study of Ramírez and Cabestre (2014) about bank oriented economies - France, Germany, Italy and Spain - and market-oriented economy – the UK. Similarly to the other studies, the aim of this research is to understand if there are differences between SMEs indicators that can be explained by the localization and which companies present better financial performance.

Considering higher GDP per capita, lower unemployment rates, higher average wages and better economic stability in Nordland compared to Algarve. Because of this social and economic differences, one may assume that SMEs in Nordland would present better financial performance than in Algarve.

Hypothesis 6: Nordland SMEs are more profitable than Algarve SMEs.

3.8 Background literature

The study of Abor (2005) used regression analysis to estimate the relationship of performance as the *return-on-equity* ratio (ROE) and measures of capital structure with a sample of 22 listed firms of Ghana Stock Exchange over five years. He found i) a positive relationship between the ratio short-term debts to total assets and ROE, ii) a negative relationship between the ratio of long-term debts to total assets and ROE, iii) a positive relationship between the ratio of total debt to total assets and ROE, iv) positive relationship between firm size and profitability and v) also a positive relationship between sales growth and profitability. Following a similar study of Gill and Biger (2011) using a sample of 272 American listed firms on the New York Exchange for a three years period finds the same conclusions. These two similar studies applied in different countries are a meaningful basis for our study regarding variables definition and methodology of the research.

Serrasqueiro and Nunes (2008) studied the relationship between company size and ROA as the performance of 51 Portuguese SMEs over a five-year period. They measured size as the natural logarithm of assets, sales and the number of employees and included additional variables such as ratio total debt to assets, tangibility, liquidity, risk and shareholder- and managerial control with used dynamic panel estimator model. Among other conclusions, they find that there is i) a positive relationship between the size of firms and their ROA, ii) a negative relationship between the level of debt and their ROA, and iii) a negative relationship between tangibility and ROA. This study was a mainstay for our research regarding variables definition and provided us a prognosis about a relationship of performance of SME with its other variables.

3.9 Research Hypotheses

After analysing the literature, were formulated the hypothesis of the relationship of each variable with financial performance and summarized in the following table.

Table 3.1: Summary of hypotheses of the study

Research hypotheses	Studies undertaken on similar hypotheses
H1: There is a negative relationship between debt level and the financial performance of an SME.	Rajan and Zingales (1995); Sporleder and Moss (2004)
H2: There is a positive relationship between slack resources and the financial performance of an SME.	George (2005); Nohria and Ranjay (1996); Tan and Peng (2003)
H3: There is a positive relationship between sales growth and the financial performance of an SME.	Brush <i>et al.</i> (2000)
H4: There is a negative relationship between the level of tangible assets and the financial performance of an SME.	Gamayuni (2015); Serrasqueiro and Nunes (2008)
H5: There is a positive relationship between the size and the financial performance of an SME.	Goddard <i>et al.</i> (2005)
H6: Nordland SMEs are more profitable than Algarve SMEs.	

Source: Own Elaboration

4 DATA DESCRIPTION AND RESEARCH METHODOLOGY

4.1 Sample

This study utilises data of non-financial small and medium enterprises (SMEs) located in Nordland - Norway and Algarve - Portugal. Financial data was obtained from the ODIN database for Norwegian enterprises and the Amadeus database for Portuguese. Were selected all companies established between 2012 and 2014 and that remain active in 2018, and was obtained financial data of three years, from 2015 to 2017. Following the definition of SME of the European Commission (2017), companies only with less than 250 staff headcount and turnover of less than 50 million euros were selected. The sample includes companies from all industries except finance, banking and insurance due to their different financial reporting and operation.

From financial data of three years 2015 to 2017 it was extracted following data variables: i) ROA with net income; ii) current-, long-term- and total liabilities; iii) current ratio, working capital and sales to calculate slack resources index; iv) tangible fixed assets and total assets to calculate asset tangibility; v) sales for calculating the sales growth rate; vi) the number of employees; vii) and the Nomenclature of Economic Activities (NACE) that indicates the economic activity of an enterprise. Only were selected companies that presented all data variables. Enterprises whose sales and the number of employees were not available or appeared as zero for the required years were excluded from the analysis. It was considered that such companies were under liquidation or provided incomplete information, and it could cause an incorrect insight into the company performance relationship. The final sample contained a total of 1436 enterprises: 620 from the region of Nordland in Norway and 816 from the Algarve in Portugal. Table 4.1 shows the economic activities in which enterprises of the sample operate.

Table 4.1: Composition of sample by economic activity and country

NACE		Nº of companies	
Section	Activity title	Nordland (Norway)	Algarve (Portugal)
A	Agriculture, forestry and fishing	29	49
B	Mining and quarrying	0	2
C	Manufacturing	33	35
D	Electricity, gas, steam and air conditioning supply	1	0
E	Water supply; sewerage, waste management and remediation activities	2	1
F	Construction	131	84
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	110	168
H	Transportation and storage	34	22
I	Accommodation and food service activities	39	162
J	Information and communication	15	11
K	Financial and insurance activities	-	-
L	Real estate activities	19	60
M	Professional, scientific and technical activities	62	63
N	Administrative and support service activities	37	66
O	Public administration and defence; compulsory social security	0	0
P	Education	17	9
Q	Human health and social work activities	58	41
R	Arts, entertainment and recreation	11	23
S	Other services activities	22	20
T	Private household with employed person	0	0
U	Activities of extraterritorial organisations and bodies	0	0
Total per country		620	816
Total sample		1436	

Source: Own Elaboration

4.2 Study variables

The objective of this dissertation is to test the impact of selected determinants on the financial performance of Portuguese and Norwegian SMEs. Financial performance, represented by return-on-assets (ROA), was considered as the dependent variable. The following independent variables were considered: short-term, long term and total debts, slack resources index, asset tangibility, size of the company (natural logarithm of the number of employees and assets), sales growth rate and the localization as a *dummy*.

Instead of using short-term indicators, it is desirable to study how our variables are influencing performance over a time period. Thus, following the logic of Simerly and Li (2000), instead of using a one-year period indicator, we selected variables over a three-year time period from 2015 to 2017 and averaged them, using the next formula:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

The summary of variable definition, calculation methodology and their abbreviations can be found in Table 4.2.

Table 4.2: Analysed variables, abbreviation and measurement methodology

Variables	Abbreviation	Calculation method
Dependent variable		
Performance	\overline{ROA}	Ratio net income to total assets
Independent variables		
Total debt	\overline{DA}	Total debt divided by the total assets
Long-term debt	\overline{LDA}	Long-term debt divided by the total assets
Short-term debt	\overline{SDA}	Short-term debt divided by the total assets
Slack resources	\overline{SR}	(Current assets to current liabilities ratio) and (Working Capital to Sales Ratio) standardized and summed
Sales growth	\overline{Gsales}	Average of the percentage change in turn over (sales)
Tangibility	\overline{Tang}	Tangible fixed assets (net property, plant, equipment) divided by total assets
Size 1	$\ln\overline{TA}$	Natural logarithm of total assets
Size 2	$\ln\overline{E}$	Natural logarithm of the number of employees
Localization	D	Dummy variable: 0 if located in Norway, 1 if in Portugal

Performance

The financial performance of a company must measure the health of the company and tell how well it uses assets of the business to generate revenues. Popular measures of performance are *return on assets (ROA)*, *return on sales (ROS)*, and *return on equity (ROE)*. ROS vary greatly across industries and ROE is affected by a mix of equity and debt – an aspect that is considered in independent variables. Thus, ROA is the chosen *proxy* ratio to quantify the financial performance in this study. ROA measures the return on investment in assets after a firm has covered its operating expenses, interest costs and tax obligations (Melicher and Norton, 2003). Following studies of Artiach, Lee, Nelson, and Walker (2010), Charitou *et al.* (2010) and Sporleder and Moss (2004), ROA was calculated with net income divided by total assets. When obtained ROA

of each of three years in analysis, it was calculated arithmetic average, as in the study of Simerly and Li (2000).

Total, Long-term and short-term debts

We included in the model total debts, long-term and short-term debt ratios, in order to measure the indebtedness of companies and understand what type of debt they use to finance their activity. The total debt ratio is measured as total debts divided by total assets, following studies by Artiach *et al.*, (2010), Shin-Ping and Tsung-Hsien (2009), Pais and Gama (2015) and Charitou *et al.*, (2010). Long-term debt ratio is measured as long-term liabilities divided by total assets, following the study by Gill and Biger (2011) and Nune and Serrasqueiro (2017). Short-term debt is measured as current liabilities divided by total assets, according to the same study by Gill and Biger (2011) and Serrasqueiro and Nunes (2017). These ratios were measured for each year of the 2015 to 2017 period and calculated its arithmetic average, following the study by Simerly and Li (2000).

Slack Resources index

Organizational slack was measured as proposed by Chen and Miller (2007). The following *proxies* for available slack were calculated i) current assets to current liabilities ratio ii) and working capital to sales ratio. Those ratios were standardized and summed in order to form a composite slack index for each year (Chen and Miller, 2007). Finally, the average slack index for the three years was calculated, following Simerly and Li (2000).

Sales growth rate

Sales growth rate, representing the growth rate of the company (Jang and Park, 2011) was calculated according to Maury and Pajuste (2005) and Nunes and Serrasqueiro (2017), by subtracting sales of last year t to year $t-1$ and dividing by sales of $t-1$. It was calculated sales growth for each year of the 2015-2017 period and lastly, averaged according to Simerly and Li (2000).

Asset tangibility

Fixed tangible assets are the long-term assets of the company, such as plant, equipment, land and buildings, and it represents an existing investment in the company that generates the cash flows. In this study, the tangibility was calculated with the ratio of fixed tangible assets over total assets, according to Margaritis and Psillaki (2010), Maury and Pajuste (2005) and Randøy and Goel (2003). This ratio was calculated for each year of the 2015-2017 period. Then, following Simerly and Li (2000), their average was calculated.

Company size

In the literature, studies with similar statistical model measured company size with *proxies* of the natural logarithm of total assets (Artiach *et al.*, 2010; Maury and Pajuste, 2005; Serrasqueiro and Nunes, 2017), the natural logarithm of sales (Maury & Pajuste, 2005; Ramírez & Cabestre, 2014; Serrasqueiro & Nunes, 2008) or natural logarithm of the number of employees (Maury and Pajuste, 2005; Padgett and Galán, 2010). In this study, company size was measured with two variables: the natural logarithm of total assets and the natural logarithm of the number of employees. Sales were considered as an indicator in another variable in the model, thus it was not included here. Both size variables were calculated for each year of the 2015-2017 period. Subsequently, their average was computed, as proposed by Simerly and Li (2000).

Localization

Localization is a dummy variable in the model that takes a value of 0 if a company is localized in Norway and 1 if in Portugal.

4.3 Regression Model

The aim of this research is to study the performance that young enterprises present in their first three years of operation. It is necessary to make a predictive analysis that would explain the relationship between performance and an array of

independent variables. Therefore, multiple regression analysis seems appropriated method data treatment of this study, with the aid of the SPSS program.

The following model will be tested:

$$\overline{ROA} = \beta_0 + \beta_1 \overline{DA} + \beta_2 \overline{LDA} + \beta_3 \overline{SDA} + \beta_4 \overline{SR} + \beta_5 \overline{Gsales} + \beta_6 \overline{Tang} + \beta_7 \ln \overline{A} + \beta_8 \ln \overline{E} + \beta_9 D + \epsilon,$$

where \overline{ROA} is the return on assets ratio; β_i are the regression coefficients to estimate; \overline{DA} is total debt to asset; \overline{LDA} long-term debt to assets ratio; \overline{SDA} is short-term debt to assets ratio; \overline{SR} is slack resources index; \overline{Gsales} is company sales growth rate; \overline{Tang} is asset tangibility; $\ln \overline{A}$ is the natural logarithm of total sales; $\ln \overline{E}$ is the natural logarithm of the number of employees; D is a dummy variable that takes the value of 0 if the company is localized in Norway or 1 if in Portugal; and ϵ represents the random error term.

An enter method was applied in SPSS for putting independent variables in the statistical model. With this method, all variables in a block are entered into the model in a single step. Before testing the research hypotheses, the model was assessed regarding the absence of severe multicollinearity and homoscedasticity.

Homoscedasticity

Homoscedasticity assumption means that the probability distribution of population errors for each set of values of independent values has the same (constant) standard deviation. In other words, the variance of the error terms must be similar across the values of the independent variable (Pestana and Gageiro, 2014). One of the techniques to analyse homoscedasticity is to observe the scatterplot of standardized residuals (Sresid) versus predicted values (Zpred) and observe if the points are equally distributed across all values of the independent variables (Pestana and Gageiro, 2014).

Absence of strong multicollinearity

The model of multiple linear regression implies that the explanatory variables are linearly independents among them, i.e. there is no multicollinearity. Multicollinearity refers to the situation in which some of the explanatory variables are highly correlated with one another and are therefore not independently distributed. However, little

multicollinearity is inevitably present in most of the multiple analyses, therefore the aim is to minimize its influence as much as possible. One of the solutions to deal with strong multicollinearity is to discard variables from regression (Fleming and Nellis, 1994; Lisboa et al., 2012).

Following methods will be used to check if there is no serious multicollinearity among explanatory variables:

- The correlation coefficients (also named as r -value or Pearson Correlation) should be lower than 0.8 (Pestana and Gageiro, 2014);
- The collinearity tolerance values must be bigger than 0.10 and the variance inflation factor (VIF) should be lower than 10 (Lisboa et al., 2012; Pestana and Gageiro, 2014).

Hypothesis of the model

The null hypothesis (H_0) represents the theory of the current situation which is supported until proven false (McClave and Dietrich II, 1991). In this multiple regression model null hypothesis is defined:

H_0 : There is no relationship between the independent variables (X_n) and the dependent variable (Y);

i.e., the independent chosen variables in the model do not influence the performance of the enterprises.

Alternative hypothesis (H_a) or research hypothesis represents the theory that contradicts the null hypothesis and it is supported (i.e., not rejected) only when sufficient evidence exists to establish its truth (McClave and Dietrich II, 1991). The alternative hypothesis is defined:

H_a : There is a relationship between the independent variables (X_n) and the dependent variable (Y);

i.e., the independent variables of the model influence the performance of the enterprises.

Conclusions about the hypothesis of the proposed model will rely on the p -value associated to the null hypothesis. A small p -value means strong evidence against the null

hypothesis. Thereafter, it is necessary to compare the p -values with the significance level α . If $p \leq \alpha$ the null hypothesis is rejected (and the alternative hypothesis is not rejected) and the observed effect is statistically significant (McClave and Dietrich II, 1991).

5 RESULTS AND ANALYSIS

In this chapter, it is described the obtained results with the study. First, we analyse descriptive and group statistics, proceeding with correlation analysis and finally with a regression model analysis.

5.1 Descriptive and group statistics

Table 5.1 and Table 5.2 show the descriptive statistics of variables. The sample of this study is composed by 43,2% of Norwegian and 56.8% of Portuguese enterprises.

Table 5.1: Sample composition by country: frequency and percentage

	Frequency	Percentage
Nordland	620	43.2
Algarve	816	56.8
Total	1436	100.0

Table 5.2: Descriptive statistics of dependent and independent variables

	N	Mean	Median	Std. Dev.	Min.	Max.
ROA (%)	1436	5.43	5.8	17.18	-98.9	70.86
Short-term debts	1436	0.58	0.47	0.69	0	12.77
Long-term debts	1436	0.26	0.13	0.36	-0.01	5.03
Total debts	1436	0.87	0.75	0.91	0.02	15.55
Slack resources index	1436	0.02	-0.21	1.1	-12.49	12.26
Sales Growth (%)	1435	42.36	12.86	193.33	-56.68	3510.11
Tang.	1436	0.27	0.2	0.26	0	0.99
Size 1 (ln employees)	1436	1.33	1.2	0.97	0	4.87
Size 2 (ln assets)	1436	4.81	4.72	1.27	1.45	9.63

In Table 5.2 we can see that the average ROA is positive, meaning that companies of the sample present in average positive return on-asset ratio. The short-term debt ratio is higher than the long-term debt ratio, meaning that enterprises use on average more short-term debts to finance their activity. The mean of the slack-index is positive but nearly zero, showing that in average companies use efficiently their resources and hold in scarcity the slack resources. The mean of sales growth is positive and presents high volatility over the companies in the sample.

Table 5.3: Descriptive statistics of variables grouped by country

	Localization	N	Mean	Std. Deviation	Std. Error Mean
Average ROA	Algarve	816	5,9164	18,64	0,652
	Nordland	620	4,7853	15,03	0,603
Short term debts	Algarve	816	0,60	0,856	0,030
	Nordland	620	0,56	0,369	0,015
Long-term debts	Algarve	816	0,30	0,419	0,015
	Nordland	620	0,20	0,260	0,010
Total debts	Algarve	816	0,95	1,121	0,039
	Nordland	620	0,77	0,511	0,021
Slack resources	Algarve	816	0,21	1,355	0,047
	Nordland	620	-0,23	0,543	0,022
Sales growth	Algarve	815	43,46	141,781	4,966
	Nordland	620	40,92	245,254	9,850
Tangibility	Algarve	816	0,29	0,256	0,009
	Nordland	620	0,25	0,259	0,010
Size 1 (In employees)	Algarve	816	1,25	0,881	0,031
	Nordland	620	1,43	1,059	0,043
Size 2 (In assets)	Algarve	816	4,63	1,236	0,043
	Nordland	620	5,05	1,277	0,051

Group statistics in Table 5.3 shows the variables ungrouped by localization. The mean of ROA of Portuguese enterprises is bigger than the mean of ROA of Norwegians, although the Standard Deviation (SD) of Portuguese is also bigger. This means that Portuguese companies in the sample present bigger average profitability than Norwegians, but this data has a bigger dispersion from the average than in Norwegian enterprises. The total debt ratio is on average higher in Portugal than in Norway, as well as the short- and long term-debts, indicating that Portuguese companies tend to have a higher level of indebtedness in the early stage of operation. The mean of the slack index is positive for Portuguese SMEs and negative for Norwegians. This indicates that Norwegian companies of the sample on average, hold it scarcity the resources and Portuguese hold it slightly in reserve.

The remaining variables are relatively similar for SMEs of both countries.

5.2 Correlation analysis

Correlation analysis answers if there is any relationship between two variables and if so, what the direction of the relationship and the magnitude of the relationship.

The following Table 5.4 presents the Person correlation coefficients between the variables used in this study. It is possible to identify that:

- ROA has the strongest positive relationship with the short-, long- and total-debt ratios, with correlation coefficients higher than 0.3;
- The long-term debt variable is positively correlated with tangibility, with a coefficient of 0.34;
- Slack resources variable presents a positive correlation of 0.2 with localization;
- As well, the slack resources variable presents a negative correlation with short-term debts, of -0.23;
- Size-2 is negatively correlated with total and short-term debts;
- Other strong correlation coefficients are given between variables, due to the similar measurement methods of variables, as is the case of size by assets and by employees, total debts with long-term debts and total debts with short-term debts.

Table 5.4: Correlation matrix

	ROA	Localization	Short-term debts	Long-term debts	Total debts	Slack resources index	Sales growth rate	Asset Tangibility	Size 1 (employees)	Size 2 (assets)
ROA	1									
Localization	0.03	1								
Short-term debts	-0.32	0.03	1							
Long-term debts	-0.31	0.14	-0.01	1						
Total debts	-0.36	0.10	0.86	0.42	1					
Slack resources index	0.10	0.20	-0.23	0.11	-0.15	1				
Sales growth rate	0.04	0.01	0.02	0.08	0.07	0.02	1			
Asset Tangibility	-0.14	0.07	-0.09	0.34	0.06	-0.04	0.05	1		
Size 1 (employees)	0.07	-0.10	0.01	-0.04	-0.01	-0.14	-0.02	-0.01	1	
Size 2 (assets)	0.13	-0.17	-0.26	-0.02	-0.23	0.05	0.03	0.14	0.52	1

5.3 Multiple linear regression

First, it is necessary to confirm if the regression model performed on the data is valid. For this, it is used tests of Homoscedasticity and Multicollinearity. These tests are described in the Methodology chapter and are applied forward.

Homoscedasticity

Homoscedasticity means that the variance of the error terms is similar across the values of the independent variables. As proposed in Pestana and Gageiro (2014), to analyse homoscedasticity it was used the scatterplot of standardized predicted values versus studentized residuals. For this purpose, in SPSS linear regression analyse, is was chosen option Plots and then, for Y axis Sresid and X axis Zpred, and it was obtained the scatterplot of Figure 5.1.

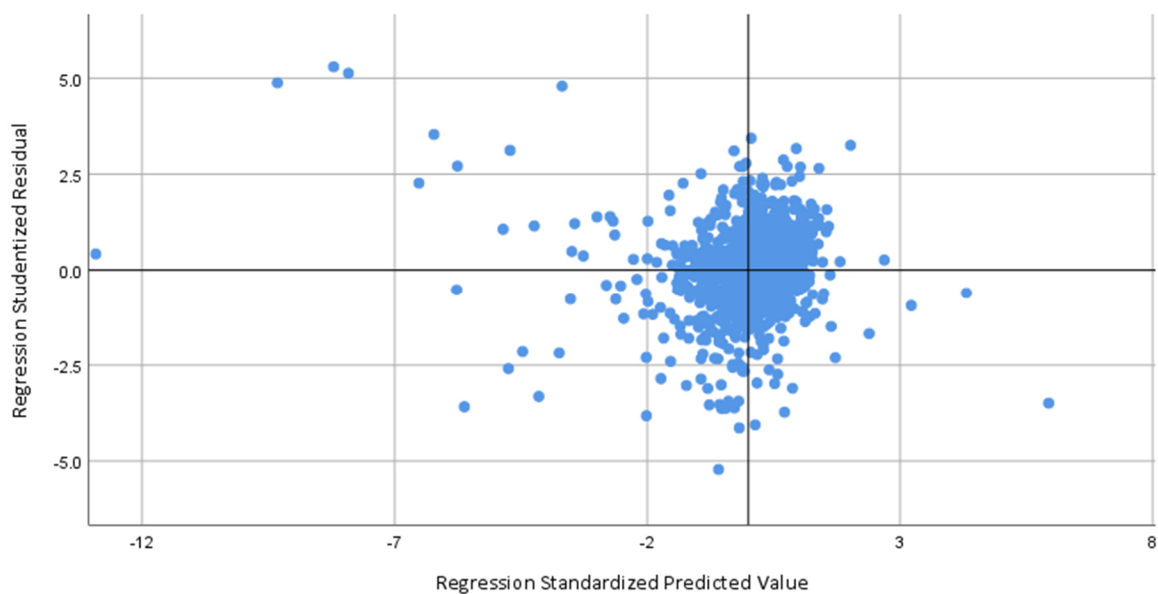


Figure 5.1: Scatterplot of standardized predicted values versus studentized residuals; Source: own elaboration

Figure 5.1 shows that the residuals are randomly distributed around the origin of the chart, thus they do not show an increasing or decreasing tendency. Therefore, there is no evidence that the assumption of homoscedasticity is being violated in the proposed model (Pestana and Gageiro, 2014)

No Multicollinearity

Multicollinearity, as it was explained in the methodology chapter, refers to the situation in which some of the explanatory variables are not independently distributed. It is important to ensure that multicollinearity is not found in multiple regression analysis. For this was applied analyses of the correlation coefficient, Variance Inflation Factor (VIF) analysis and finally collinearity tolerance.

Firstly, it was consulted the matrix of correlation in order to verify any multicollinearity among independent variables. According to Pestana and Gageiro (2014), if the correlation coefficient among independent variables is greater than 0.9, it means that there is evidence of multicollinearity. In the correlation matrix in Table 5.4, the highest correlation coefficient is 0.86, between short-term debts and total debts. Since this value is very close to 0.9, we can suspect that there can be multicollinearity among these variables. The following strongest correlation coefficients are 0.42 and lower, thus there is no more evidence of multicollinearity between remaining variables.

The multicollinearity test proceeded with the analysis of the Tolerance and Variance Inflation Factor. The Tolerance of specific variable measures the proportion of its variance that is not explained by the remaining independent variables (Pestana and Gageiro, 2014), and varies between zero and one. As closer is the Tolerance to zero, the bigger is the multicollinearity. According to Pestana and Gageiro (2014), it is commonly considered that there is multicollinearity when Tolerance of the variable is 0,1 or lower.

The reverse of the Tolerance is called Variance Inflation Factor (VIP). As closer is VIP to zero, the lower is the multicollinearity. According to Pestana and Gageiro (2014), it is commonly considered that there is multicollinearity when VIF is 10 or greater.

Table 5.5 shows the collinearity statistics for the right independent variables under study. As can be concluded, the variables total debts and short-term debts present the tolerance values lower than 0.1 and VIFs greater than 10, indicating that these variables are conducting to severe multicollinearity in the model.

Table 5.5: Collinearity statistics of the firsts model (with 9 independent variables)

Variables	Tolerance	VIF
Localization	0.91	1.10
Short-term debts	0.09	11.35
Long-term debts	0.27	3.65
Total debts	0.07	13.59
Slack resources index	0.86	1.16
Sales growth rate	0.99	1.01
Asset tangibility	0.83	1.20
Size (ln employees)	0.68	1.47
Size (ln assets)	0.62	1.62

Source: Own Elaboration

One solution to deal with multicollinearity is to discard variables from the regression model: if two variables are very highly correlated, it is possible to use only one of these variables, as it captures the effect of both, thus discarding the other variable (Fleming and Nellis, 2010). Consequently, it was proceeded to the elimination of the total debt variable, for the reason that the influence of this variable is represented in both short- and long-term debts. The collinearity statistics for the second model are in Table 5.6. This model presents the tolerance values of all the variables greater than 0.1 and VIFs lower than 10. Thus, this model is not suffering from the multicollinearity problem and the multiple linear regression model was deemed appropriate in testing the hypotheses.

Table 5.6: Collinearity statistics of the second model (with 8 independent variables)

Variables	Tolerance	VIF
Localization	0.907	1.102
Short-term debts	0.854	1.170
Long-term debts	0.851	1.175
Slack resources index	0.848	1.179
Sales growth rate	0.984	1.016
Asset tangibility	0.827	1.209
Size 1 (ln employees)	0.677	1.476
Size 2 (ln assets)	0.618	1.618

Source: Own Elaboration

Next, we present results for the linear regression model (Table 5.7)

Table 5.7: Summary of the model with 8 independent variables

R	R ²	Adjusted R ²	Std. Error of the Estimate	Durbin-Watson
0.495	0.245	0.241	14.96928	1.984

Source: Own Elaboration

The R square (R²) is 0.245 for the regression, which shows that, overall, the regression model explains 24.5% of the variation of ROA in the current study. As referred by Wooldridge (2000: 40), “*low R-squareds in regression equations are not uncommon especially for cross-sectional cases*”.

Hypothesis Testing

The defined hypothesis of the statistical model are:

H_0 : There is no relationship between the independent variables (X_n) and the dependent variable (Y);

H_a : There is a relationship between the independent variables (X_n) and the dependent variable (Y);

As described in the methodology, if $p \leq \alpha$ the null hypothesis is rejected, and the alternative hypothesis is supported. The α used in the statistical model is 0.05. p -value of the model is possible to find in the ANOVA table.

By observing the ANOVA test illustrated in Table 5.8, it is possible to see that $p = 0.000$ and $\alpha = 0.05$, thus $p \leq \alpha$ is observed: the null hypothesis is rejected. This means that the regression is significant and the predictors of the model are able to account for a significant amount of variance of performance of the SMEs.

Table 5.8: ANOVA test of the model with 8 variables

	Sum of Squares	df	Mean Square	F	Sig.
Regression	103228.58	8.00	12903.57	57.59	0.000 ^b
Residual	318416.93	1421.00	224.08		
Total	421645.51	1429.00			

Source: Own Elaboration

Thereafter, the analysis continues with Table 5.9, which shows the performance of each predictor in the model. The complete data set is available in Table A1 (Annex).

Table 5.9: Significance of variables affecting the model

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Hypotheses
	B	Std. Error	Beta			
(Constant)	11.061	1.950		5.672	0.000	
Short term debts	-9.940	0.705	-0.352	-14.098	0.000	H1: Not rejected
Long term debts	-14.878	1.195	-0.311	-12.454	0.000	H1: Not rejected
Slack resources index	0.260	0.389	0.017	0.668	0.505	H2: Rejected
Sales growth rate	0.004	0.004	0.025	1.079	0.281	H3: Rejected
Asset tangibility	-4.869	1.707	-0.072	-2.853	0.004	H4: Not rejected
Size 1 (ln employees)	0.923	0.498	0.052	1.854	0.064	H5: Rejected
Size 2 (ln assets)	0.417	0.398	0.031	1.048	0.295	H5: Rejected
Localization	3.265	0.839	0.094	3.891	0.000	H6: Not rejected

Regression equation

Accordingly, the estimated regression model for ROA can be written using the following equation:

$$\overline{ROA} = 11.061 - 14.878\overline{LDA} - 9.94\overline{SDA} + 0.260\overline{SR} + 0.004\overline{Gsales} - 4.869\overline{Tang} + 0.417\ln\overline{TA} + 0.923\ln\overline{E} + 3.265D$$

where \overline{ROA} is the return on assets ratio; β_i are the regression coefficients to estimate; \overline{DA} is total debt to asset; \overline{LDA} long-term debt to assets ratio; \overline{SDA} is short-term debt to assets ratio; \overline{SR} is slack resources index; \overline{Gsales} is company sales growth rate; \overline{Tang} is asset tangibility; $\ln\overline{A}$ is the natural logarithm of total sales; $\ln\overline{E}$ is the natural logarithm of the number of employees; and D is a dummy variable that takes the value of 0 if the company is localized in Norway or 1 if in Portugal.

Regression findings

In multiple regression analysis is important to look for the individual p -value of each independent variable. Following the same logic, to examine if each variable has a statistically significant impact on the outcome variable, its p -value must be lower than 0.05 ($p \leq \alpha$). When observing p -values of the variables in this model (Sig. in Table 5.7: Summary of the model with 8 independent variable Table 5.7 Table 5.7), it is possible to

conclude that only 4 out of 8 variables are individually statistically significant, with p -values lower than 0.05. Only four variables - localization, short- and long-term debts and asset tangibility - have a statistically significant contribution for the explanation of ROA. It is additionally confirmed by the highest beta-coefficients values.

Hence, it is found statistically significant:

- i) a positive relationship between ROA and localization ($\beta = 3.265$; $p = 0.000$);
- ii) a negative relationship between ROA and both short-term ($\beta = -9.940$; $p = 0.000$) and long-term debts ($\beta = -14.878$; $p = 0.000$);
- iii) a negative relationship between ROA and asset tangibility ($\beta = -4.869$; $p = 0.004$);

The variables of slack resources, sales growth, and size 1 and size 2 present p -values higher than 0.05 ($p \geq \alpha$), therefore these variables do not contribute to the prediction of the outcome variable. One may conclude that there is no evidence of a statistically significant relationship between ROA and these variables.

In the following table, the previously defined hypotheses of the study are compared with the findings of the regression model.

Table 5.10: Confirmation of hypotheses of the study

Research hypotheses	Results
H1: There is a negative relationship between debt level and the financial performance of an SME.	Not rejected
H2: There is a positive relationship between slack resources and the financial performance of an SME.	Rejected
H3: There is a positive relationship between the sales growth rate and financial performance of an SME.	Rejected
H4: There is a negative relationship between the level of tangible assets and the financial performance of an SME.	Not rejected
H5: There is a positive relationship between the size and financial performance of an SME.	Rejected
H6: Nordland SMEs are more profitable than Algarve SMEs.	Rejected, the opposite relationship is supported

6 DISCUSSION

In the discussion of the results, one must consider the characteristics of companies that are used in the study: privately held and recently established enterprises of Norway and Portugal, micro, small and medium-sized, according to the defined stands of European Union, that remained active in 2018.

Essentially, this study found the following results:

- With aim of regression analysis, it is found a statistically significant: i) a positive relationship between ROA and localization; ii) a negative relationship between ROA and short-term debts; iii) a negative relationship between ROA and long-term debt; iv) a negative relationship between ROA and asset tangibility.
- Correlation coefficient analysis reveals that: i) long-term debt ratio is positively correlated with asset tangibility; ii) slack resources index has a positive correlation with localization and, iii) a negative correlation with short-term debts; iv) and the size-assets is negatively correlated with total and short-term debts.

Localization

The localization variable was a dummy variable in the model, taking a value of zero if SME is located in Norway and one if in Portugal. Descriptive statistics showed that in the sample the average ROA was higher in Portuguese SMEs than in Norwegians, thus the Portuguese SMEs present better profitability performance than Norwegians when considering ROA ratio. Additionally, it was found a statistically significant positive relationship between ROA and localization, revealing that Portuguese newly created SMEs present higher profitability. Therefore, the hypothesis H6 is rejected.

Group statistics demonstrated that mean of total, short - and long-term debt ratios are higher in Portugal than in Norway, indicating that Portuguese recently established SMEs tend to have a higher level of indebtedness than Norwegians.

Another aspect to consider from the analysis of group statistics is that the slack resources index positive for SMEs located in Portugal and negative for those that are located in Norway.

Debt level and performance

The negative relationship between debt level and performance of tourism SMEs allows us to support hypothesis H1 of this study. This confirms the theory of pecking

order and indicates that the most profitable companies tend to borrow less as they generate and retain more capital for financing their activity and invest in projects that would improve its performance, needing no external capital. In the same way, less profitable companies do not have sufficient internal funds to finance their activity, therefore they run into debt. This finding is consistent with the study of Serrasqueiro and Nunes (2008) about Portuguese SMEs, that argues that a greater level of debts in SMEs reveal agency problem between owners and creditor, and imply a bigger effort to pay off the debts and may contribute to diminished performance. As well, Goddard *et al.* (2005) found a negative relationship between profitability and the current debt level of companies in his study that includes not SMEs, but all privately held companies from Belgium, France, Italy, Spain, and the UK. He suggests that in an increasingly volatile competitive environment, firms with a low level of debts can adapt to changing circumstances more rapidly and have a stronger position to maintain high profitability. This applies to tourism-related SMEs of Algarve, as in this region it is notorious high volatility of the tourism sector and price fluctuation during the year due to seasonality, therefore, requiring smart management of working capital and cautious investment projects. In these companies, a big level of indebtedness can lead to limitations of the strategic choices, affect the ability of managers to carry out critical strategic decisions (Li and Simerly, 2000), and treats the company's ability of sustainable performance.

Slack resources

Slack resources index is defined as human, financial or capital resources that are in excess of the minimum necessary to produce a given level of organizational output (George, 2005). In the sample, the mean of this variable is positive for Portuguese SMEs and negative for Norwegians. This means that, on average, when comparing with Norwegians, Portuguese companies tend to keep some excess of resources than the minimum necessary. While this, Norwegians SMEs, given a level of output, are using more efficiently their resources. One can presume that the higher slack resources level in Portuguese enterprises is due to bigger financial instability or significant seasonality of economy of Algarve. In this situations, as mentioned in Tan and Peng (2003) and Nohria and Ranjay (1996), companies tend to keep a higher level of slack resources to secure bank loans, face unpredicted issues and prevent disruptions. Alike in Norway,

due to the lower debt level of SMEs and bigger economic stability, the slack resources level is lower.

Asset tangibility and performance

The negative relationship between performance and tangibility asset level of enterprises supports the hypothesis H4 of this study. This means that SMEs with lower levels of tangible assets are more likely innovative and flexible, which contributes to increased performance. The same conclusion was found in the study of Serrasqueiro and Nunes (2008) that argue that this relationship indirectly shows that SMEs have a greater level of intangible assets that are directly associated with innovation. This argument is supported by the study of Gamayuni (2015) that showed that as higher are intangible assets owned by the company, the higher is the company's ability to generate profits. The same finding was found in our study regarding newly created enterprises: as lessens it is the level of tangible assets more intangible assets there might be, including those that are not quantified in financial statements. Marques and Ferreira (2009) in his study about the innovation of companies of the Beira Interior region, found a strong relationship among performance and innovative capacity of the firms. Hjalager (2010), in the review about innovation in tourism, described the nature, driving forces and determinants of innovative behaviour of tourism-related enterprises. This indicates that most profitable companies tend to own fewer physical assets but rent and outsource these. Alternatively, these more profitable companies tend to channel the investment into technologies, digitalization, automatization, and know-how, towards dematerialization concepts. This could release the companies from extra costs and efforts related to the ownership of physical assets and provide an opportunity for managers to focus on the essential core business and smart specialization.

Tangibility and debt level

On the other hand, it was found that the long-term debt ratio is positively correlated with the tangible assets level of the company, under findings of Lim *et al.*, (2017) and Parsons and Titman (2007). This relationship was argued in literature as the tangibles assets frequently are the collateral value, less risky for lenders, making debt relatively less costly and easier access for the enterprises.

7 CONCLUSION

The main aim of this study was to identify the determinants of performance of newly established 816 SMEs of Portugal and 620 of Norway. As a measure of performance, it was considered the return on assets ratio, and, in its turn, the tested determinants were short-and long-term debt, total debt, slack resources index, sales growth rate, asset tangibility, company size and localization.

We conclude that there is a negative and statistically significant relationship between debt level and performance of SMEs. This relationship confirms the theory of pecking order and indicates that the most profitable companies tend to borrow less as they generate and retain more capital for financing their activity and invest in projects that would improve its performance, needing no external capital. On the other way, companies that have higher debt levels may have agency problems between creditors and owners, have a bigger effort to pay off the debts and therefore contribute to diminished performance.

The results reveal a negative relationship between performance and asset tangibility level of enterprises, suggesting that SMEs with lower levels of tangible assets are more likely innovative and flexible, which contributes to increased performance.

It was also found that long-term debts level is positively correlated with the tangible assets level of the company. This suggests that more profitable companies tend to have lower debt levels and lower levels of assets, but using alternative drivers of performance-related to innovation, intangible assets or other drivers that are invisible to financial records. We suggest that this may internal administrative organisation, external network, distinguishing localisation, traditional know-how, entrance in niche markets and trends like eco or rural tourism. Additionally, this result suggests that the companies with low tangibility and low debt levels, having higher performance, are financially more flexible and more capable of adapting in a volatile and competitive business environment.

The results of this study may provide some implications for recently created SMEs. The negative relationship between financial performance and both short-term and long-term debts confirms the theory that the most profitable companies tend to borrow less as they do not need external capital. In the same way, less profitable

companies run more into debt as they do not have sufficient internal funds to finance their activity. The indebtedness may limit the strategic choices of a company, affect the ability of managers to carry out critical strategic decisions, limit the company's ability to compete, and, therefore, harm the performance. The negative relationship between ROA and tangibility means that as the level of tangible assets lessens, more intangible assets there are. So, intangible property management would lead to acquisition and protection of the know-how, achievement a competitive advantage, establish an ideal network, strip out the barriers of communication and have closer access to customers and suppliers. Additionally, these conclusions can indicate that most profitable companies tend to own fewer physical assets such as property, plant and equipment, but rent and outsource these assets. Alternatively, these more profitable companies tend to channel the investment into technologies, digitalization, automatization, and know-how, towards dematerialization concepts. This could provide an opportunity for managers to focus on the essential core business and smart specialization, releasing the company from extra costs and efforts related to the ownership and management of physical assets.

Limitations and further recommendations

This study focuses on a newly established SMEs, created between 2012-2014 period. Thus, this study may not apply to big, mature, well established and capitalized companies. The sample used in the dissertation contains SMEs from all the industries. Additionally, the number of companies that operate in each industry of the sample is different between Portugal and Norway therefore some of the industries can prevail in Portugal, another in Norway. Consequently, the obtained sample contained scattered data and the coefficient of determination (R^2) of the regression model is relatively low (0.245).

Further research could include in the sample enterprises of only one or a few industries to obtain more concise results. Moreover, a study with more countries in the sample in could diversify the results. Lastly, other variables could be added to the model to study the profitability, e.g. variables that could reflect the participation of EU funding, or Research and Development expenditures of the company, or, an emerging factor – study the relationship between ecological sustainability and profitability.

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9 ANNEX

Table A1: coefficients of SPSS output of model with 8 variables^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics		
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	11.061	1.950		5.672	.000					
	Localization country	3.265	.839	.094	3.891	.000	.033	.103	.090	.907	1.102
	Short term debts	-9.940	.705	-.352	-14.098	.000	-.351	-.350	-.325	.854	1.170
	Long term debts	-14.878	1.195	-.311	-12.454	.000	-.318	-.314	-.287	.851	1.175
	Slack resourses	.260	.389	.017	.668	.505	.092	.018	.015	.848	1.179
	Sales Growth	.004	.004	.025	1.079	.281	.014	.029	.025	.984	1.016
	Tangibility	-4.869	1.707	-.072	-2.853	.004	-.137	-.075	-.066	.827	1.209
	size employees	.923	.498	.052	1.854	.064	.068	.049	.043	.677	1.476
	Size assets	.417	.398	.031	1.048	.295	.129	.028	.024	.618	1.618

a. Dependent Variable: Average ROA