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MASTER IN

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MASTER'S FINAL WORK

DISSERTATION

MINIMUM CAPITAL POLICY AND START-UPS' CAPITAL STRUCTURE

INÊS PÊGO MATEUS

OCTOBER 2018

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SUPERVISION

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Abstract

The present study analyzes how the knowledge of the minimum capital policy affects start-ups' initial capital structure, exploiting how start-ups established initial capital and how their capital structure changed in the first years. The target of this study are firms founded since 2011 and currently active in Portugal in sectors of activity eligible for the minimum capital policy.

It was exploited the main reasons how start-ups establish initial capital. In addition, it was found no statistically significant impact of the knowledge of the minimum capital reform on start-ups initial capital and that the reform influences start-ups' amount of debt and capital increases.

Keywords: Entrepreneurship; Start-ups; Minimum Capital Policy; Capital Structure; Initial Capital; Capital Increase; Capital Decrease

Resumo

O presente estudo analisa como o conhecimento da lei do capital mínimo afeta a estrutura de capitais das start-ups, explorando quais as razões que levam os fundadores a estabelecer o montante de capital inicial e como a estrutura de capitais se altera nos primeiros anos da empresa.

O foco deste estudo são as empresas criadas e ativas em Portugal desde 2011 nos setores de atividade elegíveis para a lei do capital mínimo.

Neste estudo foram exploradas as razões que levam as start-ups a estabelecer o capital inicial. Não foi encontrada significância estatística do impacto do conhecimento da reforma do capital mínimo no montante de capital inicial. Pode também ser evidenciado que a reforma influencia o montante de dívida das start-ups e a possível realização de aumentos de capital.

Palavras-chave: Empreendedorismo; Lei do Capital Mínimo; Estrutura de Capitais; Capital Inicial; Aumento de Capital; Redução de Capital

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1. Introduction

Institutions are important drivers of long-term growth and development of an economy (Hall & Jones, 1999; Braun *et al.*, 2011). Therefore, public policy of modern countries has stimulated entrepreneurship, a vehicle of innovation and change, to endorse the creation of employment, foster knowledge and increase economic growth (Audretsch & Thurik, 2001; Blanchflower, 2000; Kreft & Sobel, 2005; Djankov *et al.*, 2006; Eckardt, 2012; Nehau, 2013), by developing business-friendly regulations that lead to the creation of more firms (Djankov *et al.*, 2006; Divanbeigi & Ramalho, 2015).

At the beginning of their lives, entrepreneurial firms struggle to survive with very low income (Ortqvist *et al.*, 2006) and to raise financing instruments to plan and forecast their cash flows (Shinohara, 2003). Usually, the combination of these instruments is known as capital structure (Myers, 2001).

Firms' capital structure has been studied since 1958 with Modigliani and Miller (Rajan & Zingales, 1995). However, only in the '90s decade, research was extended to entrepreneurial firms since the way established firms are financed is different from start-ups (Fluck *et al*., 1998). At the beginning of their lives, start-ups have no financial or operating history and no credible reputation, facing a high failure risk (Cassar, 2004; Huyghebaert & Van de Gucht, 2007) and, consequently, they are a high-risk investment to lenders (Ortqvist *et al.*, 2006). Therefore, start-ups' privilege internal funds, through owners' savings, business associates and loans from family and friends (Ortqvist *et al.*, 2006). Later, start-ups finance their operations through outside funds (Fluck *et al.*, 1998). Other studies find that entrepreneurs face a binding limitation of capital (Evans & Jovanovic, 1989). The elimination of the minimum capital requirement promotes firms' entry (Van Stel *et al.*, 2007; Becht *et al.*, 2008) and it is dispensable since it does not

fulfill the function of protecting creditors and consumer interests (Armour, 2006; Djankov, 2009).

In 2011, the Portuguese government implemented the minimum capital requirement reform, lowering the total amount of initial capital from 5 000.00 euro to any value and reducing from 100.00 euro to 1.00 euro the amount per quota. This policy applies to sole owner private limited liability companies, Sociedade Unipessoais por Quotas, and private limited liability companies, Sociedades por Quotas, with two or more individuals and its main goals are to encourage entrepreneurial activity, lower the costs and administrative burden of creating a company, promote competitiveness and employment and make firms' accounts more reliable.

In this research, it will be exploited the reasons that lead founders to set up the initial amount of capital, how the decision of set it up freely affects start-ups' capital structure, and how capital structure evolves in the first years of the firm.

Therefore, data were collected through an online questionnaire, complemented by face-to-face interviews. The target of this study are firms founded since 2011 and currently active in Portugal in sectors of activity eligible for the minimum capital policy.

It was found main reasons how start-ups establish their initial capital: to assure net working capital, the need to obtain credit, the available amount by the founder team, benchmarking and the minimum amount defined by law. In addition, it was also found that the knowledge of the minimum capital reform does not affect start-ups' initial capital and it influences start-ups' amount of debt and capital increases.

This dissertation is structured as follows. In section two, the relevant literature on the factors that affect start-ups capital structure is reviewed. In section three, hypothesis are developed. In section four, the minimum capital requirement reform is described. In

section five, the research methodology is exploited. In section six results are presented and discussed. In section seven, research conclusions are exposed.

2. Literature Review

2.1. Financing Sources of Start-Ups

The financing sources of a firm are debt and equity (Mota *et al.*, 2006; Soares *et al.*, 2008). Debt is the capital loaned by other parties and, eventually, must be repaid. Equity is a permanent source of capital represented by the investment made by the company' owners or shareholders (Coleman & Robb, 2012). However there are hybrid instruments, financing instruments that combine features of debt and equity (Soares *et al.*, 2008). The combination of financing sources used by firms to finance their own investments is called capital structure (Myers, 2001). However, entrepreneurial firms do not obtain financing in the same way established firms (Fluck *et al.*, 1998). At the beginning of their lives, start-ups do not have a financial or operating history and credible reputation, facing a high failure risk, which constrains their ability to raise the required initial capital (Cassar, 2004; Huyghebaert & Van de Gucht, 2007).

Previous studies propose an alternative framework, internal and external capital To address these issues (Myers, 1984, 2001). Internal financing sources are the ones raised through the cash flows generated by the firms' assets and the initial founder team, and external financing sources are the ones obtained from outside the firm (Damodaran, 2004).

As a high-risk investment to lenders, new firms have a less variety of instruments and reserved access to external debt compared to established firms (Cassar, 2004; Ortqvist *et al.*, 2006; Huyghebaert & Van de Gucht, 2007). Therefore, in the beginning, start-ups' financing depends on internal sources, particularly through owners' funds and informal investors as their families, acquaintances and business associates (Ang, 1991; Ortqvist *et al.*, 2006). Not having a financial or operating history, start-ups raise external financing,

relying mostly on trade and bank credit as sources of debt (Walker 1989; Fluck *et al.*, 1998) and angel investors and venture capitalists as sources of equity (Wong, 2002).

New ventures finance themselves through informal channels due to the fact they face credit constraints, they are unable to access formal credit markets (Robb & Robinson, 2010) and they are more likely to suffer from information asymmetry and agency problems (Berger & Udell, 1998).

Nevertheless, there are empirical evidence against the financial constraints view, arguing that, although during the first year of a firm the primary source of financing are owners' bank loans and credit cards, formal channels of credit and external debt financing play a major role than informal channels start-ups' financing (Robb & Robinson, 2010).

The more important sources of outside equity are angel investors and venture capitalists (Wong, 2002).

2.2. Theories of Capital Structure for Start-Ups

There is no ideal proportion of debt and equity, so several theories were developed to exploit the costs and benefits of alternative financing strategies (Myers, 2001). Usually, established firms are the target of theories of capital structure, however a few can be applied to start-ups, as the life cycle theory, the trade-off theory, the pecking order theory, and the signal theory.

2.2.1. The Life Cycle Theory

During its life, a company experience different stages, and, for each stage, it is required a certain amount of capital and capital structure (Walker, 1989; Timmons, 1994). In fact, the financial growth cycle paradigm suggests that different phases in the life of a company require different capital structures (Berger & Udell, 1998).

When a start-up is born it relies more on internal funds, generally provided by the founder team, family and friends. During its development and expansion, additional capital is funded by intermediated finance on equity, as angel investors or venture capital, and on debt, as banks and finance companies. As the firm grows, it may gain access to public equity and debt markets (Berger & Udell, 1998).

To sum up, in the early stages of their life cycles, start-ups' proportion of internal funds rises and of external funds decreases. As the firm matures, this pattern will reverse (Fluck *et al.*, 1998).

2.2.2. The Trade-Off Theory

The trade-off theory argues that the optimal capital structure is defined by comparing the costs with the benefits of having debt, considering market imperfections as bankruptcy costs, agency costs and taxes (Oliveira *et al.*, 2012). Bankruptcy costs include the costs of perceived probability of default. Agency costs derive from the use of debt and other external sources of financing (Jensen & Meckling, 1976; Cassar, 2004). Although these costs increase the cost of debt[1], they also increase the tax deductibility of interests. Therefore, the higher the amount of debt, the higher the amount of after-tax proceeds to the owners (DeAngelo & Masulis, 1980; Cassar, 2004; Damodaran, 2004; Oliveira *et al.*, 2012).

Previous studies suggest this theory is applicable to start-ups, due to their high failure risk (Huyghebaert & Van de Gucht, 2007) and due to the fact banking institutions depend on fixed assets as contracting mechanisms to minimize the referred costs (Cassar, 2004).

[1] Cost of debt refers to the effective rate a company pays on its current debt.

2.2.3. The Pecking Order Theory

According to the pecking order theory, firms tend to prefer internal sources of funds; although, if external financing is required, the preference goes to borrowing, relying on short-term over long-term debt, rather than issuing equity (Harris & Raviv, 1991; Myers, 1984, 2001; Damodaran, 2004), since equity is the most expensive instrument of financing (Mota *et al.*, 2006).

The inefficiencies triggered by asymmetric information are also associated with this theory since managers usually have better information on firms than outside investors. Due to little historical and operating data, start-ups have high levels of asymmetric information (Cassar, 2004; Huyghebaert & Van de Gucht, 2007), being created difficulties in obtaining external finance (Berger & Udell, 1998; La Rocca *et al.*, 2009). To diminish information asymmetry, investors evaluate the quality of the business proposal and the entrepreneur's ability (Nofsinger & Wang, 2011). Financial institutions can reduce their exposure to information asymmetry by financing smaller portions of debt and limiting loan size (Huyghebaert & Van de Gucht, 2007).

2.2.4. The Signal Theory

The signal theory defends that the invested amount in capital is a sign of the confidence of shareholders on the start-up (Machado, 2009), giving to creditors an indication of how trustworthy they think the firm is (Engert, 2006), showing them their ability to bear the risks when benefiting from limited liability and that there are assets available for their claims (Ewang, 2007). So, the choice of capital structure may be considered a signal for external users. Therefore, the signal theory focus on asymmetrical information problems between shareholders and creditors, based on the idea that managers have inner

information and a motive to transfer their knowledge to external investors (Leland & Pyle, 1977; Ross, 1977).

Therefore, changes in capital structure may be used to share information about firms' profitability and risk. One of the most common signs is obtaining debt since investors know that when a firm becomes more leveraged, it may be a sign that managers await future cash flows and that the firm is in a good financial position (Myers & Majluf, 1984). Therefore, the requirement of a minimum capital reduces asymmetric information between shareholders and debtholders (Armour, 1999).

2.3. Determinants of Capital Structure for Start-ups

Previous research on the determinants of start-ups' capital structure focuses on size, assets' tangibility, growth, profitability, firms' age and owner characteristics.

Size, usually measured by sales or total assets, has a positive relationship with leverage for start-ups (Chen *et al.*, 1998; Cassar, 2004; Ortqvist *et al*., 2006). Usually larger start-ups are more diversified and less likely to bankrupt, so, eventually, they have access to more financing sources, becoming more leveraged (Titman & Wessels, 1988). For smaller start-ups, it is more complicated to solve asymmetric information with lenders, that offer them less capital or capital at higher rates, discouraging the use of external financing (Cassar, 2004). Therefore, size has a negative relationship with short-term debt, more used by smaller firms as start-ups (Titman & Wessels, 1988; Michaelas *et al.*, 1999).

The assets owned and their tangibility also affects start-ups' capital structure, having a positive relationship with leverage (Titman & Wessels, 1988; Chen *et al.*, 1998; Michaelas *et al.*, 1999; Cassar, 2004; Ortqvist *et al.*, 2006), since they may be used as collateral for debt finance what may help in asymmetric information (Cassar, 2004; Cosh

et al., 2009). So, firms with valuable tangible assets have easier access to finance (Harris & Raviv, 1991).

Although firms' growth has shown a positive impact on financial leverage, previous research shows mixed empirical evidence for start-ups (Cassar, 2004; Orqtvist *et al.*, 2006). It is argued that credit institutions establish credit relationships as soon as possible with start-ups that are more probable to grow (Cassar, 2004).

Profitability has a negative relation with start-ups' leverage when considered the pecking order theory since retained profits are primarily used as self-financing (Chen *et al.*, 1998; Michaelas *et al.*, 1999; Orqvist *et al.*, 2006). Furthermore, *ceteris paribus*, due to the capacity to finance themselves through internal sources, firms with a high-profit rate have a lower proportion of debt (Michaelas *et al.*, 1999).

Firms' age has a negative relationship with leverage (Jorge & Armanda, 2001) since start-ups are more dependent on debt (La Rocca *et al.*, 2009) and mature firms can be financed through retained earnings (Petersen & Rajan, 1994).

Since start-ups have highly concentrated ownership and major financing decisions are made by the founders, their personal characteristics are an important variable, that may provide significant explanations on financing decisions. Most tested personal characteristics are risk tolerance, wealth, credit history, experience, education, and gender, yet they are not considered significant (Cassar, 2004; Huyghebaert & Van de Gucht, 2007).

3. Theory and Hypothesis

The establishment of a minimum capital requirement imply start-ups' founders must make a bank deposit or allocate a certain amount of assets to their new venture (World Bank, 2014), representing this amount the price of entry to limited liability (Armour, 2006; Eidenmueller *et al.*, 2006; Machado, 2009). The amount of initial capital has several functions: shareholders obtain ownership rights to claim for returns and creditors may demand for collaterals for their claims (Armour, 1999; creditors' protection of in case of bankruptcy (Djankov, 2009; World Bank, 2014); and the creation of a buffer in case of future losses, a protection against insolvency (Eidenmueller *et al*., 2006).

The signal theory defends that the invested amount in capital signals the confidence of shareholders on the start-up (Machado, 2009), indicating how trustworthy they think the firm is (Engert, 2007), their opinion about its quality and their ability to bear risks (Ewang, 2007). Therefore, founders use their own money, their families' and friends' as a sign of their commitment and credibility to late-stage investors (Conti *et al.*, 2013).

Due to the repeal of the minimum capital requirement and being possible to set up freely the initial amount of capital, it raises the question if the knowledge of the revoked policy affects the establishment of the initial amount of capital. In fact, the elimination of the minimum capital requirement may lead founders to establish a higher initial amount of capital. As an example, one year after the elimination of the minimum capital requirement policy in France, that reduced the capital requirement from 7 5000.00 to 1.00 euro, the average initial capital of new firms was 2 000.00 euro. In addition, the percentage of start-ups with an initial capital of 1.00 euro was 7.63% of the total population (Greffe de Paris, 2004). Although the average initial capital has been lower than the established by the previous capital requirement, it was much higher than the defined by the revoked policy.

Summarily, it is expected that:

Hypothesis 1: The knowledge of the minimum capital reform does not influence start-ups' initial amount capital.

Access to capital is one of the greatest challenges faced by start-ups' founders (Denis, 2004; Shane & Stuart, 2002), that with little or no history of performance and uncertain technology, struggle to signal their firm to potential investors (Conti *et al.*, 2013).

According to the Life Cycle Theory, in their beginning, start-ups finance themselves mainly through internal funds, generally provided by founders, family, and friends (Berger & Udell, 1998). However, when external financing is required, they prefer to borrow relying on short-term over long-term debt (Harris & Raviv, 1991; Myers, 1984, 2001; Damodaran, 2004; Mota *et al.*, 2006). Start-ups' little financial and operating history leads to high levels of asymmetric information (Cassar, 2004; Huyghebaert & Van de Gucht, 2007), arising difficulties in obtaining external financing (Berger & Udell, 1998). Therefore, financial institutions reduce their exposure by financing smaller portions of debt and limiting loan size (Huyghebaert & Van de Gucht, 2007).

Start-ups' choice of capital structure may be considered a sign for creditors, as suggested by the signal theory (Ross, 1977; Leland and Pyle, 1977). So, the amount invested by external investors will be higher the higher the initial capital (Conti *et al.*, 2013). However, it is also defended that a firm that becomes more leveraged, probably awaits future cash flows, what may be considered a sign of a good financial position. So, its possibilities of obtaining credit may increase (Myers & Majluf, 1984).

On the other hand, it is also suggested that there is no meaningful link between start-ups' financial needs and their initial capital since, for several industries and sectors of activity,

namely intellectual services, there is no need for a high capital (Schoen, 2004; Machado, 2009). In addition, instead of looking to the amount of capital, creditors use other measures to safeguard their interests, as the establishment of a high interest rate, the request for collateral or the fulfillment of certain financial ratios (Macey & Enriques, 2011; Schoen, 2004). They may consider the amount of capital in lending decisions, but they prefer to analyze how the firm repays the debt based on its net worth, cash flows, and risk profile and the debt repayment depends on firm's cash flows and not on the initial amount of capital (Armour, 1999; Ewang, 2007; Dorsey, 2013). Therefore, the minimum capital requirement does not have a positive effect on access to credit (Dorsey, 2013).

Summarily, it is expected that:

Hypothesis 2: The knowledge of the minimum capital reform does not influence start-ups' amount of debt.

According to the pecking order theory, start-ups prefer to use internal sources of financing, owners' funds and informal investors as their families, acquaintances and business associates (Ang, 1991; Ortqvist *et al.*, 2006). When external financing is required they prefer to borrow, relying on short-term over long-term debt (Harris & Raviv, 1991; Myers, 1984, 2001; Damodaran, 2004). Ultimately, the firm proceeds to a capital increase (Novo & Vieira, 2010). The life cycle theory also suggests a firm should adapt their capital structure to the phase it is in and that during its development and expansion, additional capital is needed (Berger & Udell, 1998).

Several reasons are pointed to the development of a capital increase, namely to obtain funds to allow the firm to invest; to stabilize the financial structure; to avoid the loss of partners' confidence or to increase notoriety on the market (Severin, 2000). In fact, 17.7%

of capital increases carried out by indebted firms (N'Goma, 2016), that are forced to do it to compensate their losses, remake their working capital and reestablish their financial structure (Ginglinger, 1984). In addition, as defended by the signal theory, a capital increase may be used to increase start-ups' notoriety, being considered a sign of partners' confidence (Machado, 2009).

Summarily, it is expected that:

Hypothesis 3: The knowledge of the minimum capital reform influences start-ups' capital increases.

4. Policy

In 1999, the European Court of Justice took some innovative decisions to enable firms to opt out of their home country's company law and, as an alternative, advantage of the company law of another European Union country. For that reason, the United Kingdom witnessed an increase in the number of registered companies, namely incorporations from countries with higher minimum capital requirements (Becht *et al.*, 2008; Braun *et al.*, 2011). Consequently, other countries lowered their minimum capital amount (Bratton *et al.*, 2008; Ringe, 2013), like France, Hungary, Poland (Machado, 2009; Hornuf, 2011; Braun *et al.*, 2011), and Saudi Arabia (Belaychi & Haider, 2008; Nehau, 2013). This measure led to an increase in entrepreneurial activity in the respective countries and a decrease in the number of companies incorporated abroad (Hornuf, 2011; Braun *et al.*, 2011).

By 2008, Germany created the *Unternehmergesellschaft*, a new company legal form, reducing the minimum capital requirement to 1.00 euro per quota for start-ups (Machado, 2009; Hornuf, 2011). This reform affected the number of companies incorporated in foreign countries (Eckardt & Kerber, 2013).

Table 1 summarizes the empirical evidence on the impact of reforms in capital policy.

As a part of the business registration simplification process launched in 2006, Portugal implemented the minimum capital requirement reform on March 7, 2011, through the Decreto-Lei nº 33/2011.

During the first steps, the reform reduced the time and costs of starting a business by establishing a one-stop shop in several counties. Then, the elimination of the minimum capital requirement was introduced.

The main goals of this policy were to encourage entrepreneurial activity, lower costs and the administrative burden of creating a company, promote competitiveness and employment and make firms' accounts more reliable.

Prior to this reform, the minimum capital required to establish a limited liability firm in Portugal was 5 000.00 euro. With this reform, the minimum amount changed to 1.00 euro per quota (Decreto-Lei nº 33/2011) and the total initial capital can be defined freely. Additionally, founders can defer their payment till the end of the first financial year and can withdraw it from the bank account after legal registration.

The firms eligible for this policy are sole owner private limited liability companies, Sociedade Unipessoais por Quotas, and private limited liability companies, Sociedades por Quotas, with two or more individuals. All the other types of single person companies, Estabelecimento Individual de Responsabilidade Limitada, and sole proprietors with unlimited liability, Empresário em Nome Individual, public limited companies, Sociedade Anónima, general partnerships, Sociedade em Nome Coletivo, limited partnerships, Sociedades em Comandita, or cooperative enterprises, Cooperativas, are not covered by this law.

This reform applies to a great majority of firms, except for the ones operating in certain industries. Table 2 summarizes the non-eligible industries for the minimum capital policy.

5. Research Methodology

5.1. Target Population

The population of this study is based on a merger of three databases. One of them was created to the purpose of this study and the other two were created previously.

The database of own authorship created to this purpose is the list of companies founded in Portugal in January 2015. From the website of *Gescontact* (*https://www.gescontact.pt/*) it was collected the list of firms created in Portugal in each working day of January 2015, listing 4997 companies. From that, only a few displayed their email on the referred website, reducing to 83 the population sample.

From the previously created databases, the first one was made by Vittiglio (2017) and it contained the technology start-ups that represented Portugal in Web Summit 2016 and a list of firms based in incubators, reaching a total of 354 start-ups.

The other previously created database was made by Santos (2017) and contained all incubated firms registered in incubators in Lisboa region, obtaining a list of 259 firms.

After being verified if any of the companies were repeated in the set of databases, it was reached a population of 631 firms. Therefore, it results in a convenience sampling and not in a random sampling.

5.2. Data Collection

To collect data, it was used an online questionnaire created on *Qualtrics* platform (*https://www.qualtrics.com/*) that was sent via email for each of the start-ups listed between March and June of 2018.

Questionnaires allow the collection of both quantitative and qualitative information (Gunday *et al.*, 2011). Their strategy, generally associated as a deductive approach, allows

the researcher to answer the questions “who, what, where and how much”, being used for exploratory and descriptive research (Saunders *et al.*, 2009).

Appendix 1 presents the questionnaire, that includes closed and open format questions. Open format questions were included to permit start-ups to explain how they established the amount of capital and why they decided to change that amount. However, it was also used closed questions to not rise complexity and subjectivity.

The questionnaire is divided into five parts. The first part contains questions about the respondent of the questionnaire. The second asks about the founders of the firm. The third part relates to the creation of the start-up. The forth inquiries about start-up’s capital. And the fifth part is related to the financing and investment obtained.

Appendix 2 presents the email sent to all companies on March 24, 2018, including a link to the online questionnaire. The email informed the context of the study, research topics, and objectives. At the beginning of the questionnaire, the importance of start-ups’ participation was presented, and their confidentiality was ensured. To encourage them to participate, the survey finalized with the option of receiving a report with the data obtained and the conclusions drawn from the study.

On March 24, 2018, 631 emails were sent to several start-ups. Of the 631 emails sent, 50 were returned from a failed delivery. Therefore, the population sample decreased to 581 start-ups. In this stage it was possible to collect 42 answers, 19 of them completed and 23 incompletes. In addition, 7 start-ups refused to participate in this study.

To increase the response rate, the follow-up period started on April 24, 2018, 30 days after the first submission. Appendix 3 presents the email of reminder that was sent for the 532 start-ups that had not responded yet. In this phase, 5 start-ups referred their

unavailability to answer the questionnaire and it was obtained 31 complete answers and 19 incompletes.

The second email of reminder was sent on June 24, 2018, 60 days after the second submission. By then, 477 emails were sent, 12 firms referred they were unavailable, 27 completed their answers and 25 sent them incomplete.

In review, out of 581 start-ups, 144 responses were received, corresponding to a 24.78% response rate. However, only 77 of them were complete, 53.47%, which corresponds to a response rate of 13.25 %. Additionally, 24 firms were not available to participate, 4.13%. From the 77 completed questionnaires, only 75,12.91%, operate in eligible industries for the minimum capital policy.

5.3. Data Validation Procedures

In the beginning of the questionnaire, start-ups were informed that there were no right or wrong answers to reduce the common method bias. In addition, all questions, except start-ups' and founders' name, were mandatory to prevent a higher number of incomplete responses. The more usual protection against the nonresponse bias is to send the questionnaire in successive waves, *i.e.* follow up, to increase the response rate (Armstrong & Overton, 1997).

In addition, it was needed to check the external validity of the research. Previous studies state that since the probability of each case is not known, the generalization should be done by logic, being used judgmental samples, that allow the exploration of the research questions and the gain of theoretical insights. Yet, samples cannot be considered a statistical representation of the population (Saunders *et al.*, 2009). Therefore, the results obtained may only be applied to this study and not generalized.

5.4. Face-To-Face Interviews

Since the boundaries between the phenomena studied and the context of the study are not clearly defined, face-to-face interviews were developed to complement the quantitative analysis.

It was constructed a proper sample based in the previously mentioned database of own authorship created to the purpose of this study, the list of companies created in Portugal in January 2015. From that list, it was selected the firms in the residential area of the investigators, being reached five start-ups. In addition, it was searched on the website of *Gescontact* more active firms in the mentioned area created since 2011, being reached more five start-ups.

Appendix 4 presents the interview script that follows mainly four parameters: Founders; Start-up; Capital; and Impact on Financing and Investment. The format of the script based on the constructs presented facilitated the post comparative analysis, having been possible to identify common points and specialties related to each one.

The contact with the start-ups was made primarily via phone with the purpose to explain the objectives of the research and to schedule the interview. From ten, eight firms agreed to participate in the study, reaching a response rate of 80%.

The interviews were recorded with the agreement of the interviewed and all of them were members of the respective founder teams.

Table 3 presents interviewed start-ups and founders characteristics. 37.50% of the firms are operating for four years and 37.50% had two initial employees; relatively to the region, 62.50% are from Lisboa, and to the industry, one operates in Consultancy, 12.50%, other in Retail, 12.50%, and 75.00% in other industries. 50.00% the interviewed referred they had knowledge of the policy reform, being 4 562.50 euro the average initial

amount of capital. Regarding founders, 50.00% of the start-ups have been founded by two people, 64.29% of the founders are male, 50.00% are between 45 and 54 years old, and 35.71% have the 12th grade.

Table 4 presents the descriptive statistics of interviewed start-ups and founders. On average, start-ups have 3.88 years old and were created, on average, with 2.88 employees. Founder teams were composed by, on average, 1.75 people and 68.75% of them are male. 75% of the founders are between 35 and 54 years old and 0% have a Master or a Doctor's degree.

Table 5 presents the absolute and relative frequencies of the reasons how interviewed start-ups established initial capital. 50.00% of the respondents referred they established the initial amount of capital based in benchmarking since it was the amount referred by several entities, namely accountants, the amount usually applied firms from the same industry and the minimum amount to ensure credibility. 37.50% referred they established the initial capital based in the minimum amount defined by law. However, one start-up referred that, although the founder team knew about the policy it preferred to opt for the previous regulation. 12.50% referred it was the available amount by the founder team.

Relatively to this subject, it may be related:

> *"We decided to opt for the amount of the previous policy since we considered this value as the minimum that would show credibility." - Start-up C founder*

Only one of the companies had already a capital increase and decided to do it due to the entrance of a new partner. Nevertheless, 50.00% of the firms are thinking about a capital increase and the presented reasons are listed in Table 6: changes in working capital needs, 50.00%, changes in financing needs, 25.00%, and changes in partners' team, 25.00%.

Relatively to this subject, it may be related:

"A capital increase is important to show credibility in a business, in order to show to banks, customers, and suppliers that we are growing." - Start-up G founder

Answers are in accordance with the signal theory, suggesting that the amount founders invest in capital is a sign of their confidence (Machado, 2009), giving to creditors an indication of how trustworthy they think the firm is (Engert, 2006), showing them their ability to bear risks and that there are assets available for their claims (Ewang, 2007).

Table 7 presents interviewed start-ups financing and investment. Although none of the start-ups obtained a bank financing in the first three years of their lives, 62.50% of the interviewed referred the amount of capital influences the conditions of bank financing. Also, 62.50% of the interviewed referred they think the amount of capital influences capital expenditures.

Relatively to this subject, it may be related:

"Instead of getting a bank loan in the name of the company, we preferred to apply for a loan on our own behalf." - Start-up C founder

Results are in accordance with previous literature since on the beginning of their lives, start-ups usually finance themselves through owners' funds, bank loans or credit cards (Robb & Robinson, 2010) and informal investors as their families, acquaintances and business associates (Ang, 1991; Ortqvist *et al.*, 2006).

6. Analysis and Discussion of the Results

6.1. Respondents, Start-Ups and Founders

Table 8 presents the characteristics of the respondents, 77.11% are masculine, 51.81% are between 35 and 44 years old and 42.17% have a master's degree.

Tables 9 presents start-ups and founders. 27.71% of the firms are operating for four years, 33.73% had two initial employees; relatively to the region, 69.88% are from Lisboa, and to the industry, 34.94% operate in the Information and Communications Technology industry. 72.29% of the start-ups had knowledge of the policy reform. Regarding founders, 37.35% of the start-ups have been founded by one person, 79.17% of them are male, 47.02% are between 35 and 44 years old and 38.69% have a master's degree.

Table 10 presents the descriptive statistics of start-ups and founders. On average, start-ups have 4.47 years old and were created, on average, with 2.57 employees. Founder teams were composed by, on average, 2.02 people and 78% of them are male. 70% of the founders are between 35 and 54 years old and 46% have a Master or a Doctor's degree.

6.2. Initial Capital

Regarding the reasons how start-ups established initial capital, the answers were coded in six main reasons: amount needed to assure net working capital; amount needed to obtain credit; available amount; benchmarking; minimum amount defined by law; and no reason. Table 11 presents the absolute and relative frequencies of the collected answers.

38.26% of the respondents referred they established the amount of capital based in the need to assure net working capital since it was the amount needed to invest in working capital needs, fixed assets or to hire human resources. 24.35% referred it was the available amount by the founder team or the amount to ensure the firm's survival on the beginning of its of life. 13.04% referred they opt for that amount since it was the minimum amount

defined by law. 10.43% of the respondents referred they established the amount of capital based in benchmarking since it was the amount referred by several entities, namely accountants, the one applied by firms from the same industry and the minimum amount to ensure credibility. 9.57% mentioned they had no reason. 4.35% referred it was the amount needed to obtain credit, being the loaners financial institutions, suppliers or other entities.

The results are in accordance with previous research since it was already suggested that the greatest concern of small businesses is their working capital and the short-term (Ang, 1991). In addition, it was already proposed that the amount of capital is used as a sign of founders' commitment and credibility to late-stage investors (Conti *et al.*, 2013).

From the population of eighty-three start-ups, the average initial amount of capital was 12 459.82 euro.

To test the *Hypothesis 1* it was estimated the following model:

(1) $Y_{ia} = \propto_a + K_i + S_i + R_i + I_i + \varepsilon_{ia}$, where i refers to the start-up and a to its age.

The dependent variable, Y_{ia}, refers to the logarithm of the initial amount of capital.

The variable $\propto_a$ controls for macroeconomic shocks.

The variable of interest, K_i, is a dummy variable equaling one if founders have knowledge of the DL 33/2011, and zero if they do not have knowledge of the revoked policy.

The variable S_i refers to the size of the start-up, measuring its initial number of employees, the variable R_i to the region where headquarters is located and the variable I_i to the industry.

Table 12 reports the output of the OLS and Tobit analysis from STATA. The Tobit model estimates linear relationships between variables when there is a left or right-censoring in

the dependent variable. In this case, the model is censored from below, being the minimum value 1.00.

In both analysis the coefficient of the variable K_i is negative (-510.90) and not statistically significant since its p-value is high (0.90) and t-value is very low (-0.09).

In addition, it was controlled the vector X_i that evaluates the characteristics of the founder team, controlling for gender, using the percentage of male founders, for team age with tree measures, the percentage of founders under 35 years old, the percentage of founders between 35 and 54 years old and the percentage of founders with 55 years old or more, and for team education using the percentage of founders with a Master or Doctor's degree.

Table 12 reports the output of the OLS and Tobit models and in both analyses the coefficient of the variable K_i is positive (64.45), but not statistically significant since its p-value is high (0.99) and t-value is low (0.01).

Therefore, the knowledge of the reform does not affect the initial capital of a start-up.

6.3. Credit

Table 13 presents start-ups' financing and investment in the first three years of their lives. 55.42 % of the respondents referred they consider the amount of capital influences bank financing and 42.17 % the amount invested in fixed assets. In addition, 81.93% of the start-ups had a bank financing of between 0.00 and 1 000.00 euro, 30.12% invested between 0.00 and 2 500.00 euro in fixed assets and 34.94% between 2 500.00 and 10 000.00 in the first three years of their lives.

To test the Hypothesis 2 it was estimated the following model:

(2) $Y_{ia} = \propto_a + K_i + S_i + R_i + I_i + E_i + \varepsilon_{ia}$, where i refers to the start-up and a to its age.

The model (2) is similar to the model (1), having been changed the dependent variable, Y_{ia}, that refers categorically to the of the amount of financing obtained. Categories were between 0.00 and 1 000.00 euro, 1 000.00 and 5 000.00 euro, 5 000.00 and 10 000.00 euro, 10 000.00 and 50 000.00 euro, 50 000.00 and 100 000.00 euro, 100 000.00 and 250 000.00 euro and more than 250 000.00 euro.

It was also added the variable E_i, the amount of initial capital of the start-up.

Table 14 reports the output using the probit and logit models. The difference between these models is that the first uses the inverse standard normal distribution of the probability and the second uses the log odds of the outcome. However, both models are modelled as a linear combination of the predictors.

Considering the coefficients of the regression, start-ups that know about the revoked policy had a lower bank financing in the beginning of their lives.

6.4. Capital Increases and Decreases

Concerning capital increases, 36.15% of the start-ups already carry out one. Regarding why, the answers were coded in five main reasons: changes in the partners' team, changes in working capital needs, changes in financing needs; and no reason. Table 15 presents the absolute and relative frequencies of the collected answers.

Concerning capital decreases, 2.41% of the start-ups already carry out one. Regarding why, 66.67% due to a partner exit and 33.33% due to the release of excess capital. Table 15 presents the absolute and relative frequencies of the collected answers.

Concerning intentions to increase capital, 27.71% of the start-ups said it will carry out a capital increase, 43.37% said it maybe carry out one and 28.92% said it won't carry out one. Table 15 presents the absolute and relative frequencies of the reasons why firms would change capital. 44.44% due to changes in partners' team, 30.77% due to changes

in working capital needs, 11.97% due to changes in financing needs, 9.40% to release excess capital and 3.42% to coverage a loss.

To test the *Hypothesis 3* it was estimated the following model:

(3) $Y_{ia} = \propto_a + K_i + S_i + R_i + I_i + E_i + Increase_i + Decresase_i + \varepsilon_{ia}$, where i refers to the start-up and a to its age.

The model (3) is similar to the model (2), having been changed the dependent variable, Y_{ia}, a categorical variable that refers if the start-ups is planning to carry out a capital increase, through the options: "Yes"; "Maybe" or "No".

It was also added the variables $Increase_i$ and $Decrease_i$, two dummy variables equaling one if start-ups have already proceeded to a capital increase or decrease, respectively.

Table 16 reports the output of the multinomial logistic analysis. A multinomial logistic regression is a predictive analysis used to explain how a nominal dependent variable is related to one or several independent variables.

The multinomial log-odds for a one-unit increase in the variable K_i for "Yes" relative to "No" would be the increase by 1.57 unit and for "Maybe" relative to "No" would be the increase by 0.47 unit, holding all other variables constant. Therefore, start-ups that have knowledge of the DL 33/2011 are more likely to plan to carry out a capital increase or to maybe carry out one, than start-ups that do not think about that.

The multinomial log-odds for a one-unit increase in the variable $Increase_i$ for "Yes" relative to "No" would be the increase by 0.47 unit and for "Maybe" relative to "No" would be the decrease by 0.29 unit, holding all other variables constant. So, start-ups that have already carried out a capital increase are more likely to plan to carry out another one than start-ups that do not think about that; and less likely to maybe carry out one, than start-ups that do not think about that.

The multinomial log-odds for a one-unit increase in the variable $Decrease_i$ for “Yes” relative to “No" would be the decrease by 1.42 unit and for “Maybe” relative to “No” would be the increase by 16.22 unit, holding all other variables constant. So, start-ups that have already carried out a capital decrease are less likely to plan to carry out a capital increase and more likely to plan to carry out one, than start-ups that do not think about that.

7. Conclusions

In this research it was analyzed the influence of the minimum capital policy on start-ups' capital structure in Portugal. The reform reduced the time and costs of starting a business and eliminated the minimum capital requirement to sole owner private limited liability companies, Sociedade Unipessoais por Quotas, and private limited liability companies, Sociedades por Quotas, with two or more individuals.

It was used a merger of three databases, one of own authorship, the list of companies founded in Portugal in January 2015, other, the list of technology start-ups that represented Portugal in Web Summit 2016 and firms based in incubators, and another, the list of all incubated firms registered in incubators in the Lisbon region, to perform the analysis.

It was found that the need to assure net working capital, the need to obtain credit, the available amount by the founder team, benchmarking and the minimum amount defined by law are the main reasons how start-ups establish initial capital.

In accordance with previous research the knowledge of the minimum capital reform does not affect start-ups' initial capital, since the coefficients of the variable of interest are negative and not statistically significant, considering or not the characteristics of the founder team.

Contrary to what was expected, the knowledge of the minimum capital reform influences start-ups' amount of debt since start-ups that know about the revoked policy had a lower bank financing in the beginning of their lives due to the coefficients of the variable of interest being negative.

As expected, the knowledge of the minimum capital reform influences start-ups' capital increases, since start-ups that have knowledge of the reform are more likely to

plan to carry out a capital increase or to maybe carry out one, than start-ups that do not think about that.

Regarding the limitations of this study, it can be highlighted that its population of may also not be representative of Portuguese start-ups since the majority is from Lisboa (69.88%). In addition, the response rate is very low (12.91%), despite all attempts. Concerning the face-to-face interviews, they were little detailed and although some interesting details have been pointed out, it did not complement much the research.

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Tables

Table 1. Summary of empirical evidence on the impact of reforms in capital policy

Date	Country	Reform	Impact	Reference
2003	France	Reduction of companies' minimum capital from € 7 500.00 to € 1.00.	Increase of entrepreneurial activity in the respective countries.	Machado, 2009; Hornuf, 2011; Braun *et al.*, 2011
2007	Hungary	Reduction of companies' minimum capital from HUF 3 000 000.00 to HUF 500 000.00.		
2008	Poland	Reduction of companies' minimum capital from PLN 50 000.00 to PLN 5 000.00.		
2007	Saudi Arabia	Reduction of one of the highest minimum capital requirements of the world, $ 125 000.00.	Increase in the number of registered companies by 81%.	Belaychi & Haider, 2008; Nehau, 2013
2008	Germany	Creation of *Unternehmergesellschaf*t, a new company legal form, reducing minimum capital from € 25 000.00 to € 1.00 of capital for start-ups.	Decrease in the number of companies incorporated in foreign countries.	Machado, 2009; Hornuf, 2011; Eckardt & Kerber, 2013

Table 2. Summary of non-eligible industries for the minimum capital policy

Industry	Minimum capital requirements (€)		Reference
Construction and public works[2]	Amount of equity should be equal or greater than 10% of the limit value of the largest of the classes corresponding respective to the work.		Lei n.º 41/2015, de 3 de junho
Credit institutions and financial companies	Banks and savings banks	17 500 000.00	Portaria n.º 362/2015, de 15 de outubro Decreto-Lei n.º 157/2014, de 24 de outubro
	Mutual agricultural credit funds belonging to the integrated system of mutual agricultural credit	5 000 000.00	
	Mutual agricultural credit funds not belonging to the integrated system of mutual agricultural credit	7 500 000.00	

[2] Only in case it is intent to carry out works classified in a class higher than Class 2.

	Central mutual agricultural credit funds	17 500 000.00	Decreto-Lei n.º 190/2015, de 10 de setembro Portaria n.º 95/1994, de 9 de fevereiro
	Investment companies	5 000 000.00	
	Leasing societies	3 000 000.00	
	Factoring societies	1 000 000.00	
	Financial brokerage companies	3 500 000.00	
	Brokerage companies	350 000.00	
	Money market intermediary companies	50 000.00	
	Money and exchange market intermediary companies	500 000.00	
	Investment fund management and real estate investment companies	125 000.00	
	Asset management companies	250 000.00	
	Regional development societies	3 000 000.00	
	Companies that manage group purchases that manage groups established for the acquisition of real estate	500 000.00	
	Companies that manage group purchases that do not manage groups established for the acquisition of real estate	250 000.00	
	Exchange agencies	100 000.00	
	Mutual guarantee societies	2 500 000.00	
	Microcredit financial companies	1 000 000.00	
	Financial credit institutions	10 000 000.00	
	Financial credit companies	7 500 000.00	
	Annex savings banks	1 000 000.00	
Motor vehicles rent	50 000.00		Decreto-Lei n.º 77/2009, de 1 de abril
Private security	50 000.00		Lei n.º 34/2013, de 16 de maio
Road freight transport	Light vehicles	50 000.00	Decreto-Lei n.º 136/2009, de 5 de junho
	Heavy vehicles	125 000.00	
Road passenger transport	100 000.00		Decreto-Lei n.º 3/2001, de 10 de janeiro
	First league	250 000.00	

Sports societies[3]	Second league	50 000.00	Decreto-Lei n.º 10/2013, de 25 de janeiro
	Other professional competitions	50 000.00	
	Non-professional competitions	50 000.00	
Taxi transport	1 000.00		Portaria n.º 334/2000, de 12 de junho
Travel and touristic agencies[4]	100 000.00		Decreto-Lei n.º 61/2011, de 6 de maio

Table 3. Summary of interviewed start-ups and founders

Panel A. Characteristics of start-ups		
Age	Absolute frequency (Total=8)	Relative frequency (%)
1	1	12.50%
3	2	25.00%
4	3	37.50%
6	2	25.00%
Initial No. of employees	Absolute frequency (Total=8)	Relative frequency (%)
1	2	25.00%
2	3	37.50%
4	2	25.00%
7	1	12.50%
Region	Absolute frequency (Total=8)	Relative frequency (%)
Center	3	37.50%
Lisboa	5	62.50%
Industry	Absolute frequency (Total=8)	Relative frequency (%)
Consultancy	1	12.50%
Other	6	75.00%
Retail	1	12.50%
Knowledge of the DL 33/2011	Absolute Frequency (Total=8)	Relative frequency (%)
Yes	4	50.00%
No	4	50.00%
Panel B. Characteristics of founders		
No. of people	Absolute frequency (Total=8)	Relative frequency (%)
1	3	37.50%
2	4	50.00%
3	1	12.50%

[3] Sole owner private limited liability companies.
[4] Only in case of access to the job of public road passenger transport operator. In any other case, there is no amount minimum capital requirement.

Gender	Absolute frequency (Total=14)	Relative frequency (%)
Male	9	64.29%
Female	5	35.71%
Age	Absolute frequency (Total=14)	Relative frequency (%)
35-44 years old	4	28.57%
45-54 years old	7	50.00%
55-64 years old	2	14.29%
> 65 years old	1	7.14%
Education	Absolute frequency (Total=14)	Relative frequency (%)
9^{th} grade	2	14.29%
12^{th} grade	5	35.71%
Associate degree	3	21.43%
Bachelor's degree	4	28.57%

Table 4. Descriptive statistics of interviewed start-ups and founders

	Variable	Obs.	Average	Std. Dev.	Min	Max
Start-up	Age	8	3.88	1.64	1	6
	Initial No. of employees	8	2.88	2.03	1	7
	District	8	1.63	0.52	1	2
	Industry	8	2.00	0.53	1	3
	Knowledge of the DL 33/2011	8	0.50	0.53	0	1
Founders	No. of people	8	1.75	0.70	1	3
	% male	8	0.69	0.37	0	1
	% 35-54 years old	8	0.75	0.47	0	1
	% > 55 years old	8	0.25	0.47	0	1

Table 5. Summary of reasons how interviewed start-ups established initial capital

Reason	Absolute frequency (Total=8)	Relative frequency (%)
Available amount	1	12.50%
Benchmarking	4	50.00%
Minimum amount defined by law	3	37.50%

Table 6. Summary of reasons why interviewed start-ups would increase capital

Reason	Absolute Frequency (Total=4)	Relative Frequency (%)
Changes in working capital needs	2	50.00%
Changes in financing needs	1	25.00%
Changes in partners' team	1	25.00%

Table 7. Summary of interviewed start-ups' financing and investment

Panel A. Amount of bank financing in the first three years		
	Absolute frequency (Total=8)	Relative frequency (%)
€ 0 - € 1 000	8	100%
Panel B. Amount invested in fixed assets in the first three years		
	Absolute frequency (Total=8)	Relative frequency (%)
€ 0 - € 2 500	2	25.00%
€2 500 - € 10 000	2	25.00%
€ 10 000 - € 25 000	1	12.50%
€ 25 000 - € 50 000	2	25.00%
€ 50 000 - € 100 000	1	12.50%

Table 8. Summary of respondents

Gender	Absolute frequency (Total=83)	Relative frequency (%)
Male	64	77.11%
Female	19	22.89%
Age	Absolute frequency (Total=83)	Relative frequency (%)
< 25 years old	3	3.61%
25-34 years old	13	15.66%
35-44 years old	43	51.81%
45-54 years old	18	21.69%
55-64 years old	6	7.23%
Education	Absolute frequency (Total=83)	Relative frequency (%)
9^{th} grade	3	3.61%
12^{th} grade	9	10.84%
Associate degree	2	2.41%
Bachelor's degree	28	33.73%
Master's degree	35	42.17%
Doctor's degree	6	7.23%

Table 9. Summary of start-ups and founders

Panel 1. Characteristics of start-ups		
Age	Absolute frequency (Total=83)	Relative frequency (%)
1	2	2.41%
2	10	12.05%
3	15	18.07%
4	23	27.71%
5	9	10.84%
6	6	7.23%

7	13	15.66%
8	5	6.02%
Initial No. of employees	Absolute frequency (Total=83)	Relative frequency (%)
1	23	27.71%
2	28	33.73%
3	18	21.69%
4	5	6.02%
5	3	3.61%
6	3	3.61%
7	1	1.20%
10	2	2.41%
District	Absolute frequency (Total=83)	Relative frequency (%)
Center	7	8.43%
Lisboa	58	69.88%
North	12	14.46%
South	6	7.23%
Industry	Absolute frequency (Total=83)	Relative frequency (%)
Consultancy	22	26.51%
Other	19	22.89%
Retail	13	15.66%
Information and communications technology	29	34.94%
Knowledge of the DL 33/2011	Absolute frequency (Total=83)	Relative frequency (%)
Yes	60	72.29%
No	23	27.71%
Panel 2. Characteristics of founders		
No. of people	Absolute frequency (Total=83)	Relative frequency (%)
1	31	37.35%
2	27	32.53%
3	17	20.48%
4	8	9.64%
Gender	Absolute frequency (Total=168)	Relative frequency (%)
Male	133	79.17%
Female	35	20.83%
Age	Absolute frequency (Total=168)	Relative frequency (%)
< 25 years old	9	5.36%
25-34 years old	34	20.24%

35-44 years old	79	47.02%
45-54 years old	35	20.83%
55-64 years old	8	4.76%
≥ 65 years old	3	1.79%
Education	Absolute frequency (Total=168)	Relative frequency (%)
4th grade	1	0.60%
9th grade	4	2.38%
12th grade	21	12.5%
Associate degree	7	4.17%
Bachelor's degree	55	32.74%
Master's degree	65	38.69%
Doctor's degree	13	7.74%
Other	2	1.19%

Table 10. Descriptive statistics of start-ups and founders

	Variable	Obs.	Average	Std. Dev.	Min	Max
Start-up	Age	83	4.47	1.86	1	8
	Initial No. of employees	83	2.57	1.79	1	10
	District	83	2.20	0.69	1	4
	Industry	83	2.59	1.22	1	4
	Knowledge of the DL 33/2011	83	0.72	0.45	0	1
Founders	No. of People	83	2.02	0.99	1	4
	% Male	83	0.78	0.34	0	1
	% < 35 years old	83	0.23	0.39	0	1
	% 35-54 years old	83	0.70	0.43	0	1
	% > 55 years old	83	0.07	0.23	0	1
	% Master/Doctor’s degree	83	0.46	0.43	0	1

Table 11. Summary of reasons how start-ups established initial capital

Reason	Absolute frequency (Total=115)	Relative frequency (%)
Amount needed to assure NWC	44	38.26%
Available amount	28	24.35%
Minimum amount defined by law	15	13.04%
Benchmarking	12	10.43%
No reason	11	9.57%
Amount needed to obtain credit	5	4.35%

Table 12. Coefficients of OLS and Tobit models

Variables	OLS		Tobit	
Knowledge of the DL33/2011 (K_i)	-510.9	64.45	-510.9	64.45
	(5 888)	(5 958)	(5 446)	(5 313)
Initial No. of employees (S_i)	1 813	1 628	1 813	1 628
	(1 427)	(1 424)	(1 320)	(1 270)
Region (R_i)	-5 576	-5 174	-5 576	-5 174
	(4 311)	(4 384)	(3 987)	(3 909)
Industry (I_i)	3 125	2 107	3 125	2 107
	(2 283)	(2 412)	(2 111)	(2 151)
Gender		13 041		13 041*
		(8 201)		(7 313)
% founders younger than 35 years old		74 224		74 224
		(148 216)		(132 168)
% founders between 35 and 54 years old		86 241		86 241
		(147 849)		(131 841)
% founders with 55 years old or older		74 068		74 068
		(150 516)		(134 219)
% Master/ Doctor's degree		191		191
		(6 352)		(5 664)
Constant	3 995	-94 161	3 995	-94 161
	(18 270)	(150 582)	(16 898)	(134 278)
Observations	83	83	83	83
R-squared	0.098	0.182		

Table 13. Summary of start-ups' financing and investment

Panel A. Amount of bank financing in the first three years		
	Absolute frequency (Total=83)	Relative frequency (%)
€ 0 - € 1 000	68	81.93%
€ 1 000 - € 5 000	3	3.61%
€ 5 000 - € 10 000	1	1.20%
€ 10 000 - € 50 000	5	6.02%
€ 50 000 - € 100 000	2	2.41%
€ 100 000 - € 250 000	2	2.41%
> € 250 000	2	2.41%
Panel B. Amount invested in fixed assets in the first three years		
	Absolute frequency (Total=83)	Relative frequency (%)
€ 0 - € 2 500	25	30.12%
€2 500 - € 10 000	29	34.94%

€ 10 000 - € 25 000	7	8.43%
€ 25 000 - € 50 000	5	6.02%
€ 50 000 - € 100 000	9	10.84%
> € 100 000	8	9.64%

Table 14. Coefficients of Ordered Probit and Ordered Logit models

Variables	Probit	Logit
Knowledge of the DL33/2011 (K_i)	-0.631	-1.160
	(0.434)	(0.761)
Initial No. of employees (S_i)	-0.105	-0.170
	(0.0922)	(0.157)
Region (R_i)	0.500	0.871
	(0.384)	(0.684)
Industry (I_i)	-0.211	-0.373
	(0.201)	(0.363)
Equity (E_i)	3.35e-05***	6.55e-05***
	(1.01e-05)	(2.05e-05)
Constant cut1	5.627	18.83
	(1 339)	(8 570)
Constant cut2	5.837	19.20
	(1 339)	(8 570)
Constant cut3	5.917	19.35
	(1 339)	(8 570)
Constant cut4	6.472	20.35
	(1 339)	(8 570)
Constant cut5	6.858	21.04
	(1 339)	(8 570)
Constant cut6	7.499	22.25
	(1 339)	(8 570)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 15. Summary of reasons why startups changed or would change capital

Panel A. Reasons why start-ups proceeded to a capital increase		
Reasons	Absolute frequency (Total=39)	Relative frequency (%)
Changes in working capital needs	21	53.85%
Changes in partners' team	16	41.06%
Changes in financing needs	1	2.56%
No reason	1	2.56%
Panel B. Reasons why start-ups proceeded to a capital decrease		
Reasons	Absolute frequency (Total=3)	Relative frequency (%)

Changes in partners' team	2	66.67%
Release of excess capital	1	33.33%
Panel C. Summary of reasons why start-ups would change capital		
Reasons	Absolute frequency (Total=117)	Relative frequency (%)
Changes in partners' team	52	44.44%
Changes in working capital needs	36	30.77%
Changes in financing needs	14	11.97%
Release of excess capital	11	9.40%
Loss coverage	4	3.42%

Table 16. Coefficients of multinomial logistic model

Variables	Yes	Maybe	No
Knowledge of the DL33/2011 (K_i)	1.569*	0.471	(base outcome)
	(0.921)	(0.703)	
Initial No. of employees (S_i)	0.794**	0.738**	
	(0.332)	(0.320)	
Region (R_i)	0.117	0.491	
	(0.681)	(0.556)	
Industry (I_i)	0.282	-0.0201	
	(0.319)	(0.279)	
Equity (E_i)	-1.64e-05	-1.39e-05	
	(1.54e-05)	(1.35e-05)	
$Increase_i$	0.465	-0.294	
	(0.761)	(0.703)	
$Decrease_i$	-1.417	16.22	
	(6,126)	(4,793)	
Constant	12.97	13.56	
	(4,103)	(4,103)	
Observations	83	83	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix

Appendix 1. Questionnaire

Este questionário está integrado numa dissertação no âmbito do Trabalho Final de Mestrado em Finanças no ISEG Lisbon School of Economics & Management da Universidade de Lisboa que está a ser realizado por Inês Pêgo Mateus sob a orientação da Professora Ana Venâncio. Os objetivos deste questionário são analisar que razões levam os fundadores de uma empresa a definir o montante de capital, estudar como a decisão de estabelecer livremente o capital inicial afeta a estrutura de financiamento da empresa, em termos de passivo e capital próprio, e avaliar o seu efeito no longo prazo.

Desde 2011, de acordo com o Decreto-Lei nº 33/2011, as sociedades por quotas podem definir livremente o seu capital, a partir de € 1.00 por quota. Esta medida teve como intuito fomentar o empreendedorismo, reduzir os custos de contexto e de encargos administrativos e assegurar uma maior transparência nas contas da empresa. Esta diretiva é aplicada a todas as sociedades por quotas com exceção das pertencentes a determinados setores de atividade, nomeadamente agências de viagens e turismo, aluguer de veículos de passageiros sem condutor, construção e empreitadas de obras públicas, instituições de crédito e sociedades financeiras, segurança privada, sociedades desportivas, transporte de táxi, transporte rodoviário de mercadorias por conta de outrem ou transporte rodoviário em veículos pesados de passageiros.

O tempo estimado de preenchimento do questionário é de 10 minutos, sendo que não existem respostas certas ou erradas. Todos os dados fornecidos são de carácter confidencial, apenas serão utilizados para fins de tratamento estatístico e apresentados de forma agregada. Caso seja do seu interesse os resultados finais deste estudo poderão ser disponibilizados. Em caso de dúvida, agradecemos que contacte Inês Mateus (ines.mateus@hotmail.com) ou Ana Venâncio (avenancio@iseg.ulisboa.pt).

A. Inquirido

1. Género

◯ Feminino ◯ Masculino

2. Idade

◯ < 25 anos ◯ 35-44 anos ◯ 55-64 anos
◯ 25-34 anos ◯ 45-54 anos ◯ ≥ 65 anos

3. Nível de escolaridade

◯ 4º ano
◯ 9º ano
◯ 12º ano
◯ Bacharelato
◯ Licenciatura
◯ Mestrado
◯ Doutoramento
◯ Outro _____

B. Fundador(es) da empresa

4. Nome(s) fundador(es)

Fundador 1 _____ Fundador 3 _____
Fundador 2 _____ Fundador 4 _____

5. Género

	Feminino	Masculino
Fundador 1	◯	◯
Fundador 2	◯	◯
Fundador 3	◯	◯
Fundador 4	◯	◯

6. Idade

	< 25 anos	25-34 anos	35-44 anos	45-54 anos	55-64 anos	≥ 65 anos
Fundador 1	◯	◯	◯	◯	◯	◯
Fundador 2	◯	◯	◯	◯	◯	◯
Fundador 3	◯	◯	◯	◯	◯	◯
Fundador 4	◯	◯	◯	◯	◯	◯

7. Escolaridade

	4º ano	9º ano	12º ano	Bacharelato	Licenciatura	Mestrado	Doutoramento
Fundador 1	◯	◯	◯	◯	◯	◯	◯
Fundador 2	◯	◯	◯	◯	◯	◯	◯
Fundador 3	◯	◯	◯	◯	◯	◯	◯
Fundador 4	◯	◯	◯	◯	◯	◯	◯

C. Empresa

8. Nome_____

9. Data de fundação_____

10. Número inicial de colaboradores_____

11. Distrito

◯ Aveiro	◯ Coimbra	◯ Lisboa	◯ Viana do Castelo
◯ Beja	◯ Évora	◯ Portalegre	◯ Vila Real
◯ Braga	◯ Faro	◯ Porto	◯ Viseu
◯ Bragança	◯ Guarda	◯ Santarém	◯ Região Autónoma dos Açores
◯ Castelo Branco	◯ Leiria	◯ Setúbal	◯ Região Autónoma da Madeira

12. Setor de atividade

◯ Agricultura e pesca	◯ Indústria transformadora
◯ Alojamento e restauração	◯ Saúde
◯ Comércio por grosso ou a retalho	◯ Tecnologias de informação e comunicação
◯ Consultoria	◯ Outro _____

D. Capital próprio

13. Qual o montante de capital social inicial da empresa, em euros? _____

Nota: O capital social inicial representa o montante de entrada fornecido pelos sócios da empresa para o início de atividade da sociedade.

14. Que razões o levaram a definir o montante de capital social inicial?

□ Montante necessário para obter crédito junto de instituições financeiras

□ Montante necessário para obter crédito junto de fornecedores ou outras entidades

□ Montante necessário para investir em necessidades de fundo de maneio

Nota: Necessidades de fundo de maneio representam o montante que uma empresa necessita para assegurar o exercício normal da sua atividade (Cliente+Inventários-Fornecedores).

□ Montante necessário para investir em ativos fixos

Nota: Ativos fixos incluem os ativos imobilizados corpóreos e incorpóreos.

□ Montante necessário para contratar recursos humanos

□ Montante disponível pela equipa fundadora

□ Montante referido por diversas entidades e indivíduos

□ Montante usualmente alocado por empresas do mesmo setor de atividade

□ Montante necessário para assegurar a sobrevivência da empresa nos primeiros anos de vida

□ Montante definido por lei

□ Não houve razão específica

□ Outra _____

15. Já conhecia as alterações propostas pelo Decreto-Lei nº 33/2011 que possibilita a criação de empresas com € 1.00 de capital por quota?

◯ Sim ◯ Não

16. Já realizou um aumento de capital?

◯ Sim ◯ Não

16.1. Se sim, por que razão?

☐ Entrada de novo sócio
☐ Reforço da posição de um sócio
☐ Necessidade de investir em necessidades de fundo maneio
☐ Necessidade de realizar um projeto de investimento
☐ Necessidade de investir em capital fixo
☐ Necessidade de contratar recursos humanos
☐ Necessidade de obter crédito junto de instituições financeiras
☐ Acontecimento inesperado
☐ Nenhuma razão específica
☐ Outra _____

17. Já realizou uma redução de capital?

◯ Sim ◯ Não

17.1. Se sim, por que razão?

☐ Saída de sócio
☐ Redução da posição de um sócio
☐ Cobertura de prejuízos
☐ Alteração na legislação, tendo diminuído o montante mínimo de capital
☐ Libertação de capital em excesso
☐ Acontecimento inesperado
☐ Nenhuma razão específica
☐ Outra _____

18. Tem intenções de realizar um aumento de capital no futuro?

◯ Sim ◯ Não ◯ Talvez

19. Tem intenções de realizar uma redução de capital no futuro?

◯ Sim ◯ Não ◯ Talvez

20. Por que razão efetuaria um aumento ou redução de capital?

☐ Entrada/Saída de sócio
☐ Reforço/Redução da posição de um sócio
☐ Libertação de capital em excesso
☐ Cobertura de prejuízos
☐ Alteração nas necessidades de financiamento
☐ Necessidade de realizar um projeto de investimento

☐ Alteração na legislação, diminuindo o montante mínimo de capital
☐ Necessidade de contratar recursos humanos
☐ Nenhuma razão específica
☐ Outra

☐ Necessidade de investir em necessidades de fundo maneio
☐ Necessidade de investir em ativo imobilizado
Nota: O ativo imobilizado é formado pelos bens necessários à manutenção das atividades da empresa, apresentando-se na forma tangível.

E. Impacto no financiamento e investimento

Financiamento bancário

21. Qual o montante de financiamento bancário obtido pela empresa nos primeiros três anos?

◯ € 0 - € 1 000
◯ € 1 000 - € 5 000
◯ € 5 000 - € 10 000
◯ € 10 000 - € 50 000
◯ € 50 000 - € 100 000
◯ € 100 000 - € 250 000
◯ > € 250 000

22. Considera que o montante de capital social influencia a obtenção de financiamento bancário?

◯ Sim
◯ Não

Investimento em ativos fixos

23. Qual o montante de investimento em ativo fixo nos primeiros três anos da empresa?

◯ € 0 - € 2 500
◯ € 2 500 - € 10 000
◯ € 10 000 - € 25 000
◯ € 25 000 - € 50 000
◯ € 50 000 - € 100 000
◯ > € 100 000

24. Considera que o montante de capital social influencia o investimento em ativo imobilizado?

◯ Sim
◯ Não

Appendix 2. Email sent to start-ups

Assunto: Colaboração numa dissertação de mestrado

Bom dia,

O meu nome é Inês Pêgo Mateus, sou aluna do Mestrado em Finanças no ISEG Lisbon School of Economics and Management da Universidade de Lisboa e, no âmbito do Trabalho Final de Mestrado, sob a orientação da Professora Ana Venâncio, estou a realizar um estudo sobre as razões que levam os fundadores a utilizar o montante mínimo

de capital para iniciar a sua empresa. Os objetivos deste questionário são analisar que razões levam os fundadores de uma empresa a definir o montante de capital, estudar como a decisão de estabelecer livremente o capital inicial afeta a estrutura de financiamento da empresa, em termos de passivo e capital próprio, e avaliar o seu efeito no longo prazo.
Com vista à elaboração do mesmo, solicito a sua colaboração através da resposta ao seguinte questionário: (link) até ao dia 30 de abril de 2018.
O tempo estimado de preenchimento é de 10 minutos.
Todos os dados fornecidos são de carácter confidencial e apenas utilizados para fins de tratamento estatístico e serão apresentados de forma agregada.
Caso seja do seu interesse os resultados deste estudo poderão ser disponibilizados.
Antecipadamente grata.

Appendix 3. Email of reminder sent to start-ups

Assunto: Colaboração numa dissertação de mestrado
Bom dia,
O meu nome é Inês Pêgo Mateus, sou aluna do Mestrado em Finanças no ISEG Lisbon School of Economics and Management da Universidade de Lisboa. Peço perdão por voltar a insistir neste assunto, mas aproxima-se a data de entrega do meu estudo sobre as razões que levam os fundadores a utilizar o montante mínimo de capital para iniciar a sua empresa. Assim sendo, solicito novamente a sua colaboração para o meu Trabalho Final de Mestrado através do seguinte questionário: (link) até ao dia 30 de abril de 2018.
Os objetivos deste questionário são analisar que razões levam os fundadores de uma empresa a definir o montante de capital, estudar como a decisão de estabelecer livremente o capital inicial afeta a estrutura de financiamento da empresa, em termos de passivo e capital próprio, e avaliar o seu efeito no longo prazo.
Relembro que o tempo estimado de preenchimento é de 10 minutos, que todos os dados fornecidos são de carácter confidencial e apenas utilizados para fins de tratamento estatístico e serão apresentados de forma agregada e que, caso seja do seu interesse, os resultados deste estudo poderão ser disponibilizados.
Antecipadamente grata.

Appendix 4. Interview Script

1. Fundador(es) da empresa

1.1. Pertence à equipa fundadora?

1.2. Por quantos membros era formada?

1.3. Qual o género dos seus membros?

1.4. Qual a idade dos seus membros?

1.5. Qual o nível de escolaridade dos membros da equipa fundadora?

2. Empresa

2.1. Qual a data de fundação da empresa?

2.2. Qual o seu número inicial de colaboradores?

2.3. Qual o distrito da sede?

2.4. Qual o seu sector de atividade?

3. Capital Próprio

3.1. Qual o montante de capital social inicial da empresa, em euros?

3.2. Que razões o levaram a definir o montante de capital social inicial?

3.3. Já conhecia as alterações propostas pelo Decreto-Lei nº 33/2011 que possibilita a criação de empresas com € 1.00 de capital por quota?

3.4. Já realizou um aumento de capital? Por que razão?

3.5. Já realizou uma redução de capital? Por que razão?

3.6. Tem intenções de realizar um aumento de capital no futuro? Por que razão?

3.7. Tem intenções de realizar uma redução de capital no futuro? Por que razão?

4. Impacto no financiamento e investimento

4.1. Qual o montante de financiamento bancário obtido pela empresa nos primeiros três anos?

4.2. Considera que o montante de capital social influencia a obtenção de financiamento bancário?

4.3. Qual o montante de investimento em ativos fixos obtido pela empresa nos primeiros 3 anos?

4.4. Considera que o montante de capital social influencia o investimento em ativo imobilizado?