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UNIVERSIDADE TÉCNICA DE LISBOA
DESDE 1911
ISEG

MESTRADO EM
FINANÇAS

TRABALHO FINAL DE MESTRADO
DISSERTAÇÃO

START-UP FINANCING: WHAT HAS CHANGED SINCE THE 2008-2009 CRISIS?

RIAZ AMIN MAHOMED

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ORIENTAÇÃO:

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Abstract

This paper analyzes the impact of the 2008-2009 crisis on new firms' initial capital structure. There is strong evidence that the recent financial crisis has severely affected not only firm creation and firm survival but also its ability to obtain external financing. Financial institutions and vulnerable countries are also struggling to keep their finances in order amidst the financial turmoil in the banking sector and the near-bankruptcy of some countries. Using Portuguese micro-level firm and matched employer-employee data that contain unique and detailed information on firms, founders and year-end financial data, we first evaluate the effect of the financial crisis on firm entry. Then, we evaluate the changes on new firms' initial capital structure in the period between 2004 and 2009. Particularly, we evaluate the effect of the crisis on internal and external capital, and within the last category, leasing, trade credit and bank loans. Results suggest that firms in Portugal were somewhat affected by the financial crisis. However, the magnitude of the results is not severe. Our results show that firm entry was negatively affected in 2009 by 0.02, showing that the financial crisis started to impact firm creation in 2009. Also, data shows a decrease of 0.03 in external capital and an increase of 0.03 in internal capital in 2009, suggesting a substituting effect between outside and internal financing. Regarding trade credit, results show an increase of 0.20 in 2008 and 0.18 in 2009, pointing to an increase in this kind of financing as the financial crisis settles in Portugal. Finally, no significant effect was found on leasing, short-term bank loans and long-term bank loans due to the financial crisis.

***JEL Classification*:** G32, L26, M13

Keywords: Financial Crisis, New Ventures, Start-ups, Capital Structure, Firm Entry

Resumo

Esta dissertação analisa o impacto da crise de 2008-2009 na estrutura de capital inicial das novas empresas. Existem fortes evidências de que a crise financeira afectou severamente não só a criação e sobrevivência das novas empresas mas também a sua capacidade de obter financiamento externo. Instituições financeiras e países mais vulneráveis têm tido dificuldades em manter a sua situação financeira estável no meio do tumulto financeiro que afectou gravemente o sector financeiro e quase levou alguns países a falência. Utilizando uma base de dados única de empresas, fundadores e empregados com informação detalhada sobre as características demográficas e educacionais de cada individuo e informação financeira, avaliamos, em primeiro lugar, o efeito da crise financeira na criação de empresas. Seguidamente, avaliamos as alterações na estrutura de capital inicial das empresas no período compreendido entre 2004 e 2009, nomeadamente no capital interno e externo, e dentro desta ultima categoria, no *leasing*, no *trade credit* e nos empréstimos bancários. Os resultados sugerem que as empresas em Portugal foram afectadas pela crise financeira. No entanto, a magnitude dos resultados não é severa. Os resultados mostram que a criação de empresas foi negativamente afectada em 2009 em 0.02, mostrando que a crise financeira apenas começou a ter um efeito negativo na criação de empresas em 2009. Os dados também mostram uma diminuição de 0.03 no capital externo e um aumento de 0.03 no capital interno em 2009, reflectindo o efeito de substituição entre financiamento externo e fundos internos. Relativamente ao *trade credit*, os resultados mostram um aumento de 0.20 em 2008 e de 0.18 em 2009, sugerindo um aumento deste tipo de financiamento a medida que a crise se instala em Portugal. Por fim, não foram encontradas evidencias

empíricas sobre o impacto da crise financeira no *leasing* e nos empréstimos bancários de curto e de longo prazo.

***Classificação JEL*:** G32, L26, M13

Palavras-chave: Financial Crisis, New Ventures, Start-ups, Capital Structure, Firm Entry

Acknowledgements

I wish to thank my supervisor, Prof. Ana Venâncio, for the recommendations, support and availability which were vital for the success of this paper.

We thank the Portuguese Ministry of Employment and Social Security and Gabinete de Estratégia e Planeamento for giving us access to the matched employer-employee data.

We also thank the Instituto Nacional de Estatistica for providing us with the financial information database and for matching it to the employer-employee database.

All errors remain our own. Views expressed are those of the author and do not necessarily reflect those of any branch or agency of the Government of Portugal.

Finally, I also wish to thank my family and friends for the continued and endless support given to me throughout the length of this project.

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1. Introduction

The belief that lack of financial capital limits firm entry, performance, and survival is not new, and has grown during the recent economic crisis. Lack of finance is perceived as one of the major obstacles to firm's growth and investment.[1] Nevertheless, financial capital is even more crucial for new ventures as they often struggle to survive with very low or no income in the first years. Ventures with a larger pool of financial resources can invest more in innovation and marketing, recruit higher quality individuals and have higher flexibility to overcome potential threats or managerial mistakes.

When there is an economic shock, market failure or credit crunch, smaller and riskier ventures will have more difficulties in obtaining sufficient funds (Berger and Udell, 1998), which may lead to a decrease in performance, investment, and even failure (Gries and Naude, 2011). Recent studies strongly demonstrate this point. Entrepreneurial activity has declined sharply with the recent financial crisis as entrepreneurs face more difficulties in starting their businesses (Bosma and Levie, 2010; Lerner, 2010; Shane, 2011). These difficulties are likely to extend to funding decisions. Therefore, in this study, we will evaluate the changes in the sources of finance for new ventures during the 2008-2009 financial crisis.

While there has been some research on understanding the determinants of firms' initial capital structure and on evaluating the impact of macroeconomic conditions on firm creation, the effect of the 2008-2009 financial crisis on ventures' initial capital structure decisions and sources of finance remain partially unexplored and therefore it will be the

[1] As suggested by Watson, Hogarth-Scott and Wilson (1998); Chandler and Hanks (1998); Ortqvist et al. (2006); Bhaird and Lucey (2006); Musso and Schiavo (2007) and Gries and Naude (2010), lack of finance is one of the reasons why some businesses fail or cease their activities.

focus of this study. Our paper contributes to this discussion by answering the following research questions: 1) What effect did the financial crisis have on ventures' initial capital structure? and; 2) How did new ventures cope with difficulties in raising money?

To answer our key questions, we use data from Portugal. We combine firm-level financial data with a matched employer-employee database. Our data provides detailed information on new firms established in each municipality between 2004 and 2009. For each firm, we gather detailed information on the characteristics and year-end financial data of the start-up, and also founder demographic and educational characteristics.

Portugal provides an excellent context in which to evaluate the impact of the current financial crisis on start-ups' financial decisions. Portugal has experienced an uneven and modest economic growth rate in the period between 2000 and 2009. Also, during the last two decades, the country has experienced high levels of public deficit and public debt. With the increased pressure from bond traders and ratings agencies in late 2010 and early 2011, interest rates on sovereign debt increased dramatically, forcing the Portuguese government to request a bailout package from the International Monetary Fund/European Union in April 2011. This distress situation ended up spreading to the private sector.

Our results show that firm entry decreased by 0.02 in 2009, suggesting that the financial crisis started to impact firm creation in 2009. Results also show that internal capital increased and external capital decreased in 2009 both by 0.03, showing that availability of external financing tightened and internal sources were used to compensate this fact. In terms of trade credit, results show an increase of 0.20 in 2008 and 0.18 in 2009,

showing an increase in this type of financing perhaps due to more restrictions on outside financing. Regarding leasing, short-term bank loans and long-term bank loans, no changes were obtained in these variables before and after the financial crisis. Therefore, results suggest that until 2009, the financial crisis did not fully impact start-ups' formation and their capital structure in Portugal.

This study has implications for policy makers and practitioners. A more thorough understanding of the impact of the financial crisis on financial sources can help policy makers to define better funding programs and policies for start-ups. On the other hand, practitioners will be able to understand which funding strategies are available to cope with the crisis and determine alternative sources of funding.

The remainder of this paper is structured as follows. Section 2 provides an overview of the relevant literature regarding the theories on ventures' capital structure and the impact of macroeconomic conditions on entrepreneurial activity. Section 3 presents the theory and the hypothesis that will be tested. Section 4 reviews Portugal's macroeconomic and financial environment in the last two decades. Section 5 provides a description of our dataset and descriptive statistics. Section 6 discusses our methodological approach, econometric methods and variables and presents our results. Section 7 concludes.

2. Literature Review

Firm's capital structure and financing decisions have been thoroughly studied since Modigliani and Miller's (1958) seminal article regarding the irrelevance of capital structure decisions on the value of a company. In this section, we will start by summarizing the main sources of funding available to firms in general and to new ventures; next, we provide a summary of the theories of finance and empirical work on the determinants of firm's capital structure; then, to conclude this section we present the main conclusions from the relevant literature regarding the effect of macroeconomic conditions on firm's capital structure and the impact of the current financial crisis on new venture creation.

2.1 Sources of Finance for New Ventures

To finance their investments, established firms raise both debt and equity. Within the broad categories of debt and equity, there are a variety of instruments and vehicles that firms can use. Most commonly, debt is raised through short or long-term bank loans, bond loans or leasing. Equity can be obtained from current shareholders, venture capitalists, private equity investors and new investors by issuing common stock. The latter is only available for publicly traded firms (Ang, 2000).

New ventures have more difficulties in raising financial capital compared to established and large companies. Start-ups have no prior financial or operating history and hence, no reputation or track-record (Cassar, 2004; Huyghebaert and Van de Gucht, 2007), and

therefore face unique problems[2] at almost every stage of their development (Walker, 1989; Ang, 2000; Cassar, 2004). New ventures may not be able to obtain all of the desired capital if they lack significant assets that can be used as collateral (Cosh, Cumming and Hughes, 2009). Korosteleva and Mickiewicz (2011) state that one of the common problems for start-ups is raising sufficient capital to launch and operate successfully and thus is one of the major constraints for entrepreneurship. Therefore, the choices of funding are narrower for new and small private firms.

In the context of new ventures, the categorization of debt and equity is blurred and consequently previous studies propose the internal and external capital framework (Myers, 1984; Myers, 2001). In this framework, internal and external capital are divided into debt and equity.[3] Usually, firms use internal sources (i.e. internally generated cash flows) to fund their investments (Damodaran, 2004). However, this kind of funding can be insufficient, and external sources are used to cope with additional financing needs. To finance their businesses on very early stages, entrepreneurs use their own personal savings and raise funds from friends and family.[4] At this stage, the finances of the firm are intertwined with those of the entrepreneur (Coleman, 2008) and business bankruptcy can cause personal bankruptcy (Ang, 1992). Bank loans, which are usually guaranteed by the entrepreneurs' personal assets, and trade creditors, have also been shown to be important sources of finance on ventures' early stages.[5] Over time, retained profits and short-term financing become the main sources of financing for small firms (Lucey and Bhaird, 2006). In fact, Robb and Robinson (2010) find that owner-backed bank loans

[2] Some of these unique problems relate to the non-disclosure of financial information and more severe information asymmetries. For a detailed review on the uniqueness of small firms, see Ang (2000).
[3] Regarding internal capital, equity refers to the initial capital and the cash flow provided by the founder, whereas debt refers to shareholders' loans. In what concerns external capital, equity refers to venture capitalists, angels, and private firms, whereas debt refers to short and long-term bank loans and other types of loans.
[4] As stated by Ang (1992); Berger and Udell (1998); Ang (2000); Cassar (2004); Coleman (2008); Gartner, Frid and Alexander (2010); and Lerner (2010).
[5] See, for example, Walker (1989); Berger and Udell (1998); Ang (2000); and Bitler, Robb and Wolken (2001).

and business credit cards are the primary source of financing for start-up firms during their first year, although informal investors are also important. Their evidence refute the commonly held idea that start-ups lack access to formal capital markets and thus are forced to rely on informal financing and bootstrap financing.[6] Bootstrapping methods are generally used as a reactionary measure to financial constraints, and firms that are more likely to bootstrap are highly-leveraged, underperforming and cash-constrained. Young firms tend to use owner-related, joint-utilization and delaying-payments methods of bootstrapping, which may be detrimental to subsequent firm performance, particularly in periods of financial constraint (Ebben, 2009). Crowdfunding[7] has recently been used to finance start-ups, however its importance is relatively small.

Entrepreneurs desire to maintain control of the firm, due to the prestige and status of ownership, power to decide on business strategy and independence from superiors (Huyghebaert and Van De Gucht, 2007; Coleman, 2008), and hence some may refrain from using venture capitalists (VCs) and angel funds on early stages. VCs usually play an active role in firms in which they invest, providing mentoring, strategic advice, human resource services and support in the marketing of products. VC investment is sometimes done through multistage financing in order to reduce information asymmetry issues, as more information is gathered through time (Ang, 2000). VCs also certify the value of companies to the marketplace. However, regardless of the benefits of VCs, this source of funding can be very expensive as it usually demands high rates of return for its investments (Denis, 2004). Angel investing is usually done at new ventures' early

[6] Bootstrap financing are methods for obtaining finance that collectively reduce the need for outside funds. For example, the use of owner-provided funding, factoring, trade credit, joint-utilization of facilities or resources and delaying payments are some of the most common bootstrapping methods. For more information on bootstrapping and the financial condition of small firms, see Ebben (2009).

[7] Crowdfunding refers to the collective efforts of individuals who pool their resources in order to obtain funding for start-ups or other types of organizations or projects. Crowdfunding is usually promoted in the Internet. See a Portuguese example on the internet website http://ppl.com.pt/pt.

stages in the life cycle,[8] and their investments are typically smaller and concentrated on younger companies. It is reported that angels do not provide as much support services to the companies as VCs, but act as a type of bridge financing until the firm is able to receive VC financing (Denis, 2004). Angels differ from VCs in that they are often private and wealthy individuals and do not operate in a structured market as VCs do.

2.2 Theories of Capital Structure

Several theories have been put forward to explain the capital structure of firms, targeting mostly established firms.

The trade-off theory argues that firms will evaluate the benefits and costs of having debt,[9] and will therefore find an optimal balancing between debt and equity in order to maximize the value of the company through the financial structure (Castanias, 1983; Shyam-Sunder and Myers, 1999; Damodaran, 2004).

Another theory that analyzes the capital structure of firms through time is the life-cycle theory. This theory states that the financing alternatives and decisions of firms vary according to their stage of development, and therefore firms seek different types of funding according to their particular stage in the life of the business (Berger and Udell, 1998). The life-cycle theory applies to young firms. In support of this fact, Walker (1989) concludes that small firms change their capital structure as they develop from new firms to developed, established and finally mature firms. As such, the capital structure of small firms is time and industry-dependent, which influence the total level

[8] This type of investment is commonly referred to as seed capital.
[9] Benefits on the use of debt include interest tax shields and higher discipline imposed on managers regarding investment opportunities; Costs of using debt include agency costs of debt and financial distress costs.

of debt as well as its maturity structure. The proportion of funds from insiders (entrepreneurs' wealth, business associates, family and friends) rises during the early stages of the firms' life cycle, while the proportion from external financing (banks, venture capitalists and private investors) decreases. These patterns eventually reverse as the firm matures (Fluck, Holtz-Eakin and Rosen, 1998).

The financing decisions of firms have also been associated with the pecking order theory (Myers, 1984; Myers and Majluf, 1984). This theory states that firms have a tendency to rely on internal sources of funds, and if external sources of finance are needed they prefer external debt to external equity financing. This means that firms have a preference for less risky and cheaper sources of finance first. This theory is associated with the problem of asymmetric information, in which managers usually have better information about the firm than outside investors. When information asymmetries are high, a higher risk is perceived by outside investors who tend to demand a premium, which results in a high cost of capital. Information asymmetries can also lead to moral hazard (De Meza and Webb, 1987), adverse selection (Akerlof, 1970) and risk shifting incentives.[10] The pecking order theory of finance is also associated with entrepreneurial ventures, as information asymmetry issues complicate access to start-up capital (Nofsinger and Wang, 2011). While several authors conclude that the traditional pecking order theory is applicable to start-ups and small firms,[11] this issue is still a topic of discussion. For example, Garmaise (2001) argues that the pecking order is reversed for new and small ventures, where outside investors like banks and venture capitalists have greater expertise in evaluating the quality of the project than the

[10] Moral hazard problems arise when managers take undue risks, being the cost of those risks borne by investors. Adverse selection refers to the fact that when there are information asymmetries, bad investments may be chosen by investors in detriment of good ones. Risk shifting problems occur when managers take excessive risks for the benefit of their shareholders but at the expense of debtholders, which usually occurs when firm leverage is high.

[11] See, for example, Chittenden, Hall and Hutchinson (1996); Berger and Udell (1998); Ang (2000); Lucey and Bhaird (2006); Coleman (2008); Cosh, Cumming and Hughes (2009); and Robb and Robinson (2010).

entrepreneur, and therefore entrepreneurs prefer external equity to debt financing. Banks tend to reduce their exposure to information asymmetry problems by financing a smaller portion of debt and limiting loan size. Small firms tend to compensate this fact with leasing and trade credit (Michaelas, Chittenden and Poutziouris, 1999; Huyghebaert and Van de Gucht, 2007). In fact, leasing seems to bring some advantages to small firms.[12]

2.3 The Determinants of Capital Structure: Empirical Evidence

Most of the studies regarding the capital structure of firms are based on the determinants of capital structure choice. Asset structure (tangibility of assets) seems to be the most important determinant of firm's capital structure, notwithstanding some controversy that still exists regarding the sign of the relationship.[13] Firms in high growth industries tend to raise a significantly larger fraction of bank debt (Huyghebaert and Van de Gucht, 2007; Cosh, Cumming and Hughes, 2009). Industry effects, macroeconomic conditions and time also appear to influence the capital structure of small and start-up firms.[14] The operating risk and size of a firm have also been shown to have positive relationships with leverage,[15] while profitability appears to have a negative relationship with leverage (Michaelas, Chittenden and Poutziouris, 1999;

[12] For instance, leasing provides small business owners with the option to terminate two commitments – asset ownership and financing. There is also the possibility of mispricing by leasing companies, charging the same rate for all types of businesses, which small business owners may find attractive (Ang, 1992).

[13] Cassar (2004) finds that asset structure has a significant influence on capital structure, being negatively related to leverage and outside financing and positively related to long-term leverage and bank financing. Ortqvist et al. (2006) also find that asset structure is the single most important determinant of capital structure, being strongly negatively related to short-term debt and strongly positively related to long-term debt.

[14] For a detailed explanation, see Walker (1989); Berger and Udell (1998); Fluck, Holtz-Eakin and Rosen (1998); Michaelas, Chittenden and Poutziouris (1999); Barbosa and Moraes (2004); Lucey and Bhaird (2006); and Coleman (2008).

[15] As shown by Fluck, Holtz-Eakin and Rosen (1998); Michaelas, Chittenden and Poutziouris (1999); Barbosa and Moraes (2004); Cassar (2004); and Huyghebaert and Van de Gucht (2007).

Barbosa and Moraes, 2004; Coleman, 2008). There is some disagreement regarding the relationship of age and the entrepreneur's risk-tolerance with firm leverage.[16]

Table 1 summarizes the main empirical evidence regarding the determinants of capital structure.

Nevertheless, the controversy of the results may reflect differences on the market/context, methods of analysis and sample characteristics.

2.4 The Impact of Macroeconomic Conditions

In this subsection, we will focus on the effect of macroeconomic conditions not only on capital structure, but also in firm entry and survival.

The ability to raise capital is affected by fluctuations in macroeconomic conditions, such as shocks to the financial sector (Berger and Udell, 1998). In periods of economic expansion, firms are typically able to borrow more funds (Hackbarth, Miao and Morellec, 2006), whereas in periods of recession, established firms with a record of good performance are more likely to be able to raise new debt compared to new and young ventures (Ferri and Jones, 1979). Average short-term debt ratios increase during periods of economic recession and decrease as the economic conditions improve. In contrast, long-term debt ratios are positively related to economic growth (Michaelas, Chittenden and Poutziouris, 1999). Depressed economic conditions are also associated with the likelihood of non-repayment of debt (Leeth and Scott, 1989).

[16] For example, see Michaelas, Chittenden and Poutziouris (1999); Barbosa and Moraes (2004); Cassar (2004); Lucey and Bhaird (2006) and Ortqvist et al. (2006).

As noted before, young firms are more likely to bear a disproportionate share of loss of funding that occurs when there is a market failure because of the information opacity problem (Berger and Udell, 1998). Also, a financial crunch impairs the ability of entrepreneurs to innovate, as they substitute internal finance towards working capital purposes (Gries and Naude, 2011). During periods of crisis, trade creditors may provide extra funds to compensate for the loss of bank funding (Berger and Udell, 1998).

Firm entry and survival are also affected by macroeconomic conditions. Recent studies that investigate the impact of the 2008-2009 financial crisis on new firm creation find that the crisis negatively affects not only the survival rate of existing firms but also new firm creation and funding decisions.[17] Because of the current financial crisis, investors' willingness to finance innovative entrepreneurship diminishes significantly and venture firms have difficulties in raising follow-on capital (Lerner, 2010; Shane, 2011; Klapper and Love, 2011). Lerner (2010) argues that raising money for new entrepreneurial ventures has been very difficult due to the collapse of the financial markets and that wealthy individual investors are reluctant to fund ventures in today's economy due to increased risk aversion. Klapper and Love (2011) find that the speed and intensity with which the crisis affected new firm creation varied by the countries' income level and crisis intensity. They also suggest that countries where start-ups rely more on the banking sector are more likely to experience larger contractions in new firm creation as a result of the credit crunch and withdrawal of finance that characterized the crisis. Bosma and Levie (2010) suggest that nascent entrepreneurial activity dropped from 8 percent in 2005 to 5 percent in 2009 amongst the U.S. working age population, but nonetheless with an increase in necessity-driven entrepreneurship.

[17] For example, see Areas (2009); Koellinger and Thurik (2009); Naude and McGee (2009); and Gries and Naude (2011).

The next section develops the hypothesis to evaluate the impact of the recent financial crisis on new ventures' initial capital structure.

3. Theory and Hypothesis

To finance their activities, new ventures need to raise capital. On a financial crisis conjuncture, new ventures will have more difficulties in raising capital from external sources. Therefore, a reduction on the proportion of external capital is expected as asymmetric information problems increase. Outside investors will demand more information, prefer liquidity over non-liquid assets and will provide less funding than in normal economic periods. Moreover, banks may be less willing to provide funds as there is shortage of credit and financial institutions struggle to fix their own financial and capital situation. Also, anecdotal evidence suggests that general risk-aversion rises in times of financial constraint. In contrast, to compensate for the lack of external funds, shareholders will raise more funds from their own sources. This gives entrepreneurs the ability to signal to the market that their venture is of quality by investing personal assets in the firm (Huyghebaert and Gucht, 2007).

Hypothesis 1: The financial crisis has a negative impact on external capital

Hypothesis 2: The financial crisis has a positive impact on internal capital

As stated earlier, bank loans play a pivotal role in early venture financing. As the financial crisis cripples the liquidity ratios of banks and the amount of bad debts rise, bank loans should decrease for new ventures, especially for the ones with no credit rating or reputation. Nevertheless, it is important to distinguish between short-term and long-term loans. The amount of short-term loans is expected to increase relative to the amount of long-term loans. In periods of crisis, long term loans may subject the lender to a higher credit risk due to the increased maturity. This is related to the fact that long-

term loans require a long-term commitment of the firm with the lender, and usually young firms are riskier and more prone to bankruptcy than large and/or established firms. Also, long-term loans in times of recession might require some sort of collateral in the form of tangible assets that younger firms might just still not possess.

Hypothesis 3a: The financial crisis has a positive impact on short-term bank loans

Hypothesis 3b: The financial crisis has a negative impact on long-term bank loans

Trade credit can be an important source of finance for new ventures, providing additional funds in periods of shortage of external funding. Petersen and Rajan (1997) find that firms use relatively more trade credit when credit from financial institutions is not available. They also argue that while short-term trade credit may be routinely used to minimize transactions costs, medium-term borrowing against trade credit is a form of financing of last resort. Suppliers lend money to firms when banks and other institutions are reluctant to do so, especially in periods of financial crisis. Suppliers may have a comparative advantage in getting information about the creditworthiness of buyers, they can control the buyer by threatening to cut future supplies, they have a better ability to seize the goods that are supplied in case the buyer defaults, and they have a greater implicit equity stake in the firm's long term survival (Petersen and Rajan, 1997). Love (2011) also argues that trade credit serves as an important source of finance for financially constrained firms because of the advantages mentioned before, suppliers might be better able than financial institutions to overcome information asymmetry problems. In this sense, an increase in trade credit is expected in a financial crisis situation.

Hypothesis 4: The financial crisis has a positive impact on trade credit

Just as trade credit, new ventures might use leasing more often in periods of crisis. As stated by Ang (2000), the cancellation option present in leasing contracts allows new ventures to overcome mistakes. Also, Huyghebaert and Gucht (2007) argue that start-ups with high adverse selection and risk shifting incentives may recourse to other debt sources to compensate the lower bank debt, with a preference on leasing. Adverse selection and risk shifting incentive problems are usually heightened in a financial crisis due to more asymmetric information problems. Therefore, we expect:

Hypothesis 5: The financial crisis has a positive impact on leasing

The hypotheses developed in this section assume that demand for financial resources during the financial crisis did not change considerably, and therefore they only consider the supply side effects.

4. Portugal's Macroeconomic and Financial Environment

To better frame the paper's results, we will briefly describe the main features of the Portuguese economy in the last two decades.

Since joining the European Union in 1986, Portugal became a modernized economy with a stable economic growth. Privileged access to the European market, low labor costs, inflows of European funds, and low interest rates pushed Portugal's competitive position. Between 1996 and 2000, the economy experienced a period of growth, reaching an average annual rate of approximately 4 percent. However, from 2001 to 2005 growth decelerated, and a recession of approximately 1 percent occurred in 2003. Since then, growth has remained very modest. Portugal's competitive position deteriorated in the beginning of 2000, due to the imposition of a fixed exchange rate, the enlargement of the European Union in 1999/2000 and the elimination of trade barriers with low-income countries. Along with the rest of the world, Portugal entered into a recession in 2009 (see Figure 1).[18]

Deliberate policy choices by successive governments to promote economic growth and employment over the last two decades have put Portugal in a position of a high public deficit and high public debt. The current financial crisis further highlighted these issues, as it aggravated the availability of funds to face the state's financial commitments such

[18] The 2008-2009 global economic crisis started due to the US's sub-prime mortgage. It created the biggest economic downturn since the great depression. Since its emergence, the economies of developed countries have been facing harsh difficulties, with economic recession and unemployment reaching historical highs. This crisis was set off by a complex series of liquidity problems and by the housing bubble that started in the US in 2007. Exaggerated sub-prime lending led to evictions and foreclosures, resulting in a decline of the securities backing the mortgages. The result was the collapse of financial institutions, the failure of banks and the extinction of key businesses. As credit rating agencies failed to correctly evaluate the risk of mortgage-related financial products, investors' confidence declined severely.
In Europe, the crisis affected banks' liquidity and the sovereign debts of some particularly vulnerable countries, namely Ireland, Greece, Portugal and more recently Italy and Spain. With banks facing financial constraints, difficulties to keep up with minimum regulatory ratios and bad debts, credit and lending activities diminished significantly.

as interest payments, public servants' wages and debts to the private sector, among others.

Shortly after the beginning of the financial crisis, Portugal had to bailout two banks as they were on the verge of collapsing and affecting the entire Portuguese banking system. This led to a considerable stress to the public accounts as it raised an already high public deficit, reaching its highest in 2010. Figure 2 shows the evolution of Portugal's Gross Consolidated Debt, in percentage of GDP, over the last ten years. From 2000 to 2007, public debt as percentage of GDP rose from 50 to 65 percent, whereas from 2007 to 2010 it increased significantly to 85 percent.

With the increased amount of debt raised by Portugal in the financial markets, investors and ratings agencies feared that Portugal's high debt and deficit levels would cause the country to fail on its financial obligations, just like Ireland and Greece, which made risk premiums on government bonds reach historical highs. From 2010 to 2012, the yield increased from 4 percent to 14 percent (see Figure 3).

Related to economic performance, the unemployment rate decreased steadily from 4.9 percent in 1998 to 3.9 percent in 2000. Since then, the unemployment rate has been increasing, reaching its highest of 12.7 percent in 2011 (see Figure 4). Table 2 provides a brief summary of Portugal's economic performance by NUTS III regions.

In April 2011, the Portuguese government was forced to request a € 78 billion bailout package to avoid bankruptcy. To cope with the state's financial distress situation and as part of the financial bailout program imposed to Portugal by the IMF and the EU,

Portugal enacted several austerity measures to reduce its budget deficit. Such measures ranged from raising income and indirect taxes, lowering public servants' wages and cutting down holidays to improve productivity, amongst others.

5. Data and Descriptive Statistics

Our analysis draws on a matched employer-employee database (QP - *"Quadros de Pessoal"*) combined with the SCIE (Simplified Corporate Information) financial database.

QP is a mandatory survey submitted annually to the Portuguese Ministry of Employment and Social Security (MESS) by firms with at least one employee. It gathers comprehensive information on more than 200,000 firms and 2,000,000 individuals per year, covering almost the entire Portuguese private sector from 1986 to 2009. The mandatory nature of the data and its public availability imply a high degree of coverage and reliability. As individuals and firms are matched by a unique identifier, the longitudinal dimension of the database makes it possible to trace the mobility of entrepreneurs across firms, match founders with their respective ventures and identify firm entry and exit accurately. The MESS implements several mechanisms to ensure that a firm that already has an identifier is not given a different identification number. The raw data is organized in three datasets, aggregating information at the firm level, individual level and establishment level. For each firm, the following data is available: year of creation, location, size, industry, number of establishments, initial capital and ownership structure. At the founder level, the database contains information on gender, age, education and experience. Information on civil servants, armed forces workers, agricultural and fisherman workers, self-employed, unpaid family workers, domestic work, apprentices and unemployed workers is not available. Only eligible researchers may have access to QP under specific rules of micro-data confidentiality protection.

As the previous dataset lacks economic and financial information, we use the SCIE. The SCIE is available from 2004 to 2009 and it collects year-end information on accounting variables on private firms and self-employed individuals in Portugal. This database will allow us to have detailed information on firm's capital structure. The SCIE is a mandatory survey that results from institutional cooperation among the Portuguese Ministry of Justice, Ministry of Finance and Public Administration, National Institute of Statistics (INE) and Portuguese Central Bank. It is an integrated reporting system that meets different disclosure needs, namely trade registers and provision of notarial services, accounting statements and tax returns, production of statistics and economic analysis of corporations and activity sectors. An exact match between SCIE and QP was provided by the INE.

From the QP, we start by selecting all start-ups established between 2004 and 2009. For these new firms, we identify the founders and their background history. We exclude firms for which we could not identify at least one owner or the background history of the founder.[19] We also restrict the sample to founders with age between 20 and 60. In total, we end up with 24,375 highly-educated entrepreneurs, who founded 17,239 new firms during the period between 2004 and 2009. After merging with SCIE, we end up with 10,936 founders of 7,774 new firms.

Table 4 summarizes the descriptive statistics of our sample. The start-ups in our data are usually small, employing on average four employees and are founded on average by one entrepreneur. Firms were established, on average, in 2007 and only 6,639 survived until 2009. The founders are mostly men (58 percent) and are on average 34 years old (49

[19] For the employees, the data include some cases in which the record changes in gender and year of birth. We consider observations with multiple changes in the gender or year of birth to be errors, corresponding to individuals whose identification number was not recorded, or wrongly identified by the respondent. We drop individuals whose gender and year of birth change in more than 70 percent of the total number of observations.

percent of founders are aged between 30 and 39, 31 percent are aged between 20 and 29, 14 percent are aged between 40 and 49 and the remaining 6 percent are aged between 50 and 60) . Also, 93 percent of founders have Portuguese nationality and the remaining 7 percent are foreign. Regarding the field of education, 24 percent of founders are from the business and administration area, 20 percent are from engineering, 12 percent are from healthcare and the remaining 44 percent are spread across multiple education areas. Finally, 83 percent of founders have no previous working experience in the same industry, 66 percent have no previous regional experience and 63 percent has had some sort of entrepreneurial experience before.

Regarding capital structure, on average, 54 percent of the financial capital of start-ups originates from internal capital, and the remaining 46 percent comes from external sources. Leasing and short-term bank loans seem to be important sources of finance, representing 8 percent and 6 percent of the financial capital respectively. The average amount of internal capital in our sample is € 50,138 while the average amount of external capital is € 108,053. On average, short-term bank loans amount to € 15,282, while long-term bank loans amount to € 16,237 and leasing reaches € 12,840.

6. Methodological Approach, Variables and Results

Our empirical strategy consists in comparing venture start-up financing before and after the financial crisis, controlling for variables such as founder and venture characteristics and industry and municipality fixed effects.

Nevertheless, we will start by looking at the effects of the recent crisis in firm creation. This analysis is relevant because lack of finance is presumably one of the factors that constrain firm creation. This analysis will allow us to better understand the impact of the crisis on ventures' initial capital structure possibly due to credit constraints. Therefore, using a Linear Probability Model (LPM), we investigate the statistical significance of the relationship between the financial crisis and new firm creation using the following specification:

$$Entry_{my} = \sum_{i=1}^{59} \alpha_i + \sum_{m=1}^{308} \gamma_m + \sum_{y=2004}^{2007} \theta_y + \beta_1 Crisis_m + \epsilon_m \qquad (1)$$

where *m* stands for municipality, *i* for industry and *y* for year.

Our dependent variable, *Entry*, is a dummy variable equaling one for start-ups and zero for established firms. We retrieve all established firms and new firms created between 2004 and 2009 from QP. Our variable of interest is *Crisis*, which refers to the financial crisis. This variable is measured in three distinct ways: (i) as a dummy variable, *Crisis 2008*, equal to one in 2008, and zero otherwise; (ii) as a dummy variable, *Crisis 2009*, equal to one in 2009, and zero otherwise, and; (iii) because the data for 2008 may not yet pick up the impact of the crisis in Portugal, we use the two crisis dummies to

identify the years 2008 and 2009. We expect the coefficients associated with the variable *Crisis* to be negative, $\beta_1 < 0$, because as noted before, a more pronounced financial crisis leads to less firm entry.

The results for the specification (1) are presented in Table 5. On the first column, we test the specification with the crisis dummy for 2008, the second column tests the specification with the crisis dummy for 2009 and the third column presents the results with both crisis dummies. Column 1 suggests that firm entry increased in 2008 by a magnitude of 0.01. Column 2 shows that in 2009, firm creation diminished by a magnitude of 0.02, and column 3 confirms this result. Results are statistically significant and suggest that the negative impact of the crisis on firm creation is only felt in 2009, although by a small amount.

With these results, we can conclude that the financial crisis or the fear of a spread to Europe and/or Portugal started to negatively affect firm creation in 2009.

As our dependent variable is a dummy variable, we test the specification with Logit and Probit models, which results are presented in Tables 6 and 7. Results confirm our prior analysis as the sign of the relationship is exactly the same as in the LPM.

Next, we evaluate the effects of the financial crisis on new venture's capital structure using a LPM. Our main model is:

$$Y_{fmy} = \sum_{i=1}^{80} \alpha_i + \sum_{m=1}^{308} \gamma_m + \sum_{y=2004}^{2007} \theta_y + \beta_1 Crisis_m + \delta_2 X_f + \epsilon_i \qquad (2)$$

where *f* refers to founder of a start-up, *m* stands for municipality, *y* for the entry year and *i* for industry.

In order to test our hypotheses, we analyze several dependent variables, *Y*, described on Table 3.

Our main model includes the vector X_f to control for firm and founder characteristics. The vector includes: venture initial size (logarithm of the initial number of employees); founder's gender (which equals one for men and zero for women); four categorical variables for age (*Age20-29* is coded one for individuals with age between 20 and 29; *Age30-39* is coded one for individuals with age between 30 and 39; *Age40-49* is coded one for individuals with age between 40 and 49 and; *Age50-60* is coded one for individuals with age between 50 and 60); industry experience (which equals one if the founder has previous working experience in the same industry and zero otherwise); entrepreneurial experience (which equals one if the founder has previous experience in founding new ventures and zero otherwise) and; regional experience (which equals one if the founder has previously worked in the same municipality and zero otherwise). In reporting the estimated coefficients our omitted category is founders aged 20-29. We also control for industry (two-digit industry code) and municipality fixed effects.

Venture size is likely to influence capital structure as bigger start-ups have the ability to secure more sources of funding. Founder characteristics are also likely to play a role in the regression results. In fact, Nofsinger and Wang (2009) find that entrepreneurial experience is helpful in obtaining financing from institutional investors as it can offset the importance of investor protection. Also, several studies link human capital variables

with external financial capital (Barbosa and Moraes, 2004). For example, the entrepreneurs' beliefs and experience have been shown to influence decisions regarding VC financing (Smith, 2011).

The results of the impact of the financial crisis on the internal capital ratio (IR) are presented in Table 8. The IR is defined as the internal capital divided by the financial capital. Internal capital refers to all the funding that originates from internal sources, such as founders' initial capital. Financial capital is defined as the sum of internal and external capital. We expect an increase in IR in a financial crisis conjuncture as outside credit gets more restricted. On column 1, we test the specification with the crisis dummy for 2008, on column 2 we test the specification with the crisis dummy for 2009 and the third column presents the results with both crisis dummies. Columns 1 and 2 show that IR decreased in 2008 by a magnitude of 0.03 but increased in 2009 by a magnitude of 0.03. Both results are statistically significant. When we regress with both crisis dummies in column 3, the results become non-significant, suggesting that there was no significant change in the fraction of internal capital in the capital structure of new ventures. The results also show that IR decreases with the size of the firm, and when the founder is male and has no previous industry and/or entrepreneurial experience.

Table 9 presents the results for the external capital ratio (ER). This ratio is defined by the external capital divided by the financial capital. External capital includes all sources of external finance such as bank loans, leasing and trade credit (see Table 3 for a detailed description of the variable). We expect ER to decrease with a financial crisis, as outside investors are more cautious and reluctant in providing funding. Columns 1 and 2

suggest that ER increased in 2008 by a magnitude of 0.03 and decreased in 2009 by a magnitude of 0.03, confirming our hypothesis that external capital diminishes in a financial crisis conjuncture. Both results are statistically significant. However, when regressing both crisis dummies in column 3, results become non-significant, suggesting that there was no significant change on the weight of external capital. In contrast with our results regarding IR, our data shows that external capital increases with the initial size of the new venture and when the founder is male and has industry and entrepreneurial experience.

Table 10 presents the results for short-term bank loans ratio (STBR). This ratio is defined as the amount of short-term bank loans divided by the financial capital. These are loans with a maturity of one year or less. Our expectation is that STBR increases in a financial crisis situation, as these types of loans imply less risk to the lender due to lower maturity. In these regressions, results are not statistically significant suggesting there was no significant change in this ratio due to the financial crisis. However, STBR increases with the size of the firm and when the founder has entrepreneurial experience, and decreases when founders are aged 40 to 49 years old.

Table 11 presents the results for long-term bank loans ratio (LTBR). This ratio is defined as the amount of long-term bank loans divided by the financial capital. These are loans with a maturity of more than one year. Our expectation is that LTBR decreases in a financial crisis situation, as these types of loans are riskier for the lender due to the increased maturity. Results regarding the impact of the financial crisis are not statistically significant. Nonetheless, LTBR increases when the size of the firm

increases and when the founder has industry experience, and decreases when founders are aged 40 to 60 years old.

Table 12 presents the results for the trade credit ratio (TCR). This ratio is defined as the amount of trade credit divided by the financial capital. Trade credit is defined as clients' current account net of suppliers' current account (for a detailed description of the variable, see Table 3). Our expectation is that the TCR increases with the financial crisis, as firms may try to compensate the loss of other types of outside financing with trade credit. Regressions with both crisis dummies isolated in columns 1 and 2 produce statistically insignificant results. However, when regressing with both crisis dummies in column 3, results show an increase of magnitude 0.20 in 2008 and 0.18 in 2009, suggesting that this type of financing increased due to a start of shortage of other types of external financing. Also, TCR increases when the founder is male and decreases when he has entrepreneurial experience.

Finally, Table 13 presents the results regarding the leasing ratio (LR). This ratio is defined as the amount of leasing divided by the financial capital. Leasing is calculated as the sum of short and long-term leasing contracts. Our expectation is that LR increases with a financial crisis, because just as trade credit, firms may try to compensate the loss of other kinds of outside financing. Results are not statistically significant, suggesting there was no effect on leasing due to the financial crisis. Nevertheless, LR increases with the size of the firm and when founders are aged 30 to 60 years old.

In summary, the results suggest that there was a reduction on firm entry in 2009. Regarding the capital structure of new ventures, there was no significant change due to

the financial crisis. However, results for 2009 indicate that IR tends to increase when new ventures have difficulty in raising external capital and that there seems to be a start of shortage of credit in 2009 for new firms as external capital was negatively affected and trade credit was positively affected. Finally, leasing, short-term and long-term bank loans do not seem to have been affected by the crisis until 2009. The results also suggest that the financial crisis did not fully impact Portugal until the end of 2009.

7. Conclusion

In this paper we aim to assess the impact of the recent financial crisis on firm's initial capital structure. The 2008-2009 crisis has had a considerable effect on the worldwide economy and has been characterized with negative economic growth, unemployment and shortage of credit.

Using Portuguese micro-level data, we investigate if: i) there was a reduction in firm entry due to the financial crisis, and; ii) there was a significant change in funding sources for new ventures before and after the financial crisis.

Our results show that, until 2009, the financial crisis did not severely affect new Portuguese firms. Nonetheless, there seems to be an indication in the results that suggest that as of 2009, a start of shortage of credit was felt in the economy, as external capital and firm entry decreased by 0.03 and 0.02 respectively, and internal capital and trade credit increased by 0.03 and 0.18 respectively. There was no indication on changes to leasing and to short-term and long-term bank loans due to the financial crisis.

Comparing our results to the relevant literature regarding the impact of macroeconomic conditions on firm's capital structure, we find that our results agree with the fact that in periods of financial crisis, external capital is reduced and new firms have to cope with financing needs using more internal sources. Also, there is indication that trade credit increases in a financial crisis situation. On the other hand, we cannot state that leasing also serves as an alternative source of funding for new firms in periods of financial crisis. We also cannot attest to the fact that short-term bank loans increase and long-

term bank loans decrease due to the financial crisis, as results are not statistically significant.

Although our belief is that we can appropriately assess the impact of the start of the financial crisis on new ventures' capital structure with the results found in this paper, there are some limitations that can be further examined in future studies. The first and most important limiting factor in our study is the fact that our dataset only contains data until 2009, as 2010 and 2011 were the most problematic years in terms of recession, unemployment and high public deficit and debt in Portugal. Secondly, the econometric specifications could be further developed to include controls for county-level characteristics such as GDP per Capita, Unemployment Rate and Purchasing Power in all regressions. Thirdly, a differential impact model could be developed to evaluate if the financial crisis has a different impact on different municipalities, using interactions of county-level characteristics with the crisis dummies.

Nevertheless, it is clear that the 2008-2009 financial crisis impacts the financial structure of new ventures and also firm entry. Policy makers and practitioners should follow-up in analysing the impact of the financial crisis on firm financing and entry to effectively be able to enhance and diversify their policies and strategies regarding funding sources.

References

Akerlof, G.A., The market for ”lemons”: Quality uncertainty and the market mechanism. *The quarterly journal of economics*, pages 488–500, 1970.

Ang, J.S., On the theory of finance for privately held firms. Journal of Small Business Finance, 1(3):185–203, 1992.

Ang, J.S., Small business uniqueness and the theory of financial management. Small business: critical perspectives on business and management, 2:574, 2000.

Areas, T.N.G., Responding to the economic crisis.

Barbosa, E.G. and Moraes, C.C., Determinants of the firm’s capital structure: The case of the very small enterprises, 2004.

Berger, A. N and Udell, G. F., The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. Journal of Banking & Finance, 22(6-8):613–673, 1998.

Bitler, M.P., Robb, A.M., and Wolken, J.D., Financial services used by small businesses: Evidence from the 1998 survey of small business finances. Fed. Res. Bull., 87:183, 2001.

Bohácek, R., Financial constraints and entrepreneurial investment. Journal of Monetary Economics, 53(8):2195–2212, 2006.

Bosma, N. and Levie, J., Global entrepreneurship monitor. 2009 global report. Babson Park, MA: Babson College, Chile, Santiago: Universidad del Desarollo, Iceland, Hákólinn Reykjavík: Reykjavík University and London, UK: London Business School, 2010.

Cassar, G., The financing of business start-ups. Journal of Business Venturing, 19(2):261–283, 2004.

Castanias, R., Bankruptcy risk and optimal capital structure. Journal of Finance, pages 1617–1635, 1983.

Chandler, G.N. and Hanks, S.H., An examination of the substitutability of founders’ human and financial capital in emerging business ventures. Journal of Business Venturing, 13(5):353–369, 1998.

Chen, L., Lensink, R., and Sterken, E., The determinants of capital structure: Evidence from Dutch panel data. Graduate School/Research Institute Systems, Organization and Management, 1999.

Chittenden, F., Hall, G., and Hutchinson, P., Small firm growth, access to capital markets and financial structure: review of issues and an empirical investigation. Small Business Economics, 8(1):59–67, 1996.

Coleman, S., The determinants of capital structure in small firms: New evidence from the 2003 survey of small business finance, 2008. 2008 International Council for Small Business World Conference.

Cosh, A., Cumming, D., and Hughes, A., Outside entrepreneurial capital*. The Economic Journal, 119(540):1494–1533, 2009.

Damodaran, A., Finanças corporativas: teoria e prática. Bookman, 2004.

De Meza, D. and Webb, D.C., Too much investment: a problem of asymmetric information. The Quarterly Journal of Economics, 102(2):281, 1987.

Denis, D.J., Entrepreneurial finance: an overview of the issues and evidence. Journal of Corporate Finance, 10(2):301–326, 2004.

Ebben, J.J., Bootstrapping and the financial condition of small firms. International Journal of Entrepreneurial Behaviour & Research, 15(4):346–363, 2009.

Evans, D.S. and Jovanovic, B., An estimated model of entrepreneurial choice under liquidity constraints. The Journal of Political Economy, pages 808–827, 1989.

Ferri, M.G. and Jones, W.H., Determinants of financial structure: a new methodological approach. The Journal of Finance, 34(3):631–644, 1979.

Fluck, Z., Holtz-Eakin, D., Rosen, H.S., New York University. Salomon Center, Maxwell Graduate School of Citizenship, and Public Affairs. Center for Policy Research. Where Does the Money Come From?: The Financing of Small Entrepreneurial Enterprises. Center for Economic Policy Studies, Princeton University, 1998.

Garmaise, M., Informed investors and the financing of entrepreneurial projects. University of Chicago, 2001.

Gartner, W.B., Frid, C.J., and Alexander, J.C., Financing the emerging firm. Small Business Economics, pages 1–17, 2010.

Gries, T. and Naude, W., Entrepreneurship, structural change and a global economic crisis. Entrepreneurship Research Journal, 1(3):4, 2011.

Hackbarth, D., Miao, J., and Morellec, E., Capital structure, credit risk, and macroeconomic conditions. Journal of Financial Economics, 82(3):519–550, 2006.

Holtz-Eakin, D., Joulfaian, D., and Rosen, H.S., Sticking it out: Entrepreneurial survival and liquidity constraints. Technical report, National Bureau of Economic Research, 1993.

Huyghebaert, N. and Van de Gucht, L.M., The determinants of financial structure: New insights from business start-ups. European Financial Management, 13(1):101–133, 2007.

Jorge, S. and Armada, M.J.R., Factores determinantes do endividamento: uma análise em painel. Revista de Administração Contemporânea, 5(2):9–31, 2001.

Klapper, L. and Love, I., The impact of the financial crisis on new firm registration. Economics Letters, 113(1), 2011.

Koellinger, P.D. and Thurik, A.R., Entrepreneurship and the business cycle. The Review of Economics and Statistics, (0), 2009.

Korosteleva, J. and Mickiewicz, T., Start-up financing in the age of globalization. Emerging Markets Finance and Trade, 47(3):23–49, 2011.

Leeth, J.D. and Scott, J.A., The incidence of secured debt: evidence from the small business community. Journal of Financial and Quantitative Analysis, 24(3):379–394, 1989.

Lerner, J., Innovation, entrepreneurship and financial market cycles. OECD Science, Technology and Industry Working Papers, 2010.

Love, I., Trade Credit versus Bank Credit during Financial Crisis. Trade Finance during the Great Trade Collapse, 1–27, 2011.

Lucey, B.M. and Bhaird, C.J. Mac. Capital structure and the financing of SME: Empirical evidence from an Irish survey. In Available at SSRN: http://ssrn.com/abstract, volume 905845, 2006.

Michaelas, N., Chittenden, F., and Poutziouris, P., Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data. Small Business Economics, 12(2):113–130, 1999.

Musso, P. and Schiavo, S., The impact of financial constraints on firm survival and growth. Journal of Evolutionary Economics, 18(2):135–149, 2008.

Myers, S.C., Capital structure puzzle, 1984.

Myers, S.C. and Majluf, N.S., Corporate financing and investment decisions when firms have information that investors do not have. Journal of financial economics, 13(2):187–221, 1984.

Myers, S.C., Capital Structure. The Journal of Economic Perspectives, 15(2): 81–102, 2001.

Naudé, W. and MacGee, J.C., Wealth distribution, the financial crisis and entrepreneurship. WIDER Angle Newsletter, 2009.

Nofsinger, J.R. and Wang, W., Determinants of start-up firm external financing worldwide. Journal of Banking & Finance, 2011.

Nucci, A.R., The demography of business closings. Small Business Economics, 12(1):25–39, 1999.

Ortqvist, D., Masli, E.K., Rahman, S.F., and Selvarajah, C., Determinants of capital structure in new ventures: Evidence from Swedish longitudinal data. Journal of Developmental Entrepreneurship, 11(4):277, 2006.

Oswald, A.J. and Blanchflower, DG. What makes an entrepreneur. Journal of Labor Economics, 16:26–60, 1998.

Petersen, M.A. and Rajan, R.G., Trade Credit: Theories and Evidence. Review of Financial Studies, 10(3):661–691, 1997.

Praag, CM Van, Wit, G. De, and Bosma, N., Initial capital constraints hinder entrepreneurial venture performance: An empirical analysis. 2004.

Robb, A.M. and Robinson, D.T., The capital structure decisions of new firms. Technical report, National Bureau of Economic Research, 2010.

Shane, S., The great recession's effect on entrepreneurship. Economic Commentary, (Mar 24), 2011.

Shane, S.A., The illusions of entrepreneurship: The costly myths that entrepreneurs, investors, and policy makers live by. Yale Univ Pr, 2008.

Shyam-Sunder, L. and Myers, S. C., Testing static tradeoff against pecking order models of capital structure. Journal of financial economics, 51(2):219–244, 1999.

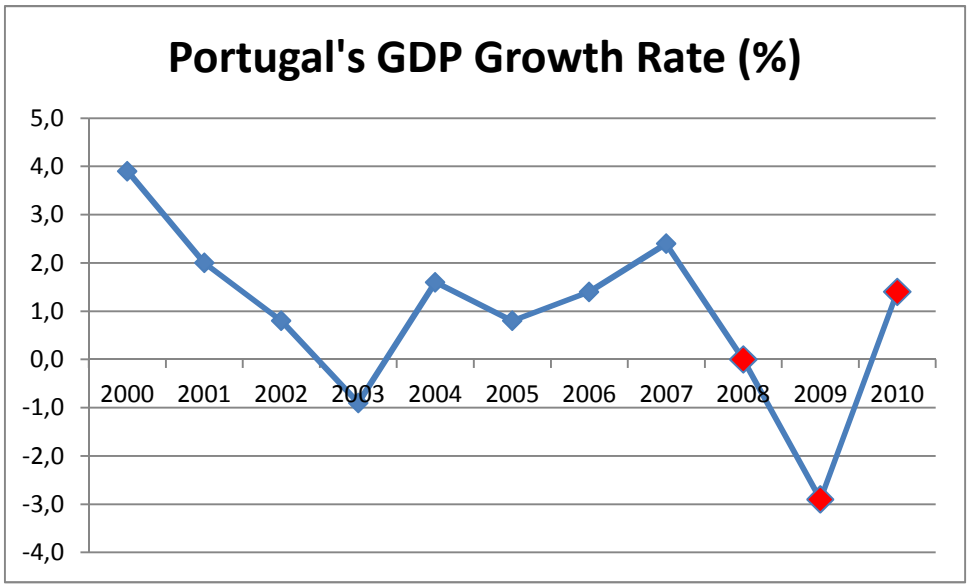
Smith, S., Beg, borrow, and deal? Entrepreneurship and financing in new firm innovation. Technical report, SSRN Working Paper, Available at: http://ssrn.com/abstract= 1573685, 2010.

Titman, S. and Wessels, R., The determinants of capital structure choice. Journal of finance, pages 1–19, 1988.

Walker, D.A., Financing the small firm. Small Business Economics, 1(4):285–296, 1989.

Watson, K., Hogarth-Scott, S., and Wilson, N., Small business start-ups: success factors and support implications. International Journal of Entrepreneurial Behaviour & Research, 4(3):217–238, 1998.

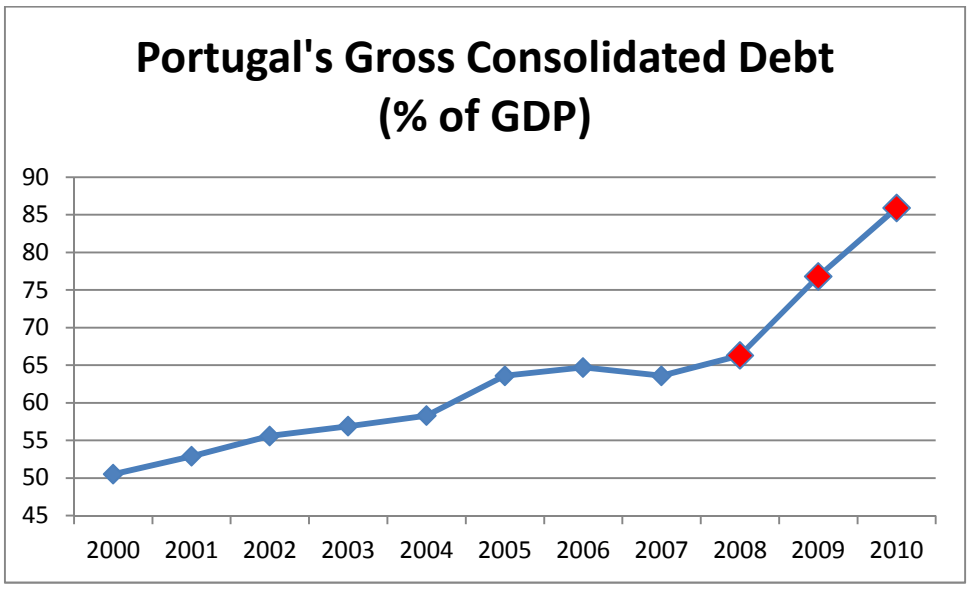
Figure 1: Portugal's GDP Growth Rate (2000-2010; %)



Source: Eurostat Database

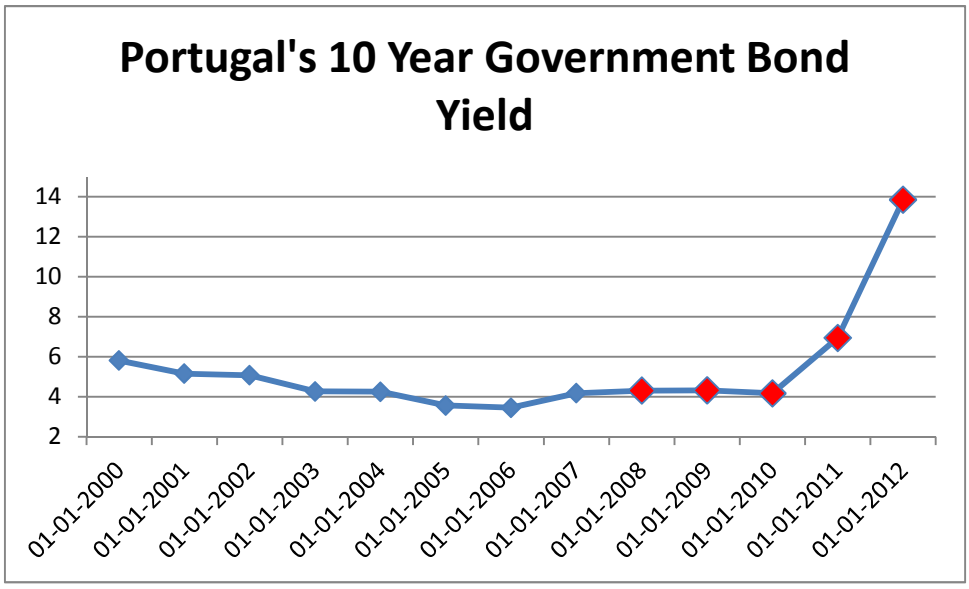
Note: 2000-2009 are final values; 2010 is a provisional value.

Figure 2: Portugal's Gross Consolidated Debt (2000-2010; % of GDP)



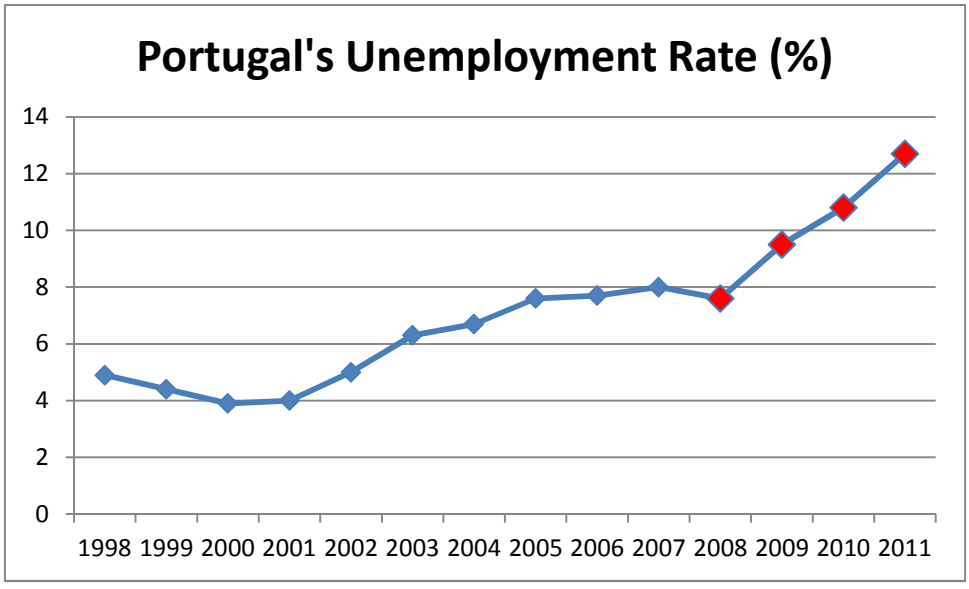
Source: Eurostat Database

Figure 3: Portugal's 10 Year Government Bond Yield (%, 2000-2012)



Source: Bank of Portugal

Figure 4: Portugal's Unemployment Rate (1998-2011; %)



Source: INE Database

Table 1: Summary of the Empirical Evidence on the Determinants of Capital Structure

Author	Data	Sample	Type of firms (Size/Age)	Dependent Variables	Independent Variables
Ferri and Jones (1979)	Compustat Data Tapes (1969-1974; 1971-1976)	233	Mixed/Mixed	• Total Debt to Total Assets at Book Value Ratio	• Industry Class (+; n.r.) • Size (m.f.) • Business risk (n.r.) • Operating leverage (-)
Titman and Wessels (1988)	Annual Compustat Industrial Files / US Department of Labor's "Employment and "Earnings" Publication	469	Large/Old	• Long-term Debt to Market Value of Equity Ratio • Long-term Debt to Book Value of Equity Ratio • Short-term Debt to Market Value of Equity Ratio • Short-term Debt to Book Value of Equity Ratio • Convertible Debt to Market Value of Equity Ratio • Convertible Debt to Book Value of Equity Ratio	• Uniqueness (-) • Size (- s.t.; + l.t.) • Growth (n.r.) • Non-debt tax shields (n.r.) • Earnings volatility (n.r.) • Asset structure (n.r.)

Chittenden, Hall and Hutchinson (1996)	UK Private+ Database (1989-1993)	3480	Small/Mixed	• Long-term Debt to Total Assets Ratio • Short-term Debt to Total Assets Ratio • Total Debt to Total Assets Ratio • Liquidity to Total Assets Ratio	• Asset structure (+ l.t.; - s.t.) • Size (+ l.t.; - s.t.) • Profitability (-) • Age (-)
Chen, Lensink and Sterken (1998)	Annual Financial Report of Listed Dutch Firms (1984-1995)	51	Large/Old	• Total Debt to Equity at Book Value Ratio • Total Debt to Equity at Market Value Ratio	• Asset structure (+) • Growth (+; n.r.) • Size (+) • Earnings volatility (m.f.) • Profitability (-)
Michaelas, Chittenden and Poutziouris (1999)	Lotus One-Source Database of UK Small Firms (1986-1995)	3500	Small/Mixed	• Total Debt to Total Assets Ratio • Short-term Debt to Total Assets Ratio • Long-term Debt to Total Assets Ratio	• Growth (+) • Asset Structure (+) • Operating risk (+) • Profitability (-) • Age (-) • Net debtors (+) • Size (+)
Jorge and Armada (2001)	Exame Database – "*500 Melhores e Maiores*"	93	Large/Old	• Total Debt to Total	• Size (n.r.) • Non-debt Tax Shields

	(1990-1995)			Assets Ratio • Medium and long-term Debt to Total Assets Ratio • Short-term Debt to Total Assets Ratio • Total Debt to Total Equity Ratio	(n.r.) • Industry Class (n.r.) • Growth (+) • Business risk (n.r.) • Profitability (m.f.) • Asset structure (n.r.)
Barbosa and Moraes (2004)	Brazilian Trade Associations (1986-1992)	41	Small/Mixed	• Total Debt to Total Assets Ratio	• Business risk (-) • Size (+) • Asset structure (-) • Profitability (-) • Growth (+) • Industry class (+) • Age (n.r.) • Operational cycle (+) • Entrepreneur's risk tolerance (+) • Economic conditions (+)
Cassar (2004)	Australian Business Longitudinal Survey (1996-1998)	292	Small/Mixed	• Total Debt to Total Assets Ratio • Long-term Debt to Total Assets Ratio • Outside Financing	• Size (+) • Asset structure (- s.t.; + l.t.) • Growth (+; n.r.) • Entrepreneur's characteristics (n.r.)

				• Bank Financing	
Ortqvist, Masli, Rahman and Selvarajah (2006)	Affarsdata - Swedish New Ventures Database (2000)	592	Small/Young	• Short-term Debt to Total Assets Ratio • Long-term Debt to Total Assets Ratio	• Asset structure (- s.t.; + l.t.) • Size (+ l.t.)
Coleman (2008)	USA Survey of Small Business Finance conducted by the FED (2003)	4240	Small/Mixed	• Total Debt to Total Assets Ratio • External Debt • Long-term Debt	• Profitability (-) • Size (+) • Age (-) • Asset structure (+)

This table provides a summary of the empirical evidence on the determinants of capital structure based on existing literature.

Note: (+) positive relationship; (-) negative relationship; (n.r.) no relationship; (m.f.) mixed findings; (s.t.) for short-term; (l.t.) for long-term.

Table 2: Summary of Portugal's Economic Performance by NUTS III Regions

NUTS Region	Unemployment (4Q 2011)	GDP per capita (2008 to 2009)	Increase in birth rate of new firms (2009)	GDP (2009)	Purchasing power (2009)	Credit activities (2010)
Portugal	14,00%	-300 €	0,92%	-3.479.000.000 €	100	-11.132.384 €
Northern	14,10%	-300 €	0,53%	-1.284.000.000 €	87,64	5.519.848 €
Center	12,60%	-100 €	1,11%	-315.000.000 €	83,92	595.487 €
Lisbon	14,70%	-400 €	1,11%	-970.000.000 €	123,33	-19.776.296 €
Alentejo	13,10%	-500 €	1,37%	-467.000.000 €	87,52	163.017 €
Algarve	17,50%	-1.100 €	0,17%	-401.000.000 €	100,4	292.863 €

This table summarizes Portugal's economic performance by NUTS III regions using data obtained from the INE. GDP per capita, increase in birth rate of new firms and GDP were computed as the difference between 2009 and 2008. Credit activities were obtained as the difference between 2010 and 2009. Values in grey indicate the regions with worst performance in each variable.

Table 3: Dependent Variables and Description

Dependent Variable	**Description**	**Expected coefficient sign in *Crisis* variable**
Internal Capital Ratio (IR)	Internal Capital/Financial Capital[20] (IC/FC) Internal Capital refers to funding arising from sources that are connected to the firm and founder. Includes share capital,[21] share premiums, supplementary capital,[22] and shareholders' loans.	+
External Capital Ratio (ER)	External Capital/Financial Capital (EC/FC) External Capital refers to initial funds from extraneous sources, such as commercial bank loans, leasing, trade credit[23] and government funding (which include subsidies for operational activity but not subsidies for investment).[24]	-
Short-Term Bank Loans Ratio (STBR)	Short-term bank loans/Financial Capital (STB/FC) Short-term bank loans are loans with a maturity of one year or less.	+
Long-Term Bank Loans Ratio (LTBR)	Long-term bank loans/Financial Capital (LTB/FC) Long-term bank loans are loans with maturity over 1 year.	-
Trade Credit Ratio (TCR)	Trade credit/Financial Capital (TC/FC) Trade credit is a type of funding that results from open-account, short-term deferred payment terms usually offered by a seller to a buyer. Includes clients' current account, clients' payable notes, advance payments to suppliers and other debtors deducted by supplier's current account, supplier's invoices not yet processed, supplier's payable notes and other creditors. [25]	+
Leasing (LR)	Leasing/Financial Capital (L/FC) Leasing are contractual arrangements to pay a specified amount for the use of an asset.	+

[20] Financial Capital is defined as the amount of internal and external capital that a startup was able to raise.
[21] The minimum required capital for a limited liability company in Portugal (Sociedades por Quotas) is 5,000 Euros. All firms in our sample are limited liability.
[22] Supplementary capital is similar to a shareholder loan. However, it does not generate interest and is only claimed when a firm is dissolved.
[23] Trade credit is not part of a firms' debt structure. It is working capital available to firms on daily operations. However, as mentioned before, it can be an important source of funds for new and small firms.
[24] Subsidies for operational activity are funds granted to firms to reduce costs or increase profits and are meant to be used in the firms' operational activities. Subsidies to investment are funds granted by the government to buy tangible or intangible assets.
[25] Trade credit includes the following rubrics: Clientes c/c + clientes títulos a receber + adiantamentos a fornecedores + outros devedores - Fornecedores c/c - Fornecedores facturas em recepção e conferencia - Fornecedores títulos a pagar - outros credores.

Table 4: Descriptive Statistics

	N	Mean	Std. Deviation	Median
Panel A – Start-ups' Characteristics				
Internal Capital Ratio (IR)	7,774	0.54	0.33	0.53
External Capital Ratio (ER)	7,774	0.46	0.33	0.47
Short-Term Bank Loans Ratio (STBR)	7,774	0.06	0.17	0
Long-Term Bank Loans Ratio (LTBR)	7,774	0.03	0.13	0
Trade Credit Ratio (TCR)	7,774	-0.07	1.70	0.03
Leasing Ratio (LR)	7,774	0.08	0.17	0
Panel B – Firms' Characteristics				
Number of initial employees	7,774	3.64	7.41	2
Number of founders	7,774	1.41	0.59	1
Panel C – Founders' Characteristics				
Age	7,774	33.99	0.77	32
Number of years of information on founder	7,774	6.98	5.49	5

This table reports descriptive statistics for start-ups created between 2004 and 2009, and respective firms' and founders' characteristics. All data was retrieved from the database *Quadros de Pessoal* merged with the database *Informacao Empresarial Simplificada*.

Table 5: The Impact of the Financial Crisis on Firm Entry (LPM)

VARIABLES	(1) E	(2) E	(3) E
Crisis 2008	0.0116***		0.00212***
	(0.000479)		(0.000553)
Crisis 2009		-0.0215***	-0.0205***
		(0.000444)	(0.000515)
Constant	0.0184	0.0285	0.0275
	(5.253)		
Observations	2,356,798	2,356,798	2,356,798
R-squared	0.008	0.009	0.009

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This table uses data on all established and new firms created between 2004 and 2009 retrieved from the database *Quadros de Pessoal*. Linear Probability Model is used. The dependent variable is "Entry", which is a dummy equalling 0 for established firms and 1 for new firms. The variable "Crisis" is defined in three distinct ways: (i) as a dummy variable, *Crisis 2008*, equal to 1 in 2008, and 0 otherwise; (ii) as a dummy variable, *Crisis 2009*, equal to 1 in 2009, and 0 otherwise, and; (iii) two crisis dummies to identify the years 2008 and 2009. All models include county and industry fixed effects.

Table 6: The Impact of the Financial Crisis on Firm Entry (Logit)

VARIABLES	(1) E	(2) E	(3) E
Crisis 2008	0.205***		0.0345***
	(0.00822)		(0.00913)
Crisis 2009		-0.422***	-0.405***
		(0.00941)	(0.0104)
Constant	-3.597***	-3.429***	-3.444***
	(0.906)	(0.910)	(0.910)
Observations	2,356,779	2,356,779	2,356,779

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This table uses data on all established and new firms created between 2004 and 2009 retrieved from the database *Quadros de Pessoal*. Logit Model is used. The dependent variable is "Entry", which is a dummy equalling 0 for established firms and 1 for new firms. The variable "Crisis" is defined in three distinct ways: (i) as a dummy variable, *Crisis 2008*, equal to 1 in 2008, and 0 otherwise; (ii) as a dummy variable, *Crisis 2009*, equal to 1 in 2009, and 0 otherwise, and; (iii) two crisis dummies to identify the years 2008 and 2009. All models include county and industry fixed effects.

Table 7: The Impact of the Financial Crisis on Firm Entry (Probit)

VARIABLES	(1) E	(2) E	(3) E
Crisis 2008	0.0968***		0.0155***
	(0.00393)		(0.00440)
Crisis 2009		-0.198***	-0.191***
		(0.00435)	(0.00486)
Constant	-1.915***	-1.822***	-1.829***
	(0.418)	(0.421)	(0.421)
Observations	2,356,779	2,356,779	2,356,779

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This table uses data on all established and new firms created between 2004 and 2009 retrieved from the database *Quadros de Pessoal*. Probit Model is used. The dependent variable is "Entry", which is a dummy equalling 0 for established firms and 1 for new firms. The variable "Crisis" is defined in three distinct ways: (i) as a dummy variable, *Crisis 2008*, equal to 1 in 2008, and 0 otherwise; (ii) as a dummy variable, *Crisis 2009*, equal to 1 in 2009, and 0 otherwise, and; (iii) two crisis dummies to identify the years 2008 and 2009. All models include county and industry fixed effects.

Table 8: The Impact of the Financial Crisis on Internal Capital

VARIABLES	(1) IR	(2) IR	(3) IR
Crisis 2008	-0.0257*		0.0379
	(0.0132)		(0.0429)
Crisis 2009		0.0310**	0.0682
		(0.0136)	(0.0442)
Gender	-0.0189**	-0.0191**	-0.0192**
	(0.00794)	(0.00794)	(0.00794)
Age 30-39	-0.00550	-0.00561	-0.00576
	(0.00873)	(0.00873)	(0.00873)
Age 40-49	0.00547	0.00535	0.00528
	(0.0124)	(0.0124)	(0.0124)
Age 50-60	0.0128	0.0128	0.0127
	(0.0176)	(0.0176)	(0.0176)
Industry experience	-0.0382***	-0.0384***	-0.0385***
	(0.0107)	(0.0107)	(0.0107)
County experience	0.00313	0.00287	0.00283
	(0.00858)	(0.00859)	(0.00859)
Entrepreneurial experience	-0.0547***	-0.0558***	-0.0566***
	(0.00835)	(0.00840)	(0.00847)
Size (Log number of initial employees)	-0.0733***	-0.0731***	-0.0729***
	(0.00508)	(0.00508)	(0.00508)
Constant	0.949***	0.921***	0.884***
	(0.282)	(0.282)	(0.285)
Observations	7,774	7,774	7,774
R-squared	0.122	0.122	0.122

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This table uses data on new firms created between 2004 and 2009 retrieved from the database *Quadros de Pessoal* merged with the database *Informacao Empresarial Simplificada*. The dependent variable is "Internal Capital Ratio", which is defined in Table 3. The variable "Crisis" is defined in three distinct ways: (i) as a dummy variable, *Crisis 2008*, equal to 1 in 2008, and 0 otherwise; (ii) as a dummy variable, *Crisis 2009*, equal to 1 in 2009, and 0 otherwise, and; (iii) two crisis dummies to identify the years 2008 and 2009. The variables "Size", "Gender", "Age 30-39", "Age 40-49", "Age 50-60", "Industry experience", "County experience" and "Entrepreneurial experience" are controls for founder and firm characteristics. All models include county and industry fixed effects.

Table 9: The Impact of the Financial Crisis on External Capital

VARIABLES	(1) ER	(2) ER	(3) ER
Crisis 2008	0.0257*		-0.0379
	(0.0132)		(0.0429)
Crisis 2009		-0.0310**	-0.0682
		(0.0136)	(0.0442)
Gender	0.0189**	0.0191**	0.0192**
	(0.00794)	(0.00794)	(0.00794)
Age 30-39	0.00550	0.00561	0.00576
	(0.00873)	(0.00873)	(0.00873)
Age 40-49	-0.00547	-0.00535	-0.00528
	(0.0124)	(0.0124)	(0.0124)
Age 50-60	-0.0128	-0.0128	-0.0127
	(0.0176)	(0.0176)	(0.0176)
Industry experience	0.0382***	0.0384***	0.0385***
	(0.0107)	(0.0107)	(0.0107)
County experience	-0.00313	-0.00287	-0.00283
	(0.00858)	(0.00859)	(0.00859)
Entrepreneurial experience	0.0547***	0.0558***	0.0566***
	(0.00835)	(0.00840)	(0.00847)
Size (Log number of initial employees)	0.0733***	0.0731***	0.0729***
	(0.00508)	(0.00508)	(0.00508)
Constant	0.0509	0.0785	0.116
	(0.282)	(0.282)	(0.285)
Observations	7,774	7,774	7,774
R-squared	0.122	0.122	0.122

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This table uses data on new firms created between 2004 and 2009 retrieved from the database *Quadros de Pessoal* merged with the database *Informacao Empresarial Simplificada*. The dependent variable is "External Capital Ratio", which is defined in Table 3. The variable "Crisis" is defined in three distinct ways: (i) as a dummy variable, *Crisis 2008*, equal to 1 in 2008, and 0 otherwise; (ii) as a dummy variable, *Crisis 2009*, equal to 1 in 2009, and 0 otherwise, and; (iii) two crisis dummies to identify the years 2008 and 2009. The variables "Size", "Gender", "Age 30-39", "Age 40-49", "Age 50-60", "Industry experience", "County experience" and "Entrepreneurial experience" are controls for founder and firm characteristics. All models include county and industry fixed effects.

Table 10: The Impact of the Financial Crisis on Short-Term Bank Loans

VARIABLES	(1) STBR	(2) STBR	(3) STBR
Crisis 2008	0.00515		-0.0358
	(0.00649)		(0.0304)
Crisis 2009		-0.00874	-0.0440
		(0.00651)	(0.0309)
Gender	-0.00232	-0.00227	-0.00217
	(0.00411)	(0.00412)	(0.00412)
Age 30-39	-0.00254	-0.00252	-0.00238
	(0.00458)	(0.00458)	(0.00457)
Age 40-49	-0.0111*	-0.0110*	-0.0110*
	(0.00605)	(0.00605)	(0.00605)
Age 50-60	-0.00402	-0.00403	-0.00394
	(0.00910)	(0.00910)	(0.00909)
Industry experience	0.00705	0.00718	0.00723
	(0.00539)	(0.00540)	(0.00540)
County experience	0.00473	0.00489	0.00493
	(0.00446)	(0.00446)	(0.00447)
Entrepreneurial experience	0.0125***	0.0130***	0.0137***
	(0.00430)	(0.00432)	(0.00440)
Size (Log number of initial employees)	0.0140***	0.0139***	0.0137***
	(0.00259)	(0.00259)	(0.00259)
Constant	-0.0187	-0.0122	0.0234
	(0.0990)	(0.0988)	(0.103)
Observations	7,774	7,774	7,774
R-squared	0.088	0.089	0.089

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This table uses data on new firms created between 2004 and 2009 retrieved from the database *Quadros de Pessoal* merged with the database *Informacao Empresarial Simplificada*. The dependent variable is "Short-term Bank Loans Ratio", which is defined in Table 3. The variable "Crisis" is defined in three distinct ways: (i) as a dummy variable, *Crisis 2008*, equal to 1 in 2008, and 0 otherwise; (ii) as a dummy variable, *Crisis 2009*, equal to 1 in 2009, and 0 otherwise, and; (iii) two crisis dummies to identify the years 2008 and 2009. The variables "Size", "Gender", "Age 30-39", "Age 40-49", "Age 50-60", "Industry experience", "County experience" and "Entrepreneurial experience" are controls for founder and firm characteristics. All models include county and industry fixed effects.

Table 11: The Impact of the Financial Crisis on Long-Term Bank Loans

VARIABLES	(1) LTBR	(2) LTBR	(3) LTBR
Crisis 2008	0.00522		-0.0230
	(0.00517)		(0.0216)
Crisis 2009		-0.00766	-0.0303
		(0.00517)	(0.0218)
Gender	-0.000518	-0.000482	-0.000417
	(0.00322)	(0.00322)	(0.00322)
Age 30-39	-0.00620*	-0.00617	-0.00608
	(0.00376)	(0.00376)	(0.00376)
Age 40-49	-0.0140***	-0.0140***	-0.0139***
	(0.00478)	(0.00478)	(0.00478)
Age 50-60	-0.0208***	-0.0208***	-0.0207***
	(0.00560)	(0.00560)	(0.00559)
Industry experience	0.00768*	0.00778*	0.00780*
	(0.00450)	(0.00450)	(0.00450)
County experience	-0.00517	-0.00506	-0.00504
	(0.00335)	(0.00335)	(0.00335)
Entrepreneurial experience	0.00218	0.00254	0.00301
	(0.00347)	(0.00348)	(0.00349)
Size (Log number of initial employees)	0.0112***	0.0111***	0.0110***
	(0.00208)	(0.00208)	(0.00207)
Constant	-0.202	-0.196	-0.173
	(0.170)	(0.170)	(0.171)
Observations	7,774	7,774	7,774
R-squared	0.105	0.105	0.105

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This table uses data on new firms created between 2004 and 2009 retrieved from the database *Quadros de Pessoal* merged with the database *Informacao Empresarial Simplificada*. The dependent variable is "Long-term Bank Loans Ratio", which is defined in Table 3. The variable "Crisis" is defined in three distinct ways: (i) as a dummy variable, *Crisis 2008*, equal to 1 in 2008, and 0 otherwise; (ii) as a dummy variable, *Crisis 2009*, equal to 1 in 2009, and 0 otherwise, and; (iii) two crisis dummies to identify the years 2008 and 2009. The variables "Size", "Gender", "Age 30-39", "Age 40-49", "Age 50-60", "Industry experience", "County experience" and "Entrepreneurial experience" are controls for founder and firm characteristics. All models include county and industry fixed effects.

Table 12: The Impact of the Financial Crisis on Trade Credit

VARIABLES	(1) TCR	(2) TCR	(3) TCR
Crisis 2008	0.0299		0.195**
	(0.0579)		(0.0947)
Crisis 2009		-0.0146	0.177**
		(0.0572)	(0.0801)
Gender	0.0656*	0.0656*	0.0651*
	(0.0341)	(0.0342)	(0.0342)
Age 30-39	-0.000898	-0.000810	-0.00156
	(0.0383)	(0.0382)	(0.0383)
Age 40-49	0.0439	0.0438	0.0434
	(0.0509)	(0.0509)	(0.0510)
Age 50-60	0.257	0.257	0.256
	(0.207)	(0.207)	(0.207)
Industry experience	-0.0424	-0.0428	-0.0431
	(0.0357)	(0.0357)	(0.0358)
County experience	0.0319	0.0314	0.0312
	(0.0387)	(0.0386)	(0.0386)
Entrepreneurial experience	-0.0924*	-0.0932*	-0.0972*
	(0.0535)	(0.0532)	(0.0543)
Size (Log number of initial employees)	0.0214	0.0214	0.0225
	(0.0201)	(0.0201)	(0.0202)
Constant	3.571***	3.596***	3.402***
	(0.471)	(0.467)	(0.474)
Observations	7,774	7,774	7,774
R-squared	0.030	0.030	0.030

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This table uses data on new firms created between 2004 and 2009 retrieved from the database *Quadros de Pessoal* merged with the database *Informacao Empresarial Simplificada*. The dependent variable is "Trade Credit Ratio", which is defined in Table 3. The variable "Crisis" is defined in three distinct ways: (i) as a dummy variable, *Crisis 2008*, equal to 1 in 2008, and 0 otherwise; (ii) as a dummy variable, *Crisis 2009*, equal to 1 in 2009, and 0 otherwise, and; (iii) two crisis dummies to identify the years 2008 and 2009. The variables "Size", "Gender", "Age 30-39", "Age 40-49", "Age 50-60", "Industry experience", "County experience" and "Entrepreneurial experience" are controls for founder and firm characteristics. All models include county and industry fixed effects.

Table 13: The Impact of the Financial Crisis on Leasing

VARIABLES	(1) LR	(2) LR	(3) LR
Crisis 2008	0.00135		0.00584
	(0.00677)		(0.0163)
Crisis 2009		-0.000924	0.00482
		(0.00706)	(0.0173)
Gender	0.000803	0.000803	0.000787
	(0.00425)	(0.00425)	(0.00425)
Age 30-39	0.00939**	0.00939**	0.00937**
	(0.00458)	(0.00458)	(0.00458)
Age 40-49	0.0159**	0.0159**	0.0159**
	(0.00689)	(0.00689)	(0.00689)
Age 50-60	0.0211**	0.0211**	0.0211**
	(0.0103)	(0.0103)	(0.0103)
Industry experience	0.00110	0.00108	0.00108
	(0.00585)	(0.00586)	(0.00586)
County experience	0.00561	0.00559	0.00559
	(0.00453)	(0.00453)	(0.00453)
Entrepreneurial experience	0.00250	0.00249	0.00237
	(0.00450)	(0.00454)	(0.00459)
Size (Log number of initial employees)	0.0170***	0.0170***	0.0171***
	(0.00274)	(0.00274)	(0.00275)
Constant	-0.0299	-0.0287	-0.0345
	(0.0530)	(0.0529)	(0.0553)
Observations	7,774	7,774	7,774
R-squared	0.081	0.081	0.081

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This table uses data on new firms created between 2004 and 2009 retrieved from the database *Quadros de Pessoal* merged with the database *Informacao Empresarial Simplificada*. The dependent variable is "Leasing Ratio", which is defined in Table 3. The variable "Crisis" is defined in three distinct ways: (i) as a dummy variable, *Crisis 2008*, equal to 1 in 2008, and 0 otherwise; (ii) as a dummy variable, *Crisis 2009*, equal to 1 in 2009, and 0 otherwise, and; (iii) two crisis dummies to identify the years 2008 and 2009. The variables "Size", "Gender", "Age 30-39", "Age 40-49", "Age 50-60", "Industry experience", "County experience" and "Entrepreneurial experience" are controls for founder and firm characteristics. All models include county and industry fixed effects.