

THE CAPITAL STRUCTURE OF NEW FIRMS AND THE RECENT FINANCIAL CRISIS

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ABSTRACT

We study the financial and real effects of the recent financial crisis on new firms in their initial year of operation, using a new data set based on the complete set of business registrations for Belgium between 2006 and 2009. We find that bank debt is the most important source of financing for new firms and this even when firms are founded in the midst of a financial crisis. However, the use of bank debt declines for new firms founded in crisis years, relative to new firms founded in pre-crisis years. This decline is particularly evident for new firms operating in industries that are dependent on bank debt and new firms founded by financially constrained entrepreneurs. Furthermore, relative to pre-crisis years, new firms that raise long-term bank debt and long-term owner debt in crisis years are subsequently less likely to go bankrupt and are more profitable, respectively.

JEL: G01, G21, G32

Keywords: Entrepreneurial finance, new firms, bank debt, financial crisis, bankruptcy

1 Introduction

Our knowledge of funding decisions and capital structure has mostly been derived from data from mature publicly held firms (Rajan and Zingales, 1995; Shyam-Sunder and Myers, 1999; Titman and Wessels, 1988), mature privately held firms (Brav, 2009; Cosh, Cumming, and Hughes, 2009) or young firms that have already received venture capital financing (Cumming, 2005). To the best of our knowledge, only Cassar (2004) and Robb and Robinson (2013) have provided a detailed, first-time glimpse into the funding decisions of new firms, in Australia and the U.S., respectively. In this study, we contribute to this emerging stream of research by analyzing empirically how credit market conditions at the time of founding determine how capital is allocated to new firms. To do so, we take advantage of the recent financial crisis and a unique new data set based on the full population of independent, non-financial, Belgian firms founded between 2006 and 2009.

The recent financial crisis represents an unexpected negative shock to the supply of credit to Belgian firms: it originally was not caused by a weakening of firm business fundamentals in Belgium but by the subprime mortgage crisis which started in the United States. The bank lending survey of the European Central Bank (ECB)¹ confirms that the financial crisis substantially reduced the provision of credit by banks to SMEs in the Euro area (which includes Belgium). According to this survey, the costs related to the capital position of banks, the ability of the banks to access market financing and the liquidity position of the banks were important

¹ This survey is addressed to senior loan officers of a representative sample of euro area banks and is conducted four times a year. Detailed information on the survey and its results are available at: <http://www.ecb.int/stats/money/surveys/lend/html/index.en.html>.

factors contributing to the tightening of credit standards. Furthermore, in a survey² on the access to finance of SMEs in the Euro area which was conducted in the summer of 2009 by the ECB and the European Commission, 17.4% of SMEs named access to finance as the most pressing problem they faced. 43% of the SMEs applying for a bank loan also reported a deterioration in the availability of bank loans in the first half of 2009, while only 10% reported an improvement.

*** Figure 1 about here ***

Figure 1 depicts for each quarter in the period 2005-2010 the percentage change in the total amount of credit granted to non-financial Belgian firms compared to the same quarter in the previous year. It shows a significant decline in credit growth starting in the first quarter in 2008. The financial crisis provides a “natural experiment” since the shock to the supply of credit was not caused by the weakening of business fundamentals in Belgium and spread unexpectedly around the globe after a number of surprising events in the U.S., including the collapse of Lehman Brothers. In this paper, we focus on the financial and real effects of the recent financial crisis for new firms.

The impact of a financial crisis on the funding decisions of new firms is ambiguous. Theoretical models argue that market imperfections, such as information asymmetry, will prevent new firms—arguably the most informationally opaque firms—from accessing formal debt markets (Stiglitz and Weiss, 1981). Similarly, the financial growth cycle paradigm (Berger and Udell, 1998) suggests that new firms will heavily rely on personal sources of financing and trade debt, which represents another important source of financing, especially for firms whose access to capital markets is limited (Petersen and Rajan, 1997). Overall, these models suggest that new

² Detailed information on the survey and its results are available at: <http://www.ecb.int/stats/money/surveys/sme/html/index.en.html>.

firms generally do not access formal debt markets, making them less subject to the shock in external financing caused by a financial crisis. On the other hand, recent evidence suggests that external debt sources are an important, if not the most important, source of financing for new firms. Robb and Robinson (2013), for instance, show that U.S. firms founded in 2004 relied to a surprisingly large extent on external debt sources, including bank debt, in their initial year of operation. Similarly, Zarutskie (2006) showed that some 58% of U.S. firms have outside debt outstanding in their initial year of operation. This underscores the importance of well functioning credit markets for the financing and success of new firms.

To date, the scarcity of data on new firms explains why researchers have either been unable to study financing decisions at the very beginning of firms' life cycles or relied on relatively limited cross-sectional survey evidence. In most countries, publicly held firms are legally required to publish their financial statements, but privately held firms—including all new firms—are not generally required to publicly disclose their financial statements. Belgium, however, represents a rare exception. In Belgium, all non-financial firms have a legal obligation to annually file their financial statements in a prescribed format with the National Bank of Belgium. This allows us to provide a unique contribution to the entrepreneurial finance literature by investigating the capital structure decisions of new firms for a large sample which covers the complete population of new firms in one country for several years, including both pre-crisis and crisis years. Furthermore, our dataset allows us to investigate the impact of the capital structure of new firms on their profitability and likelihood to fail in subsequent years. Cassar (2004) investigates the determinants of the capital structure for a small, random sample (292 observations) of Australian business start-ups in 1997-1999, but does not consider the real consequences of their financing structure. Robb and Robinson (2013) provide a detailed analysis

of the capital structure of U.S. start-ups, using data from the Kauffman Firm Survey. However, their study is based on firms founded in one specific year (2004), while we are also able to investigate the capital structure of new firms before and during the recent financial crisis.

Our study relates to a broader set of papers that focused on the effects of the recent financial crisis. Ivashina and Scharfstein (2010), for instance, show that new loans to large borrowers fell dramatically during the peak of the financial crisis, relative to the peak of the credit boom. Duchin, Ozbas and Sensoy (2010), using a sample of U.S. publicly held firms, show that corporate investment declined following the onset of the financial crisis, especially for firms with limited cash reserves, firms that are financially constrained or firms that operate in industries that are highly dependent on external financing. Almeida, Campello, Laranjeira and Weisbenner (2012) and Vermoesen, Deloof and Laveren (2013) find evidence that the financial crisis restricted the supply of credit to publicly held firms in the U.S. and privately held SMEs in Belgium, by considering the impact of the long-term debt maturity structure on new investments. Relatedly, Campello, Graham, and Harvey (2010) survey Chief Financial Officers from around the world and find that financial constraints restricted the pursuit of attractive projects and even forces firms to cancel valuable investments. Our focus on the financial and real effects of the recent financial crisis for new firms at the earliest stages of their life represents an important addition to this literature.

The central findings of this paper are as follows. While bank debt, trade debt and owner debt are significant sources of financing for new Belgian firms in their initial year of operation, bank debt is the single most important source of financing. This corresponds with the findings of Robb and Robinson (2013) for U.S. start-ups. The importance of bank debt decreases for firms founded in crisis years, relative to firms founded in pre-crisis years, while the use of owner debt

and trade debt does not change much. However, bank debt remains the most important source of financing over the entire timeframe of our study. This suggests that the importance of bank debt for new firms reflects a broad pattern for different time periods and credit market conditions. New firms are particularly hit by the financial crisis when they are highly dependent on bank loans (i.e., they operate in industries characterized by high ratios of bank debt to total assets) and are founded by financially constrained founders (i.e., founders who do not fully invest committed equity financing in the initial year of operation). Finally, we show that the financing decisions in the initial year of operation have real consequences. Specifically, new firms that raise more long-term bank debt and more long-term owner debt in crisis years are respectively less likely to go bankrupt and are more profitable, relative to new firms raising similar sources of financing in pre-crisis years.

The remainder of the paper is structured as follows. Section 2 provides a brief overview of the Belgian financial landscape. Section 3 describes the data. Section 4 provides descriptive insights into the funding of new firms by founding year. Section 5 describes the variables and presents descriptive statistics. Section 6 presents the findings of the financial effects of the financial crisis, and Section 7 presents the findings on the real effects of the financial crisis for new firms. Section 8 concludes.

2 The Belgian Financial Landscape

Belgium is a small, export-intensive economy located in the European Union. In Belgium, like other Continental European countries including Germany, France, Italy and Spain, banks play a key role in mobilizing savings and allocating capital. In 2007, for instance, the ratio of total

assets of financial institutions to GDP equaled 392%. Belgium experienced a significant wave of bank mergers in the period 1997-2003, which resulted in a highly concentrated banking sector (e.g., Degryse, Masschelein and Mitchell, 2011). After this consolidation trend, the Belgian banking sector was dominated by four banks, namely Fortis Bank, KBC Group, Dexia and ING Belgium. In 2007, based on the book value of assets of all 110 banks active in Belgium, Fortis Bank had a market share of 43%, KBC Group of 17%, Dexia of 15% and ING Belgium of 10%. In 2007, these four banks further provided some 80% of total outstanding credit in Belgium. The Belgian public equity and public debt markets are not well developed, relative to their Anglo-Saxon counterparts, and are not accessible for the new firms we study in this paper.

While the financial crisis originated in the U.S., it subsequently hit financial markets around the globe. Belgian banks in particular were strongly hit by the financial crisis. By April 2008, the four banks dominating the Belgian banking sector had to write down some 2.6 billion euro of their equity capital due to the credit crisis, which led to speculations about the solvency and liquidity of Belgian financial institutions. After the collapse of Lehman Brothers in September 2008, Fortis Bank had to be bailed out by the Belgian, Luxembourg, and Dutch governments: the Belgian entity of Fortis Bank was sold by the Belgian government (which was by then owner of Fortis Bank in Belgium) to the French bank BNP Paribas, the Dutch government became the sole owner of the Dutch entity of Fortis, and the Luxembourg government got 49.9 % of the shares of Fortis Bank Luxembourg. Dexia (today named Belfius) had to be bailed out by the Belgian, Luxembourg, and French government, and the KBC Group was bailed out by the Belgian government. Finally, in October 2008, the ING Group received a capital injection of 10 billion euro from the Dutch government.

Figures from the Belgian financial sector federation demonstrate that the health of the Belgian banking sector deteriorated radically during the 2008-09 financial crisis period as compared to the 2006-07 period. Specifically, return on assets dropped from 0.7% in 2006 and 0.4% in 2007 to -1.3% in 2008 and -0.1% in 2009. Moreover, return on equity dropped drastically from a high of 22.4% in 2006 to a low of -36.5% in 2008. In addition, the average cost to income ratio was significantly lower in the 2006-07 period (with 64.5% and 70.7% respectively) compared to the 2008-09 period (with 81.2% and 77.1% respectively).

3 Data

The data for this paper come from several sources. Balance sheet, income statement, social balance sheet (reporting the number of employees and composition of the workforce) and ownership information come from the Bel-first database. The Bel-first database is compiled by Bureau van Dijk (BvD), one of Europe's leading electronic publishers of business information. Reporting requirements imposed by the Belgian government require nearly all firms—irrespective of their size and age—to annually file financial statements in a predefined format with the Belgian National Bank. When the financial statements are filed with the Belgian National Bank, they are processed and checked, and subsequently made available to the public. BvD collects these data to compile the Bel-first database. Bel-first includes data for active firms and firms that eventually go bankrupt. To collect current data on ownership and the status of firms, BvD uses a range of data sources, but most prominent is The Belgian Law Gazette. In the Belgian Law Gazette, Belgian firms are required to provide detailed information on their founding, capital increases and the like, and this official information is externally validated by a

notary. We further obtain data on the firms that are involved in private equity and venture capital deals from the Zephyr database (also compiled by BvD), which we further updated with proprietary data from the Belgian Venture Capital and Private Equity Association and Business Angel networks.

Firms had to fulfill the following criteria to be part of our sample of Belgian start-ups. First, firms had to be legally founded in 2006, 2007, 2008 or 2009 respectively.³ Firms founded in 2006 and 2007 are founded before the financial crisis hit the Belgian banking sector, while 2008 and 2009 start-ups are founded at the height of the financial crisis in Belgium. Second, firms had to employ between 1 and 50 people in their initial year of operation. We use this selection criterion, because it is unlikely that firms starting with more than 50 employees in their initial year of operation are *de novo* start-ups. Third, firms could not belong to a group structure. Specifically, firms could not be controlled by a shareholder with an equity stake of 50% or more (except for equity stakes of families, employees and directors) and could not have participations in other firms (ownership > 10%) in their initial year of operation. We focus on firms that are independent at start-up, because firms which belong to a group structure may do much of their lending and borrowing within their group. Moreover, firms with participations in other firms in their initial year of operation are unlikely to be *de novo* start-ups. Fourth, firms could be active in a broad range of sectors but we excluded firms in the financial, educational and social sectors. The financing of firms in these sectors is influenced by regulatory and other issues. Finally, we

³ We refrain from using data on new firms founded before 2006 because the Belgian government introduced a new measure—by the law of 22 June 2005 (effective from income year 2006)—to reduce the fiscal discrimination between equity and debt financing, namely the notional interest deduction. Debt financing has an important advantage compared to equity financing under the corporate tax system in most developed countries: while the interests that firms pay are tax-deductible expenses, dividends and retained earnings are not. The notional interest deduction allows firms subject to Belgian corporate tax to deduct from their taxable income an amount equal to the interest they *would have paid* on their capital (corrected equity capital more specifically, including capital and carry-forward profits, among other) if that capital was long-term debt financing.

eliminate firms that have missing data for any of the variables that are used in the first set of regressions estimated in Section 6. The final sample contains 14,846 firms which represents a close approximation of the full population of independent, non-financial, start-ups in the Belgian economy from between 2006 and 2009.

Using the Bel-first database, we further constructed a sample of all Belgian, non-financial, firms operational at some point between 2003 and 2010. We require that these firms employ at least 1 person and have financial statement data available for at least two years. This results in a sample of 110,940 firms and 743,597 firm-year observations. As we detail below, we use this data set to construct multiple variables, including the 3-year median growth rate in sales, the median ratio of bank debt to total assets and the median number of employees in the industry of our sample firms.

4 The Financing Sources of New Firms by Founding Year

We first provide a detailed look at the financial structure of new firms in their initial year of operation. For this purpose, we make a broad distinction between debt financing and equity financing. Empirical studies of capital structure often treat debt as uniform, but firms simultaneously use multiple debt types (e.g., Rauh and Sufi, 2010). In this study, we therefore make a further distinction between owner debt, bank debt, trade debt and other sources of non-bank debt. Owner debt represents the amount of money entrepreneurs lent to their own firm. Owner debt, however, could be viewed as preferred equity rather than debt financing, because entrepreneurs are unlikely to voluntarily file for bankruptcy when the debt service payments on owner debt cannot be met. Bank debt represents loans from banks and we make a distinction

between short-term and long-term bank debt using a one-year dividing line. Trade debt represents trade payables for firms in their initial year of operation. Finally, other sources of non-bank debt represent debt related to payroll or social security, taxes and the like. When a firm goes bankrupt, non-bank debt is generally paid in first order, which implies that employees and the government are compensated before other creditors (even when debt provided by the latter is secured).

For equity financing, the Bel-first database provides less details on the source of financing. However, for all firms in our sample we checked whether they raised venture capital or angel financing in the Zephyr database and proprietary databases from the Belgian Venture Capital and Private Equity Association and Business Angel Networks. We found only 12 new firms (or 0.08% of the sample) that raised external equity financing in their initial year of operation.⁴ This suggests that most equity financing raised is inside equity financing.

*** Table 1 about here ***

Table 1 shows the capital structure of new firms founded in 2006, 2007, 2008 and 2009, respectively. While the median amount of total financing sources remained relatively stable in 2006-07, it dropped to €156,794 in 2008 (a decrease of 5.2% compared with 2007) and 149,653 in 2009 (a further decrease of 4.6% compared with 2008). The drop in the median amount of bank debt raised is remarkable. Median bank debt declines continuously over the timeframe of our study. The median amount of bank debt raised by 2006 start-ups equals €34,794 and drops to

⁴ Our findings correspond with Puri and Zarutskie (2013), who show that 0.10% of new firms in the US receive venture capital financing. That this percentage is somewhat lower in our sample is not surprising since the venture capital market in Belgium is not as developed as its U.S. counterpart. For the 12 firms that raise (formal or informal) venture capital in their initial year of operation, we see that equity financing becomes very important. The median firm raises 887,277 euro of equity financing. Surprisingly, eight out of 12 venture capital backed firms also raise long-term bank debt (the median amount raised equals 140,384 euro).

26,335 for 2009 start-ups, which represents a decline of over 32%. Moreover, while 70% of 2006 start-ups raised long-term bank debt, this is only 65% for 2009 start-ups. Interestingly, conditional upon raising bank debt, the median amount of bank debt does not drop. This suggests that new firms founded during the financial crisis had particular difficulty to access bank debt, but if they were able to raise bank debt the amount of financing raised did not differ from the period before the financial crisis.

Our finding that bank debt is an important source of financing for new firms is surprising in view of the financial growth cycle paradigm (Berger and Udell, 1998) which states that new firms will primarily rely on inside financing and trade credit (maybe also angel financing if firms have sufficiently high growth ambitions). In the financial growth cycle, new firms are expected to experience significant difficulties in obtaining intermediated financing, such as bank debt. The importance of bank debt for new firms is unlikely to be unique to the Belgian context, however. Indeed, Robb and Robinson (2013) recently showed that U.S. start-ups also heavily rely on outside sources of debt financing, including bank debt.

From Table 1 we further learn that besides bank debt, trade debt is a particularly important source of financing used by nearly all new firms in our sample. Through time the median amount of trade debt also decreases, although the decrease is less strong as compared to bank debt. The third most important source of financing for new firms is equity financing. The amount of equity financing raised remains quite stable for new firms founded in different years. Owner debt is a less common financing option for new firms, but when it is used, it often provides firms with more financing as compared to the median amount of equity that is invested in the startup year. There is some weak evidence that owner debt was more important for new firms during crisis years as compared to pre-crisis years. Finally, nearly all new firms rely on

other types of non-bank debt in their initial year of operation, although the median amounts of other types of non-bank debt remain relatively modest.

*** Table 2 about here ***

Table 2 shows the number of significant financing sources used by new firms. Panel A, shows that new firms typically combine multiple sources of financing. The average new firm uses at least two significant sources of financing, where significant sources of financing are defined as those sources which account for more than 20% of the total amount of financing raised. Panel B, shows that bank debt and trade debt are by far the two most important sources of financing for new firms. Bank debt is a significant source of financing for 55% of new firms. Moreover, when bank debt is a significant source of financing, this is mostly combined with trade debt (36% of firms) and owner debt (21% of firms). Interestingly, when firms use other types of non-bank debt as a significant source of financing, bank debt is ranked only third in importance after trade debt and equity financing. This is not surprising as other types of non-bank debt are typically paid in first order when the firm goes bankrupt. Panel C, shows that although the importance of bank debt as a significant source of financing gradually decreased over the 2006-2009 period, bank debt remains the most important source of financing even during the financial crisis. We further see a small increase in the importance of owner debt as a significant source of financing in 2008. In 2009, we see a small increase in the importance of equity financing and other types of non-bank debt.

*** Table 3 about here ***

5 Variables and Descriptive Statistics

Before investigating the financial and real effects of the financial crisis for new firms in a regression framework we describe our variables and present descriptive statistics. Table 3 reports the definitions, number of observations, means, medians, and standard deviations for the variables used in this analysis. To determine the financial effects of the financial crisis, we focus on the use of bank debt ($Bank\ Debt > 0$) and the proportion of bank debt on total financing sources raised ($Bank\ Debt / TFS$). Interestingly, some 73% of new firms raise bank debt in their initial year of operation. The mean ratio of bank debt on total financing sources raised equals 30%. When new firms raise bank debt this is typically long-term bank debt with a maturity of over one year rather than short-term bank debt which matures within one year.

To determine the real effects of the financial crisis, we study the effect of the financial structure of firms in their initial year of operation on firm survival and subsequent profitability. Some 4% of new firms go bankrupt in their second year of operation (*Bankrupt*). When firms go bankrupt this is recorded in The Belgian Law Gazette and subsequently incorporated in the Bel-first database. The average profitability of firms, measured as EBIT on total assets in their second year of operation, equals 3% ($Profitability_{t+1}$).

The effects of the financial crisis on the financing of new firms should depend on the relative bank dependence of firms in an industry ($Bank\ Debt\ Industry$). To proxy for the dependence of new firms on bank loans, we measure the 4-digit industry median of bank debt on total assets (e.g., Cetorelli and Strahan, 2006). Firms founded by financially constrained entrepreneurs may also experience more problems to access bank debt as a consequence of the crisis. To proxy for financial constraints experienced by founders, we use the ratio of uncalled equity to paid-in equity (*Uncalled Equity*). The mean ratio of uncalled equity to paid-in equity equals 0.68. In Belgium, founders are not required to fully invest the amount of committed

equity in the first year of operation (hence paid-in equity should not equal committed equity). Nevertheless, Belgian legislation does require founders to commit an amount of equity that is needed during the first two years after start-up. When this is not the case limited liability can be removed.⁵

Several other variables are included in the multivariate analysis, including the four major determinants of capital structure, as highlighted by previous studies (Brav, 2009; Rajan and Zingales, 1995). These four variables are profitability, tangibility, growth and size. Mean profitability in the first year of operation equals -1% (*Profitability*). The ratio of property, plant and equipment on total assets is on average 33% (*Tangibility*). While prior research has proxied for growth opportunities by using the market-to-book ratio, such a measure is not available for private firms. Other common proxies, including growth in sales or total assets are also unavailable for new firms because these firms have no operational history. We therefore proxy the growth opportunities of a firm by using the median 3-year growth rate in sales for firms in the same 4-digit industry as the sample firm (*Growth*). Firm size is measured as the total financing sources raised in the first year of operation (*TFS*). The average (median) new firm raises €432,966 (€159,367) of total financing sources.

In Belgium, limited liability firms can choose among several legal forms. NV limited liability firms faces higher equity requirements than BVBA limited liability firms, but BVBA firms can only issue registered shares, which cannot be publicly issued and which can be

⁵ When entrepreneurs do not fully invest committed equity, an alternative explanation is that they are not financially constrained, but simply wait to invest the additional amount of equity until the firm needs the investment. This explanation is not likely, however. We find evidence that those firms where a part of committed equity is uncalled are exactly those firms where committed equity is low and very close to the legal minimum. Hence, firms which are most likely to be undercapitalized are exactly the types of firms where part of committed equity is uncalled. Obviously, measuring the wealth of entrepreneurs directly would be superior to our approach. However, it is practically not feasible to obtain such information from the population of new firms. Moreover, given the sensitive nature of the topic it would results in a large non-response bias.

transferred only after approval of the other shareholders. NV firms cannot only issue registered shares but also bearer shares, which can be transferred without any restrictions. New firms that are founded as NV are generally regarded as more prestigious. We constructed a dummy variable (*NV*) which equals one when a firm is founded as an “NV” and zero otherwise. Some 8% of the firms in our sample are NV firms, while 92% are BVBA firms.

The creditworthiness of a firm is often proxied by ratings offered by agencies such as Standard & Poor’s and Moody’s. The new firms in our sample, however, do not have such a rating. We calculate the FiTo score, which is a default risk indicator from Graydon. In Belgium, Graydon is the market leader in commercial and marketing information, and credit and debt management. The FiTo score lies between 0 (financially distressed firm) and 1 (financially healthy firms). We calculate the unlevered FiTo score, thereby removing the effect of the financial structure on the FiTo score. Dummies are created to classify new firms into three categories according to their default risk. The bottom 25% of firms are classified as firms with a high default risk (*Low Creditworthiness*). Firms with a low default risk (or high creditworthiness) are those situated above the 25rd percentile (*High Creditworthiness*). Finally, the reference category is firms with a medium default risk (and medium creditworthiness) which are firms with a FiTo score between the 25rd and 75th percentile.

We include several other variables which relate to the composition of a start-up’s workforce. Note that a large number (46.7%) of our start-up “firms” consist of only one employee, most likely the founder. Hence, the term “firm” should be interpreted in a broad sense. On average 55% of employees are male (*Prop male empl*). Firms founded by females generally use less outside sources of financing (Robb, Fairlie and Robinson, 2009). 10% of employees have a university (or equivalent) degree (*Prop highly edu empl*). Prior research

suggests that firms founded by entrepreneurs who are college educated or are advanced degree holders use considerably more start-up capital—which primarily comes from the owner (Robb, Fairlie and Robinson, 2009). Finally, some 38% of employees are white-collar employees (*Prop white collar empl*). White collar-workers generally have more human capital compared to blue-collar workers.

We proxy for scale economies in an industry by measuring the median number of employees of firms operating in the same 4-digit industry as the sample firm (*Size of industry peers*). The median firm operating in the same 4-digit industry as our sample firms employs on average 3.92 people. In industries where firms are larger, start-ups might have to raise more financing in order to reach a minimum efficient scale. We further proxy for industry competition by including the number of firms that operate in the same 4-digit industry as the sample firm (*Nmbr of industry peers*). The median number of peers operating in the same 4-digit industry as our sample firms is on average 1,533.

6 The Financial Effects of the Financial Crisis

We now proceed with a more systematic testing of the effect of the recent financial crisis. We first examine the impact of the financial crisis without distinguishing among firms that should have been more affected by the crisis. The financial crisis provides a natural experiment setting that allows us to examine how an unexpected shock in the supply of credit affects the use of bank debt in new firms. We previously showed that bank debt is a major source of financing for new firms. Consequently, controlling for firm, human capital and industry characteristics, we expect that the limited supply of credit will negatively influence the use of bank financing in new firms

founded in 2008 and 2009. In particular, we estimate the following regression using ordinary least squares (OLS):

$$Y = \beta_0 + \beta_1 FY\ 2008 + \beta_2 FY\ 2009 + \beta_3 Profitability + \beta_4 Tangibility + \beta_5 Growth + \beta_6 TFS + \beta_7 NV + \beta_8 Low\ Creditworthiness + \beta_9 High\ Creditworthiness + \beta_{10} Prop\ male\ empl + \beta_{11} Prop\ highly\ edu\ empl + \beta_{12} Prop\ white\ collar\ empl + \beta_{13} Size\ of\ industry\ peers + \beta_{14} Nnbr\ of\ industry\ peers + \beta_{15} FY\ 2007 + \beta_{IND} Industry. \quad (1)$$

*** Table 4 about here ***

We estimate Eq. (1) six times for each of the dependent variables. Our dependent variables measure the use of bank debt and the ratio of bank debt to total financing sources for firms in their initial year of operation and this for total bank debt, long-term bank debt and short-term bank debt, respectively. Table 4 reports the estimated coefficients and robust standard errors for the six specifications of Eq. (1). Models 1 and 2 focus on the use of bank debt (*Bank Debt* > 0) and the amount of bank debt relative to total financing sources raised (*Bank Debt / TFS*). Models 3 and 4 focus on the use of long-term bank debt (*LT Bank Debt* > 0) and the amount of long-term bank debt relative to total financing sources raised (*LT Bank Debt / TFS*). Finally, Models 5 and 6 focus on the use of short-term bank debt (*ST Bank Debt* > 0) and the amount of short-term bank debt relative to total financing sources raised (*ST Bank Debt / TFS*).

To examine the impact of the financial crisis on the use of bank debt (Model 1) and the ratio of bank debt to total financing sources (Model 2), we focus on the founding year dummies: *FY 2008* and *FY 2009*. Focusing on Model 1 we see that controlling for firm, human capital and industry characteristics, firms founded in 2008 and 2009 were 2.1 percentage points less likely to raise bank debt, relative to firms founded in 2006. Similarly, Model 2 shows that the ratio of

bank debt to total financing sources raised was 1.7 (1.5) percentage points lower for firms founded in 2008 (2009), relative to firms founded in 2006. Note that our models generally underestimate the impact of the financial crisis and provide a conservative test. Indeed, from the descriptive statistics we learned that total financing sources raised during crisis years was significantly lower, relative to pre-crisis years. Hence, when even the ratio of bank debt to total financing sources raised would have remained stable, this implies that the absolute amount of bank debt raised decreased.

Models 3 and 4 show that the results for bank debt are driven by a decreased use of long-term bank debt and a lower ratio of long-term bank debt to total financing sources raised. Specifically, firms founded in 2008 (2009) were 3 (2.8) percentage points less likely to raise long-term bank debt, relative to firms founded in 2006. The ratio of bank debt to total financing sources raised was 1.6 (1.4) percentage points lower for firms founded in 2008 (2009), relative to firms founded in 2006. Model 5 and 6 show there is no decrease in the use of short-term bank debt and the relative importance of short-term bank debt to total financing sources raised in the 2008-09 period, relative to 2006.

In sum, we find that the recent financial crisis had a statistically significant and economically meaningful effect on the financing of start-ups. Specifically, during crisis years, new firms used significantly less (long-term) bank debt.

Given our limited understanding of financial decision making in new firms, the other variables in Table 4 are interesting in their own respect. We discuss them in detail below. In all specifications, we find a strong positive correlation between bank debt and profitability. This is surprising given that the negative relationship between leverage ratios and profitability is the

single most cited fact in support of the pecking order theory (Harris and Raviv, 1991; Rajan and Zingales, 1995). Our findings, however, are consistent with Rauh and Sufi (2010) who show there exists significant heterogeneity in the relationship between different types of debt and profitability. Moreover, Rauh and Sufi (2010) also show a positive correlation between bank debt and profitability for mature U.S. firms.⁶ We further find a strong positive correlation between bank debt and tangibility, except for the amount of short-term bank debt relative to total financing sources raised, where we find a negative correlation. This is consistent with the view that tangible assets are more easily collateralizable. For new firms, growth opportunities are negatively related with the amount of long-term debt relative to total financing sources raised. This relationship is reversed for short-term debt relative to total financing sources raised where we find a positive correlation with growth opportunities. These findings are consistent with Myers (1977). Firm size is positively correlated with bank debt.

The “NV” organizational form and bank debt are negatively correlated, which is not surprising as an NV has higher equity requirements. We further find that new firms with high creditworthiness (or a high FiTo-score) are less likely to use bank debt and have lower ratios of bank debt to total financing sources raised. For new firms with low creditworthiness (or a low FiTo-score), we fail to find a relationship with total bank debt. Diamond (1991) predicts that both firms with low creditworthiness and firms with high creditworthiness will prefer short-term debt over long-term debt. Consistent with this model both new firms with low and high creditworthiness are less likely to use long-term bank debt. Furthermore, new firms with low creditworthiness are more likely to use short-term debt. However, contrary to Diamond (1991) firms with high creditworthiness are less likely to use short-term debt.

⁶ Consistent with previous research unreported results show a negative correlation between profitability and owner debt. We further find a negative but non-significant correlation between profitability and trade debt.

The human capital variables are also correlated with bank debt. Specifically, firms with a larger proportion of male employees are more likely to use (long-term) bank debt, but raise lower amounts of (long-term) bank debt relative to total financing sources raised. Firms with a higher proportion of highly educated employees are less likely to raise (long-term) bank debt and raise lower amounts of (long-term) bank debt relative to total financing sources raised. Given that it is unlikely that banks discriminate against firms with a higher proportion of highly educated employees, it appears that firms with a higher proportion of highly educated employees self-select against having bank loans. This finding is consistent with Åstebro and Bernhardt (2004) who show that U.S. start-ups with higher levels of education and work experience self-select against bank loans. New firms with a higher proportion of white-collar employees are less likely to use long-term bank loans and have lower ratios of (long-term) bank debt to total financing sources raised.

Finally, several industry characteristics also correlate with bank loans. The median size of industry peers is negatively related with the use of long-term bank loans. The size of industry peers is negatively correlated with the ratio of (long-term) bank debt to total financing sources raised. The number of industry peers is positively related with the use of long-term bank debt. Moreover, new firms operating in industries with more peers have higher ratios of (long-term) bank debt to total financing sources raised. This is consistent with Cosh, Cumming and Hughes (2009) who show that entrepreneurial firms operating in industries with more competitors are more likely to apply for external financing from banks.

After describing how the recent financial crisis influenced the financing of new firms and providing a detailed description of the relationship between bank debt and firm, human capital and industry characteristics, we now move one step further. Specifically, certain firms should

have been more affected by the financial crisis as compared to other firms. In what follows, we focus on new firms' dependence on bank debt and founders' financing constraints. We expect that new firms which are heavily dependent on bank debt will have been more affected by the financial crisis. Moreover, new firms founded by entrepreneurs who are financially constrained (i.e., new firms where founders do not fully invest committed equity financing in the initial year of operation) are also expected to be more affected by the financial crisis. After all, when entrepreneurs are financially constrained, other sources of financing such as bank debt become more critical. Again using OLS, we estimate the following regression:

$$Y = \beta_0 + \beta_1 \text{Industry bank debt} + \beta_2 \text{Industry bank debt} * \text{Crisis} + \beta_3 \text{Uncalled equity} + \beta_4 \text{Uncalled equity} * \text{Crisis} + \beta_5 \text{Profitability} + \beta_6 \text{Tangibility} + \beta_7 \text{Growth} + \beta_8 \text{TFS} + \beta_9 \text{NV} + \beta_{10} \text{Low Creditworthiness} + \beta_{11} \text{High Creditworthiness} + \beta_{12} \text{Prop male empl} + \beta_{13} \text{Prop highly edu empl} + \beta_{14} \text{Prop white collar empl} + \beta_{15} \text{Size of industry peers} + \beta_{16} \text{Nbr of industry peers} + \beta_{17} \text{FY 2007} + \beta_{18} \text{FY 2008} + \beta_{19} \text{FY 2009} + \beta_{IND} \text{Industry}. \quad (2)$$

*** Table 5 about here ***

Table 5 reports the estimated coefficients and robust standard errors for the six specifications of Eq. (2).⁷ Focusing on Models 1 and 2 we see that new firms operating in industries where the median firm has a higher debt ratio do not necessarily have a higher likelihood of using bank debt, but they do have a higher ratio of bank debt to total financing sources raised. In crisis years, however, the relationship between the industry median bank debt

⁷ In what follows, we define firms founded in non-crisis years as those firms founded in 2006 or 2007 and firms founded in crisis years as those firms that are founded in 2008 or 2009. One reason for concern is that in 2009 the financial crisis developed into an economic crisis and demand-side effects of the crisis became apparent. Specifically, although Figure 1 demonstrated a sharp drop in the growth of bank debt provided to non-financial firms since the beginning of 2008, the annual GDP growth rate was still positive at 0.99% in Belgium in 2008. In 2009, however, economic activity decreased dramatically; the annual growth rate of GDP was -2.78% in 2009. We reran all our regressions excluding firms founded in 2009, thereby only focusing on firms founded in 2008 as firms founded during the financial crisis. Our results remain qualitatively similar and in many cases results were even stronger compared to the ones we report below.

ratio and the new firm's ratio of bank debt to total financing sources raised becomes weaker. This suggests that in crisis years, new firms which were highly dependent on bank loans raised smaller amounts of bank debt, relative to pre-crisis years. When we focus on long-term bank debt in Models 3 and 4, we find similar results. For short-term bank debt, we find evidence that firms which are highly dependent on bank loans raise larger amounts of short-term bank debt to total financing sources raised.

Focusing once more on Models 1 and 2 we see that uncalled equity is positively related with the use of bank debt and the amount of bank debt relative to total financing sources raised. This is not surprising as entrepreneurs commit to invest additional equity in the firm in the years after founding. This provides bank with an additional buffer when firms fail. However, in crisis years, firms with uncalled equity are less likely to raise debt financing. This suggests that when entrepreneurs are financially constrained and do not full invest committed capital in the initial year of operation, new firms are less likely to raise bank debt during crisis years, relative to pre-crisis years. These findings corroborate with evidence from Models 3 and 4 for long-term bank debt.

Taken together, our results suggest that the use of bank debt declined significantly for firms founded in crisis years, relative to firms founded in pre-crisis years. Consistent with the causal effect of a negative supply of credit to new firms, this decline is particularly strong for new firms that are highly dependent on bank loans and for new firms founded by financially constrained entrepreneurs. We also show that firms which are founded in crisis years and are more dependent on bank loans—at least partially—compensate their more limited use of long-term bank debt with an increase in the use of short-term bank debt.

7 The Real Effects of the Financial Crisis

In this section, we examine the real effects of the financial structure of new firms before and during the financial crisis. Previous studies on the relationship between debt financing and firm success have been plagued by two key issues. First, reverse causality and endogeneity problems make it difficult to simply interpret regression coefficients without the presence of some natural experiment where one can exploit a shift in the supply of credit (Krishnan, Nandy and Puri, 2013). On the one hand, more successful firms may seek debt financing. On the other hand, debt financing may make firms more successful, for instance true easing financial constraints and increasing firm productivity. To make things even more complicated, common unobserved factors may influence both firm success and access to debt financing. We use the recent financial crisis as a natural experiment to study how a decrease in the availability of bank financing affects firm success. Second, external debt is often assumed to be homogenous, although debt is heterogeneous in nature (Rauh and Sufi, 2010). For instance, owner debt and bank debt, but also short-term debt and long-term debt differ fundamentally with respect to liquidity risk (Diamond, 1991). We take this heterogeneity into account in our subsequent regressions.

In what follows, we focus on two outcomes, namely bankruptcy and performance. We further focus on two sources of financing, namely bank debt and owner debt and within each category we make a distinction between long-term debt and short-term debt. We do not focus on other sources of financing, such as trade debt or other types of non-bank debt, because nearly all firms use these sources and hence there is almost no variation. Table 6 reports the estimated coefficients and robust standard errors for Eq. (3).

$$\begin{aligned}
Y = & \beta_0 + \beta_1 \text{LT Bank Debt} + \beta_2 \text{ST Bank Debt} + \beta_3 \text{LT Owner Debt} + \beta_4 \text{ST Owner Debt} + \\
& + \beta_5 \text{LT Bank Debt} * \text{Crisis} + \beta_6 \text{ST Bank Debt} * \text{Crisis} + \beta_7 \text{LT Owner Debt} * \text{Crisis} + \\
& \beta_8 \text{ST Owner Debt} * \text{Crisis} + \beta_9 \text{Profitability} + \beta_{10} \text{Tangibility} + \beta_{11} \text{Growth} + \beta_{12} \text{TFS} + \\
& \beta_{13} \text{NV} + \beta_{14} \text{Low Creditworthiness} + \beta_{15} \text{High Creditworthiness} + \beta_{16} \text{Prop male empl} + \\
& \beta_{17} \text{Prop highly edu empl} + \beta_{18} \text{Prop white collar empl} + \beta_{19} \text{Size of industry peers} + \\
& \beta_{20} \text{Nnbr of industry peers} + \beta_{21} \text{FY 2007} + \beta_{22} \text{FY 2008} + \beta_{23} \text{FY 2009} + \beta_{IND} \text{Industry}.
\end{aligned}$$

(3)

In Model 1, the outcome is Bankruptcy and the key independent variables measure whether new firms used long-term bank debt, short-term bank debt, long-term owner debt or short-term owner debt in their initial year of operation. In Model 2, the outcome is Bankruptcy and the key independent variables capture the amount of long-term bank debt, short-term bank debt, long-term owner debt or short-term owner debt relative to total financing sources raised in the initial year of operation. Model 3 and 4 are constructed in the same way, but use Profitability as a dependent variable. Profitability is measured in the second year of operation. The results are reported in Table 6.

*** Table 6 about here ***

Looking at Model 1 we see that new firms which use short-term bank debt have a 2.1 percentage point higher probability of going bankrupt. The use of short-term owner debt decreases the probability of going bankrupt with 1.4 percentage points. In crisis years, firms which use long-term bank debt and firms which use short-term owner debt are less likely to go bankrupt, relative to pre-crisis years. Looking at Model 2, we see that new firms which have higher ratios of long-term bank debt to total financing sources raised and firms which have higher ratios of short-term owner debt to total financing sources raised have a lower probability of going

bankrupt. In crisis years, the effect of the amount of long-term debt raised relative to total financing sources raised decreases the likelihood of going bankrupt, relative to pre-crisis years.

The results for the other variables suggest that more profitable firms and firms with more tangible assets have a lower probability of going bankrupt. Firms with significant growth opportunities have a higher likelihood of going bankrupt. Surprisingly, also firms which raised more financing in their initial year of operation have a higher likelihood of going bankrupt. New firms with low (high) creditworthiness have a higher (lower) likelihood of going bankrupt, relative to firms of average creditworthiness. This finding is interesting because it shows the validity of the FiTo-score as a measure for the creditworthiness of firms. Finally, we fail to find a significant impact of human capital and general industry characteristics on the likelihood of new firms going bankrupt.

We now shift our attention from firm failure towards firm profitability. When looking at Model 3 we can see that firms which use short-term bank debt (owner debt) in their first year of operation exhibit lower (higher) profitability in their second year of operation. Note that as we discuss below all models control for the creditworthiness and profitability of firms in their initial year of operation. In crisis years, particularly firms which use long-term owner debt in their first year of operation exhibit a higher subsequent profitability, relative to pre-crisis years. This finding is economically very significant. Specifically, firms using long-term owner debt in their initial year of operation exhibit a 3 percentage point higher return of assets in crisis years, relative to pre-crisis years. In model 4 we further see that new firms with a higher ratio of long-term bank debt relative to total financing sources and new firms with a lower ratio of short term bank debt and long-term owner debt relative to total financing sources exhibit higher subsequent

profitability. In crisis years, however, the effect of higher ratios of long-term owner debt to total financing sources becomes significantly less negative, relative to pre-crisis years.

Unsurprisingly, the other variables indicate that new firms which were more profitable in their initial year of operation also exhibit higher subsequent profitability. Firms with more tangible assets and firms which are incorporated as “NV” are less profitable. Firms with low (high) creditworthiness are less (more) profitable, relative to firms of average credit worthiness. Again, we find no significant effect of human capital variables and specific industry characteristics on the subsequent profitability of new firms.

Taken together, we find evidence that new firms founded in crisis years with access to long-term bank debt and short-term owner debt in their initial year of operation were less likely to go bankrupt, relative to similar firms founded in pre-crisis years. New firms founded in crisis years with access to more long-term owner debt were more profitable, relative to similar firms, founded in pre-crisis years. This suggests that access to outside sources of financing, including long-term bank debt and owner debt, is critical for firm success. Interestingly, short-term bank debt has a negative relationship with new firm success, irrespective of the period in which these firms are founded.

8 Conclusions

This paper uses a unique new data set to study the financial and real effects of the recent financial crisis for new firms. We find that bank debt is a key source of financing for new firms in Belgium. For some 55% of new firms, bank debt makes up more than 20% of total financing sources raised in the initial year of operation. While the use of trade debt and owner debt

remained fairly constant over the period considered, the use of bank debt decreased dramatically for new firms founded in crisis years, relative to firms founded in non-crisis years. Despite this sharp decrease, bank debt remains the single most important source of financing for new firms founded in crisis years. Our evidence on the importance of bank debt is consistent with recent evidence from U.S. firms founded in 2004 (Robb and Robinson, 2013). We extend this research by showing that the importance of bank financing for new firms reflects a broader pattern for new firms founded in a different institutional context outside the U.S. and fundamentally different credit market conditions.

Our data show that new firms that are highly dependent on bank debt and new firms founded by financially constrained entrepreneurs were particularly hit by the recent financial crisis. This suggests that the financial crisis increased financial constraints for these firms. We further show that new firms founded in crisis years which raise long-term bank financing are less likely to fail, relative to similar firms founded in pre-crisis years. Moreover, new firms founded in crisis years which raise long-term owner debt are more profitable, relative to similar firms founded in pre-crisis years. This suggests that firms founded in crisis years which had access to long-term bank debt or long-term owner debt were less financially constrained.

In summary, our study provides new empirical evidence on the hitherto unexplored effects of the recent financial crisis for new firms. Our findings suggest that although the use of bank debt decreased significantly during the midst of the recent crisis—a financial crisis of historic breadth and depth—bank financing remained the single most important source of financing for new firms. Our study calls policy-makers to pay specific attention to the well functioning of credit markets and a stable banking system as a key driver in the formation and subsequent success of new firms that may be the future engines of economic growth.

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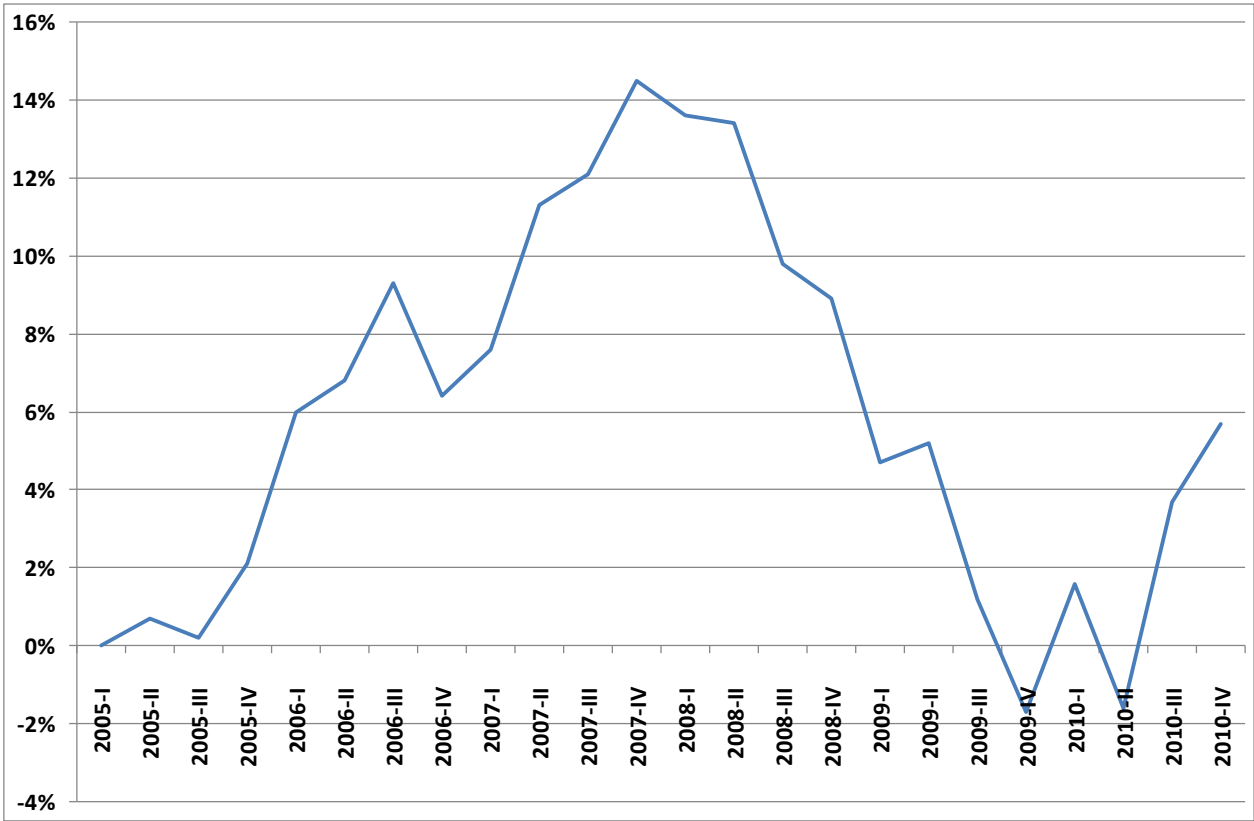
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Figure 1: Yearly Percentage Change in Credit Granted to Non-Financial Belgian Firms



This figure depicts yearly percentage changes in the total amount of credit granted to non-financial firms in Belgium. Source: own calculations based on data from the National Bank of Belgium.

Table 1: Sources of Financing for New Firms by Founding Year

	2006			2007			2008			2009		
	Median	Median if > 0	% of firms	Median	Median if > 0	% of firms	Median	Median if > 0	% of firms	Median	Median if > 0	% of firms
Equity	€ 17,460	€ 17,460	100%	€ 16,709	€ 16,709	100%	€ 16,709	€ 16,709	100%	€ 16,360	€ 16,360	100%
Owner Debt	€ 9,784	€ 22,381	75%	€ 9,290	€ 22,458	74%	€ 10,614	€ 23,436	76%	€ 9,851	€ 21,992	75%
LT Owner Debt	€ 0	€ 56,802	4%	€ 0	€ 49,393	4%	€ 0	€ 61,658	5%	€ 0	€ 68,473	5%
ST Owner Debt	€ 8,235	€ 20,313	73%	€ 7,502	€ 20,270	72%	€ 8,498	€ 20,616	74%	€ 8,359	€ 20,214	73%
Bank Debt	€ 34,794	€ 63,429	75%	€ 32,810	€ 70,581	73%	€ 27,316	€ 62,262	72%	€ 26,335	€ 63,831	71%
LT Bank Debt	€ 28,154	€ 61,530	70%	€ 24,945	€ 67,964	68%	€ 22,624	€ 60,995	66%	€ 20,975	€ 61,863	65%
ST Bank Debt	€ 0	€ 11,829	25%	€ 0	€ 11,453	27%	€ 0	€ 11,131	25%	€ 0	€ 9,841	24%
Trade Debt	€ 26,265	€ 27,366	98%	€ 25,550	€ 26,227	98%	€ 24,322	€ 25,082	98%	€ 23,041	€ 23,716	98%
Other Types of Non-Bank Debt	€ 11,692	€ 12,347	97%	€ 11,871	€ 12,367	97%	€ 11,151	€ 11,691	97%	€ 11,499	€ 11,944	97%
Total Financing Sources	€ 162,071	€ 162,071	100%	€ 165,357	€ 165,357	100%	€ 156,794	€ 156,794	100%	€ 149,653	€ 149,653	100%

The sample is based on the complete set of business registrations for Belgium from January 1, 2006 to December 31, 2009 and includes 14,846 firms. The median, in euro, for all firms is reported in the first column. The second column reports the median, in euro, for only firms with positive amounts of that source of financing. The percentage of firms that use a particular source of financing is reported in the third column. All euro values are inflation adjusted using the Belgian consumer price index.

Table 2: Combinations of Financing Sources for New Firms

Panel A: Distribution of Number of Different Sources of Financing (>20% of Total Financial Capital)					
Number of Types	0	1	2	3	4
Number of Observations	11	5,213	7,726	1,852	44
Percent	0.00	0.35	0.52	0.12	0.00
Percent Using at Least This Many	1.00	1.00	0.65	0.13	0.00
Panel B: Share of Observations With Significant Amounts of Financing Sources Outstanding (>20% of Total Financial Capital)					
	Equity	Owner Debt	Bank Debt	Trade Debt	Other Types of Non-Bank Debt
Unconditional	0.26	0.31	0.55	0.46	0.20
Equity > 20%	1.00	0.27	0.34	0.36	0.25
Owner Debt > 20%	0.23	1.00	0.38	0.30	0.13
Bank Debt > 20%	0.16	0.21	1.00	0.36	0.10
Trade Debt > 20%	0.20	0.20	0.44	1.00	0.20
Other Types of Non-Bank Debt > 20%	0.33	0.20	0.27	0.47	1.00
Panel C: Share of Observations With Significant Amounts of Financing Sources Outstanding (>20% of Total Financial Capital) by Founding Year					
Unconditional	Equity	Owner Debt	Bank Debt	Trade Debt	Other Types of Non-Bank Debt
2006	0.26	0.30	0.57	0.46	0.19
2007	0.25	0.30	0.56	0.47	0.20
2008	0.25	0.33	0.54	0.45	0.20
2009	0.27	0.32	0.52	0.45	0.21

The sample is based on the complete set of business registrations for Belgium from January 1, 2006 to December 31, 2009 and includes 14,846 firms. Panel A shows the distribution of observations by number of significant sources of financing used. A financing source is defined as significant if it comprises at least 20% of total financial capital raised. Panel B shows the share of observations in the sample with significant amounts of the various sources of financing outstanding. The first row shows these fractions

unconditionally, and the following rows show these fractions for firms with significant amounts of each of the five sources of financing. Panel C shows the share of observations with significant amounts of the various sources of financing outstanding for new firms by founding year.

Table 3: Descriptive Statistics

Variable	Description	N	Mean	Median	Std. dev.
Bank Debt > 0	= 1 if firm raised bank debt, else 0	14,846	0.73	—	—
LT Bank Debt > 0	= 1 if firm raised long-term (maturing in more than one year) bank debt, else 0	14,846	0.67	—	—
ST Bank Debt > 0	= 1 if firm raised short-term (maturing within one year) bank debt, else 0	14,846	0.25	—	—
Bank Debt / TFS	Bank debt to total financing sources raised	14,846	0.30	0.25	0.28
LT Bank Debt / TFS	Long-term bank debt to total financing sources raised	14,846	0.27	0.20	0.27
ST Bank Debt / TFS	Short-term bank debt to total financing sources raised	14,846	0.03	0.00	0.09
Bankrupt	= 1 if firm goes bankrupt in the year after the founding year, else 0	14,846	0.04	—	—
Profitability _{t+1}	EBIT on total assets in year after founding year	13,809	0.03	0.05	0.20
Bank Debt Industry	Median ratio of bank debt to total assets in 4-digit industry	14,846	0.22	0.21	0.08
Uncalled Equity	Uncalled equity to paid-in equity capital	14,843	0.68	0.00	0.89
Profitability	EBIT on total assets	14,846	-0.01	0.04	0.38
Tangibility	Property, plant and equipment on total assets	14,846	0.33	0.26	0.27
Growth	Median growth in total assets of firms in 4-digit industry	14,846	1.16	1.16	0.12
TFS *	Total financing sources raised	14,846	432,966	159,367	1,322,929
NV	= 1 if firm is founded as "NV" legal form, else 0	14,846	0.08	—	—
Low Creditworthiness	= 1 if firm has an unlevered FiTo-score that is in bottom 25%	14,846	0.25	—	—
High Creditworthiness	= 1 if firm has an unlevered FiTo-score that is in top 25%	14,846	0.25	—	—
Prop male empl	Proportion of male employees	14,846	0.55	0.67	0.44
Prop highly edu empl	Proportion of employees that enjoyed university (or equivalent) education	14,846	0.10	0.00	0.28
Prop white collar empl	Proportion of employees that are white-collar employees	14,846	0.38	0.00	0.46
Size of industry peers *	Median number of employees of firms in 4-digit industry	14,846	3.92	3.00	3.88
Nmbr of industry peers *	Median number of firms in 4-digit industry	14,846	1,533	984	1,587

This table provides descriptive statistics for several key variables. The sample is based on the complete set of business registration for Belgium from January 1, 2006 to December 31, 2009 and includes 14,846 firms. The descriptive statistics of the variables with a * represent descriptive statistics on the untransformed variables for ease of interpretation; in subsequent multivariate regressions the natural logarithm of these variables is used. All euro values are inflation adjusted using the Belgian consumer price index.

Table 4: Bank Debt Regressions

Variables	Bank Debt	>	Bank Debt /	LT Bank Debt	LT Bank Debt	ST Bank Debt	ST Bank Debt
	0		TFS	> 0	/ TFS	> 0	/ TFS
	(1)		(2)	(3)	(4)	(5)	(6)
FY 2008	-0.021**		-0.017***	-0.030***	-0.016***	0.003	-0.001
	[0.009]		[0.006]	[0.010]	[0.005]	[0.010]	[0.002]
FY 2009	-0.021*		-0.015**	-0.028**	-0.014**	0.003	-0.001
	[0.011]		[0.007]	[0.012]	[0.006]	[0.012]	[0.002]
Profitability	0.067***		0.048***	0.081***	0.031***	0.049***	0.017***
	[0.012]		[0.006]	[0.011]	[0.006]	[0.012]	[0.003]
Tangibility	0.479***		0.461***	0.561***	0.476***	0.060***	-0.015***
	[0.013]		[0.009]	[0.014]	[0.008]	[0.014]	[0.003]
Growth	0.000		-0.040	-0.009	-0.062**	0.087	0.023*
	[0.055]		[0.030]	[0.055]	[0.028]	[0.056]	[0.012]
TFS	0.107***		0.061***	0.117***	0.054***	0.048***	0.007***
	[0.003]		[0.002]	[0.003]	[0.002]	[0.003]	[0.001]
NV	-0.135***		-0.091***	-0.141***	-0.085***	-0.064***	-0.006*
	[0.014]		[0.007]	[0.014]	[0.007]	[0.014]	[0.003]
Low Creditworthiness	-0.010		-0.008	-0.061***	-0.049***	0.163***	0.041***
	[0.009]		[0.006]	[0.010]	[0.005]	[0.011]	[0.003]
High Creditworthiness	-0.035***		-0.018***	-0.021**	-0.001	-0.117***	-0.017***
	[0.008]		[0.005]	[0.009]	[0.005]	[0.008]	[0.001]
Prop male empl	0.022**		-0.011**	0.021**	-0.009**	-0.001	-0.002
	[0.009]		[0.005]	[0.009]	[0.005]	[0.009]	[0.002]
Prop highly edu empl	-0.063***		-0.022***	-0.065***	-0.019***	-0.018	-0.003
	[0.014]		[0.008]	[0.014]	[0.007]	[0.014]	[0.003]

Table 4: Bank Debt Regressions — *Continued*

Prop white collar empl	-0.014 [0.011]	-0.012** [0.006]	-0.019* [0.011]	-0.009* [0.006]	-0.015 [0.011]	-0.003 [0.002]
Size of industry peers	-0.016 [0.012]	-0.021*** [0.007]	-0.029** [0.012]	-0.017*** [0.007]	-0.018 [0.013]	-0.004 [0.002]
Nmbr of industry peers	0.005 [0.004]	0.008*** [0.002]	0.008* [0.004]	0.006*** [0.002]	-0.003 [0.004]	0.001* [0.001]
FY 2007	-0.012 [0.009]	-0.003 [0.005]	-0.017* [0.009]	-0.003 [0.005]	0.015 [0.009]	0.001 [0.002]
Constant	-0.711*** [0.089]	-0.565*** [0.049]	-0.879*** [0.089]	-0.473*** [0.047]	-0.433*** [0.091]	-0.092*** [0.018]
Adjusted R-squared	0.215	0.324	0.253	0.344	0.061	0.062

Coefficients in all specifications are estimated using OLS. Robust standard errors are reported in brackets. All specifications include 2-digit industry dummies (not reported due to space considerations). Each specification is estimated using 14,846 observations, based on the complete set of business registrations for Belgium from January 1, 2006 to December 31, 2009. ***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively.

Table 5: Bank Debt Regression, Bank Dependence and Founder Financial Constraints

Variables	Bank Debt 0 (1)	> Bank Debt / TFS (2)	LT Bank Debt > 0 (3)	LT Bank Debt / TFS (4)	ST Bank Debt > 0 (5)	ST Bank Debt / TFS (6)
Bank Debt Industry	0.048 [0.083]	0.243*** [0.048]	0.101 [0.085]	0.248*** [0.046]	-0.011 [0.088]	-0.005 [0.017]
Bank Debt Industry * Crisis	-0.099 [0.083]	-0.119** [0.048]	-0.124 [0.084]	-0.151*** [0.046]	-0.023 [0.086]	0.032* [0.017]
Uncalled Equity	0.023*** [0.005]	0.027*** [0.003]	0.021*** [0.005]	0.023*** [0.003]	0.019*** [0.006]	0.004*** [0.001]
Uncalled Equity * Crisis	-0.016** [0.007]	-0.006 [0.004]	-0.017** [0.008]	-0.006 [0.004]	0.006 [0.008]	0.000 [0.002]
Profitability	0.069*** [0.012]	0.049*** [0.006]	0.082*** [0.011]	0.032*** [0.006]	0.051*** [0.012]	0.017*** [0.003]
Tangibility	0.481*** [0.013]	0.459*** [0.009]	0.562*** [0.014]	0.474*** [0.009]	0.064*** [0.015]	-0.015*** [0.003]
Growth	0.002 [0.056]	-0.023 [0.030]	-0.001 [0.056]	-0.043 [0.028]	0.083 [0.057]	0.020* [0.012]
TFS	0.111*** [0.003]	0.066*** [0.002]	0.119*** [0.003]	0.058*** [0.002]	0.052*** [0.003]	0.008*** [0.001]
NV	-0.129*** [0.014]	-0.082*** [0.007]	-0.136*** [0.015]	-0.077*** [0.007]	-0.057*** [0.014]	-0.005 [0.003]
Low Creditworthiness	-0.008 [0.009]	-0.004 [0.006]	-0.058*** [0.010]	-0.046*** [0.005]	0.166*** [0.011]	0.042*** [0.003]
High Creditworthiness	-0.037*** [0.008]	-0.021*** [0.005]	-0.023*** [0.009]	-0.004 [0.005]	-0.120*** [0.008]	-0.017*** [0.001]

Table 5: Bank Debt Regression, Bank Dependence and Founder Financial Constraints — *Continued*

Prop male empl	0.022**	-0.011**	0.021**	-0.009*	0.000	-0.002
	[0.009]	[0.005]	[0.009]	[0.005]	[0.009]	[0.002]
Prop highly edu empl	-0.063***	-0.021***	-0.065***	-0.018**	-0.017	-0.003
	[0.014]	[0.008]	[0.014]	[0.007]	[0.014]	[0.003]
Prop white collar empl	-0.014	-0.010*	-0.018*	-0.008	-0.016	-0.003
	[0.011]	[0.006]	[0.011]	[0.006]	[0.011]	[0.002]
Size of industry peers	-0.017	-0.020***	-0.030**	-0.017**	-0.018	-0.004
	[0.012]	[0.007]	[0.012]	[0.007]	[0.013]	[0.003]
Nmbr of industry peers	0.006	0.006***	0.008*	0.005**	-0.002	0.001
	[0.004]	[0.002]	[0.004]	[0.002]	[0.004]	[0.001]
FY 2007	-0.012	-0.003	-0.017*	-0.004	0.015	0.001
	[0.009]	[0.005]	[0.009]	[0.005]	[0.009]	[0.002]
FY 2008	0.012	0.013	0.009	0.021*	0.004	-0.008*
	[0.022]	[0.012]	[0.022]	[0.011]	[0.022]	[0.004]
FY 2009	0.011	0.016	0.011	0.024**	0.003	-0.008*
	[0.023]	[0.012]	[0.023]	[0.012]	[0.023]	[0.005]
Constant	-0.780***	-0.736***	-0.964***	-0.637***	-0.488***	-0.099***
	[0.096]	[0.053]	[0.098]	[0.051]	[0.100]	[0.019]
Adjusted R-squared	0.216	0.330	0.254	0.349	0.063	0.063

Coefficients in all specifications are estimated using OLS. Robust standard errors are reported in brackets. All specifications include 2-digit industry dummies (not reported due to space considerations). Each specification is estimated using 14,843 observations, based on the complete set of business registrations for Belgium from January 1, 2006 to December 31, 2009. ***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively.

Table 6: Financial Structure, Bankruptcy and Profitability

Variables	Bankrupt = 1	Bankrupt = 1	Profitability _{t+1}	Profitability _{t+1}
	(1)	(2)	(3)	(4)
LT Bank Debt > 0	0.004 [0.004]		0.007 [0.005]	
ST Bank Debt > 0	0.021*** [0.005]		-0.009* [0.005]	
LT Owner Debt > 0	-0.004 [0.008]		-0.014 [0.009]	
ST Owner Debt > 0	-0.014*** [0.004]		0.008* [0.005]	
LT Bank Debt / TFS		-0.017** [0.008]		0.017* [0.009]
ST Bank Debt / TFS		0.016 [0.024]		-0.043* [0.025]
LT Owner Debt / TFS		-0.031 [0.019]		-0.078*** [0.029]
ST Owner Debt / TFS		-0.046*** [0.008]		-0.005 [0.011]
LT Bank Debt > 0 * Crisis	-0.017** [0.007]		0.000 [0.008]	
ST Bank Debt > 0 * Crisis	0.005 [0.008]		0.002 [0.007]	
LT Owner Debt > 0 * Crisis	0.001 [0.014]		0.030** [0.013]	
ST Owner Debt > 0 * Crisis	-0.015* [0.008]		0.002 [0.007]	
LT Bank Debt / TFS * Crisis		-0.035*** [0.012]		-0.005 [0.012]
ST Bank Debt / TFS * Crisis		-0.014 [0.040]		0.034 [0.041]
LT Owner Debt / TFS * Crisis		-0.016 [0.037]		0.116*** [0.042]
ST Owner Debt / TFS * Crisis		-0.015 [0.015]		-0.003 [0.017]
Profitability _t	-0.031*** [0.008]	-0.032*** [0.008]	0.161*** [0.009]	0.160*** [0.009]

Table 6: Financial Structure, Bankruptcy and Profitability — *Continued*

Tangibility	-0.030***	-0.018**	-0.021***	-0.024***
	[0.007]	[0.007]	[0.007]	[0.007]
Growth	0.035*	0.037*	0.000	0.002
	[0.019]	[0.019]	[0.019]	[0.019]
TFS	0.003**	0.005***	0.000	0.001
	[0.002]	[0.002]	[0.002]	[0.002]
NV	-0.008	-0.012*	-0.023***	-0.024***
	[0.006]	[0.006]	[0.006]	[0.006]
Low Creditworthiness	0.027***	0.029***	-0.041***	-0.040***
	[0.005]	[0.005]	[0.005]	[0.005]
High Creditworthiness	-0.006*	-0.008**	0.042***	0.044***
	[0.003]	[0.003]	[0.004]	[0.004]
Prop male empl	-0.004	-0.004	0.005	0.005
	[0.004]	[0.004]	[0.004]	[0.004]
Prop highly edu empl	-0.002	-0.003	-0.008	-0.007
	[0.005]	[0.005]	[0.006]	[0.006]
Prop white collar empl	-0.004	-0.005	-0.007	-0.007
	[0.005]	[0.005]	[0.005]	[0.005]
Size of industry peers	0.007	0.006	0.000	-0.001
	[0.006]	[0.006]	[0.006]	[0.006]
Nmbr of industry peers	-0.001	-0.001	0.001	0.001
	[0.002]	[0.002]	[0.002]	[0.002]
FY 2007	0.028***	0.028***	-0.009**	-0.010**
	[0.003]	[0.003]	[0.004]	[0.004]
FY 2008	0.062***	0.053***	-0.002	0.001
	[0.009]	[0.007]	[0.010]	[0.008]
FY 2009	0.063***	0.054***	0.008	0.011
	[0.009]	[0.008]	[0.010]	[0.008]
Constant	-0.073**	-0.087***	0.019	0.020
	[0.032]	[0.032]	[0.033]	[0.033]
Adjusted R-squared	0.033	0.031	0.201	0.201

Coefficients in all specifications are estimated using OLS. Robust standard errors are reported in brackets. All specifications include 2-digit industry dummies (not reported due to space considerations). The first and second specification is estimated using 14,846 observations, the third and fourth specification is estimated using 13,809 observations, based on the complete set of business registrations for Belgium from January 1, 2006 to December 31, 2009. ***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively.