

The Choice between Bank Debt and Trade Credit in Business Start-ups

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Abstract. This paper investigates the choice between bank debt and trade credit in business start-ups. While trade credit is more expensive than bank debt, suppliers tend to follow a more lenient liquidation policy when client firms encounter financial distress. As a result, suppliers are more willing to renegotiate the outstanding debt or grant additional debt whereas banks are more likely to liquidate borrowers upon default. Given the risky nature of business start-ups, we argue that the entrepreneur's choice of debt instruments reflects these differences in liquidation policy between lenders and is thus determined by the venture's failure risk, the entrepreneur's private control benefits that are lost upon liquidation and the liquidation value of firm assets. Using unique data on 325 first-time business start-ups, we find that firms in industries with high historical start-up failure rates and entrepreneurs who tend to highly value private benefits of control use less bank debt. These effects are especially prevalent in start-ups where assets have a high liquidation value and thus banks are more likely to liquidate the venture following default.

KEYWORDS: bank debt, capital structure, entrepreneur, private benefits of control, start-up, trade credit.

JEL CLASSIFICATIONS: C31, G21, G32, L26, M13.

1. Introduction

In most countries, first-time entrepreneurs in traditional industrial sectors must rely on the limited equity funding from family and friends, and private debt from banks and suppliers to finance their assets and operations in the start-up year. Outside equity from venture capitalists is usually not available. Venture capitalists typically finance firms in the growth stage rather than at start-up, especially in Continental

Europe (e.g., Ooghe et al., 1991; Brouwer and Hendrix, 1998; Manigart et al., 2000). Furthermore, the use of venture capital tends to be restricted to very specific industries, such as biotechnology, software and computers, telecommunications, etc. In the USA, for example, studies investigating venture capital financing principally use databases of high-tech firms, such as firms established in Silicon Valley (e.g., Davila et al., 2003). Entrepreneurs in traditional industries must thus primarily rely on debt when raising external funds. Prior studies show that the two major sources of debt financing accessible to business start-ups are bank loans and trade credit. Berger and Udell (1998), for instance, report that commercial banks and suppliers are the largest providers of debt financing for US firms aged up to 2 years. Similar conclusions are obtained when examining start-ups in other countries (e.g., Reid, 2003; Franks and Sussman, 2005; Huyghebaert and Van de Gucht, 2005). Furthermore, Fisman and Love (2003) and Burkart and Ellingsen (2004) show that implicit borrowing in the form of trade credit constitutes an important source of funding for firms with difficult access to financial markets.

Trade credit, however, is considered to be an expensive financing source. The credit term most frequently adopted by suppliers is “2/10 net 30” (Ng et al., 1999). This term represents a 2% discount for payment within the 10-day discount period; the net period ends on day 30. The implicit interest rate on trade credit under this term amounts to 43.9%. Similarly, Cook (1999) reports that for small Russian firms, the average interest rate on trade loans amounts to 58%. Bank loans are typically a cheaper form of debt financing (e.g., Wilson and Summers, 2002). Based on the explicit cost alone, entrepreneurs should therefore prefer bank loans. Yet, most

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firms use both forms of debt financing, and young, small firms use even more trade credit than established firms. Cunat (2002), for instance, documents that trade credit represents 34% of total debt in small-sized US firms; this percentage is even higher for small-sized UK firms. Also, Petersen and Rajan (1994) find that small firms rely heavily on trade credit, especially when bank financing is limited. These observations suggest that bank debt and trade credit differ not only with respect to cost but also on other dimensions. Previous studies approached the choice between trade credit and bank debt by examining differences in transaction costs (e.g., Deloof and Jegers, 1996; Wilson and Summers, 2002) and agency considerations (e.g., Mian and Smith, 1992; Petersen and Rajan, 1997). This paper focuses instead on differences in liquidation policy between banks and suppliers. For first-time business start-ups, which are the firms examined in this paper, these differences in liquidation policy may be vital to the firm's survival. The reason is that these firms face relatively high failure rates, at least when compared to more established firms (e.g., Huyghebaert and Van de Gucht, 2004). Also, entrepreneurs tend to highly value control rights and these private benefits of control are typically lost in the case of liquidation. We therefore argue that entrepreneurs take into account the differences in liquidation policy between banks and suppliers when determining their debt mix at start-up. So, unlike the prior studies that largely examined the supply side, this paper focuses on the demand side of the debt mix decision.

Banks tend to follow a strict liquidation policy when debtors encounter financial distress: if upon default a borrower's liquidation value exceeds its going concern value, banks will liquidate the firm (see also Chemmanur and Fulghieri, 1994; Repullo and Suarez, 1998). Suppliers, on the other hand, earn positive rents from selling goods to their customers. These rents arise from the profits suppliers can earn on future sales of their product to the client firm. If a customer is liquidated upon default, such supplier rents are lost. Thus, as argued by Petersen and Rajan (1997), suppliers have an implicit equity stake in their customers

and therefore are more willing than banks to renegotiate their claims or grant additional debt when debtors get into financial problems. In other words, suppliers may be willing to reorganize the defaulted debt even when the firm's liquidation value exceeds its going concern value. Similarly, Wilner (2000) argues that suppliers are more dependent on their customers than credit market lenders whereas Franks and Nyborg (1996) point out that sunk investments in the customer-buyer relationship also make suppliers more lenient towards financially distressed buyers.¹ Finally, bank loans are frequently secured, and thus more senior than supplier credit (e.g., Mann, 1997; Schwartz, 1997; Berger and Udell, 1998). Hart (1995) and Manove et al. (2001) show that seniority and collateralization may induce banks to liquidate a distressed company prematurely following default.

In this paper, we argue that entrepreneurs trade off the lower cost of bank debt against the more lenient liquidation policy of suppliers when determining their debt mix. We hypothesize that the resulting debt mix is influenced by three factors: the failure risk of the venture, the entrepreneur's private benefits of control and the liquidation value of firm assets. Entrepreneurs in ventures that have a low failure probability are likely to generate sufficient cash flows to pay off their debts and thus are primarily interested in minimizing debt expenses. We conjecture that these entrepreneurs therefore predominantly will raise bank debt at the moment of start-up. By contrast, entrepreneurs in more risky ventures will restrict their bank debt so as to avoid defaulting on their bank loan. These entrepreneurs are thus willing to accept the higher trade credit rates so as to benefit from the supplier's lenient liquidation policy and reduce the chance of liquidation once financial distress occurs. This choice is further influenced by the entrepreneur's private benefits of control, i.e. the various non-pecuniary aspects related to managing one's own firm. In the case of liquidation, entrepreneurs lose these private control rents. Thus, entrepreneurs with larger private benefits of control are more reluctant to expose their firm to the bank's strict liquidation policy and adjust their choice of debt instruments

accordingly. Finally, we argue that the debt mix choice is determined by the firm's liquidation value. If assets have a high liquidation value, the firm's liquidation value is more likely to exceed its going concern value following default and banks are more likely to liquidate the defaulted borrower. Therefore, entrepreneurs in risky ventures and entrepreneurs who highly value private benefits of control will bear in mind the liquidation value of firm assets when determining their mix of bank and trade credit at start-up. If this liquidation value is high, we expect them to reduce their reliance on bank financing, *ceteris paribus*.

We examine these conjectures using a unique sample of 325 Belgian entrepreneurial start-ups. These firms are first-time business start-ups in traditional manufacturing industries, established in 1992. We study these firms' debt choice during the first operating year. Our dataset is unique in that it contains financial and accounting data of first-time entrepreneurial firms. In most countries, accounting data on privately held firms are scarce. Also, the limited databases covering such information usually include the older firms, such as in the Federal Reserve Board's National Survey of Small Business Finances (NSSBF), so that these datasets are not representative for start-ups firms (e.g., Ang et al., 2000). We find that entrepreneurs in industries with high historical start-up failure rates and entrepreneurs who tend to highly value private benefits of control use less bank debt. We show that these effects are even stronger when the start-up firm is likely to have a high liquidation value. In sum, these results support the idea that entrepreneurs trade off the lower cost of bank debt against the more lenient liquidation policy of suppliers.

This paper proceeds as follows. First, we discuss the choice between bank debt and trade credit from the point of view of entrepreneurs who wish to minimize their financing expenses and simultaneously retain control over their firm. Second, we describe our sample of entrepreneurial business start-ups. Thereafter, we discuss our empirical results on the determinants of the debt mix. Next, we briefly examine the link between initial financial structure and post-entry survival and offer our conclusions.

2. Bank debt versus trade credit: the trade off between cost and liquidation policy

The external financing sources available to entrepreneurial firms are typically restricted to bank loans and supplier credit. Of these two alternatives, bank debt is the cheapest while suppliers adopt a more lenient liquidation policy.

Bank debt is cheapest because banks operate in a highly competitive market. To illustrate, the net interest margin in Europe decreased by 8.73% during the 80s and by 31.67% between 1990 and 1998 (OECD, 2001). This increased competition was mainly caused by deregulation (e.g., Remolona and Wulfekuhler, 1992; Benink and Llewellyn, 1994). As a result, banks earn only small margins on their loan portfolios and thus have only a limited 'implicit equity stake' in firms that default. This could explain why bank loans are difficult to renegotiate and banks pursue a relatively strict liquidation policy. According to Carey et al. (1998), banks actually wish to develop a reputation for being a tough creditor as this enables them to reduce adverse selection problems, i.e. reduce the number of low-quality firms that apply for a bank loan. If banks are able to reduce adverse selection problems by being a tough creditor, the likelihood that banks will be held liable by other creditors for having given a false signal about firm quality is reduced. Likewise, Armendariz de Aghion (1990) shows that developing a reputation for liquidating ferociously allows banks to reduce moral hazard problems, specifically borrower incentives to increase the risk of assets (risk shifting) or default strategically. Yet, Chemmanur and Fulghieri (1994) conclude that banks have a desire to acquire a reputation for making the '*right*' renegotiation versus liquidation decision. The reason is that inefficient liquidation can be costly for banks because it will affect the choice of bank lender by other firms. In that case, banks may devote a larger amount of resources towards an evaluation of distressed customers than bondholders. Still, banks will do a careful viability analysis upon default and if a borrower's liquidation value exceeds its going concern value, banks will liquidate the firm.

Suppliers, on the other hand, tend to be more lenient towards financially distressed debtors. Consistent with this argument, Franks and Sussman (2005) find that banks are very harsh in debt renegotiations with distressed SMEs. In their sample of 542 distressed British SMEs, there was only one case of bank debt forgiveness. They also document that banks only very rarely expanded their lending during the period of distress. Instead, the typical bank response was a significant contraction of lending. It was almost always the bank that took the decision to place the company into bankruptcy. On the other hand, Franks and Sussman (2005) report that suppliers typically increased the amount of credit during distress periods, even when the distress ended in formal bankruptcy. Evans (1998) also finds that trade creditors grant more concessions to customers in financial distress than banks do.

In the literature, different arguments have been put forward to explain why suppliers tend to be more lenient. Petersen and Rajan (1997), for instance, argue that suppliers have a larger implicit equity stake in their customers and therefore are more willing than banks to renegotiate their claims when debtors encounter financial problems. According to Petersen and Rajan, the implicit equity stake of suppliers equals the present value of the margins that suppliers make on current and future sales of their product to the firm. They further argue that the implicit equity stake of suppliers may far exceed that of financial institutions because of the potential for future business. Consequently, if the reorganization is successful, suppliers earn more profits on the future goods sold to the reorganized firm, which makes them more lenient *vis-à-vis* distressed companies. Similarly, Wilner (2000) argues that suppliers are more dependent on their customers than credit market lenders and Franks and Nyborg (1996) point out that sunk investments in the customer–buyer relationship also make suppliers more lenient towards financially distressed buyers. Consistent with these ideas, Wilner (2000) documents that suppliers grant more concessions to distressed customers when they wish to maintain an enduring product market relationship. Because suppliers follow a more lenient liquidation

policy, trade credit is riskier than bank debt from the lender's point of view. This argument likely explains why trade credit is also more expensive (see also Cunaet (2002), who argues that trade credit is more expensive because it includes a default premium).

In Belgium, the country of domicile for the sample firms in this study, the legal remedies on a defaulted loan are similar for banks and suppliers. The Belgian bankruptcy law is comparable to the British in that it is also a “contractualist” bankruptcy system (see Franks and Sussman, 2005). Creditors have equal rights in forcing the firm into the bankruptcy procedure and bankruptcy leads to the liquidation of the firm (as a going concern sale or piecemeal). Upon liquidation, the revenues from selling collateralized assets are used to first indemnify the secured lenders. Any remaining claims are then pooled together with the outstanding unsecured debts and the revenues from selling the firm's other assets are distributed pro-rata the fraction of each claimholder in the total of remaining claims. In practice, bank loans are frequently secured, and thus more senior than supplier credit. Similar practices have been observed in other countries (see, e.g., Mann, 1997; Schwartz, 1997; Berger and Udell, 1998). The revendication right of suppliers to seize delivered goods from non-paying customers is – as in many countries – limited to those goods that have not yet been resold or transformed. Unlike the UK, in Belgium this right generally extinguishes once the firm enters the bankruptcy procedure. In sum, banks likely find it easier to recuperate the amount they lent once a firm is liquidated upon bankruptcy than trade creditors, as the revenues from specific assets will be used to pay off their claims. Consistent with this idea, Franks and Sussman (2005) report an average recovery rate between 74% and 77% for the three banks in their sample of distressed SMEs. For suppliers, they report median recovery rates of 0%. Furthermore, Hart (1995) and Manove et al. (2001) show that seniority and collateralization may induce banks to liquidate a distressed company prematurely following default, thereby avoiding the effort and the risk involved in restructuring a distressed firm. Overall, these arguments thus

further add to our hypothesis that banks may be more strict liquidators than suppliers.

In the next section, we develop testable hypotheses based on the above arguments relating to the choice between bank debt and trade credit.

3. Hypotheses regarding the entrepreneur's choice

Central in all definitions of entrepreneurship is that an entrepreneur is someone who assumes risks (e.g., Audretsch, 1995; Bruyat and Julien, 2001). Not surprisingly, business start-ups face high failure rates. Dun & Bradstreet (1994), for instance, document that approximately 50% of all firms that failed in 1993 did so in the first 5 years of their existence. Likewise, of all Belgian firms that went bankrupt in 2002, 41.04% was younger than 5 years. Similar percentages have also been documented in other countries and for other time periods. When deciding on their financing mix, entrepreneurs likely take the perceived failure risk of their venture into account, as we argue hereafter.

Entrepreneurs in ventures with a low failure probability have a high chance that they are able to generate the cash flows required to pay off their outstanding debts. These entrepreneurs thus are unlikely to default on their debt and hence unlikely to lose their private benefits of control. To finance their assets and operations at start-up, these entrepreneurs therefore choose the cheapest debt alternative, which is a bank loan.

Entrepreneurs in ventures with a high failure risk, on the other hand, are more likely to generate low cash flows and thus default on their debt. If these entrepreneurs finance their assets and operations primarily with bank debt, they are likely to lose their control rights once the cash flows are insufficient to cover the debt payments. For these entrepreneurs, the loss of private benefits of control thus poses a real threat, which they cannot ignore. Hence, these entrepreneurs prefer trade credit. To at least partially benefit from the lower bank financing cost, they still raise some bank debt at start-up and determine the size of the bank loan such that the bank debt can still be paid off even when the firm's performance turns out to be

poor. Then, the entrepreneurial firm will default only on its trade credit and might be able to survive temporary cash flow problems. The reason is that the trade debt is more likely to be renegotiated following default. These arguments lead to the following hypothesis:

Hypothesis 1: Entrepreneurs in ventures with a high failure risk prefer to finance with less bank debt, *ceteris paribus*.

It is commonly accepted that entrepreneurs typically enjoy significant private benefits of control. Hamilton (2000), for instance, finds that some entrepreneurs enter and persist in business despite lower earnings and earnings growth than in paid employment, from which he concludes that the non-pecuniary benefits of self-employment can be considerable. Examples of such non-pecuniary benefits include the prestige and status that comes with ownership as well as the power to decide on the business strategy of the firm, the feeling of having one's own future in hands and independence from superiors (e.g., Mueller, 2003). However, there may still be quite some variability in the level of control rents enjoyed by first-time entrepreneurs. Some entrepreneurs may have few alternatives when their venture fails whereas others may have easier access to alternative employment. Entrepreneurs who highly value private benefits of control, as a result, are likely to worry more about the liquidation of their venture following default. We therefore expect these entrepreneurs to limit their bank debt at the moment of start-up.

Hypothesis 2: Entrepreneurs with larger private benefits of control prefer to finance with less bank debt, *ceteris paribus*.

Banks will liquidate a borrower upon default if the firm's liquidation value exceeds its going concern value. Suppliers, by contrast, are more willing to renegotiate the outstanding debt or grant additional debt; suppliers typically base this decision on other considerations than the client firm's liquidation value. Rather, suppliers may take their implicit equity stake in the distressed customer into account or may consider that their recovery rates are typically low

when a firm is forced into bankruptcy. Hence, if the firm has a high liquidation value, the bank is more likely to liquidate the venture upon default than the supplier. For entrepreneurs in ventures with high failure risk or entrepreneurs with large private benefits of control, this is particularly worrisome. As a result, these entrepreneurs are even more reluctant to finance exclusively with bank debt at start-up. These arguments result in the following conjecture:

Hypothesis 3: Entrepreneurs of firms with a high liquidation value prefer to finance with less bank debt, especially when the failure risk of their venture is high or private benefits of control are highly valued.

4. Sample description

This section empirically investigates the determinants of the debt mix for business start-ups as set forth in the above hypotheses. For this purpose, we use data on a unique sample of newly established entrepreneurial ventures in Belgium. We were able to construct this data set of entrepreneurial start-ups because of the reporting requirements imposed by the Belgian government. Most countries do not require unlisted firms to make their financial statements available to the public. For the USA, the Federal Reserve Board's National Survey of Small Business Finances provides financial information on privately held small firms (firms employing less than 500 employees). The surveys were implemented independently after selecting SMEs at the end of 1987, 1993 and 1998. In other words, the surveys are random and independent cross-sections of the small business population, which exceeds 7.5 million firms in 1987. Petersen and Rajan (1997) employ data from the 1987 database whereas Berger and Udell (1998) and Ang et al. (2000) use information from that of 1993. Ang et al. report that mean firm age in the 1993 database – which contains information on 4,637 firms – is 17.6 years. As a result, NSSBF is not representative for start-up firms. In Belgium, however, all limited liability firms – except for financial institutions, insurance companies, exchange brokers and hospitals – are legally required to

file annual accounts with the National Bank as of start-up. In addition, these firms have to publish an abstract from their foundation charter in the Government Newspaper (*Staatsblad*). Each firm receives a unique and chronologically accorded Value Added Tax number the first time it registers with the tax authorities. This VAT number allowed us to identify newly established firms and their financial statements in the database of the National Bank. We also collected the financial statements of the incumbent firms in the corresponding four-digit NACE industry.

We identified 652 limited liability firms ("corporations"), founded in the manufacturing industry in 1992. By restricting the sample to 1 year, we keep economic conditions constant. The manufacturing sector was selected because of its higher (optimal) scale of operations compared to retailers, wholesalers or service firms; entrepreneurs in this sector may therefore lack the personal financial resources to fully finance all assets and operations at start-up, making capital structure issues non-trivial for our sample firms. This sample was subsequently cleaned to remove all firms that were not entrepreneurial start-ups. Using the foundation charter, "true" business start-ups (328 firms) could be distinguished from newly established subsidiaries of existing firms, split-ups, spin-offs, etc (212 firms). Firms arising from the incorporation of a previously self-employed activity, identified through follow-up phone calls (112 firms), were also removed from the sample. Last, firms with missing values for the variables used in the regression models were also deleted (3 firms). The final sample consists of 325 business start-ups, which are active in 97 different manufacturing industries, based on their four-digit NACE code. The industry distribution of the sample firms is reported in Table I. Table I also includes the industry distribution on the population of 8501 historical start-ups over the period 1988–1991, with their corresponding failure rates.

Table II provides some descriptive statistics for the sample firms. The average firm has total financing sources of €258,257 in the start-up year. Since total assets on average are less than total financing sources, the average firm incurs

TABLE I
Industry distribution of manufacturing start-ups and historical failure rates

Industry code	Description	Number of firms in the sample	Range and total number of historical start-ups		Range of the historical industry start-up failure rate
			Range	Total	
2200-2299	Production and preliminary processing of metals	1		25	0.0476
2300-2399	Extraction of minerals other than metalliferous and energy- producing minerals; peat extraction	1		32	0
2400-2499	Manufacture of non-metallic mineral products	7	[5-166]	390	[0-0.3333]
2500-2599	Chemical industry	5	[4-40]	96	[0-0.0909]
3100-3199	Manufacture of metal articles (except for mechanical, electrical and instrument engineering and vehicles)	16	[15-607]	1840	[0-0.5000]
3200-3299	Mechanical engineering	8	[8-79]	343	[0-0.1429]
3400-3499	Electrical engineering	13	[7-81]	192	[0-0.0968]
3600-3699	Manufacture of other means of transport	4	[6-9]	15	[0.1250-0.2500]
3700-3799	Instrument engineering	15	[10-168]	201	[0-0.15]
4100-4299	Food, drink and tobacco industry	51	[7-150]	822	[0-0.1212]
4300-4399	Textile industry	19	[16-102]	302	[0-0.1034]
4400-4499	Leather and leather goods industry (except footwear, clothing)	4		35	[0-0.0370]
4500-4599	Footwear and clothing industry	26	[15-293]	548	[0-0.1481]
4600-4699	Timber and wooden furniture industries	34	[22-398]	908	[0-0.10]
4700-4799	Manufacture of paper and paper products; printing and Publishing	97	[14-801]	2154	[0.0125-0.1111]
4800-4899	Processing of rubber and plastics	6	[40-324]	364	[0-0.0547]
4900-4999	Other manufacturing industries	18	[14-83]	234	[0-0.0952]
Total		325 firms	8501 firms		

This table displays the industry distribution of the start-up firms, based on their four-digit NACE industry code. All sample firms are incorporated in Belgium and start operations in the manufacturing industry in 1992. The sample is constructed from the Belgian National Bank database. Based on the foundation charter and follow-up phone calls, only true entrepreneurial start-ups are retained. The 325 business start-ups in the sample operate in 97 four-digit NACE industries. The last two columns report the industry distribution of the 8501 historical start-ups in 1988-1991 grouped per two-digit NACE code together with their failure rates. The historical start-up failure rate is calculated per four-digit NACE code and is based on the legal status of each historical start-up firm during its first three years.

TABLE II
Summary statistics of firm characteristics in the start-up year

Variable	Mean	Median	Minimum	Maximum	Std. dev.
<i>Start-up size</i>					
Total financing sources (€)	258,257	106,322	4,908	8,505,103	611,214
Total assets (€)	246,326	105,528	2,454	8,505,896	596,021
<i>Initial financial structure</i>					
Leverage	0.6997	0.7821	0	0.9930	0.2418
Bank debt/total debt	0.3360	0.3213	0	1.0000	0.2962
Trade credit/total debt	0.3107	0.2491	0	1	0.2626
Short-term debt/total debt	0.6267	0.6388	0	1	0.3077
Short-term bank debt/bank debt	0.2221	0	0	1	0.3402
<i>Ownership structure</i>					
Number of shareholders	2.4244	2	1	9	1.1584
Shareholder concentration	0.6480	0.5008	0.1534	1	0.2704

This table presents summary statistics on variables that represent firm start-up size, initial financial structure and ownership structure for the sample of 325 firms that were founded in 1992. Firm *start-up size* is measured as total financing sources and total assets, respectively. *Leverage* is the ratio of external debt to total financing sources. Initial financing sources do not incorporate the operational results realized during the first year, whereas loans provided by the entrepreneurs to their firm are considered as equity. *Short-term debt* consists of debt maturing within 1 year, and *shareholder concentration* is measured by the Herfindahl shareholder concentration index.

accounting losses during the start-up year. The start-ups are highly levered: on average, 69.97% of the initial financing sources are raised as external debt (median of 78.21%).² Debt is hereby defined as the sum of long-term debt and current liabilities. Bank debt on average represents 33.60% of total debt, whereas trade credit accounts for 31.07%.³ These percentages amount to 37.22% and 31.32% in the 1993 NSSBF database. Even though these numbers are comparable to ours, Berger and Udell (1998) show that for “infant firms” (0–2 years), these percentages equal 30.06% and 25.72% whereas for “adolescent firms” (3–4 years), they equal 50.87% and 22.13%, respectively. Given the importance of trade credit, it is not surprising that the majority of debt for the firms in our sample is short-term: 62.67% of total debt matures within 1 year. On average, 22.21% of bank debt matures within 1 year. Finally, initial ownership is highly concentrated: the average number of shareholders (entrepreneurs) is 2.42 whereas the average Herfindahl shareholder concentration index amounts to 64.80%.

5. Methodology and variable construction

In this section, we investigate how the variable *Debt mix* (= bank debt/total debt) depends upon

the variables discussed above: (1) venture failure risk, (2) the entrepreneur’s private benefits of control, and (3) the firm’s liquidation value. Following Houston and James (1996) and Johnson (1998), who also investigate the fraction of debt that consists of bank loans, we include variables that control for growth opportunities, profitability and firm size. To take into account that the dependent variable might be censored, we use Tobit regression analysis.

The following Tobit model is thus estimated:

$$\begin{aligned}
 \text{Debtmix} = & \beta_0 + \beta_1 \text{ venture failure risk} \\
 & + \beta_2 \text{ private benefits of control} \\
 & + \beta_3 \text{ liquidation value} \\
 & + \beta_4 \text{ growth opportunities} \\
 & + \beta_5 \text{ profitability} \\
 & + \beta_6 \text{ initial firm size} + \varepsilon
 \end{aligned} \quad (1)$$

The explanatory variables are not directly observable and hence must be proxied. The variable measurements are especially complicated by the nature of the sample firms. Using firm-level data from the start-up year could lead to an endogeneity problem (e.g., Scholtens, 1999). For instance, firms that are able to show high growth figures as of start-up may be the ones that have had easier access to cheap bank debt (e.g.,

Huyghebaert and Van de Gucht, 2005). Likewise, firms may have a higher liquidation value when they raised bank debt to finance the purchase of tangible assets, which were pledged as collateral for these bank loans. To avoid this type of endogeneity problem, other studies often use the firm-specific variables observed in the previous year. However, for first-time business start-ups, there simply are no data prior to the start-up year. Hence, we resort to industry-level variables to measure some of the proxy variables.

Individual venture failure risk is unobservable at the time of start-up. We therefore assume that venture failure risk is industry-specific and related to the failure of prior start-ups. Average start-up failure risk is calculated per four-digit industry as the proportion of start-up firms founded in 1988–1991 that went bankrupt within the first 3 years after start-up.

Private benefits of control are difficult to measure. Studies on listed firms (e.g., Demsetz and Lehn, 1985; Agrawal and Narayanan, 1990) usually measure them by the firm's ownership structure and more specifically by the level of managerial stockholdings. These studies thus assume that when ownership is highly concentrated in the hands of the firm's management, the latter has a larger influence on the firm's decisions and strategy and thus can derive rents, possibly at the expense of other shareholders. However, and as already shown in Table II, in the case of business start-ups shareholdings are all highly concentrated in the hands of the entrepreneurs and their families, and hence exhibit little cross-sectional variability. This study, therefore, must use another measure for control rents. To ensure that our conclusions do not depend on a measure that has not been well validated in the literature yet, we construct four proxy variables. First, we use the 1991 unemployment rate in the corresponding four-digit industry to proxy for private benefits of control. In industries where the unemployment rate is relatively high, entrepreneurs who fail in their venture may have a hard time in finding a new job. Consistent with this idea, Wagner and Sternberg (2004) document that the likelihood of entering entrepreneurship is higher for unemployed people. So, for unemployed people,

starting one's own business may be the only alternative left to earn an income and likely leads to a better social status. Maruani (1996), for example, argues that employment is central to the construction of social relations and the determination of social status. We therefore expect entrepreneurs in industries with high unemployment rates to attribute a higher value to managing their own firm.

Second, we use industry-adjusted entrepreneurial wages. Entrepreneurs who pay themselves wages above the industry norm are likely to enjoy larger private benefits of control. Since the income statement only reports total wages, we must use the average wage per employee. To control for industry effects, we divide by the corresponding industry average for 1991.⁴ While this measure may depend on the capital intensity and nature of the business, we control for these factors through the other explanatory variables. The industry average of tangible fixed assets to total assets and initial firm size capture capital intensity. Each equation also includes (unreported) industry dummy variables to control for the industry-specific activities, as described at the end of this section.

Third, we construct a (firm-level) dummy variable that reflects the type of incorporation (see also Freedman and Godwin, 1992). In Belgium, limited liability firms can choose among several legal forms. The NV limited liability form grants entrepreneurs more contractual freedom with respect to dividend policy than the other legal form in our sample, the BVBA. Specifically, entrepreneurs of NVs can issue shares with different dividend rights, such as ordinary and preferential shares, and they can issue founder shares. The latter share category is important in a start-up context, as it can be used to remunerate the investment of human capital, possibly next to financial capital. In addition, the NV legal form is also considered to be more prestigious (e.g., Donckels, 1993). Entrepreneurs who choose the NV corporate form at start-up, therefore, likely enjoy higher control rents. The dummy variable equals one when the firm is founded as an NV and zero otherwise.

As a last proxy for private benefits of control, we rely on Smith (2002) who argues that job authority brings status both inside and outside

the workplace. Given that a larger span of control (i.e. the number of employees that a manager supervises) is associated with more job authority (e.g., Katzner, 1992; Smith, 2002), we use the number of employees as a fourth proxy variable for control rents. Since we already control for firm size at start-up – by means of the logarithm of total financing sources in the start-up year – this new variable is unlikely to capture solely the firm's size (although we acknowledge that both variables are related; the correlation between both measures indeed amounts to 0.51).

The liquidation value of firm assets is measured by the ratio of tangible assets to total assets, averaged across all industry incumbents in 1991. When assets are highly tangible, they are less likely to be very firm-specific and thus tend to have a higher market value, *ceteris paribus*. The reason why we use industry-level tangible/total assets to proxy for liquidation value is that at the firm level, initial asset and financial structures are likely to be highly related. For example, trade credit can only be used to finance working capital. If external financing is being used for purchasing property, plant and equipment, then firms typically raise bank debt. Therefore, using data on asset structure from the start-up year likely results in serious endogeneity problems.⁵

Growth opportunities are captured by the average industry sales growth rate over the period 1988–1991. Profitability is measured by EBITDA over total assets, averaged across all incumbents in the corresponding four-digit NACE industry in 1991. Finally, initial firm size is proxied by firm-level log (total financing sources). Total financing sources is calculated as the sum of shareholders' equity invested at start-up and total liabilities. As such, it does not include retained earnings because highly profitable firms may find it easier to obtain bank debt during the first year after start-up whereas obtaining the necessary financing simultaneously may contribute to the firm's success, thereby again causing endogeneity problems.

Table III provides summary information on these proxy variables. In this table, we also have added the expected sign of these variables when examining its relation with the debt mix, based

on the hypotheses developed in Section 3 and the discussion above. To limit the influence of extreme observations upon our results, all explanatory variables, except for the dummy variables, are winsorized at the 5%–95% level. Finally, to control for other industry determinants not captured by our model, we add industry dummy variables to the model of equation (1). We construct an industry dummy variable for each four-digit industry with more than 10 start-ups. The corresponding parameter estimates for these industry dummy variables are not reported, but can be obtained from the authors upon request.

6. Empirical results

The results of the Tobit estimations are presented in Table IV. The various models in Panels A and B differ only with respect to the measurement of private benefits of control: the unemployment rate in Model 1, the industry-adjusted wage ratio in Model 2, the legal form dummy in Model 3, and the number of employees in Model 4. To test our third hypothesis, we interact both the start-up failure rate and control rents with liquidation value in Panel B.

The results in Panel A show that entrepreneurs in industries with high historical failure rates raise a significantly lower fraction of bank debt as of start-up, *ceteris paribus*. This negative sign is consistent with Hypothesis 1 and thus confirms that entrepreneurs in ventures that *ex ante* are more likely to go bankrupt raise a lower proportion of bank debt at start-up in order to minimize the liquidation probability. Alternatively, by raising a larger fraction of bank debt, entrepreneurs in ventures that are less likely to fail are able to minimize their financing expenses. These results are robust when using other industry-level variables to measure the firm's *ex ante* likelihood of failure, such as the standard deviation of sales growth or assets growth in the corresponding four-digit industry during the period 1988–1991.

Entrepreneurs with larger control rents significantly reduce the fraction of total external debt that is raised as bank debt, *ceteris paribus*. A comparison of Models 1–4 shows that this

TABLE III
Expected sign and summary statistics of the explanatory variables

Variable	Expected sign	Summary statistics				
		Mean	Median	Minimum	Maximum	Std. dev.
<i>Venture failure risk</i>						
Start-up failure rate	–	0.0568	0.0516	0	0.5	0.0484
<i>Private benefits of control</i>						
Unemployment rate	–	0.1030	0.0851	0.0222	0.4262	0.0629
Industry-adjusted wage ratio	–	0.8540	0.7847	0.1610	2.0419	0.9508
Legal form dummy	–	0.3232	0	0	1	0.4695
Number of employees	–	2.8049	1.5	0	38	4.4863
<i>Liquidation value</i>						
Tangible assets/total assets	–	0.7089	0.7171	0.2752	0.8767	0.1303
<i>Control variables</i>						
Growth opportunities	No hypothesis	0.1781	0.1520	–0.4619	1.1986	0.1691
Profitability	No hypothesis	0.3727	0.4250	0.0010	0.1239	0.1744
Initial firm size	No hypothesis	8.3508	8.3563	4.5951	12.7459	1.2392

This table presents the expected sign in their relation to the debt mix and summary statistics of the explanatory variables. *Start-up failure rate* is the proportion of prior start-ups that went bankrupt within the first 3 years after start-up, calculated per four-digit industry over the period 1988–1991. Unemployment rate is the unemployment rate in the corresponding four-digit industry for 1991, the year prior to start-up. Industry-adjusted wage ratio is the ratio of the wage per employee at the firm-level relative to the average wage in the corresponding industry. Legal form dummy equals one if the type of incorporation is NV and zero otherwise. Number of employees is measured during the start-up year. Tangible assets/total assets is the percentage of total assets that is property, plant and equipment, averaged across industry incumbents for 1991. Growth opportunities are measured by the average industry sales growth rate over the period 1988–1991. Profitability is measured as 1991 EBITDA to total assets per four-digit NACE industry. Initial firm size is the logarithm of total financing sources (in thousands) in the start-up year.

conclusion holds for all proxies of private control benefits.⁶ These results thus support our second hypothesis: entrepreneurs who tend to highly value private benefits of control consider not only the cheaper price of bank debt, but also take into account the stricter bank liquidation policy when deciding on their debt mix at start-up.

While there are no well-established proxies for the private benefits of control of first-time entrepreneurs and while any proxy variable is by design an imperfect measure of the true control benefits, the variables used in Table IV all point towards the same direction.⁷ Specifically, the results show that entrepreneurs with larger control rents significantly reduce the fraction of debt that is raised as bank debt, *ceteris paribus*. These findings thus support our second hypothesis: entrepreneurs who tend to highly value private benefits of control consider not only the cheaper price of bank debt, but also take into account the stricter bank liquidation policy when deciding on their debt mix at start-up.

When the liquidation value of firm assets is high, it is more likely to exceed the firm's going concern value following default. Firms with a high asset liquidation value, therefore, are more likely to be liquidated by their bank following default. The results in Panel A, however, indicate that the relation between the liquidation value, measured by the industry average of tangible assets/total assets, and the proportion of bank debt is not significant. In our third hypothesis, we argue that especially entrepreneurs in ventures that face a high failure risk and entrepreneurs who highly value private benefits of control are concerned about liquidation following default. Consistent with these ideas, the results in Panel B show that the interaction term between start-up failure rate and liquidation value is negative and significant at the 10% level. Likewise, the interaction term between control rents and liquidation value is negative and significant. This table also indicates that venture failure risk only significantly influ-

TABLE IV
Tobit regression results on start-up financial structure

	Model 1 (unemployment rate)		Model 2 (ind-adj. wage ratio)		Model 3 (legal form dummy)		Model 4 (number of employees)	
	Parameter estimate	P-value	Parameter estimate	P-value	Parameter estimate	P-value	Parameter estimate	P-value
<i>Panel A</i>								
Intercept	-0.5032	0.0479	-0.6460	0.0062	-0.9561	0.0001	-0.9266	0.0002
Start-up failure rate	-1.1585	0.0233	-1.0595	0.0322	-0.9859	0.0450	-1.3046	0.0099
Control rents	-0.6683	0.0587	-0.1764	0.0003	-0.2365	0.0001	-0.0345	0.0002
Liquidation value	-0.1490	0.3942	-0.0980	0.5580	-0.1378	0.4086	-0.1199	0.4769
Growth opportunities	0.0733	0.5573	0.0931	0.4445	0.1263	0.2983	0.0779	0.5243
Profitability	0.3390	0.0118	0.3766	0.0045	0.2844	0.0311	0.3567	0.0071
Initial firm size	0.0970	0.0001	0.1149	0.0001	0.1452	0.0001	0.1465	0.0001
Log-likelihood	-162.6341		-157.9346		-153.7728		-157.6228	
<i>Panel B</i>								
Intercept	-0.6611	0.0077	-0.5907	0.0123	-1.0432	0.0001	-0.8690	0.0006
Start-up failure rate	-0.5686	0.2774	-0.5549	0.2898	-0.4547	0.3731	-0.7861	0.1431
Start-up failure rate $\times$ Liquidation value	-7.3985	0.0651	-7.4211	0.0647	-7.7648	0.0651	-7.5637	0.0621
Control rents	-0.7102	0.0399	-0.1766	0.0002	-0.2013	0.0001	-0.0318	0.0007
Control rents $\times$ Liquidation value	-0.2639	0.0001	-0.0113	0.0378	-0.2078	0.0001	-0.0085	0.1270
Liquidation value	0.1804	0.3244	0.0825	0.6363	0.1500	0.4010	0.0473	0.7896
Growth opportunities	0.0764	0.5292	0.0773	0.5246	0.1310	0.2724	0.0701	0.5673
Profitability	0.3534	0.0068	0.3555	0.0066	0.2995	0.0206	0.3324	0.0115
Initial firm size	0.1112	0.0001	0.1107	0.0001	0.1490	0.0001	0.1391	0.0001
Log-likelihood	-152.4941		-152.8967		-146.7187		-153.8505	

The dependent variable *Debt mix* is the proportion of total external debt that consists of bank loans. Models 1–4 differ with respect to the proxy used for control rents: the unemployment rate in Model 1, the industry-adjusted wage ratio in Model 2, the legal form dummy in Model 3, and the number of employees in Model 4. The explanatory variables are defined in Table III.

ences the debt mix choice for entrepreneurial start-ups with high liquidation values since we find that the single term measuring the venture's failure risk is no longer significant in Panel B. Entrepreneurs with high private benefits of control use significantly less bank debt, and this effect is even stronger for those firms with high liquidation values. In sum, these findings thus support our third hypothesis.

Finally, we find that growth opportunities as measured by the historical industry sales growth rate do not affect the debt mix. This result contrasts with the negative relation found by Houston and James (1996) for firms with single banking relationships. They interpret their finding as showing that especially firms with large growth opportunities may suffer from bank hold-up problems, which these firms circumvent by limiting the proportion of bank debt in their financing structure. Houston and James, however, examine a sample of large, publicly quoted firms, which can more easily access alternative financing sources, such as public debt, to finance available growth opportunities. So, a negative relation between growth opportunities and bank debt use in their sample is not surprising. By contrast, our sample includes entrepreneurial firms in traditional industrial sectors, which typically are very small and which have only limited financing sources. Next, in industries with high internal cash flow generation, start-up firms raise a significantly larger amount of bank debt, *ceteris paribus*. This relation is consistent with the literature (e.g., Johnson, 1998; Carey et al., 1998). However, we are unsure whether this relation is driven by entrepreneurs in highly profitable industries having a greater confidence in their venture's survival chances (demand-driven) or by banks that are prepared to finance a larger fraction of assets and operations in industries with large, stable cash flows (supply-driven). Last, we find that initial firm size is positively and significantly related to the proportion of external debt that consists of bank loans. The positive sign again is inconsistent with the literature on large, publicly quoted firms, where large firms have better access to public debt markets.

We conclude this section with an important caveat, which was already hinted at in the previous paragraph: our paper essentially looks at

demand-driven determinants of the debt mix in entrepreneurial business start-ups. Of course, supply-side considerations will also influence the debt mix that is ultimately observed and some of the relations we document could also result from such supply-side factors. Take the example of the negative relation between the start-up failure rate and the debt mix. Another explanation, based on a supply-side argument, for this negative relation is that banks are only willing to finance a limited fraction of the assets and operations of start-ups in industries with relatively high failure risk. This argument is further elaborated on in Huyghebaert and Van de Gucht (2005). Nevertheless, the negative relation between the various proxies for entrepreneurial private benefits of control and the fraction of debt that consists of bank loans is unlikely to be driven by such a supply-side argument. Therefore, our paper is the first to show extensively that the entrepreneur's motivations and concerns affect the financing decisions of business start-ups, a side of the decision that has been largely ignored in the (empirical) finance literature up till now.

7. Post-entry survival analysis

The hypotheses presented and tested in the preceding sections of this paper relate to the determinants of the financing choice of business start-ups. We argue that start-ups trade off the lower cost of bank debt against the higher liquidation probability associated with bank debt. In this section, we examine the post-entry survival of the sample firms. Of the 325 start-ups, 32 go bankrupt during the first 5 years after start-up. This percentage is rather low because the selected industries contain only manufacturing start-ups that must file financial statements with the National Bank, and thus exclude the sectors typically associated with high failure rates such as services, retailing and wholesale (e.g., Harhoff et al., 1998). Also, very small start-ups with unlimited liability for the entrepreneur are not required to file annual accounts and thus are not included in our sample. Yet, the failure rate of the sample firms is within the failures rates of the historical start-ups in the same industries, as reported in Table I.

Table V presents the results of a multivariate logit model, where we model the likelihood of failure (bankruptcy) as a function of the explanatory variables measured at start-up. These explanatory variables include those used in the Tobit regressions of Table IV, the debt mix and the interaction term between debt mix and liquidation value. The latter variable is included to test whether firms with high bank debt and high liquidation values are more likely to fail. Two control variables are added as well: (1) the firm's initial overall debt ratio (variable "leverage"), measured as externally raised debt relative to total financing sources in the start-up year and (2) the median size of incumbent firms in the corresponding industry (variable "incumbent size"), measured as the median of log total assets of firms older than 10 years in the corresponding four-digit NACE industry in 1991. Leverage is included to control for the firm's *total* outstanding obligations at the moment of start-up. Unlike equity, debt (bank loans and trade credit) implies the obligation of periodic interest payments and capital installments. These fixed obligations can weigh heavily on the new firm, especially when budgeted revenues are not met (Laitinen, 1994). Large total debt obligations can also lead to the postponement of investments that are crucial for the firm's long run survival. So, these arguments stress the need to control for the firm's total debt obligations, besides the debt composition. In addition, the impact of firm start-up size upon post-entry failure is likely to be different when scale economies are important, which stresses the need to control for the scale of incumbent firms in the corresponding industry (see also Audretsch and Mahmood, 1994; Scherer, 2001). The industrial organization (IO) literature, which deals with the (strategic) behavior of firms within industries and the functioning of markets, indeed has documented that in the presence of scale economies, newly established firms find it more difficult to survive (e.g., Audretsch and Mahmood, 1994; Doi, 1999; Robinson and McDougall, 2001).

The results in Panel A show that the variables capturing start-up financial structure – leverage and debt mix – are not significantly related to post-entry failure. The interaction variable be-

tween debt mix and liquidation value is not significant either. These results could reflect that firms indeed have chosen an optimal financial structure at start-up, whereby it no longer affects their survival chances. For all models, we find that the industry-specific failure rate is significantly positively related to the failure probability of new start-ups. This result indicates that entrepreneurs in industries with high failure risk are indeed rightly concerned about their own default risk and thus justifiably choose less bank debt. The significance of the historical industry failure rate further indicates that the financial structure of the firm cannot protect firms in risky industries from a high failure probability. Also, newly established entrepreneurial start-ups find it more difficult to survive in industries where the scale of incumbent firms is large. Finally, we find that entrepreneurs that pay higher wages than the industry average (Model 2) or firms that employ more personnel during the start-up year (Model 4) are more prone to failure. These results continue to hold when liquidation value and profitability are measured at the firm level (in Panel B). In the latter Panel, we also find that firms that generate larger cash flows in the start-up year are more likely to survive, which is consistent with the results of Huyghebaert et al. (2000).

8. Conclusions

The main conclusion of this paper is that entrepreneurs who raise debt to finance their venture at start-up consider not only the price of the different credit types; they also take into account the differences in liquidation policy between banks and suppliers. We argue and show that especially entrepreneurs in ventures with a high failure risk and entrepreneurs who tend to highly value private benefits of control determine their debt mix such as to avoid a later default on their bank loans; i.e., they use less bank debt. For these entrepreneurs, the loss of control rents following default does not offset the lower financing expenses when borrowing exclusively from the bank. Furthermore, we show that in industries with highly tangible assets, these effects are even stronger. The latter finding is consistent with the idea that especially

TABLE V
Logit regression results for the post-entry survival analysis

	Model 1 (unemployment rate)		Model 2 (ind-adj. wage ratio)		Model 3 (legal form dummy)		Model 4 (number of employees)	
	Parameter estimate	P-value	Parameter estimate	P-value	Parameter estimate	P-value	Parameter estimate	P-value
<i>Panel A</i>								
Intercept	-0.0937	0.0027	-0.0713	0.0489	-0.0869	0.0068	-3.8374	0.2937
Leverage	-1.0806	0.1942	-0.9258	0.3650	-0.8762	0.3281	-1.0993	0.2946
Debt mix	-2.5357	0.6238	-1.1770	0.8212	-2.6806	0.6092	-0.3554	0.9461
Debt mix × Liquidation value	1.5709	0.7654	0.9576	0.8574	1.7396	0.7447	0.1705	0.9735
Control rents	0.0147	0.5868	0.7863	0.0600	0.2611	0.5538	0.5701	0.0350
Initial firm size	-0.1939	0.2109	-0.1000	0.6089	-0.1117	0.5701	-0.2603	0.2369
Incumbent size	0.5293	0.0254	0.5995	0.0301	0.5255	0.0269	0.4495	0.0974
Start-up failure rate	0.0854	0.0338	0.0800	0.0843	0.0823	0.0405	0.0925	0.0386
Liquidation value	1.3950	0.3393	0.7251	0.6641	1.3105	0.3640	0.6256	0.7066
Growth opportunities	-0.0373	0.6691	-0.2603	0.2082	-0.0417	0.6377	-0.2521	0.1835
Profitability	1.6582	0.2026	0.5515	0.7210	1.7565	0.1697	-0.0272	0.9860
Log-likelihood	-120.4425		-93.1810		-120.4110		-92.8065	
<i>Panel B: liquidation value and profitability measured at the firm level during the start-up year</i>								
Intercept	-0.0565	0.0056	-0.0488	0.0515	-0.0499	0.0198	-2.8493	0.2480
Leverage	-0.9104	0.2740	-0.9030	0.3897	-0.7805	0.3740	-1.1233	0.2928
Debt mix	-2.4612	0.6237	-0.9620	0.8481	-2.4872	0.6252	-0.1238	0.9307
Debt mix × Liquidation value	2.0175	0.6977	1.3675	0.7950	2.0236	0.7017	0.4568	0.9803
Control rents	0.0266	0.2976	0.7991	0.0600	0.1098	0.8061	0.4402	0.1054
Initial firm size	-0.2397	0.1255	-0.1020	0.6006	-0.1842	0.3540	-0.1783	0.4212
Incumbent size	0.2773	0.1231	0.4798	0.0247	0.2723	0.1288	0.3800	0.0630
Start-up failure rate	0.0856	0.0345	0.0719	0.0955	0.0836	0.0407	0.0797	0.0710
Liquidation value	-0.8468	0.2774	-0.9098	0.3433	-0.8126	0.3006	-0.8836	0.3609
Growth opportunities	-0.0634	0.4618	-0.2598	0.1647	-0.0649	0.4559	-0.2567	0.1541
Profitability	-1.5928	0.0233	-2.2759	0.0060	-1.4671	0.0372	-1.9059	0.0227
Log-likelihood	-118.5495		-89.4945		-119.0335		-89.9360	

The dependent variable equals one for failed firms and zero otherwise. Leverage is external debt relative to total financing sources in the start-up year. Incumbent size is the median of log total assets of firms older than ten years in the corresponding four-digit NACE industry in 1991. All other explanatory variables in Panel A are defined in Table III. In Panel B, liquidation value and profitability are measured at the firm level during the start-up year.

when the liquidation value of the firm exceeds its going concern value, banks are going to liquidate the firm following default.

While our paper reveals some interesting insights on how start-ups are financed, this study also raises some new unanswered questions. First, further research is required to validate our findings in other countries and industries, and in more recent time periods. The sample firms for this study started operations in a year when economic conditions were slowing down after a boom period. At this point, we are unsure whether financing choices would be different in recessions. During economic recessions, for example, the default probabilities of high-quality entrepreneurs also rise but the liquidation values decrease. Second, this paper also reveals the lack of well-established proxy variables for the control rents of first-time entrepreneurial start-ups. Future research is needed to validate the proxies used in this study.

Notes

¹ For newly established entrepreneurial ventures, the latter argument does not apply at the moment of start-up, but is likely to become more important over time, as the supplier–buyer relationship is being developed.

² Huyghebaert (2000) argues that the loans entrepreneurs extend to their firm resemble preferred equity rather than debt financing. Entrepreneurs are unlikely to voluntarily file for bankruptcy when only the debt service payments on their own loans can no longer be met. Unlike the USA, the Belgian bankruptcy law is creditor-oriented, so that debtors have no incentive to seek protection under it.

³ The other important component of debt is current wages. In Belgium, it is uncommon for employees to file for bankruptcy once their wages are not paid.

⁴ Another approach could have been to look at the dividends that were paid out. However, less than 5% of the firms distribute dividends in the start-up year.

⁵ When the regression is estimated with the firm-specific ratio of tangible assets to total assets, we find that the firm-specific proxy is significantly positively related to the proportion

of bank debt in total debt, whereas the industry proxy was not significant. The interaction variables in Panel B continue to be significantly negatively related to the debt mix, like in the analyses with the industry proxy for asset liquidation value.

⁶ The results of Model 4 remain stable when we use the natural log of the number of employees rather than the absolute number.

⁷ We have also estimated two regressions with more traditional proxies for private benefits of control: one using founder(s) and family ownership proportion and the other using the Herfindahl concentration index of founder(s) and family ownership. We find that both variables are insignificantly related to the debt mix. The other results continue to hold in these models. We attribute the insignificance of ownership to the fact that there is too little cross-sectional variability in entrepreneurial ownership in our sample. Hence, while these variables are commonly used in studies of large publicly quoted companies, these variables cannot capture the cross-sectional differences in entrepreneurial private benefits of control.

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