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The Capital Structure of Business Start-Ups: Policy Implications*

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ABSTRACT

In this article, I discuss policy implications based on a study of the capital structure of business start-ups. Using a sample of 328 newly founded enterprises in Belgian manufacturing, it turned out that venture capital is barely used as a source of financing at the time of start-up. Also, banks finance a lower fraction of debt for firms that face potentially large adverse selection and moral hazard problems. To remedy their shortage of bank credit, start-up firms use leasing and vendor financing, but have lower leverage. These results therefore suggest that newly founded enterprises may face significant financial constraints at start-up, which could contribute to their subsequent failure. As a result, I plead for policy measures that stimulate venture capital financing for smaller scale and non-high tech projects and that encourage information production by banks. While having their own merits, current government measures towards start-ups, which largely consist of providing and guaranteeing loans, do not actually meet these requirements.

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I. INFORMATION AND INCENTIVE PROBLEMS

Entrepreneurs seeking external funds to finance their venture might exhibit large adverse selection and moral hazard problems at the time of start-up. First, potential investors have no or only limited prior information on the entrepreneur or the project that can assist them to evaluate the venture's quality. This is especially the case for first-time entrepreneurs, who were examined in this study. It is true that financiers may have access to information on earlier start-ups, which is useful to estimate average new venture quality within a pool of similar projects, but it remains difficult to assess an individual venture's quality. The relatively high failure rate of newly founded enterprises is consistent with this argument. Holmes and Smithz (1995), for instance, document that 46% of start-ups discontinue operations within four years. Similarly, Dun & Bradstreet (1994) find that in 1993, approximately 50% of all firms that failed did so in the first five years of their existence. Given the high failure risk of start-ups, financiers worry about the problems induced by asymmetric information. Specifically, adverse selection problems result when entrepreneurs of high quality ventures find the average price of external funds too high and therefore withdraw from the capital market (e.g., Stiglitz and Weiss (1981)). Indeed, when start-ups are observationally indistinguishable, they are pooled and a lemons premium is charged to all firms in the pool to compensate investors for the pool's average risk. Hence, high quality start-ups are undervalued, which could induce these firms to reduce their demand for funds. Overall, financiers are likely to worry about adverse selection problems in industries where the failure rate of prior start-ups is high.

Second, financiers may have difficulty in inducing entrepreneurs to comply with contractual agreements once financial contracts are established. Entrepreneurs, as a result, may expend insufficient effort, exhibit expense preference behavior or invest suboptimally once financial contracts are established. Diamond (1991) argues that such moral hazard problems are smaller for firms that have built up a reputation. First-time start-ups clearly have no reputation at stake. Also, given that there is no separation of ownership and control, entrepreneurs have large discretion in deciding on which projects to start and these projects may not be in the best interest of external financiers. More specifically, Jensen and Meckling (1976) and Myers (1977) argue that highly leveraged firms, which start-ups typically are, may engage in

risk shifting and underinvestment. These incentive problems are highly detrimental to creditors, who are only entitled to fixed payment streams.

On the one hand, risk shifting incentives are especially prevalent for highly leveraged firms that are heading towards financial distress. Entrepreneurs usually have invested substantial financial and human capital in their firm and they typically attribute a large value to private benefits of control (Holtz-Eakin *et al.* (1994a); Hamilton (2000)). These features of entrepreneurial firms therefore will enlarge risk shifting problems during the state of financial distress; by reorienting the firm's assets and operations towards more risky ones, entrepreneurs may attempt to avoid bankruptcy and, thus, the loss of control rents and invested capital. Since the payoff to equity holders is convex in the firm's cash flow generation, risky projects are likely to increase the entrepreneur's utility at the expense of creditors. Indeed, creditors do not participate in the gains from excessive risk taking while bearing a large share of the losses. In general, creditors are likely to worry about risk shifting incentives when the firm's ex ante failure risk is high and firm assets on hand can be divested rather easily.

On the other hand, underinvestment incentives are particularly relevant for firms with a debt overhang. Since future investment opportunities can be considered as options that can be exercised at the discretion of the entrepreneur, entrepreneurs of highly leveraged firms may prefer to not (yet) exercise these options. As a result, these options may expire worthlessly. Particularly projects whose benefits mainly accrue to existing debtholders are likely to be forgone, even when they have a positive net present value. For start-up firms, where a significant part of total firm value consists of future growth opportunities, creditors are likely to be concerned about underinvestment incentives. More specifically, the more important the firm's growth opportunities at start-up, the more creditors will worry about underinvestment incentives.

From this discussion, it is clear that information production before the financial contract is established and monitoring ex post are highly valuable for business start-ups. In particular, these activities can help to reduce information and incentive problems. While screening cannot reduce the inherent failure risk of start-up firms, it can reduce the likelihood that low quality ventures obtain financing. Conversely, monitoring allows to more directly adjust entrepreneurial decisions towards actions that increase total firm value, thereby reducing

the likelihood of default. Screening and monitoring, therefore, are likely to have a favorable impact upon the availability and price of external funds at start-up and thereafter. In Sections II and III, the literature on *ex ante* screening and *ex post* monitoring by venture capitalists, respectively banks is reviewed. While trade credit is an important source of financing for start-ups in practice, suppliers are unlikely to screen and monitor borrowers.¹ Section IV then describes the actual role of venture capitalists and banks in financing the start-up stage of newly established ventures in traditional manufacturing industries. This discussion is based on a study of the initial financial structure of traditional business start-ups. Section V discusses the policy implications of these findings. I start by making some suggestions for constructive government measures and end by evaluating existing government measures in this context. Section VI concludes this paper.

II. VENTURE CAPITAL

Venture capital is a form of intermediated, private equity. Venture capitalists accept funds from other investors, which they reinvest in high risk firms with a high growth potential, often in high technology industries. Also, being equity finance, the payoff structure of the contract closely follows the firm's performance, through dividend payments and capital gains that are accumulated over time. This feature is valuable whenever initial cash flows are highly uncertain or even negative in the years following start-up and when the venture itself needs continued investment. In contrast, creditors receive periodic fixed interest payments, independent of the firm's results. Some theoretical contributions to the literature have argued that this feature of debt contracts is valuable since it may prevent low quality entrepreneurs (lemons) from raising funds or it may induce firms to pay out cash (e.g., Narayanan (1988)). In these models, the loss in diversification benefits from contracting debt is more than compensated by the lower price of external finance for high quality entrepreneurs. Conversely, lemons – unless they wish to mimic high quality ventures – are likely to prefer equity over debt. The reason is that low quality entrepreneurs anticipate that investors who provided equity financing will find it difficult to liquidate their firm after having learned its quality. Adverse selection problems, therefore, could be potentially large for

venture capitalists. Conversely, creditors can force a firm into liquidation once it defaults on its debt obligations as control is turned to them following default. Similarly, the potential for moral hazard problems is large with venture capital, especially in firms where the venture capitalist holds an important equity stake (agency problem of equity).

Nevertheless, the literature argues that venture capital is an appropriate source of financing for newly founded enterprises. The reason is that venture capitalists have developed their own mechanisms to reduce information and incentive problems. First, venture capitalists spend considerable effort in evaluating prospective clients and they often specialize in particular industries in which they develop expertise. By screening out the low quality ventures, the lemons premium for high quality ventures is reduced and the adverse selection problem is limited. It is widely known that on average less than 10% of appeals for funds get approved, which supports extensive screening by venture capitalists.²

Second, venture capitalists stage financing contracts so as to reduce both adverse selection and moral hazard problems. By providing only limited funding in the initial financing stage, the incentives of entrepreneurs with low quality projects to apply for financing are reduced whereas the incentives of entrepreneurs to comply with contractual agreements are increased. The reason is that staging gives venture capitalists the option to periodically abandon projects, which induces entrepreneurs to behave in the best interests of their financiers. Such an option is valuable when the accuracy of the venture capitalist's information improves over time, which likely is to be the case with start-up firms. Also, the shorter the duration of an individual financing round, the greater the need to periodically gather information on the entrepreneur's progress and compliance.

Third, venture capitalists often require an important position on the firm's board, which allows them to monitor the venture extensively, but also gives them a voice in strategic decisions. As a result, they can influence the firm's investment program towards projects that solely increase firm value. The network to which venture capitalists have access to can, for instance, be used to assist firms in forming value increasing strategic alliances. Simultaneously, through their board representation, venture capitalists can influence the structuring of entrepreneurial compensation schemes to align the entrepreneur's and the venture capitalist's interests. Compensation contracts typically

combine a base salary and an equity stake to partially reduce the entrepreneur's risk while guaranteeing incentive compatibility, but the precise form of the contract can be (re)negotiated.

Finally, venture capitalists also determine the time and form of exit from their portfolio investments. As the ultimate goal of venture capitalists is to divest their equity stake, exit could be a way for entrepreneurs to regain control. Black and Gilson (1998) argue that an IPO, a frequently used exit mechanism, provides entrepreneurs with an incentive to perform as only successful firms are taken public. Then, distribution rules can be determined such that initial owners de facto regain control (see also Brennan and Franks (1997)).³ As a result, the incentives of entrepreneurs and venture capitalists are aligned. So, when financed with venture capital, entrepreneurs have to partially give up control in the short run but, provided that their venture is successful, they can reacquire control over a longer horizon. The reputation that venture capitalists have at stake ensures that they will honor these implicit contracts on control with entrepreneurs. Lin and Smith (1995), for instance, find that only 12% of lead venture capitalists retain 5% or more of their portfolio companies' shares within three years after the IPO.

III. BANK FINANCING

In Belgium, banks can only partially substitute for venture capitalists. First, the shareholdings of banks in non-financial firms are subject to strict regulation. Belgian banks, for instance, cannot hold equity in non-financial firms unless these investments are used to cover dubious or unpaid claims. In the latter cases, shareholdings can only be maintained during a period of maximum two years (KB 185, art. 14). Nevertheless, this obstacle could be solved by means of captive financing subsidiaries that indirectly invest equity in business startups. However, even in countries where banks can directly hold equity, such as in Japan or Germany, newly established firms are not highly funded by banks either (e.g., Edwards and Fischer (1993)). This finding suggests that other factors than legal prohibitions on equity investments are at work.

Second, liability considerations also restrain banks from performing the role of an active investor and, thus, becoming highly involved in a firm's operations, for instance by assuming a seat on its board.

For the U.S., Kroszner and Strahan (1999) find that commercial banks are only represented on the boards of large, stable firms that have high proportions of tangible assets and low reliance on short-term debt financing. Whereas the costs of active involvement in these firms' management in terms of lender liability are likely to be small, even the banks that join a board rarely are the firm's main bank lender. Similarly, Carey *et al.* (1999) find that banks finance a lower fraction of debt in firms that can be detected easily as being of high risk, which they partly attribute to liability considerations.

Even though bank financing, as a form of debt, is less flexible than equity, banks may still play a valuable function in financing start-ups when venture capital is lacking, provided that they screen and monitor their borrowers. Smith and Warner (1979), for instance, argue that banks can include restrictive covenants in their debt contracts, requiring the borrower to return to its bank when the financial condition of the firm deteriorates or when strategic opportunities to enhance value arise. At that time, banks have to decide whether or not they will financially back firm decisions. The literature on established, listed firms argues that banks indeed produce information and monitor firms extensively. The positive announcement effects when banks extend or renew loans to publicly quoted firms are consistent with this argument (e.g., James (1987)). Furthermore, these announcement effects are larger for firms that exhibit large information asymmetries, such as younger and smaller firms (e.g., Slovin *et al.* (1992)).

In the financial intermediation literature, it is stressed that because of their centralized information production, specialization and reputational capital, banks have an advantage in collecting information and monitoring the activities of their borrowers. Intermediated bank debt prevents that many investors need to collect the same information and thus allows to save on monitoring costs. Simultaneously, information production engenders important scale economies, which can be exploited maximally when one party collects the needed information. Also, the information that the bank acquires as part of the ongoing deposit relationship with its borrowers may increase the precision of its information and may provide it with a comparative cost advantage in monitoring (e.g., Fama (1985); Nakamura (1993)). Through monitoring transactions accounts, banks can observe the size and timing of orders, the ability of firms to take advantage of early payment discounts, etc. Finally, asymmetric information problems can be solved without making public proprietary information that could harm the

firm's competitive position. Bhattacharya and Chiesa (1995) argue that firms may reveal firm specific information more readily to a small group of lenders, such as the firm's bank, than to a diffuse group of lenders.

IV. INITIAL FINANCIAL STRUCTURE OF BUSINESS START-UPS

A. Sample Description

The sample consisted of 328 Belgian entrepreneurial start-ups in the manufacturing industry, all started up in 1992. In Belgium, each firm receives a unique and chronologically accorded Value Added Tax number the first time it registers with the tax authorities. Using this VAT number, all newly established firms in 1992 could be identified. The sample was restricted to start-up firms in a single year to control for aspects that are unrelated to information and incentive problems. Simultaneously, the sample was restricted to manufacturing start-ups. The larger (optimal) scale of operations for manufacturing firms when compared to retailers, wholesalers or service firms made it likely that the personal funds of the entrepreneur were insufficient to fully finance all assets and operations at start-up. In addition, all firms in the sample are incorporated, which required them to file their financial statements as of start-up with the Belgian National Bank and to publish an abstract of their foundation charter in the National Newspaper (*Staatsblad*). These selection criteria resulted in a sample of 652 firms, reporting their NACE-code at the four-digit level.

This sample was subsequently cleaned to remove all firms that were not true entrepreneurial business start-ups. Using the foundation charter, entrepreneurial start-ups could be distinguished from newly established subsidiaries of existing firms, split-ups, spin-offs, etc. Firms arising from the incorporation of a previously self-employed activity, identified through follow-up phone calls, were also removed from the sample. These screening criteria reduced the sample to 328 true business start-ups. Table 1 describes the industry distribution of the sample firms, based on their two-digit NACE code. The firms are highly represented in the paper, printing and publishing industry (98 firms); the food, drink and tobacco industry (51 firms); and the timber and wooden furniture industry (35 firms).

TABLE 1
Industry distribution of start-ups

NACE code	Description	Number of firms
2200-2299	Production and preliminary processing of metals	1 firm
2300-2399	Extraction of minerals other than metalliferous and energy producing minerals; peat extraction	1 firm
2400-2499	Manufacture of non-metallic mineral products	7 firms
2500-2599	Chemical industry	5 firms
3100-3199	Manufacture of metal articles (except for mechanical, electrical and instrument engineering and vehicles)	16 firms
3200-3299	Mechanical engineering	8 firms
3400-3499	Electrical engineering	13 firms
3600-3699	Manufacture of other means of transport	4 firms
3700-3799	Instrument engineering	15 firms
4100-4299	Food, drink and tobacco industry	51 firms
4300-4399	Textile industry	20 firms
4400-4499	Leather and leather goods industry (except footwear and clothing)	4 firms
4500-4599	Footwear and clothing industry	26 firms
4600-4699	Timber and wooden furniture industries	35 firms
4700-4799	Manufacture of paper and paper products; printing and publishing	98 firms
4800-4899	Processing of rubber and plastics	6 firms
4900-4999	Other manufacturing industries	18 firms
Total		328 firms

The sample consists of 328 Belgian business start-ups in the manufacturing sector, founded in the year 1992. All data relates to the start-up year and was obtained from the Belgian National Bank (annual accounts), the abstract from the foundation charter (Staatsblad) and a survey that was sent out.

Table 2 provides some summary statistics on the sample firms. These firms are rather small at the time of start-up: the average value of total assets amounts to € 244,174 whereas the average number of employees is 2.82. The asset structure reveals that on average 39.29% of total assets consist of fixed tangible assets, whereas inventories and highly liquid assets (cash and marketable securities) represent 10.47%, respectively 12.30% of total assets in the start-up year. Next, the start-ups in the sample are highly levered: on average, 69.34% of funds is

TABLE 2
Descriptive statistics on the sample of start-ups in the year of start-up

	N > 0	Mean	Median	Std. dev
FIRM SIZE				
Total assets (€)	328	244,174	102,270	593,704
Number of employees	250	2.82	2	4.4947
ASSET STRUCTURE				
Fixed tangible assets/total assets	314	0.3929	0.3896	0.2581
Inventories/total assets	218	0.1047	0.0466	0.1433
Cash and marketable securities/total assets	300	0.1230	0.0611	0.1665
FINANCIAL STRUCTURE				
Leverage	325	0.6934	0.7804	0.2497
Bank debt/total debt	244	0.3360	0.3213	0.2962
Bank debt/total debt if bank debt > 0	244	0.4476	0.4469	0.2586
Trade credit/total debt	314	0.3289	0.2839	0.2695
Leasing/total debt	73	0.0367	0	0.1115
Leasing/total debt if bank debt > 0	73	0.1636	0.1004	0.1867
Short-term debt (one year)/total debt	321	0.6563	0.6975	0.3000
Short-term bank debt (one year)/total bank debt	120	0.2221	0	0.3402
OWNERSHIP STRUCTURE				
Number of shareholders	328	2.42	2	1.1561
Herfindahl index of ownership concentration	328	0.6488	0.5008	0.2704

The sample consists of 328 Belgian business start-ups in the manufacturing sector founded in the year 1992. All data relates to the start-up year and was obtained from the Belgian National Bank (annual accounts), the abstract from the foundation charter (Staatsblad) and a survey that was sent out. $N > 0$ represents the number of sample firms with a value greater than zero for the corresponding variable, whereas *Mean*, *Median* and *Std. dev* represent the average, median respectively standard deviation of the corresponding variable in the sample.

contracted as outside debt financing. Bank debt and trade credit are equally important sources of funding, with each representing about one third of total debt financing on average. Only 73 firms use leasing, which represents 3.67% of total debt in the average firm. For firms that lease at least some of their equipment (leasing > 0), it represents 16.36% of total debt. Given that trade credit is very short-term financing, it is not surprising to observe that the maturity structure of

debt is largely tilted towards short-term debt: 65.63% of total debt has a maturity less than one year. When considering bank loans only, on average 22.21% of bank debt is due within one year. Finally, ownership information reveals that ownership is highly concentrated: in the average start-up firm, 2.42 shareholders are involved whereas the herfindahl index of ownership concentration amounts to 64.88%.

B. *Empirical Results*

In this section, I discuss three main findings on the capital structure of the above described sample of start-ups, which have implications for public policy as discussed in the following section. First, entrepreneurial firms in traditional industries do not highly use venture capital as a source of financing at the time of start-up. In this sample of start-ups, only four out of 328 firms used venture capital as an initial financing source. Earlier research using U.S. data already pointed out that venture capitalists are mainly specialized in funding high tech companies, which might explain this finding. Also, the relatively small start-up size of the studied firms makes them rather uninteresting to venture capitalists. Another explanation could be that in Continental Europe, venture capitalists typically concentrate on financing a firm's growth rather than start-up stage (e.g., Ooghe, Manigart and Fassin (1991); Van Hulle (1998)).

Second, newly founded firms that face potentially large adverse selection and moral hazard problems at start-up have a lower fraction of debt that consists of bank loans, *ceteris paribus*. The results also show that *ex ante* information and incentive problems are not significantly related to the likelihood of obtaining a bank loan. In other words, banks still provide funding when adverse selection and moral hazard problems are potentially extensive, but they simply limit their exposure through limiting the size of the granted loans. This conclusion is reinforced by the fact that no relation is observed between the maturity structure of bank debt and the potential for adverse selection and moral hazard problems. Conversely, when banks would have limited loan maturity, the refinancing decision would have come earlier, thereby giving a monitoring creditor greater ability to reverse early some investments that turn out bad decisions. Next, entrepreneurs who provide a credible quality signal by investing more equity at start-up raise a larger fraction of bank debt, but also limit the maturity of their bank loans. A potential explanation, which is consistent with the earlier findings

and conclusions, is that these entrepreneurs perceive that their bank does not appropriately take their higher credit quality into account when deciding on the price of the credit. Then, by limiting the maturity of their bank loans at start-up, high quality entrepreneurs try to avoid locking in their financing costs until more (favorable) information about their firm becomes available. These conclusions conflict with the screening and monitoring role that the literature has attributed to banks in financing established, listed firms. Possibly, the complexity and/or the costs that are associated with screening and monitoring business start-ups are prohibitive, especially since the size of the loans generally is small (e.g., Ravid and Spiegel (1997)). Then, the unexpected drain of the high quality firms from a given pool of start-ups or unanticipated incentive problems can quickly turn a bank's loan portfolio into losses, especially since banks earn only small profit margins on their loan transactions.⁴ Conversely, by financing a positive but limited fraction of total debt, banks obtain a stake in start-up firms while their risk is limited. The results also indicate that banks finance a larger fraction of debt in firms with favorable growth prospects, which further supports the argument that banks behave opportunistically.

However, the start-up firms in this sample do not have lower leverage when the potential for adverse selection problems is relatively high. It turned out that leasing and trade credit are used to remedy a shortage of bank funds, whereby leasing is preferred over highly expensive trade credit. Conversely, when the potential for risk shifting problems is relatively high, firms are not able to fully remedy the shortage of bank funds by increasing their use of alternative credit sources. Accordingly, these firms have a significantly lower leverage ratio. Nevertheless, the earlier documented pecking order with leasing being preferred over trade credit to remedy a shortage of bank funds continues to hold in the case of risk shifting incentives.

Third, entrepreneurs who attribute a larger value to private benefits of control reduce their reliance on bank financing and increase the maturity of the bank loans that they contract. They make up their reluctance to borrow from banks by using both leasing and trade credit, but there is also some weak evidence that these entrepreneurs prefer to limit leverage at start-up. These results are driven by the firms whose liquidation value is likely to exceed their going concern value following default (firms in industries with few firm specific investments) and by the firms whose suppliers are likely to hold an important implicit equity stake (firms in high growth and highly

concentrated industries). These findings are consistent with the argument that banks adopt a relatively strict liquidation policy for defaulting firms compared to other creditors, such as suppliers. Due to the low margins on their loan transactions, banks hold only a small implicit equity stake in their borrowers. Liability and reputation considerations are likely to reinforce that banks implement liquidation rights strictly following default. Conversely, suppliers adopt a more lenient liquidation policy towards their debtors when they hold a large implicit equity stake in their customers. Then, suppliers attract the higher risk debtors prevailing in the credit market, inducing them to set a higher average price for their credit. As a result, when banks enforce liquidation rights more strictly than suppliers do, high quality entrepreneurs borrow exclusively from banks at start-up to minimize their financing expenses. Low quality entrepreneurs with substantial control rents, on the other hand, limit their bank borrowings to avoid a potential default against the bank that would result in the liquidation of their firm.

V. POLICY IMPLICATIONS

Based on this and earlier research, it can be concluded that personal financial resources play a crucial role when individuals intend to start their own business. Also, entrepreneurs typically find it difficult to access external funds at the time of start-up. The empirical results of Van Praag and Van Ophem (1995), for instance, show that the majority of young Americans is willing to switch from labor force participation to self-employment, but that opportunity – through finance – is a major constraint. They even conclude from their study that entrepreneurial ability aspects that can compensate for a lack of capital are scarce. Similarly, Holtz-Eakin *et al.* (1994a) and Blanchflower and Oswald (1998) uncover that the receipt of an inheritance positively affects an individual's decision to become an entrepreneur. The results of this study on the capital structure of business start-ups also show that entrepreneurs hardly raise external equity at start-up, except for funds from family and friends, and that banks are reluctant to finance a major fraction of debt when adverse selection and moral hazard problems are potentially extensive. Furthermore, entrepreneurs use highly expensive trade credit when constrained by banks and even have lower leverage when incentive problems are potentially

extensive. These results hold after controlling for industry factors affecting the demand for external financing, through the industry MES and industry dummy variables, and variables that capture the entrepreneur's financial wealth. In sum, imperfections in the capital market apparently bring about that a lack of personal financial resources at start-up cannot be offset by contracting additional funds from the capital market. According to Holtz-Eakin, Joulfaian and Rosen (1994b), binding financial constraints at start-up reduce the likelihood of entrepreneurial survival.

As shown by Birch (1979), Swain (1985), Konings *et al.* (1998) and others, newly founded firms may contribute a great deal to job creation, innovation and economic growth of a country, which is the reason why governments in a lot of countries financially back entrepreneurial ventures. The existing public policy measures mainly aim to reduce the financial constraints of start-ups to increase post-entry survival. When evaluating economic policy, two important principles are in order: economic efficiency and fairness. For a given measure to meet the criterion of *economic efficiency*, it should meet a given objective while using as few resources as possible. For a measure to meet the criterion of *fairness*, it should be the case that two equally promising projects obtain the same treatment. In the following subsection, I plead for policy measures that stimulate venture capital financing for smaller scale and non-high tech projects and that encourage information production by banks. Thereafter, I evaluate existing government measures in this context.

A. *Suggestions For Government Measures*

1. Stimulating Venture Capital for Smaller Scale and Non-High Tech Projects

Venture capital is an appropriate source of financing for newly founded enterprises. As the initial cash flows of start-ups are highly uncertain and potentially negative, the distributions to equity providers are better adapted to such patterns of cash flow generation. Furthermore, new firms face large information and incentive problems at the time of start-up, which makes screening and monitoring extremely valuable. Venture capitalists collect substantial information on their portfolio firms, before and after the contract is established (e.g., Sahlman (1990); Gompers (1995); Lerner (1995)). They simultaneously hold an important

financial position in multiple firms, which gives them the financial interest and independence to view a given firm's management and policies in an unbiased way. Finally, as the ultimate goal of venture capitalists is to sell their portfolio investments, entrepreneurs may value the call option on control inherent in venture capital financing contracts (see Black and Gilson (1998)). The empirical results of this study show that control indeed is an important consideration for entrepreneurs, which influences their financing decisions at start-up.

The results also show that venture capitalists are not largely involved in financing the start-up stage of newly established firms in traditional manufacturing industries. Rather, these start-ups raise significant amounts of external debt financing; their median debt ratio amounts to 78.04%. In addition, 69.75% of the median firm's total debt financing matures within one year. It is clear that such a high debt burden, which also largely consists of short-term debt, makes default in the first few years after start-up a highly likely event. Then, premature liquidation of the venture, for instance by banks, becomes possible. I therefore plead for policy measures that stimulate venture capital financing for smaller scale and non-high tech projects.

In the past, national authorities in Continental Europe have already set up some public programs to stimulate venture capital. These programs were partly motivated by the desire to achieve a threshold volume of transactions, such that an in-depth venture capital market could develop. On the one hand, governments have provided venture capital *directly* by investing themselves in the industry. However, it is not a priori clear whether the industry can gain from governments rather than private investors pumping money into it. It is, for instance, still an open question whether government funds substitute for or stimulate private venture capital. Manigart and Beuselinck (2001), however, find that the supply of government funds to the venture capital industry in Continental Europe is inversely related to the overall economic climate and to the supply of private funds in previous years. Still, half of the supply of venture capital in Belgium already stems from the government, though this percentage used to be even higher. Conversely, in the U.S., 80% of all venture capital flows through independent limited partnerships, where pension funds are the largest contributor of funds, followed by banks and insurance companies (Berger and Udell (1998)).

Next, I do not believe that just increasing the availability of funds that can be invested as venture capital is the right mechanism.

Rather, a change in focus of venture capitalists has to be brought about, away from financing merely high tech firms. Several models argue that institutional investors frequently engage in “herding”, i.e. making too similar investments (see Devenow and Welch (1996) for an overview of the literature). While there are positive spillover effects associated with such a policy, it is also the case that it entails limited venture capital financing of ventures that do not fit the accepted project type. Special tax regimes that encourage the investment in solid, though not necessarily high tech firms could be helpful for this purpose.

Simultaneously, venture capitalists’ focus needs to be shifted towards smaller scale projects. Gompers (1995), for instance, finds that the mean venture investment in a U.S. start-up or early stage business between 1961 and 1992 was \$1.8 million (in 1992 dollars). However, the substantial size of these investments is largely a consequence of the manner in which venture capital funds are organized. In particular, the way that venture funds are remunerated encourages large deal sizes. Venture funds typically receive a substantial share of their compensation from an annual fee, which amounts to 2 à 3% of the capital under management. As a result, venture funds prefer to limit the number of partners that are hired and increase the capital that each partner manages. Since only a limited number of portfolio investments can be closely scrutinized, partners prefer to invest in large scale projects. Compensation schemes therefore should not only consider the amount of funds managed, but also the number of negotiated deals and – by necessity – their profitability.

Perhaps, the equity stake of venture capitalists in smaller scale, non-high tech projects will need to be higher in order to make information collection and strategic support cost effective. However, when venture capitalists make it clear from the very start that their objectives are aligned with those of the entrepreneur, i.e. a maximization of firm value, they may be able overcome the natural resistance of entrepreneurs to partly relinquish control in the short run. Given that the largest firms in the sample are also the ones that raise more external financing at the time of start-up, this measure may be a cost effective one.⁵ The bias away from high tech ventures will simultaneously increase fairness towards non-high tech start-ups with favorable growth prospects.

On the other hand, national governments have also used *indirect* measures to stimulate venture capital financing, such as constructing

favorable fiscal regimes for equity investments in general (e.g., Cooreman-Declerck stimuli during the eighties). For the sake of completeness, it has to be added that at the level of the Flemish government, the idea circulates to grant a special tax treatment of the funds private investors devote to venture capital. In addition, governments have encouraged the development of active stock markets for high growth companies (e.g., Euro.NM Belgium during the nineties). The latter is necessary when, as argued by Black and Gilson (1998), the possibility of exit through an IPO is important for early stage venture capital. Measures that stimulate the development of active stock markets therefore will also increase the dynamics of venture capital financing. Consider the second half of the nineties as an example. The upsurge of the stock market during that period has attracted a lot of new listings, especially of young and high growth firms. As a result, venture capitalists have attracted larger amounts of financing and have become more eager to invest at an early stage.

In addition to the arguments of Black and Gilson (1998), Modigliani and Perotti (2000) find that in countries where property rights are poorly protected, stock market capitalization relative to GNP generally is small. Rather, firms are financed by internally generated cash flows and bank lending. Therefore, they stress a strong protection of minority rights as a necessary condition for investors to provide external equity, including venture capital. Minority owners who feel that majority shareholders do not serve their interests should have access to legal mechanisms to resist such exploitation. For this, it is necessary that legislation also considers minority rights in private companies. Indeed, previous legislation has mainly focused upon publicly listed companies through outlining mandatory takeover bid requirements.

2. Stimulating Information Production by Banks

When venture capital is not available, banks can still play a valuable function in financing start-ups. Particularly, when *ex ante* adverse selection and moral hazard problems are extensive, information production before and after the financial contract is established is beneficial. Petersen and Rajan (1994), for instance, find that firms with highly volatile cash flows and few tangible assets benefit considerably from close bank ties, especially through the availability of funds. Simultaneously, banks could also play a certifying role towards other

financiers, thereby increasing the accessibility of other financing sources. Diamond (1991), for instance, shows that new borrowers begin their reputation acquisition by being monitored by banks. Monitored borrowers who behave in the interests of their bank develop a reputation and new financiers who step in later on can reduce their monitoring efforts. Therefore, firms may switch to issuing unmonitored financing once they have acquired a reputation.

However, the empirical results show that in industries where information and incentive problems are potentially extensive, banks finance a lower, yet positive fraction of entrepreneurial debt. The smaller size of these firms, and thus the associated loans, could make screening and monitoring of new firms cost ineffective for banks, especially since their compensation is asymmetrically related to actual performance. One way to solve this problem could be to allow banks to provide financing through equity or debt instruments that can be converted into equity. The current restrictions banks face on equity investments (see Section III), however, have their own merits. Most countries have installed mechanisms to insure private investors' deposits against bank failures (e.g., Depositogarantiesysteem in Belgium, FDIC in U.S.); when banks are allowed to invest in instruments with an equity-like feature, bank shareholders, holding a call option on the assets of the bank, will prefer that banks leverage their asset portfolio towards more risky investments, at the cost of depositors and thus society. Furthermore, there are other ways banks can deal with such restrictions without largely increasing the risk of their own assets. Banks can for instance establish independent subsidiaries that specialise in venture capital; the main conclusions of Section V.A. continue to hold for these subsidiaries.

Another way to stimulate bank information production could be to reduce the costs of these activities rather than increase the payoffs. When banks are allowed to deduct its costs in their income statement at an amount that is somewhat higher than the actual costs incurred, they may invest more in collecting information. This measure could also be tuned to recently established firms in order to specifically encourage bank information production for this category of firms. I would like to refer here to the example of Austria, where the government allows firms to deduct 125% of actual R&D expenses from their taxable basis to stimulate R&D investments.

Next, the current bank liability regulation also discourages bank information production because banks may have limited incentives to

act upon the information that they have collected. In particular, once a firm defaults on its bank debt, control is turned to its bank, who has to decide whether the firm should be liquidated or whether the defaulted claims can be reorganized. When it is not unambiguously clear that the firm will be able to recover, the bank has an incentive to liquidate. For if it decides to reorganize and the firm eventually goes bankrupt, third parties, such as suppliers, can file a suit against the bank for having granted/renegotiated credit undeservedly, thereby having given a too positive signal on the firm's quality. It is obvious that such regulation is likely to bias the bank's liquidation policy towards excessive liquidation. Then, information production may no longer be warranted since a firm that defaults is likely to be liquidated anyway. Therefore, I plead for imposing more strict criteria under which banks can be held liable by other creditors when a firm with bank debt outstanding goes bankrupt.

B. Existing Government Measures: a Critical Evaluation⁶

In this section, only government measures that specifically address financial support for start-up firms are considered. Instruments to support educational training, special infrastructure, exports, investments in R&D, etc. also exist, but these measures can be used by non-starters too. Most governmental actions of financial support center upon reducing the equity gap for start-up firms. Furthermore, these actions are provided mainly by the regional governments. For Flemish business start-ups, the Flemish government provides loans and guarantees through its Participation Fund. In this section, I briefly discuss and evaluate these measures, based on the above discussion.

1. The Starter's and Start-up Loan

The *starter's loan* is a junior loan of € 27,268.29 (BEF 1,100,000) accorded to a fully entitled unemployed person, who wishes to become self-employed or establish an own company. The entrepreneur has to invest an amount of at least one fourth of the requested funds. The loan does not require any security, has a maturity of 13 years and a limited interest rate (3% during the first five years; 5% thereafter). Also, the loan has a three year grace period, during which principal payments can be deferred.

The *start-up loan* is intended to finance investments in working capital and tangible and intangible assets. It can be obtained by self-employed people, free professionals and SMEs. The principal of the loan is limited to three times the personal investment of the entrepreneur and should not exceed € 123,946.76 (BEF 5,000,000). The government does not require any security. A temporary exemption of principal repayments is possible. The maturity of the loan depends upon the investment project and should not exceed that of the main loan accorded by a bank, with an absolute maximum of 20 years. The interest rate is limited to 3% during an initial period depending upon the maturity date of the loan. The market interest rate applies thereafter.

Both categories of loans can help to reduce financial constraints. Furthermore, the starter's loan does not reduce the entrepreneur's bargaining position when raising other debt sources because of its subordinated nature. These features are highly beneficial for start-ups in industries where adverse selection and moral hazard problems are potentially extensive as previous empirical results suggest that especially these firms may lack the necessary funds. However, the starter's and start-up loan are typical examples of public policy measures that are mainly concerned with the number of new firms and the rate of new firm foundation. From an efficiency point of view, this is a serious disadvantage. The government should not just strive to increase the availability of financing as such. Rather, the problem is that some firms find it difficult to obtain external financing because of venture capitalists' and banks' financing policies. Therefore, the government should mainly grant loans to ventures with large financing needs and that find it difficult to obtain private funding. Simultaneously, the principal of these loans should depend upon the firm's true financing needs. Next, these government loans do not induce private institutions to actually collect information on the firm. As a result, good behavior cannot be rewarded by granting additional or cheaper funding. Finally, public policy should also aim to discourage individuals who are clearly unsuitable for entrepreneurship to start up their own business (see also Storey and Johnson (1987)). However, the above loans are accorded without collecting any information on the viability and quality of the project. In order for government loans to be warranted on the basis of efficiency, it is necessary that the government can better identify firms where investments lead to high social and/or private returns than private investors can.

2. Guaranteeing Bank Loans

This measure intends to meet the needs of starting entrepreneurs who encounter difficulties in obtaining a professional (bank) loan because of a lack of personal or business collateral. The guarantee can only be obtained for loans to finance investments in tangible assets. Once granted, the guarantee remains valid during a seven year period. The guarantee can only be partial and is limited to 50% of the loan's principal, with a maximum of € 37,184.03 (BEF 1,500,000). The entrepreneur needs to satisfy certain conditions, such as being qualified for the planned profession. Furthermore, the entrepreneur has to submit a financial plan with the bank. The principal of the underlying loan is limited to € 123,946.76 (BEF 5,000,000) and its maturity to 15 years. The grace period of the loan should not exceed one year. Personal guarantees by the entrepreneur or third parties should be restricted to one fourth of the granted loan. The entrepreneur has to pay a premium for the guarantee, which is determined at 2% of the guaranteed amount with a maximum of € 743.68 (BEF 30,000).

A positive effect of these guarantees is that they can help to reduce financial constraints by increasing the readiness of banks to grant loans at a cheaper price. Their main shortcoming is that banks may actually be induced to reduce their information collection on newly established firms. As a result, providing guarantees is likely to increase the availability of financing for both high and low quality ventures. Furthermore, guarantees may prevent banks from closely monitoring firms *ex post*, which could reduce their incentives to lend additional funds to further finance valuable projects. Finally, the concerns raised in Section V.B.1. also apply here.

VI. CONCLUSION

In this article, I discuss policy implications based on a study of the capital structure of business start-ups. Using a sample of 328 newly founded enterprises in Belgian manufacturing, it turned out that venture capital is barely used as a source of financing at the time of start-up. For the large majority of start-ups, only bank debt and trade credit are available. The existing literature supports the idea that banks monitor their debtors (e.g., James (1987); Diamond (1991)), whereas suppliers may lack the expertise and/or incentives to monitor their

customers. Therefore, the information production role of banks is important, but in contrast with the literature on established, listed firms, banks finance a lower fraction of debt for firms that face potentially large adverse selection and moral hazard problems at start-up. Start-up firms then use leasing and vendor financing to remedy the shortage of bank credit, but have lower leverage when risk shifting problems are potentially extensive. These results suggest that newly founded enterprises may face significant financial constraints at start-up, which could contribute to their subsequent failure.

As a result, I plead for policy measures that stimulate venture capital financing for smaller scale and non-high tech projects. Up till now, public policy towards entrepreneurship has focused on the availability of venture capital for growth oriented entrepreneurial firms, concentrating on innovation and change. However, the Belgian experience proves that a significant fraction of start-ups are smaller scale enterprises with a focus on subsistence. Next, I stress the need of encouraging banks, who have developed expertise in assessing and managing credit risk, to collect information on entrepreneurial quality and incentive problems. While having their own merits, current government measures towards start-ups, which largely consist of providing and guaranteeing loans, do not meet these requirements. Overall, current policy measures are too much oriented towards increasing the availability of financing for start-ups, independent of their quality and financing needs.

NOTES

1. Legally, suppliers cannot vary trade credit terms to the quality of their customers. Suppliers therefore cannot act upon the information they have collected, which reduces the incentive to actually gather information. Furthermore, trade credit is short-term debt, which by its nature is less sensitive to actions that decrease the value of debtholders' claims. Not surprisingly, the empirical evidence shows that suppliers follow industry standards when deciding on trade credit terms (Ng, Smith and Smith (1999)).
2. This low percentage could also indicate that the total size of the venture capital financing pool is limited, such that venture capitalists can pick out the most promising ventures. The existing empirical evidence does not support one interpretation over another. While Manigart and Beuselinck (2001) show that the amount of funds invested by the private sector in venture capital depends on previous stock market returns, which supports the latter interpretation, Sahlman (1990) finds that in spite of all screening, still one third of approved dossiers turns into losses for venture capitalists, which supports the former interpretation.
3. An alternative exit route could be for entrepreneurs to buy out the venture capitalist, for instance, by leveraging their company in a management buyout. However, for rapidly growing firms that still consume a lot of funds, this alternative is not a feasible one.

4. Increased competition in the banking sector since the 1980s has been attributed to increased disintermediation, internationalization, changing customer preferences, and deregulation, which led to excess capacity for banks (e.g., Remolona and Wulfekuhler (1992), Benink and Llewellyn (1994)).
5. The correlation between firm size (log of total assets) and leverage is $\rho = 0.4644$; the associated p -value is 0.0001.
6. The information regarding existing government measures is correct, to the best of my knowledge, at the time this article is written.

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