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**Is there a high technology pecking order?
An investigation of the capital structure
of NTBFs in the Irish software sector**

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Abstract

This paper examines the financing of 117 privately held new technology-based firms (NTBFs) in the Irish software product sector. We advance the high-technology pecking order hypothesis (HTPOH) to explain the dominance of external equity over debt in NTBFs. Using founders' opinions and perceptions on various financing issues, we find evidence consistent with four implications of the HTPOH. Sample firm founders perceive low tax benefits of debt, and very high levels of business risk as reflected in pessimism about their likelihood of survival even with adequate financing. In addition, founders perceive greater information asymmetries in debt than in private equity markets. This finding is consistent with the spirit of Myers' (1984) and Myers and Majluf's (1984) pecking order hypothesis in that firms prefer sources of finance associated with the least information asymmetry. A related finding is that founders believe issuing equity sends a positive signal to clients, suppliers and financiers.

1. Introduction

Capital structure is a central issue in corporate finance, and it continues to receive considerable theoretical and empirical attention. Two competing theories explain the broad and diverse range of observed capital structures. The *static tradeoff hypothesis* suggests that there is an 'optimal' capital structure for each firm, which trades off the tax benefits of debt against the increasing likelihood of financial distress as leverage rises. The *pecking order hypothesis* (POH) of Myers (1984) and Myers and Majluf (1984) posits that due to information asymmetries between firms and providers of finance, internal sources are preferred over external, debt is the preferred source of outside finance, and equity is issued only as a last resort. Extrapolating from the large body of empirical evidence on capital structure, it is clear that while each theory contributes useful insights to explain financing in large public firms, neither provides a complete explanation of observed capital structure across industries, countries, and firms of different size and age (Brealey and Myers, 2000).

From the empirical evidence on the capital structure of small and medium-size enterprises (SMEs), it is apparent that small firms tend to follow the POH. The few studies on capital structure in new technology-based firms (NTBFs),¹ however, show that while internal finance is the source of choice for owner-managers, outside equity dominates debt (Oakey, 1984; Roberts, 1990 and 1991). In this study, we examine the financing of 117 privately held Irish software product firms, representing 45 percent of this sector's population. We first provide a breakdown of the sources of finance used by these firms, separated into internal (savings, consulting revenues and retained earnings) and external (bank debt, venture capital, private investors and government grants). Average figures for the full sample show a 50/50 divide between internal and external sources of finance. We find that a mere 4 percent is sourced from banks, and almost two-fifths (28 percent from venture capital and 11 percent from private investors) is external equity. The dominance of external equity over debt is evident in all age groups.

Our findings suggest that NTBFs in the software sector demonstrate a hierarchical pattern of financing that gives precedence to internal sources, but if external financing is required, equity is preferred to debt. We propose the *high technology pecking order hypothesis* (HTPOH), which draws on both static tradeoff theory and the POH, to explain the observed capital structure of NTBFs. Using a unique data set derived from a survey of the opinions and perceptions our sample firms' lead founders, we test four predictions of the HTPOH. The *first* prediction is that NTBFs have low tax benefits of debt. Particularly in their early years, NTBFs tend to be unable to take advantage of debt tax benefits because they have

¹ NTBFs are defined by Little (1977) as independent ventures less than 25 years old that supply a product or service based on the exploitation of an invention or technological innovation.

low or negative earnings and significant non-debt tax shields such as research and development expense. We confirm that tax issues are not critical for NTBF founders; only 19 percent of respondents consider tax issues to be relevant in the financing decision.

The *second* implication of the HTPOH is that NTBFs will have high levels of business risk. The static tradeoff theory suggests that firms with a high likelihood of encountering financial distress have low debt levels. It is generally assumed that NTBFs are highly risky because their products are often untried and subject to early obsolescence, and they often have a limited number of customers or clients. There is, however, very little evidence on this issue. We test this prediction by questioning founders on their perceptions of the likelihood of failure as a result of business as distinct from financial risks. Consistent with the HTPOH, we find that 52 percent of survey respondents believe that, even with adequate financing, their firm has a 50 percent chance of failing. This figure is well above the actual failure rates for SMEs that have been in business for on average 5 years (Ganguly, 1985). Consistent with prior evidence on small firm failure, founders' perceptions of business risk are highest amongst the youngest firms (1 and 2 years old) and are slightly lower for firms aged 2 to 5 years. A surprising finding is that founders of older businesses are also pessimistic about survival. Almost half of the founders of firms more than 10 years old believe that their businesses have a 50 percent chance of failure even with adequate financing. This finding runs contrary to evidence from studies of failure rates, which show a strong positive relation between firm age and survival. Such pessimism may explain why leverage remains low amongst the older firms.

Third, the HTPOH predicts that NTBF owner-managers perceive greater information asymmetries in debt markets than in equity markets. A common explanation for the dominance of internal sources of funds in small firms is that SME debt markets suffer from information asymmetries that give rise to adverse selection and moral hazard. Adverse selection arises if debt providers have difficulties in discriminating between 'good' and 'bad' investment projects, and moral hazard arises when borrowers have an incentive to 'gamble with the bank's money' and pursue high-risk projects. The SME sector can therefore be subject to considerable financial constraint. Adverse selection is particularly problematic in NTBF debt markets, because their investment projects are associated with a high level of 'technology uncertainty.' Confirming that NTBFs experience information asymmetries in debt markets, we find that only 9 percent of respondents agree that banks understand their businesses.

While appearing to be inconsistent with the standard POH, we argue that the HTPOH does not contradict its spirit. Myers' (1984) and Myers and Majluf's (1984) argument is that firms prefer sources of finance associated with the least information asymmetry. Private

equity such as venture capital is specifically designed to overcome the information asymmetries inherent in SME capital markets. Consistent with this proposition, we find that almost half of the survey respondents agree that venture capitalists understand their business, confirming that information asymmetries are much less of a problem between NTBFs and venture capitalists than between NTBFs and banks.

The *fourth* prediction of our HTPOH is that issuing equity sends a positive signal to lenders, investors, creditors and customers about the firm's future prospects. The information asymmetry argument at the heart of the POH manifests in listed firms as a reduction in the share price on the announcement of a new share issue, because an equity issue is often taken as a signal that shares are overvalued. Studies consistently report that announcements of public stock issues have a negative effect on the firm's stock price, while debt issues tend to have a positive effect. Supporting the HTPOH, we find that more than two-thirds of our sample founders believe that issuing equity sends a positive signal about the firm's future prospects, whereas only one-fifth believe that issuing debt sends a positive signal.

The remainder of our paper is structured as follows. In section 2, we present the development of the HTPOH, and explain its testable implications. In section 3 we discuss the sample characteristics, including summary information on age, size, research intensity and sources of finance. Section 4 presents our findings on founder perceptions of the issues relating to capital structure choice, and section 5 summarises and concludes.

2. Theoretical background and testable implications

Modigliani and Miller (1958) showed that under conditions of perfect competition without taxes, the value of the firm is independent of its capital structure, and the expected return on ordinary shares increases in direct proportion to additional debt. These propositions imply that there is no advantage or disadvantage to debt financing, and that firm value is determined by the profitability and riskiness of its real assets rather than by its capital structure. In their subsequent paper, Modigliani and Miller (1963) relaxed some of the conditions of their original model and introduced the 'imperfection' of corporate taxation. Because interest payments on debt are tax-deductible and dividends are not, the classical tax system provides a 'debt tax shield'. This benefit increases the firm's after-tax net cash flows, thus the levered firm is more valuable than the equivalent unlevered firm. The greater the marginal corporate tax rate and the higher the firm's earnings before interest and taxes (EBIT), the greater the benefit from the debt tax shield.

Modigliani and Miller (1963) concluded that capital structure does matter, and that the theoretically optimal capital structure occurs at a debt level of 100 percent. This is, of

course, inconsistent with observed reality. In an extension to Modigliani and Miller's capital structure theory, the assumption of risk-free debt is relaxed to take into account the costs of financial distress. If the costs associated with financial distress are material, a firm's 'optimal' capital structure trades off the tax advantage of debt with the likelihood of incurring financial distress. The firm's debt capacity depends on both financial distress costs and on its likelihood of becoming distressed; that is, its business risk.

The debt tax shield

The evidence relating to the value of the debt tax shield in large corporations is equivocal. Brealey and Myers (2000) summarise the literature as follows:

There is a moderate tax advantage to corporate borrowing, at least for companies that are reasonably sure that they can use the corporation tax shield. For companies that do not expect to be able to use the corporate tax shield we believe there is a moderate tax disadvantage (510).

The 'moderate tax disadvantage' applies to firms that are earning insufficient EBIT against which to claim the tax benefit. EBIT can be reduced by non-debt tax shields such as depreciation and amortisation. Highly profitable firms with few non-debt tax shields will benefit from leverage, while companies with large accumulated losses or other valuable tax shields may not benefit at all. In addition, the value of the tax shield is directly related to the marginal corporate tax rate.

A number of researchers have suggested that the debt tax shield is relatively unimportant to SMEs. Small firms tend to be less profitable than larger firms (Day, Stoll and Whaley, 1985; McConnell and Pettit, 1984; Ang 1991 and 1992; Van der Wijst, 1989; Michaelas, Chittenden and Poutziouris, 1999). Vos and Furlong (1998) found that the tax advantage of debt was particularly irrelevant in the early stages of firm development. For NTBFs, EBIT is substantially reduced by research and development expense. Expenditure on research and development is the most widely used measure of technology intensity in international statistics. By definition, therefore, technology-based firms have higher levels of research and development expense, reducing taxable income, and thereby lowering the tax benefits of debt. We examine the debt tax shield issue by asking the founders in our sample to what extent they consider tax issues in their financing decisions.

The probability of financial distress: business risk

The static tradeoff theory predicts that leverage is inversely related to business risk. Business risk is the variability of the expected future cash flows from the company's operations. High levels of business risk manifest as volatile EBIT, and such companies may find it difficult to support the large fixed interest costs that high levels of leverage involve. Empirical support for the inverse relation between optimal debt levels and

business risk in large public firms can be found in Castanias (1983) and Bradley, Jarrell and Kim (1984).

There is a widely held perception that business risk is higher for NTBFs than for SMEs in general. The products of new technology-based firms are often untried, and are commonly subject to rapid obsolescence (Cooper, 1971). The limited empirical evidence on NTBF failure rates, however, is not consistent with this intuition. In a review of research on the determinants of small firm failure, Storey (1994) found that sectoral differences in failure rates are relatively modest, and Storey and Tether (1998) reported that European NTBFs actually have lower failure rates than start-ups in other sectors. This issue clearly requires further research. A second approach to gauging business risk extrapolates from data on within-firm diversification. The less diversified the product and customer base, the greater the firm's exposure to variability in future income, and the riskier the firm. NTBFs tend to focus on developing a single product, which is often designed to meet the specific needs of one or a small number of customers (European Commission, 2000). We investigate business risk by questioning founders on their perceptions of the likelihood of their businesses failing.

Information asymmetries and the pecking order

At the heart of the POH is the asymmetry of information between the company's management and 'uninformed' outside investors. This information asymmetry implies that a new issue of stock will trigger a reduction in the stock price, because investors assume that managers will issue stock only if they perceive it to be overvalued. The POH predicts that, in order to avoid this adverse signalling problem, managers will finance projects from retained earnings where possible. Once internal sources of finance are exhausted, managers will opt for debt because debt securities are less sensitive to news than equity. Under the POH, the firm's debt-to-equity ratio depends on both its profitability and its investment opportunities. It predicts, for example, that a more profitable enterprise in a mature market will have a lower debt to equity ratio than a less profitable enterprise in the same market.

The empirical evidence regarding signalling via debt and equity is largely supportive of the POH. Studies consistently report that announcements of public stock issues have a negative effect on the firm's value, while debt issues tend to have a positive effect (Smith, 1993; and James and Weir, 1993). Several studies have shown that the POH also holds for small privately held firms (Schulman and Cooper, 1993; Cosh and Hughes, 1994; Berggren, Olofsson and Silver, 2000). Consistent with the major prediction of the POH, Van der Wijst (1989), Van der Wijst and Thurik (1993), Chittenden, Hall and Hutchinson

(1996), and Michaelas, Chittenden and Poutziouris (1999) report a negative relation between profitability and gearing amongst SMEs.²

The rationale for this pattern of financing, however, cannot be the same for SMEs as it is for large firms. The information asymmetries discussed in Myers (1984) and Myers and Majluf (1984) arise from the separation of ownership and control, and this is not a feature of most small businesses. Stanworth and Gray (1991) explain the preference for internal sources of finance in SMEs by pointing out that small firm debt markets suffer from information asymmetries that give rise to moral hazard and adverse selection. Since the repayments on debt financing are fixed, debtholders face an asymmetric payoff. They do not participate in the additional returns generated if the firm is successful, but they share in the losses if the firm fails. The owner-manager is the beneficiary if the firm is successful. In such cases, SME borrowers have an incentive to 'gamble with the bank's money' and pursue high-risk projects. Adverse selection arises if debt providers such as banks have difficulties in discriminating between 'good' and 'bad' investment projects, resulting in financing constraints for all small business. Several studies have confirmed that adverse selection is an issue for SMEs. Potential lenders experience significant problems in assessing owner-managers' capabilities (Stanworth and Gray 1991; Binks and Ennew 1994; Cosh and Hughes, 1994; Chittenden, Hall and Hutchinson, 1996; Berger and Udell, 1998; Michaelas, Chittenden and Poutziouris, 1999).

Information asymmetries in NTBFs

The evidence from several countries suggests that, as for SMEs generally, internal funds are the preferred financing source for NTBFs (Tyebjee and Bruno, 1982; Roberts, 1990 and 1991; Lumme, Kauranen, and Autio, 1994; Moore, 1994; Bank of England, 1996; Giudici and Paleari, 2000; Lindholm-Dahlstrand and Cetindamar, 2000). There is some evidence, however, that NTBFs are less likely to issue debt than other small businesses. Hyttinen and Pajarinen (2002) find a negative relation between high technology and debt; the median leverage for ICT firms in Sweden was 36 percent compared to 47 percent for non-ICT small firms. From the US and the UK there is evidence that debt is not the preferred source of outside funding at start-up (Roberts, 1990 and 1991; Moore, 1994; Brewer and Genay, 1994; Brewer et al., 1997) and on a continuing basis (Oakey, 1984, Roberts, 1990 and 1991) for NTBFs.

NTBFs face serious information asymmetries in debt markets, even relative to the general population of SMEs (Bank of England, 1996 and 2001; Berger and Udell, 1998; European Commission, 2003). High-technology investment projects are associated with greater 'technology uncertainty' than other SMEs; that is, banks do not understand high-

² Jordan, Lowe and Taylor (1998), report a positive relation between debt and profitability despite

technology businesses (Oakey, 1984; Deakins and Hussain, 1993; Bank of England, 1996; European Commission, 2001). For this reason, banks tend to avoid lending to NTBFs. A study by the European Commission (2001) made this conclusion very clear:

A significant strand of opinion within the banks is that good practice for commercial banks is simply to avoid lending to NTBFs. This is because banks are by definition slower than their clients to understand new technologies, and are therefore in no position to assess risks accurately (European Commission, 2001: 47).

Moral hazard is also a potentially serious problem in NTBFs, because monitoring research and development activity is particularly difficult for outsiders (Jordan, Lowe and Taylor, 1998). Compounding these informational problems is that NTBFs tend to lack hard assets to offer as collateral. Their assets tend to be highly firm specific and their value is dependent on co-specialised know-how. In addition, they are likely to be dominated by intangibles, which retain their value only as long as the firm is a going concern (Myers, 1977; Brealey and Myers, 2000).

Venture capitalists are best equipped to overcome these information asymmetries and moral hazard problems (Amit, Brander and Zott, 1998; Gompers and Lerner, 2003). Their ongoing relationship with the firm allows venture capitalists to closely monitor and advise managers, and by ensuring that the owner-managers' interests are aligned with their own (Sahlman, 1990), reducing moral hazard. Information asymmetries are less likely because venture capital firms usually have in-depth knowledge of markets and technologies in specific fields (Ruhnka and Young, 1991; Gupta and Sapienza, 1991; Norton and Tenenbaum, 1993; Lindholm-Dahlstrand and Cetindamar, 2000). The HTPOH has two important predictions regarding information asymmetries and signalling. *First*, NTBFs perceive greater information asymmetries in debt markets than in venture capital markets. *Second*, the issue of equity sends a positive signal about the future of the firm to other providers of finance, and to potential customers and clients. We address these issues by posing statements to sample firm founders on their perceptions of information asymmetries in debt and venture capital markets, and on signalling issues.

3. Data and sample characteristics

The software sector is sub-divided into 'products' and 'services'. Software products refer to packaged software that is generally produced in large volumes for mass markets,³ while software services include consulting, implementation, support services, operations management and training. We define software product firms as those that are primarily involved in the development and commercialisation of their own products. The population of software product firms was identified using a wide variety of information sources,

finding strong support for the POH elsewhere in their model.

including lists provided by the Irish Software Association and the National Informatics Directorate, lists of occupants of innovation parks, lists of participants in a national technology entrepreneurship award program, and firms cited in specialist journals. At the end of 2001 there were 257 indigenous software product SMEs in Ireland.

We based our survey design on self-administered questionnaires using the tailored design method (Dillman, 1976 and 2000). The survey was administered by mail and addressed to named CEOs or Managing Directors. A covering letter requested that the surveys be completed by the founder, or by the lead founder if the company had been founded by a team. Respondents were given the choice of completing either a paper or web-based questionnaire. The first follow-up contact was also by mail, and the second by telephone. The final contact was via e-mail, and it contained a hyperlink to the electronic version of the questionnaire. Completed questionnaires were received during April and May 2002. The number of valid returns was 117, giving an impressive response rate of just under 46 percent.⁴

Table 1 summarises the data on company age. Panel A shows that the youngest firm is 5 months old and the oldest is 27 years. The average age is just under 6 years (5 years and 10 months), and the median age is 4¼ years. The table also reports the number of firms in 6 age categories in Panel B. As seen in column [3], 59 percent of firms in the sample are less than 5 years established, and 81 percent were less than 10 years old. Twenty-two firms (almost 18 percent) are over 10 years old, and of this group, 5 are more than 15 years old.

Table 2 summarises the data on firm size. We use two measures of size: employment and sales. Panel A shows employment numbers at start-up and at the time of the survey. We use the European Union (ENSR, 1995) classification system for SME size by employment. In 2002, the sample firms employed a total of 3,005 people, giving an average 26 employees per firm. At start-up 80 percent of firms were in the 'micro' employment size class, with less than 10 employees. One-fifth of these had no employees. When comparing start-up employee numbers to those of 2002, it is clear that most companies have experienced growth. The number of firms with less than 10 employees fell from 80 percent to 37 percent of the sample, and of these only 4 percent had no employees. A small proportion grew substantially; 15 percent were classified as 'medium' – that is, greater than 50 employees – by 2002. This is consistent with Storey's (1994) hypothesis that only a small proportion of start-ups grow to become significant players. Turnover figures for 2001 are presented in Panel B of Table 2. Most respondent firms are relatively

³ This can be distinguished from 'bespoke' software, which is provided on a client-by-client basis.

⁴ Response rates of 10 percent and less are commonly reported in small business mail surveys (Curran and Blackburn, 2001).

small when size is measured by sales. Almost one-third turned over less than €127,000, and more than half had sales less than €635,000. Twenty-nine percent of firms had a turnover of greater than €1,270,000, and only 10 percent had a turnover of greater than €3,810,000.

Table 3 shows the proportion of the workforce engaged in research and development on a full-time basis,⁵ and highlights the high level of research and development activity undertaken by the indigenous software sector. Most of the sample firms (80 percent) have full-time employees engaged full-time in research and development. In one-third of cases, research and development staff comprise more than half of their staff.

Table 4 provides summary information on the sources of finance used to support current investment projects for the 96 firms in the sample that provided detailed funding information. These average figures for the full sample show a 50/50 divide between internal and external sources. A mere 4 percent of financing is sourced from banks, and the remaining outside finance (46 percent of the total financing requirement) is private equity and government grants. External sources of finance are more important for firms in the range 2 to 10 years old, but are less in evidence for firms 10 years old or more. Retained earnings increase in importance for the older firms (10 years plus), for which it provides nearly half of financing requirements. Retained profits appear to replace outside finance, which comprises an average of only a quarter of the funding for these more established firms.

It is clear that the NTBFs in our sample are primarily self-financing at start-up; 73 percent of financing for the 12 firms aged less than 2 years is sourced internally. Most of this funding is from the personal savings of the founders (43 percent of the total), but a substantial component is provided by cash flows from consulting services (27 percent of total funding). These findings are largely consistent with prior research on capital structure in NTBFs. In the US, Roberts (1991) found that bank finance did not feature at all as a funding source for high-technology start-ups, and private outside equity comprised 21 percent of total funding. However, the proportion of private equity in Irish software firms, at 39 percent, is much higher than for UK-based NTBFs reported by Moore (1994), who found that venture capitalists provide only 10 percent of funding. The relative unimportance of bank loans amongst the older firms is consistent with the findings of Oakey (1984) that bank debt as a source of ongoing funding for NTBFs is negligible.

⁵ The definition of research and development that we use is that of the Irish industrial policy organisation Forfas (1995). Research and development covers three activities: basic research, applied research and experimental development.

4. Results

The debt tax shield

Our survey addressed the question of the importance of the debt tax shield by asking founders the extent to which they consider the difference in the tax treatment of retained earnings, interest and capital gains for shareholders when making financing decisions. Table 5 shows that, consistent with the first prediction arising from the HTPOH, tax issues are clearly not a critical factor. Only 19 percent considered tax issues to be important in the financing decision, and for 35 percent the issue was not important at all. This may be explained by the high research and development expenses that software firms face. As shown in Table 3, in almost two-thirds of the sample firms more than a quarter of employees are engaged in research and development. The expense involved in supporting such a strong commitment to research and development implies that the sample firms would have ample non-debt tax shields. An alternative (but not mutually exclusive) explanation may be found in two unusual features of the Irish tax system. For some time Ireland has operated a low corporate tax regime in order to encourage foreign direct investment. Exporting firms in the manufacturing and services sectors have attracted a 12 percent corporate tax rate since the 1970s, and in 1995 the government made a commitment to progressively extend this tax rate to all sectors by 2005. In addition, Ireland has a dividend imputation system, which eliminates the classical tax system's double taxation of dividends. Dividend imputation thus reduces the relative attractiveness of debt.

Business risk

Table 6 presents our findings on founders' perceptions of business risk. Consistent with the second implication of the HTPOH, the founders perceive a very high level of business risk. In April/May 2002 respondents were quite pessimistic about the probability of survival of their businesses. Fifty-two percent believed that, even with adequate financing, the company had a 50 percent chance of failing, while only 35 percent disagreed with the statement. The measure attempts to capture the probability of failure resulting from the firm's inability to generate revenues from its trading activities, abstracting from financial risk. Any difficulty raising either short or long term funding would increase the perceived likelihood of failure. The perceived probability of failure tends to decline with age. Figure 1 delineates the responses reported in Table 6 by age, and shows the proportion at each age that responded both positively and negatively to the question "even with adequate finance, the company has a 50% chance of failing". The results for firms aged 1, 2, 3, 4

and 5 years are depicted separately,⁶ and the remaining firms have been combined into 2 age range groups: 6 to 10 years and greater than 10 years.

Founders' perceptions of business failure are highest amongst 2-year-old firms, in which 70 percent of respondents agreed with the statement. This appears to decline for firms aged 3, 4 and 5 years. The founders of 5-year-old firms were the most optimistic about their prospects for survival: only 28 percent believed that the business had a 50 percent chance of failure, which is much lower than the 52 percent for the whole sample. A surprising finding is that founders of older businesses in the sample were rather pessimistic about survival. Forty-seven percent of the founders of firms that had been established for more than 10 years believed that their businesses had a 50 percent chance of failure even with adequate financing.

Information asymmetries

Table 7 reports founders' perceptions of the bank-client relationship. Supporting the third prediction arising from the HTPOH, the extent to which founders perceive that banks understand their business shows strong evidence of severe information asymmetries in the market for bank finance. Fifty-eight percent of founders do not agree that banks understand their business, whereas in only 9 percent of cases founders believe that banks understand them (row [1]). This is consistent with findings from the Bank of England (1996), which found that few NTBF firms believed that banks understood their products or markets. If bank managers are unable to assess the technological basis for investment proposals, then information asymmetries will be severe and adverse selection will restrict the flow of debt funds to the technology sector.

The perceived lack of understanding on the part of bankers is reflected in founders' perception of the willingness of banks to lend to small private software firms. Row [2] in Table 7 shows that only 18 percent of founders believe that banks would be willing to provide long-term loans to their companies, whereas 53 percent disagree with the statement. This is low compared to the manufacturing sector in Ireland, where 41 percent of small firm founders believed they would not encounter difficulties in obtaining long-term bank loans (Chapman Flood Mazars, 2001).

Banks rely on collateral in order to mitigate against adverse selection (Stiglitz and Weiss, 1981). But the assets of NTBFs, particularly in the software sector, tend to be intangible and based on scientific knowledge and intellectual property. The findings on this issue

⁶ This is potentially the most interesting group as research indicates that younger firms have a much higher probability of failure. Ganguly (1985), for example, found that 55 to 60 percent of all businesses registering for VAT in the UK deregistered within 10 years, and 60 percent of deregistrations occurred in the first three years.

(row [3] of Table 6) show that 77.5 percent of founders believe that banks lend money to companies with fixed assets and/or cash. The founders' perceptions of bank-client lending conditions are consistent with the existence of high levels of information asymmetries. This is consistent with Myers' (1977) prediction that firms whose assets are dominated by intangibles such as growth options and/or research and development assets will find it difficult to obtain bank finance.

Prior research suggests that over time, information asymmetries in debt markets diminish as firms forge a relationship with their bankers, precipitated by increased information flows (Binks and Ennew, 1996; Ennew and Binks, 1997; Petersen and Rajan, 1994 and 1997). The responses by age to the series of questions on the willingness of banks to lend are presented in Table 8. In general, founders' perceptions of information asymmetries in debt markets diminish with age. None of the founders of firms less than one year old (column [B]) agree that banks understand their businesses, nor do any of them agree that banks are prepared to lend to them on a long-term basis. All agree that banks provide loans to firms with collateral. The proportion of founders that agree that banks understand their businesses clearly rises with firm age, to a still relatively low 20 percent amongst the oldest firms (column [E]). A similar pattern occurs for the perceptions regarding the willingness of banks to advance long-term loans; the proportion of founders agreeing rises from 0 for the youngest firms to 35 percent amongst founders of firms greater than 10 years old. In relation to perceptions on collateral, the figures are similarly in agreement that banks only lend to firms with fixed assets, except for the rather unusual finding that firms in the two to five year age band (column [C]) have the lowest agreement count.

The survey respondents have a more positive perception of venture capital than bank finance, as shown in Table 9. One-fifth of software firm founders do not believe that venture capitalists understand their businesses (row [1]), which is a much lower count for the equivalent statement relating to banking markets. In contrast, nearly half believe that venture capitalists understand their businesses. Irish software firm founders appear to have a more positive perception of the venture capital industry than their high-technology counterparts in the UK. The majority of NTBF founders in the UK believed that neither banks nor venture capitalists understood the technology involved in their products (Bank of England, 1996).

Row [2] in Table 9 reports the views of respondents on the willingness of venture capitalists to invest in companies with cash/fixed assets. The perception in general is that, unlike for banks, the presence of fixed assets is not a prerequisite for venture capitalist involvement. Only a small minority of founders (18 percent) believe that venture capitalists invest in firms with fixed assets, while the remainder have no opinion (34 percent) or disagree with the statement (48 percent).

Signalling

Table 10 shows that 70 percent of the founders believe that issuing equity sends a positive signal to external investors about the firm's future prospects. In contrast, only 21 percent believe that issuing debt sends a favourable signal, and a substantial 50 percent disagree that raising debt conveys a positive signal. The fact that founders understand the signalling value of equity investments demonstrates their positive attitude towards its use as a source of funding. Our contrasting findings on the perceptions of debt versus equity market asymmetries and signalling provides very strong support for the HTPOH prediction that NTBFs perceive greater asymmetries in bank relationships than in equity markets. These findings are consistent with the spirit of Myers' (1984) and Myers and Majluf's (1984) hypothesis that firms prefer to obtain external finance from sources associated with the least information asymmetry – in the case of NTBFs, equity rather than debt.

5. Summary and conclusions

In this paper we examine the capital structure of 117 private Irish software product firms. Consistent with a rather limited body of prior research on NTBF capital structure, we find that financing is split 50/50 between internal and external sources. Contrary to the pecking order hypothesis of Myers (1984) and Myers and Majluf (1984), external equity comprises an average 38 percent, and debt only 4 percent, of total financing requirements. We propose the high technology pecking order hypothesis (HTPOH) to explain the observed capital structure in NTBFs. The HTPOH suggests that outside equity is preferred to debt because NTBFs experience fewer information asymmetries in private equity markets relative to bank markets. We argue that the HTPOH is consistent with the spirit of Myers' (1984) and Myers and Majluf (1984) theory of capital structure because they argue that firms will prefer sources of finance associated with the lowest level of information asymmetry. For NTBFs, this source is private equity such as venture capital. Venture capital finance is designed to overcome many of the information asymmetry problems that small businesses face in debt markets. Two further predictions of the HTPOH, drawn from the static tradeoff theory of capital structure, are that technology firms have high business risk and low tax benefits of debt.

We test these predictions by questioning founders via survey about their perceptions and opinions of information asymmetry and signalling in debt and private equity markets, and of the tax benefits of debt and the likelihood that their firms will fail. We find that the founders of software product firms perceive information asymmetries in debt markets, but to a much lesser extent in private equity markets. Also consistent with the HTPOH, founders overwhelmingly believe that issuing equity sends a positive signal to clients, suppliers and potential financiers, whereas most believe raising debt sends a negative signal. Our findings confirm that very few founders consider tax issues in their financing

decisions. This may be because they have substantial debt tax shields in the form of research and development expenditure, but it could also reflect the fact that Ireland's low corporate tax rate and dividend imputation system diminishes the value of the debt tax shield. Finally, consistent with the HTPOH, we find that the founders perceive very high levels of business risk as reflected in their perceptions of the probability of survival of their firms. This finding tallies with the widely held perception that high technology firms are very risky, but not with the rather counterintuitive (and somewhat scarce) evidence that NTBFs have lower risk than SMEs in general. However, it is possible that the widespread trepidation of founders reflects unusual conditions in the software sector at the time of the survey. In the second quarter of 2002, software firms were experiencing a revenue squeeze following the technology stock bust in 2000-2001, as client firms reigned in their computing budgets. The indigenous software sector experienced a reduction in revenue during the period 2002-2003 for the first time in its history, of 11 percent. This followed a period of sluggish growth of only 2 percent in 2001-2002, in a sector that had become accustomed to annual growth rates of more than 10 percent during the 1990s (National Software Directorate, 2004).

In conclusion, our work sheds light on a facet of NTBF decision-making that has received very little prior academic attention. NTBF owner-managers have a good understanding of the effect of information asymmetries in equity and debt markets, and this appears to inform their choice of financing. Future research could usefully further refine and test the HTPOH on NTBFs in other high technology sectors, and on listed technology firms. Our findings have important policy implications. Equity is clearly the preferred funding choice for founders in new technology-based industries. Ireland has well-developed venture capital and informal equity markets.⁷ In the absence of effective and efficient markets for private and venture capital, NTBFs will face severe funding constraints. The European Commission (1999) concluded that, in comparison with the US, the lack of a well-developed risk capital market is the key obstacle to the development of innovative firms in Europe. The clear message to policymakers is that new technology-based industries are funded by equity and not by debt. Governments that support formal venture capital markets and informal investment markets will be facilitating increased participation in the development and commercialisation of knowledge-based, high-potential business ideas.

⁷ According to the Global Entrepreneurship Monitor (GEM) (2002), Ireland's venture capital investment is on par with the world average at 0.1 percent of GDP.

References

- Amit, R., J. Brander and C. Zott, 1998, Why do venture capital firms exist? Theory and Canadian evidence, *Journal of Business Venturing* 13, 441-446.
- Ang, J. S., 1991, Small business uniqueness and the theory of financial management *Journal of Small Business Finance* 1(1), 1-13.
- Ang, J. S., 1992, On the theory of financing for privately held firms, *Journal of Small Business Finance* 1(3), 185-203.
- Bank of England, 1996, *The financing of technology-based small firms*, London.
- Bank of England, 2001, *Financing of technology-based small firms*, Domestic Finance Division, London.
- Berger, A. N. and G.F. Udell, 1998, The economics of small business finance: the role of private equity and debt markets in the finance growth cycle, *Journal of Banking and Finance* 22(6-8), 613-673.
- Berggren, B., C. Olofsson, and L. Silver, 2000, Control aversion and the search for external financing in Swedish SMEs, *Small Business Economics* 15(3), 233-42.
- Binks, M. and C. Ennew, 1994, The provision of finance to small businesses: Does the banking relationship constrain performance? *Journal of Small Business Finance* 4(1), 57-73.
- Binks, M. and C. Ennew, 1996, Growing firms and the credit constraint, *Small Business Economics* 8, 17-25.
- Bradley, M., G.A. Jarrell and E.H. Kim, 1984, On the existence of optimal capital structure: theory and evidence, *Journal of Finance* 39(3), 857-878.
- Brealey, R.A. and S.C. Myers, 2000, *Principles of corporate finance 6th edition*, McGraw Hill.
- Brewer, E. and H. Genay, 1994, Funding small business through the SBIC program, *Federal Reserve Bank of Chicago Economic Perspectives* 18, 22-34.
- Brewer, E., H. Genay, W.E. Jackson and P.R. Worthington, 1997, The securities issue decision: Evidence from small business investment companies, Working Paper, Federal Reserve Bank of Chicago.
- Castanias, R. (1983) Bankruptcy risk and optimal capital structure, *Journal of Finance* 38(5), 1617-1635.
- Chapman Flood Mazars, 1998, *The financing needs of small business*, Report commissioned by the Department of Enterprise, Trade and Employment. Chapman Flood Mazars, Dublin.
- Chittenden, F., G. Hall and P. Hutchinson, 1996, Small firm growth, access to capital markets and financial structure: Review of issues and an empirical investigation, *Small Business Economics* 8(1), 59-67.
- Cooper, A. C., 1971, *The Founding of Technology-Based Firms*, Milwaukee, Wisconsin, Centre for Venture Management CVM.
- Cosh, A. and A. Hughes, 1994, Size, financial structure and profitability: UK companies in the 1980s, in A. Hughes and D. J. Storey (eds), *Finance and the small firm*, Routledge, London.

- Curran, J. and R.A. Blackburn, 2001, *Researching the small enterprise* (Sage, London).
- Day, T. E., H.R. Stoll, and R.E. Whaley, 1983, *Taxes, financial policy and small business.*, Lexington Books, Lexington, Mass.
- Deakins, D. and G. Hussain, 1993, Overcoming the adverse selection problem: evidence and policy implications from a study of bank managers on the importance of different criteria used in making a lending decision, in Chittenden, F., M. Robertson and D. Watkins, (eds), *Small firms: recession and recovery*, Paul Chapman, London.
- Dillman, D., 1976, *Mail and telephone surveys*, John Wiley and Sons, New York.
- Dillman, D., 2000, *Mail and Internet Surveys, 2nd edition*, John Wiley and Sons, New York.
- Ennew, C.T. and M.R. Binks, 1997, Information asymmetries, the banking relationship and the implications for growth, *Frontiers of Entrepreneurship Research*, Babson-Kauffman Entrepreneurship Research Conference, Mass.
- European Network for SME Research (ENSR), 1995, *The European Observatory for SMEs*, prepared by the ENSR, EIM, Zoetermeer, Netherlands.
- European Commission, 1999, Risk capital markets: a key to job creation in Europe, from fragmentation to integration, Report prepared by Delphine Sallard, Directorate General II, Economic and Financial Affairs, Euro Papers no. 32.
- European Commission, 2000, Economic Growth in the EU: Is a "New" Pattern emerging? Chapter 3, *European Economy 2000 Review*.
- European Commission, 2001, Innovation management: Building competitive skills in SMEs, *Innovation Papers*, No. 8, Office for Official Publications of the European Communities, Luxembourg.
- European Commission, 2003, *Green Paper on Entrepreneurship in Europe*, Office for Official Publications of the European Communities, Luxembourg.
- GEM, 2002, Executive Report, Joint publication of the Ewing Marion Kauffman Foundation, Babson College and London Business School { HYPERLINK "http://www.gemconsortium.org" }.
- Giudici, G. and S. Paleari, 2000, The provision of finance to innovation; A survey conducted among Italian technology-based small firms, *Journal of Small Business Economics* 14(1), 37-53.
- Ganguly, P., 1985, *UK small business statistics and international comparisons*. Harper Row, London.
- Gompers, P. and J. Lerner, 2003, Equity financing, in Z.J. Acs and D.B. Audretsch (eds), *Handbook of Entrepreneurship Research*, Kluwer Academic Publishers.
- Gupta and Sapienza, 1991, Determinants of venture capital firms' preference of in term of industry and geographical scope of their investment, *Journal of Business Venturing* 7 347-362.
- Hyytinen A. and M. Pajarinen, 2002. Financing of technology intensive small business: Some evidence from the ICT industry, The Research Institute of the Finnish Economy Discussion paper No. 813.
- James. C. and P. Weir, 1993, Are banks different: Some evidence from the stock market. In D.H. Chew (ed) *The New Corporate Finance: Where Theory Meets Practice*, McGraw-Hill, New York.

Jordan, J., J. Lowe and P. Taylor, 1998, Strategy and financial policy in UK small firms, *Journal of Business Finance and Accounting*, 25(1 & 2), 1-27

Little, A. D., 1977, *New technology-based firms in the United Kingdom and the Federal Republic of Germany* (Wilton House, London).

Lindholm-Dahlstrand, A. and Cetindamar, 2000, The dynamics of innovation financing in Sweden, *Venture Capital* 2(3), 203-221.

Lumme, A., I. Kauranen, and E. Autio, 1994, The growth and funding mechanism of new technology-based firms: A comparative study between the United Kingdom and Finland in R. Oakey (ed), *New technology-based firms in the 1990s* (Paul Chapman, London).

McConnell, J. J. and R.R. Pettit, 1984, Applications of the Modern Theory of Finance to Small Business Firms, in P. M. Horvitz and R. R. Pettit (eds.) *Small Business Finance*, Volume 1, JAI Press, Greenwich, Connecticut.

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

Modigliani, F. and M. Miller, 1958, The cost of capital, corporation finance and the theory of investment, *American Economic Review* 48(3), 261-297.

Modigliani, F. and M. Miller, 1963, Corporate income taxes and the cost of capital: a correction, *American Economic Review* 53(3), 433-443.

Moore, B., 1994, Financial constraints to the growth and development of small high technology firms in A. Hughes and D.J. Storey (eds), *Finance and the small firm*, Routledge, London.

Myers, S.C., 1977, Determinants of corporate borrowing, *Journal of Financial Economics* 5, 146-175.

Myers, S.C., 1984, The Capital Structure Puzzle, *Journal of Finance* 39(3), 575-592.

Myers, S.C. and N.S. Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13(2), 187-221.

National Informatics Directorate, 2001, (formerly the National Software Directorate) Irish software industry survey 2000, National Software Directorate, Forbairt, Dublin

National Informatics Directorate, 2004, { [HYPERLINK "http://www.nsd.ie"](http://www.nsd.ie) }.

Norton, E. and B.H. Tenenbaum, 1993, Factors affecting the structure of venture capital deals, *Journal of Small Business Management* 30(1), 20-30.

Petersen, M.A. and R.G. Rajan, 1994, The benefits of lending relationships: Evidence from Small Business Data, *Journal of Finance* 49, 3-38.

Petersen, M.A. and R.G. Rajan, 1997, Trade credit: Theories and evidence, *Review of Financial Studies* 10, 407-442.

Oakey, R. P., 1984, *High technology small firms*, Frances Pinter, London.

Roberts, E. B., 1990, Initial capital for new technological enterprise, *IEEE Transactions on Engineering Management* 37(2): 81-93.

Roberts, E. B., 1991, *Entrepreneurs in high technology; lessons from MIT and beyond*, Oxford University Press.

Ruhnka, J. C., and J.E. Young, 1991, Some hypotheses about risk in venture capital investing, *Journal of Business Venturing* 6, 115-133.

Sahlman, W. A. 1990, The structure and governance of venture capital organisations. *Journal of Financial Economics*, 27: 473-521.

Schulman and Cooper, 1993, Capital structure life cycle: static or dynamic evolution? in *Proceedings of the International Conference on Establishment Surveys; Survey Methods for Businesses, Farms, and Institutions* June 27-30, Buffalo, New York, American Statistical Association.

Smith, C. 1993, Raising capital: Evidence and theory, in D.H. Chew (ed.) *The New Corporate Finance: Where Theory Meets Practice*, McGraw-Hill, New York.

Stanworth, J. and C. Gray, 1991, Bolton twenty years on: The small firm in the 1990s, Chapman, on behalf of the Small Business Research Trust, London.

Stiglitz, J.E. and A. Weiss, 1981, Credit rationing in markets with imperfect information, *American Economic Review* 71(3), 383-410.

Storey, D. J., 1994, *Understanding the small business sector*, Routledge, London.

Storey, D. J. and B.S. Tether, New technology based firms in the European Union: an introduction, *Research Policy* 26 (9), 933-946.

Tyebjee, T. T., and A.V. Bruno, 1981, Venture capital decision making: preliminary results from three empirical studies, in K. H Vesper (ed.), *Frontiers of Entrepreneurship Research*, Babson-Kauffman Entrepreneurship Research Conference, Mass.

Van de Wijst, D. 1989, *Financial structure in small business: theory, tests and applications*. Springer-Verlag, Berlin.

Van der Wijst, N. and R. Thurik, 1993, Determinants of Small Firm Debt Ratios: An Analysis of Retail Panel Data, *Small Business Economics* 5(1), 55-65.

Vos, E. and C. Furlong, 1995, The agency advantage of debt over the lifecycle of the firm, *Entrepreneurial and Small Business Finance* 5(3), 193-211.

Table 1
Age characteristics of the sample firms

Panel A: average age (months)

Mean	70
Median	51
Minimum	5
Maximum	324

Panel B: number of firms by age

	[1] Number of firms	[2] Proportion of sample (%)	[3] Proportion of sample cumulative (%)
< 1 year	2	1.7	1.7
1 – 2 years	13	11.1	12.8
2 - 3 years	29	24.8	37.6
3 - 5 years	25	21.4	59.0
5 - 10 years	26	22.2	81.2
> 10 years	22	18.8	100.0
Total	{ =SUM (ABO VE) }	{ =SUM(above) }	

Table 2 Size characteristics of the sample firms

Panel A: employment at start-up and in 2002					
Size class	Employees	Start-up		2002	
		Number	%	Number	%
Micro	0	24	21	5	4
	1 - 9	68	59	38	33
Small	10 - 49	22	19	55	48
Medium	50 - 99	1	1	11	10
	100 - 249	0	0	6	5
Total		{ =SUM(A BOVE) }	100	{ =SUM(ab ove) }	{ =SU M(ab ove) }

Panel B: turnover in 2001			
	Number	%	Cumulative %
Pre-revenue	22	19.3	19.3
< €127,000	13	11.4	30.7
€127,000 - €316,999	7	6.1	36.8
€317,000 - €634,999	22	19.3	56.1
€635,000 - €1,269,999	17	14.9	71.0
€1,270,000 - €3,809,999	22	19.3	90.3
€3,810,000 - €6,349,999	5	4.4	94.7
€6,350,000 - €12,699,999	2	1.8	96.6
€12,700,000 +	4	3.5	100.0
Total	{ =SUM(A	{ =SUM	

Notes. Turnover figures were requested in Irish punts, as euro notes and coins were not introduced until 2002, but report our findings in euro only. We requested sales information in the following bands: pre-revenue, < €100,000, €100,000 – €249,000, €250,000 - €499,999, €500,000 - €999,999, €1,000,000 - € 2,999,000, €3,000,000 - €4,999,999, €5,000,000 - €9,999,999, and more than €10,000,000. Five firms did not report the month of formation, so we assumed they were founded in the middle of the reported year and assigned them a monthly value of 6. Only 2 firms fell outside Little's (1977) age limit criterion for NTBFs, but these firms were included as they met Little's other criteria.

Table 3
 Research and development intensity: proportion of employees engaged in research and development on a full-time basis

Percentage of employees involved in R&D on a full-time basis	Number of firms	%
zero	22	19.1
1 - 24	23	20.1
25 - 49	33	28.7
50 - 74	22	19.1
75 - 100	15	13.0
Total	{ =SUM(ABOVE) }	{ =SUM(above) }

Table 4
Sources of finance in different age categories

Age Band (years)	Number of firms	Internal Sources of Financing %				External Sources of Financing %				
		Savings	Consulting revenues	Retained profits	Total internal	Bank loans	Venture capital	Private investors	Govt. grants	Total external
1-2	12	43.0	27.0	2.5	72.5	0.0	13.0	10.0	4.5	27.5
2-3	26	12.0	8.0	8.0	28.0	2.0	42.0	19.0	9.0	72.0
3-5	20	8.0	20.0	8.5	36.5	5.0	33.0	18.0	7.5	63.5
5-10	20	9.5	28.0	18.0	55.5	6.5	28.0	3.0	7.0	44.5
10 +	18	10.0	20.0	46.0	76.0	5.0	11.0	5.0	3.0	24.0
Total	96	14.0	19.0	17.0	50.0	4.0	28.0	11.0	7.0	50.0

Notes. This table reports the averages for each source of finance, as a percentage of total financing, for the 96 firms that provided financing information.

Table 5
The impact of taxation on the financing decision

	Not at all (%)	46.1	To a large extent (%)
Consider the difference in the tax treatment of retained earnings, interest and capital gains for shareholders	34.8	46.1	19.1

Table 6
Founders' perception of the risk of firm failure

	Agree (%)	Neither agree nor disagree (%)	Disagree (%)
Even with adequate finance, the company has a 50% chance of failing (n = 116)	51.7	12.9	35.3

Figure 1 Founders' perception of risk of failure in different age categories

"Even with adequate finance, the company has a 50% chance of failing"

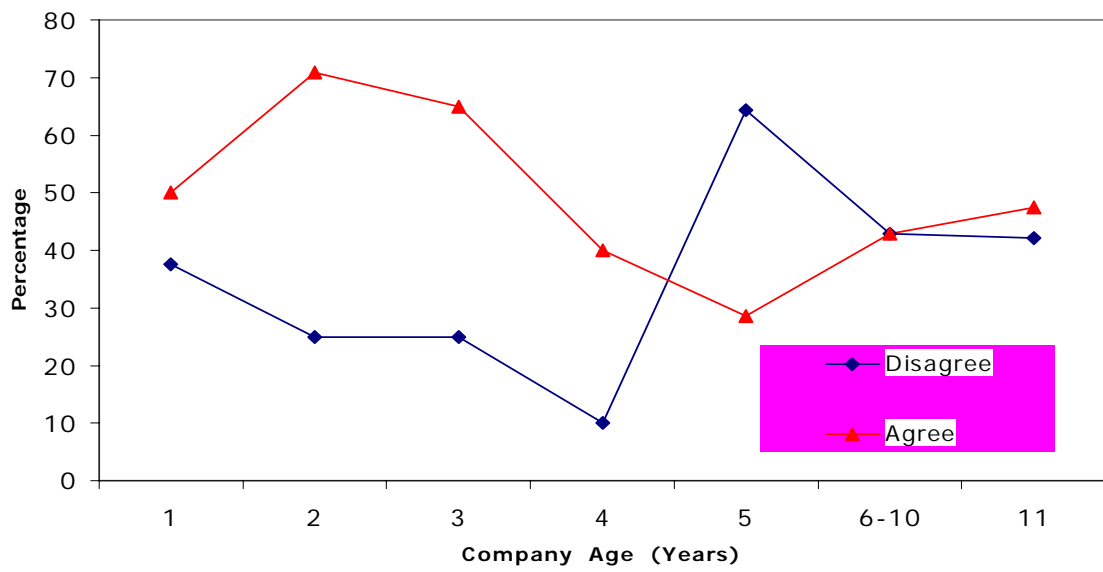


Table 7
Founders' perceptions of bank finance

	Agree (%)	Neither agree nor disagree (%)	Disagree (%)
[1] Banks understand my business (n = 117)	9.4	32.5	58.1
[2] Banks are willing to provide a long-term loan to my company (n=115)	18.3	28.7	53
[3] Banks lend money to companies with cash/fixed assets (n = 116)	77.5	18.0	4.5

Table 8
Founders' perceptions of bank finance across age categories

[A]	proportion of founders that either agreed or agreed strongly with the statements in column [A]									
	[B]		[C]		[D]		[E]		[F]	
	< 1 year		2-5 yrs		6-10 yrs		> 10 yrs		Survey average	
	No.	%	No.	%	No.	%	No.	%	No.	%
[1] Banks understand my business (n = 117)	0	0	5	7	2	10	4	20	11	9
[2] Banks are willing to provide a long-term loan to my company (n=115)	0	0	8	12	6	27	7	35	21	18
[3] Banks lend money to companies with cash/fixed assets (n = 116)	8	100	44	69	17	85	17	89	86	78

Table 9
Comparison of founders' perceptions of venture capital finance

	Agree (%)	Neither agree nor disagree (%)	Disagree (%)
[1] Venture capitalists understand my business (n=116)	49.1	31.0	19.9
[2] Venture capitalists invest in companies with cash/fixed assets (n=109)	18.4	33.9	47.7

Table 10
Founders' opinions on signalling the value of debt and equity

	Not at all (%)	To some extent (%)	To a large extent (%)
[1] Raising debt sends a favourable signal to lenders, investors, creditors and customers about the firm's future prospects (n = 114)	50.0	28.9	21.1
[2] Raising external equity sends a favourable signal to lenders, investors, creditors and customers about the firm's future prospects (n = 115)	8.7	21.7	69.6