

# The Impact of the Financial Crisis on the Financing and Growth of Technology- Based Small Firms in the United Kingdom

---

## **ISBE RAKE FUND**

Farid Ullah, The Robert Gordon University

David North, Middlesex University

Robert Baldock, Middlesex University

<sup>1</sup> The authors are grateful for the financial support of the Institute for Small Business and Entrepreneurship (ISBE) Research and Knowledge Exchange (RAKE) initiative sponsored by the Barclays Bank, National Council for Graduate Entrepreneurship (NCGE), Economic and Social Research Council (ESRC) and Department for Business Innovation and Skills (BIS). The views presented here and any errors and omissions are the responsibility of the authors.

## Executive Summary

This report presents some recent UK research, funded under ISBE's Research and Knowledge Exchange (RAKE) initiative, to assess the impact of the financial crisis on the financing and growth of Technology-Based Small Firms (TBSFs). Key findings of the research, which involved a survey of 100 TBSFs and 20 interviews with finance providers, are that:

- Two thirds of TBSFs were growth seeking over the last three years and around half of them achieved growth, despite the economic downturn. A third faced demand constraints and more intense competition, but were able to respond through a combination of new product development, marketing strategies, and cost saving.
- TBSFs continued to have a strong demand for finance over the last three years, with two thirds seeking finance from at least one formal external source, and just over half being at least partially successful and taking up the finance offered.
- Obtaining both debt and equity finance did become more difficult for TBSFs in the 2007-2010 period and that this particularly affected younger TBSFs and those more established TBSFs in the early stages of the product innovation cycle.
- Younger TBSFs and spinouts were twice as likely to report concerns about the availability of finance compared to their more established counterparts. Established TBSFs were particularly concerned about the implications of banks reducing their exposure to debt by reducing overdraft financing and switching to more expensive forms of funding (i.e. term loans and invoice financing).
- There is some evidence of (i) TBSFs being *discouraged* from applying for debt finance from the banks and of owner-managers turning down loans because they find the terms and conditions (relating to arrangement fees, interest rates, and personal guarantees) unacceptable.; (ii) *equity aversion*, particularly amongst younger TBSFs where early stage funding requires a higher share of equity than entrepreneurs are prepared to give.
- Grant based funding has been an important secondary source of finance for TBSFs, particularly those that are R&D intensive, but businesses have concerns about the future of this funding given the abolition of the Regional Development Agencies (RDAs) and uncertainties about the future role of the national Technology Strategy Board (TSB).
- Half of the surveyed TBSFs think they will require formal external finance over the next three years to develop the business. Two thirds of those identifying a future external finance requirement expressed concerns about the likelihood of being able to secure the level of funds that they would require and on terms that they would find acceptable.
- A higher proportion of TBSFs appear to be thinking of sourcing their future finance needs from business angels and VC funds than from banks, indicating a growing acceptance of this type of risk capital. However, there were concerns about the short-term views of UK VC investors as well as the growing equity gap between the maximum size of investments from business angels and the minimum size from VC funds.
- There is a large measure of agreement between TBSF owner-managers and investors that government has a key role to play to fill the gap by continuing with initiatives such as the EIS, seed grant funds, early stage risk funding schemes, and via support for angel networks and investor readiness programmes.

| S/No | Contents   | Page No |
|------|--|---------|
| 1    | Executive Summary  | 2       |
| 2    | Contents   | 3       |
| 3    | Section 1: Introduction  | 4       |
| 4    | Section 2: Context   | 4       |
| 5    | Section 3: Methodology   | 5       |
| 6    | Section 4: Demand-side perspectives<br>4.1 Growth orientation<br>4.2 Constraints on growth<br>4.3 Access to finance 2007-2010<br>4.4 Experience of applying for debt finance<br>4.5 Experience of applying for equity and venture capital finance<br>4.6 Impact of financial constraints on the business<br>4.7 Future financial needs | 8       |
| 7    | Section 5: Supply-side perspectives<br>5.1 Demand for funds<br>5.2 Investment criteria<br>5.3 Public support<br>5.4 Networking<br>5.5 Future outlook   | 12      |
| 8    | Section 6: Conclusions   | 15      |
| 9    | References   | 17      |
| 10   | Appendices:<br>Appendix 1: Research dissemination<br>Appendix 2: High Technology Small Firms conference paper (9 <sup>th</sup> - 10 <sup>th</sup> June 2011)<br>Appendix 3: TBSFs telephone interview questionnaire<br>Appendix 4: TBSFs investors interview questionnaire   | 19      |

## 1. Introduction

This report summarises the findings of research on the impact of the recent financial crisis on the financing and growth of Technology-Based Small Firms (TBSFs) which was funded under the first round of ISBE's Research and Knowledge Exchange (RAKE) initiative. The overall aim of the research was to explore the impact that the financial crisis has had and continues to have on TBSFs in two broad sectors: the electronics/IT sector and the bio/life sciences sector. More specifically, from a demand-side perspective, the research aimed to investigate the extent to which the financial needs of both new and early stage enterprises and more established enterprises have been met over the 2007-10 period and how this has affected their ability to contribute to the economic recovery. This included a comparison between spin out and non-spin out TBSFs as well as between enterprises in different sectors. And from the supply-side perspective, the research aimed to investigate the effect of the financial crisis on the attitudes and behaviour of different finance providers including private investors, VC funds, and commercial banks towards TBSFs. A key underlying question is the extent to which the ability of both young and more established TBSFs to contribute to the economic recovery is being affected by ongoing problems in obtaining both the risk and loan capital needed for growth.

After a brief summary of the context for the research and the methodology adopted, the main part of the report focuses on the key research findings, starting with a demand side perspective based on the survey of 100 TBSFs before moving onto a supply side perspective obtained from 20 interviews with finance providers. The final section considers the broader implications of the findings for the future financing of TBSFs, including some consideration of the policy implications.

## 2. Context

Within the UK's small business population, TBSFs are often seen as pivotal to enhancing entrepreneurship and innovation, leading to economic growth and the creation of new jobs (Siegel, Westhead and Wright, 2003). The Annual Business Inquiry (ABI, 2008) indicates that around six per cent of the UK business population constitutes TBSFs<sup>1</sup>. At the same time it is commonly thought that these TBSFs face greater obstacles than conventional SMEs and so deserve government support in overcoming them (Bank of England, 1996). This is primarily because of market failures that prevent TBSFs from gaining access to key inputs, notably in relation to external finance. Even before the onset of the credit crunch in late 2007, research evidence was indicating that the growth and development of TBSFs was being hindered by a shortage of external finance and particularly the availability of relatively small amounts of equity finance (NESTA, 2008). Given the difficulties that SMEs in general have been facing in obtaining external finance in recent years (Fraser, 2009; IFF, 2010), it seems reasonable to expect that TBSFs have been particularly adversely affected by the financial crisis. Although technically the recession may be over and a tentative recovery of the UK economy underway, there continues to be concerns about the lack of external funding to SMEs in general and TBSFs in particular with the worry being expressed that this could be holding back the economic recovery (BIS, 2010).

There has been considerable research interest over the last thirty years in the financing of TBSFs, much of which has focused on the reasons for the persistence of a funding gap. For example, the work of Myers & Majluf (1984) and Sahlman (1990) suggests that financial markets are informationally opaque and that borrowers know more about the potential and nature of their businesses than do lenders. TBSFs have been shown to experience more acute asymmetric information issues than other SMEs in raising bank funding (e.g. Stiglitz and Weiss, 1981; Bank of England, 1996 and 2001; Cressy, 2002). Particularly at an early stage, information is limited and not always transparent and assets are often intangible and knowledge based (e.g.

---

<sup>1</sup> TBSFs are defined broadly here as independently owned and managed enterprises with less than 250 employees whose products and services embody innovative and advanced technologies developed by the application of scientific and technological expertise and fit within the high tech sectors defined by Bullock and Millner (2003).

patents and human capital). Moreover, entrepreneurs may be reluctant to provide full information about the investment opportunity because of concerns that disclosure may make it easier for others to exploit, especially with technology based firms (Shane and Cable, 2002). Banks typically aim to minimise risks when providing loans to firms, relying on information about the business that is comparatively robust as well as placing greater emphasis on collateral to provide security for their loans. They typically seek returns from investing in well established and relatively stable businesses which are not radically changing and which require minimal monitoring.

With regards to venture capital (VC) finance, Berger and Udell (1998), Trester (1998) and Bruno and Tyebjee (1985) suggest that venture capitalists play an important role in screening, contracting with and monitoring small businesses which helps reduce information opacity as venture capitalists collect information about the business, potential markets, collateral and management teams of small businesses. VC finance becomes available in most cases after firms receive one or two rounds of business angel finance while bank finance often comes after firms' assets become more tangible and able to be offered as collateral (Berger and Udell, 1998). From the entrepreneur's perspective, there are some costs attached to venture finance as they invariably have to relinquish equity in return for the funds provided by the VCs and there are often delays while deals are negotiated which may affect the business adversely. Furthermore, rejection by VCs may affect the entrepreneurs' ability to seek alternative sources of finance.

The issue of information asymmetry in TBSFs is connected to that of transaction costs. It has long been accepted that transaction costs do not rise pro rata with the size of the investment and may even fall in some circumstances as the investment gets larger (HM Treasury, 2003; Rowlands, 2009). This is due to increased professionalization of management in larger businesses enabling them to provide better quality information more rapidly and to anticipate the needs of investors. This means that private sector VC funds tend to move up market in terms of investment size as it leads to more profitable investments relative to transaction costs, leaving an equity gap at the bottom of the market. Recent evidence from Scottish Enterprise also indicates that venture capitalists have been shifting towards 'follow-on' rather than new investments, creating a larger gap for new and early stage risk capital (Glancey Johnston, 2009). Consequently, it is now generally accepted that an equity gap exists for projects that are too large for business angels to fund but below the level for most venture capital funds to start investing (NESTA, 2010)

### **3. Methodology**

This research is based on surveys with two samples of TBSFs undertaken between June 2010 and March 2011. The first sample comprised established TBSFs, defined as businesses established for at least five years (i.e. prior to 2005), drawn from the biosciences and electronics sectors, located mainly in four English regions (Greater London, East of England, South East, North West) and Scotland, which together account for around two-thirds of the UK's TBSF population.

Initially, the plan was to re-survey 50 out of 133 businesses that had participated in a previous on-line survey of TBSF financing carried out in 2003 (Ullah, 2005). However, this re-survey obtained a fairly low response rate (22 per cent), due mainly to TBSFs being untraceable (29 per cent), sold or acquired (11 per cent), and unable or unwilling to participate (38 per cent). Interview requests were therefore sent to a sub-set of the previous non-respondent firms, resulting in a total of 51 completed interviews with established TBSFs.

The second sample comprised younger TBSFs, these being defined as businesses that were established over the last five years (i.e. from 2005 onwards). These businesses were drawn from Dun & Bradstreet's Global Reference Solutions UK database. A total of 245 firms were purposively contacted, in order to ensure that sufficient numbers of bioscience, manufacturing and contract R&D firms were interviewed, and resulted in 49 completed telephone interviews (a response rate of 20 per cent).

Survey respondents were key business decision makers such as CEOs, Managing Directors and Financial Directors. Extended telephone interviews (typically of 20-30 minutes duration) explored aspects of business development and external finance requirements during the past three years, as well as future projections, using a combination of quantitative and qualitative questions. Before focusing on the financing of the business, questions were asked about the aims and goals of the business over the last three years, the factors that have constrained the growth of the business, significant changes and innovations, the impact on the business of the credit crunch and economic downturn, and the performance of the business. Questions were then asked about whether they had sought external finance, and if so from which sources and for what purposes. This led onto more specific questions related to debt finance from banks, equity and venture capital finance, and other sources of finance. The interviews concluded with questions about the business's future financial needs, the sources they are likely to approach, and the barriers they anticipate facing.<sup>2</sup>

The following table shows the distribution of the sample between different sub-sectors.

**Table 1: Sectoral distribution of surveyed TBSFs**

|   | All firms |      | Established firms |      | Younger firms |      |
|---|-----------|------|-------------------|------|---------------|------|
|   | No.       | %    | No.               | %    | No.           | %    |
| <b>IT software</b>                        | 7         | 7.0  | 3                 | 5.9  | 4             | 8.2  |
| <b>IT services</b>                        | 14        | 14.0 | 8                 | 15.7 | 6             | 12.2 |
| <b>Electronic Engineering</b>             | 18        | 18.0 | 8                 | 15.7 | 10            | 20.4 |
| <b>Telecommunication</b>                  | 5         | 5.0  | 3                 | 5.9  | 2             | 4.1  |
| <b>Scientific Instruments/Engineering</b> | 17        | 17.0 | 10                | 19.6 | 7             | 14.3 |
| <b>Chemical Engineering</b>               | 4         | 4.0  | 3                 | 5.9  | 1             | 2.0  |
| <b>Medical/Pharmaceuticals</b>            | 10        | 10.0 | 7                 | 13.7 | 3             | 6.1  |
| <b>Research and Development</b>           | 22        | 22.0 | 7                 | 13.7 | 15            | 30.6 |
| <b>Consultancy/Business Support</b>       | 3         | 3.0  | 2                 | 3.9  | 1             | 2.0  |
| <b>Total</b>                              | 100       | 100  | 51                | 100  | 49            | 100  |

<sup>2</sup> Please see appendix 3: TBSFs telephone interview questionnaire

Additionally, the project conducted 20 telephone interviews with various finance providers (as shown in Table 2) in order to explore the supply-side problems of funding TBSFs.<sup>3</sup> These interviews were conducted between March and June 2011.

**Table 2: Interviewed finance providers**

| Type                   | Frequency |
|------------------------|-----------|
| Private VC             | 3         |
| Public VC              | 2         |
| Mezzanine fund manager | 3         |
| Business angels        | 6         |
| Bankers                | 3         |
| Grants                 | 1         |
| TBSF sector expert     | 2         |
| <b>Total</b>           | <b>20</b> |

---

<sup>3</sup> Please see appendix 4: TBSFs investors' interview questionnaire

#### 4. Demand-side Perspectives

We now turn to the main findings regarding the ability of the surveyed 100 TBSFs to access the funding that they needed over the 2007-10 period, drawing a distinction between the 51 established TBSFs and the 49 younger TBSFs<sup>4</sup>.

##### 4.1 Growth orientation

**Table 3: Growth orientation and constraints of surveyed TBSFs**

|                           | All TBSFs (n=100) |    | Established TBSFs (n=51) |      | Younger TBSFs (n=49) |      |
|---------------------------|-------------------|----|--------------------------|------|----------------------|------|
|                           | No.               | %  | No.                      | %    | No.                  | %    |
| <b>Growth orientation</b> |                   |    |                          |      |                      |      |
| Growth                    | 67                | 67 | 33                       | 64.7 | 34                   | 69.4 |
| Survival                  | 15                | 15 | 10                       | 19.6 | 5                    | 10.2 |
| No need                   | 8                 | 8  | 6                        | 11.8 | 2                    | 4.1  |
| Not ready                 | 10                | 10 | 2                        | 3.9  | 8                    | 16.3 |
| <b>Constraints</b>        |                   |    |                          |      |                      |      |
| None                      | 14                | 14 | 8                        | 15.7 | 6                    | 12.2 |
| Finance                   | 24                | 24 | 11                       | 21.6 | 13                   | 26.5 |
| Lack of demand            | 34                | 34 | 19                       | 37.3 | 15                   | 30.6 |
| Workforce                 | 8                 | 8  | 8                        | 15.7 | 0                    | 0    |
| Management time           | 6                 | 6  | 3                        | 5.9  | 3                    | 6.1  |
| Technical barriers        | 6                 | 6  | 3                        | 5.9  | 3                    | 6.1  |
| Trade regulations         | 3                 | 3  | 1                        | 2    | 2                    | 4.1  |
| Premises                  | 3                 | 3  | 0                        | 0    | 3                    | 6.1  |
| Sales & marketing         | 5                 | 5  | 0                        | 0    | 5                    | 10.2 |

The majority of TBSFs have been growth seeking businesses during the period of the financial crisis. When asked what the aims of their business had been in the last three years (Table 3), over two-thirds (67 per cent) reported that they had been seeking growth, with 15 per cent aiming to survive and 18 per cent stating that they were not interested in pursuing growth, either because they were content with current business size and performance (8 per cent), or because the business was not ready to grow (10 per cent) as it was still in the R&D phase prior to trading. There was little difference in growth orientation between the younger and more

<sup>4</sup> Please see Appendix 2 for a full account of the analysis of the 100 surveyed TBSFs.



established TBSFs (69 per cent and 65 per cent respectively), although a higher proportion of more established TBSFs were aiming to survive (20 per cent) or felt no need to grow (12 per cent).

In terms of actual growth performance, nearly three fifths of TBSFs (53 per cent of established and 66 per cent of younger TBSFs) increased their sales turnover over the 2007-10 period (when deflated turnover figures are used). Moreover, half of the established TBSFs experienced an increase in employment as did almost half of the young TBSFs established by 2007 (see appendix 2, table 2).

#### **4.2 Constraints on growth**

The economic downturn appears to have affected a greater proportion of TBSFs over the last three years than difficulties in accessing finance. The most frequently mentioned factor constraining growth was falling demand and loss of trade (34 per cent), followed by difficulties in accessing external finance (24 per cent) (see appendix 2, table 5). However, younger TBSFs were more likely to indicate financial constraints, with established TBSFs being more likely to refer to lack of demand. The third most commonly identified factor, only mentioned by established TBSFs, related to the quality of the workforce and difficulties in recruiting people with the necessary skills and experience (eight per cent overall, 16 per cent of established TBSFs). Other factors (such as trade regulations, technology barriers, sales and marketing, shortage of capacity, or a shortage of management time) were mentioned by six or fewer firms and were more likely to be mentioned by young TBSFs. One in seven surveyed TBSFs (14 per cent) experienced no constraints.

#### **4.3 Access to finance 2007-2010**

Table 4 provides information about the sources of finance that the surveyed TBSFs accessed over the last three years. The majority of TBSFs (81 per cent) financed their business wholly or partly from internal sources such as using personal funding and ploughing back profits, with two fifths (43 per cent) of them being solely dependent on internal sources.

Just over half (53 per cent) used formal sources of finance, often in combination with internal sources. Funding was most commonly required for working capital, followed by R&D. Similar proportions of both younger and more established TBSFs used formal sources, although a higher proportion of younger businesses used informal external sources (such as family and friends) (10 per cent compared to two per cent). The level of use of formal sources was highest amongst bioscience firms (66 per cent of them) and spin outs (64 per cent).

A more detailed breakdown of formal external sources of finance indicates (as shown in appendix 2, table 6) that TBSFs have drawn upon a wide range of types of finance. Debt finance from the banks was the most commonly considered source of finance, with more than one third of firms (36 per cent) applying for a bank overdraft and one quarter applying for bank loans. In this respect TBSFs are not that different from SMEs as a whole, but they do differ in that a higher proportion were seeking equity/VC finance, with one in eight firms applying to VC funds and around one in seven approaching business angels. One quarter of TBSFs applied for public sector grants and awards, and around one sixth applied to a variety of other finance sources including bank asset finance, supplier finance, credit card, and joint venture finance.

Younger TBSFs were twice as likely as more established TBSFs to approach banks for loans and business angels for equity finance and more likely to apply for public sector grants/awards and banks for overdrafts. However, the younger TBSFs were less likely to apply for VC funding and asset based funding.

**Table 4: Funding for the business in the last 3 years**

| All TBSFs  | No of firms | Percentage |
|--|-------------|------------|
| Internal sources (e.g. Ploughing back profits, personal funding)     | 81          | 81         |
| Informal external sources (e.g. Family and friends)                  | 6           | 6          |
| Formal external sources (e.g. Banks, VC funds, public sector grants) | 53          | 53         |
| <b>Established TBSFs</b>   |             |            |
| Internal sources (e.g. Ploughing back profits, personal funding)     | 44          | 86         |
| Informal external sources (e.g. Family and friends)                  | 1           | 2          |
| Formal external sources (e.g. Banks, VC funds, public sector grants) | 26          | 52         |
| <b>Younger TBSFs</b>   |             |            |
| Internal sources (e.g. Ploughing back profits, personal funding)     | 37          | 75         |
| Informal external sources (e.g. Family and friends)                  | 5           | 10         |
| Formal external sources (e.g. Banks, VC funds, public sector grants) | 27          | 55         |

Note: Some businesses used more than one source

#### **4.4 Experience of applying for debt finance**

Half of the surveyed TBSFs approached banks to access debt finance during the 2007-10 period, with 25 seeking bank loans and 36 seeking overdrafts. Whilst a high proportion of the applications for overdraft finance were successful (81 per cent), just half (52 per cent) of the applications for loans were successful. In the case of those applying for bank loans, it is worth noting that almost half related to Small Firm Loan Guarantee or Enterprise Finance Guarantee enquiries which suggests that these TBSFs are seen as being more marginal in bank lending terms. The most common reasons given for loan applications being unsuccessful were because of insufficient trading record or insufficient collateral. It is also important to note that several of the TBSFs that were offered bank loans rejected them because they found the conditions (e.g. the level of personal guarantee and collateral) and costs (fees and interest rates) involved unacceptable. Thus there is some indication from our evidence that the financing of some TBSFs is being constrained by the more stringent requirements of banks in the wake of the financial crisis.

#### **4.5 Experience of applying for equity and venture capital finance**

Nearly one quarter (23 per cent) of the surveyed TBSFs had tried to access equity and VC funding during the 2007-10 period, this being particularly found amongst the more R&D intensive bioscience businesses and spin outs. The findings indicate the difficulties involved in obtaining this type of finance. Only half of those applying received offers (seven out of 12 VC fund applications and six out of 14 business angel fund applications) and not all of these were taken up, resulting in less than half of the cases successfully reaching a deal. Offers were normally rejected because business owner-managers were not prepared to relinquish the level of equity required by investors (in some cases amounting to more than half of the ownership). Moreover, the process of

searching for an appropriate source and then negotiating a deal was invariably lengthy and costly in terms of the due diligence and legal process and management time involved.

Nine spinouts mentioned increasing difficulties obtaining equity finance, supporting the notion that these type of firms are most likely to seek equity/VC finance (Mason and Harrison, 2004; Rowlands, 2009) and the contention that the equity finance gap exists and may be increasing (NESTA 2008, 2009, 2010). Furthermore, the higher proportion of younger and R&D intensive bioscience firms indicating insufficient knowledge of the finance markets supports the argument for greater promotion and visibility of equity/VC finance, particularly that which is public sector backed (BIS, 2009). The response of one young bioscience spin out highlights the problem:

*“There is still funding out there, but it is hard for early stage businesses to prove themselves and there is insufficient catalyst funding to bridge early stage R&D with later stage equity finance.”*

#### **4.6 Impact of financial constraints on the business**

TBSF owner-managers that had sought formal external finance during the last three years were asked about the impacts that problems in accessing these types of finance had made on their businesses. More than one third (36 per cent) had experienced directly related problems that had negatively impacted on their businesses. These were more likely to be younger TBSFs (41 per cent compared to 31 per cent of established TBSFs), spinouts (52 per cent compared to 27 per cent of non-spinouts) and bioscience (45 per cent compared to 31 per cent electronics). Nearly half (45 per cent) of those seeking formal external finance had experienced poorer business performance than had been expected. Almost one quarter had experienced slower growth, mainly because R&D, product development, manufacturing and sales development had been curtailed, with younger TBSFs particularly suffering from lack of investment in R&D (27 per cent of younger TBSFs).

An established electronics spin out described the impact of not being able to raise bank loan debt finance of £100,000 and their exasperation with the ineffectiveness of the EFG.

*“Our inability to raise a relatively small amount of bank finance prevented the firm from investing in R&D and positioning itself better for economic recovery. We need to be more competitive in the global automotive market.”*

And a younger bioscience spin out firm highlighted the problems of raising early stage risk equity finance for R&D:

*“It is very difficult to get through the early stages of business development. It is very slow, painful, unpaid work. It is very expensive to fund raise - it is a mission of faith!”*

#### **4.7 Future financial needs**

The interviewed TBSF owner-managers were asked about their future financial needs over the next three years or so, with questions about the amount and likely source of external finance as well as the barriers that they might anticipate. The proportion of TBSFs likely to seek external finance proved to be similar to the proportion that had obtained external finance over the 2007-2010 period, with half (52 per cent) thinking that they would need to obtain funding from formal external sources. This proved to be a higher proportion of younger (57 per cent) than established (47 per cent) TBSFs, a higher proportion of spinouts (60 per cent) than non spin outs (43 per cent), and a higher proportion of bioscience (60 per cent) than electronics (42 per cent) businesses. The median amount that would be sought ranged from £1.3m for established TBSFs to £200,000 for younger firms.

Interestingly, a slightly higher proportion of TBSFs expected to be seeking equity finance than bank finance, with almost one in five seeking equity finance compared to one in seven seeking bank finance. Others would be seeking grants (12 per cent) or joint venture/buyer-supplier finance (7 per cent), the latter being an indication of the emerging commercial, non VC type of finance (Cave, 2009).

However, it was clear that many of the TBSF owner-managers were far from being optimistic about their chances of obtaining external finance since more than two-thirds of those identifying a need for future external finance expressed doubts about their ability to obtain finance from these sources. Established TBSFs and spinouts were more likely to refer to difficulties in finding suitable equity investors, citing the short term view of UK VC investors and the equity finance gap where funds required (i.e. typically £500,000 to £1m) were too much for individual business angels, but too little to be of interest to VC funds, as well as an unwillingness to cede ownership at the level that business angels and VC funds require. These findings are indicative of the trends towards smaller numbers of larger, later stage funding by UK VCs (NESTA 2008, 2009 and 2010) and the need for government VC schemes to take a longer term view, to provide follow-up funding and see the innovative (TBSF) business development process through to successful commercialisation (which can take more than five years for some bioscience firms).

Some established TBSFs also mentioned the over cautious attitude and lack of sectoral knowledge of the banks in addition to the expense, terms and guarantees required for bank loans. Younger TBSFs were more likely to suggest that their business was too risky, or had insufficient track record to obtain bank finance and also mentioned their lack of knowledge of equity finance, including government backed early stage VC funds, underlining the need for increased public information and transparency in the operation of government backed VC schemes (BIS, 2009). One new TBSF owner-manager stated *"we are willing to consider VC finance, but the UK market has dried up."* Several respondents also mentioned concerns over the future availability of suitable R&D grants from the Technology Strategy Board.

### **5. Supply-side Perspectives**

This section summarises the key emerging themes from the 20 interviews with various types of finance provider, including banks, business angels, private and public VCs and sector experts.

#### **5.1 Demand for funds**

Almost all respondents (with the possible exception of some banks) agree that the demand for funds is greater now than before the financial crisis. Some investors reported that they look at investment proposals in hundreds and even in thousands in some cases each year but would actually invest in very few annually, mostly in single digits. Due to the credit crunch, cash is more expensive now and they have to protect investments in various ways. More professionalism and innovativeness is needed in the approach on the part of the small business as well as the investors. Equity investors would expect higher equity in the business

ranging from 10 per cent to 60 per cent in some cases (more at the earlier stages). They reported that the higher the risks, the higher the equity stake required. It is now taking longer than normal to realise returns on investments. Securing external finance has become more difficult with bank finance severely reduced and with early stage funds having exited the market. Business Angels are now the principal investors, along with public seed and early stage equity funds filling the gap. With regards to the funding gap, one investor reported that:

“Yes there will always be an equity funding gap in the entrepreneurial eyes. You can never satisfy the crazy ideas. Funding SMEs is not sophisticated. Track record is essential and they don’t have it. There is a gap in the middle i.e. a quasi revenue equity gap.”

It is estimated that this gap ranges from the higher reaches of BAN funding at £250,000 to 500,000 up to £2 million for shorter term R&D TBSFs and as much as £10m for more intensive longer term R&D sectors such as bio and life sciences which can take 10 or more years to commercialise.

## **5.2 Investment criteria**

Normally investors would invest further tranches if the business is doing well and needs further rounds of investment. The most commonly used criteria was reported to be: a strong management team, preferably with a proven track record and/or willingness to strengthen management capabilities by taking on non executive directors with commercial and sector specific skills; a big enough idea to be interesting; clear potential for fulfilling a market need; and an exit strategy whereby the investment is saleable to others. Some reported that it is the market appeal not the documents (e.g. business plan) that is important.

“...information asymmetries are not the primary problem as it is not possible to pick winners, but it is possible to reduce risk by backing businesses with strong management teams, demonstrable market potential, a strong business plan and a clear exit strategy within a given time period.”

Some business angel investors would invest within the range of £50,000 to £250,000 in an individual company but others would consider as little as £5,000 to £10,000 as minimum. It was reported that the main aim is to spread the risk as much as possible. Another way to minimise the risk is to invest as a group/syndicate. One typical angel investor reported:

“As an individual investor, I don’t consider many opportunities but as a group (syndicate), we consider about 250 annually. As an individual I would consider about a dozen in a year. However, due to the downturn, now not more than two a year. I have got 21 companies at the moment.”

It was noted that both private and public VC funds operate on relatively few investments, typically receiving hundreds of applications annually, but only making one or two new investments. Public backed VC funds are restricted by EU state aid legislation which caps individual investment rounds to £2 million, whilst private VCs have typically exited the early stage investment market in favour of less risky later stage investment. One experienced industry expert suggested that the volume of public and private early stage VC investment has not been sufficient to be sustainable throughout the UK during the last decade (e.g. a typical private VC fund might have 20 investments over 10 years with only one or two succeeding, a couple more breaking even and the vast majority failing).

### **5.3 Public support**

With regards to the various government schemes, there was a consensus amongst interviewed investors that the continuation of the Enterprise Investment Scheme (EIS) approval is essential, with some suggesting that more incentives were needed to encourage more and higher levels of business angel investment. However, some respondents felt that the EIS was not as valuable as before the credit crunch and that tax relief had its problems such as driving a wedge between BAs and VCs. Several respondents agreed that government has a vital role in filling the gap left by the banks and the VCs in seed and early stage funding, such as through grant schemes and public backed VC and mezzanine funds (e.g. Enterprise Capital Funds and Finance East's regional mezzanine funds). Some felt that there was a need for greater volume of deals involving public backed finance in order to meet early stage finance demand, enabling more TBSFs to grow, spin-out other companies and generate multiplier effects.

### **5.4 Networking**

Most investors indicated that they are well known to *local* SMEs who come to them seeking funds, thus confirming that geographical proximity between investors and investees continues to be important. As others have noted (e.g. Cave, 2009), this has contributed to the southern bias in the availability of VC and equity finance in the UK. It was noted that VCs and business angel networks (BANs) do not overtly advertise their services. However, it was reported that they all have websites which can be easily browsed with a lot of useful information and they also actively network with a vast array of intermediaries (e.g. universities, lawyers, accountants, public sector business support services) and other investors to explore investment opportunities.

### **5.5 Future outlook**

According to one investor *"the new economy is not doing too badly but investment is not available to young TBSFs. And there is slower access to finance"*. One investor commented:

*"The credit crunch has exacerbated a situation that was getting worse in any case, due to the high rate of failure of early stage investments over the last decade, leading to VC investors withdrawing and the increasingly conservative approach of banks to business lending. The banks have now retrenched to 1930s style lending policies of the great depression."*

This view was countered by a former VC fund manager who suggested that it is not the banks' role to undertake equity/risk investment, but that why should private VC funds get involved in early stage investment which is now heavily subsidised by public funds. Several mentioned the continuing importance of early stage proof of concept seed grants (e.g. provided by the Technology Strategy Board in England or Scottish Enterprise). Another one said that TBSFs have not been affected but it is taking longer to exit now and that there is need for a more patient approach to investment. Whilst it was noted that business angel and VC finance was being locked into follow-on investment stages, resulting in a shortage of new investment and that new investors need to come into the market at the early stages.

## 6. Conclusions

This research demonstrates that TBSFs have exhibited considerable demand for external finance since 2007, particularly for working capital and R&D in early stage product innovation, seeking finance mainly from banks, but also with younger TBSFs seeking business angel finance and innovation grants and more mature TBSFs seeking venture capital finance. The evidence is that both debt and equity finance has become harder to access for TBSFs and that where funding is offered, it may be insufficient or on unacceptable terms. Thus, the ability of existing TBSFs and particularly young TBSFs to contribute to the economic recovery is being hampered by ongoing problems in obtaining the external finance needed for growth.

The following points summarise the key findings regarding the impact of the financial crisis on TBSFs:

- The TBSFs we have examined are by their nature success stories as they are still trading (particularly the established ones) and have exhibited better than average SME growth in terms of sales turnover in the 2007-2010 period (but not a high level of direct employment growth).
- That access to all types of finance is becoming more difficult.
- That there is a growing finance gap affecting the more R&D intensive companies at the top end - i.e. expanding to perhaps £10m for bio-life sciences.
- There is an increasing role for public intervention in the area of early stage seed funding/grants, EIS for private investors and early stage public VC funds (ECFs) and mezzanine finance - attempting to fill the gap left by private/corporate and institutional VC funds which have moved upstream to later stages and the shortage of new BAs (existing ones being locked into follow on investments).
- However, it appears that two opposing views are emerging:
  - That government intervention is actually pushing private investment further out (crowding out instead of crowding in effect) of the early stage funding arena because it cannot compete with public backed subsidies.
  - That there is a market failure (which this research clearly demonstrates) which requires government intervention, but that current public intervention is not necessarily operating on a large enough scale and that it would be more successful if there were a higher volume of early stage VC and mezzanine finance deals (e.g. two investors said that £15m for a London Technology VC fund is a drop in the ocean compared to the £156m in tax breaks in 2009 through EIS).
- Future forecast demand for formal external finance remains high with half of the surveyed TBSFs indicating that they will be seeking this over the next three years.
- Two thirds of those that will be seeking formal finance (i.e. one third of all TBSFs surveyed) in the next three years indicated concerns that this could be problematic and more difficult for them than in the past.
- The findings from interviews with finance providers also suggest that although there are more businesses looking for funding than prior to the financial crisis, there is less funding available to them.
- There is a consensus that government has a key role to play to fill the gap by continuing with initiatives such as EIS and the Enterprise Capital Funds and by providing more incentives to encourage investment in TBSFs.

To conclude, it is clear that the ability of new and existing TBSFs with growth potential to contribute to the UK's economic recovery is going to be conditional upon a greater willingness on the part of both equity and debt finance providers to address the longer-term investment needs of such businesses than appears to be the case at the present time. Whilst both the previous and present governments have introduced

various schemes to make more funding available to TBSFs, doubts remain as to whether they are on a large enough scale to sufficiently bridge the funding gaps.



## References

- Annual Business Inquiry (2008), Workplace Analysis, NOMIS official labour market statistics <https://www.nomisweb.co.uk>
- Bank of England (1996) The Financing of Technology-based Small Firms, Domestic Finance Division.
- Bank of England (2001) The Financing of Technology-based Small Firms, Domestic Finance Division.
- BBC News Timeline: Credit crunch to downturn <http://news.bbc.co.uk/1/hi/business/7521250.stm> accessed on 02.06.2011.
- Berger, A. N. and Udell, G. F. (1998) The economics of small business finance: the roles of private equity and debt markets in the financial growth cycle, *Journal of Banking and Finance*, vol. 22, pp. 613-673.
- Birch, D. L. (1979) *The job creation process*, MIT Program on Neighbourhood and Regional Change, Cambridge, MA.
- BIS (2009) *Venture capital support to small business*, Report by the National Audit Office, December
- BIS (2009a) *Early Stage Assessment of the Impact of the Enterprise Finance Guarantee (EFG) on Recipient Firms*, Department for Business Innovation and Skills URN09/1594
- BIS (2010) *Financing a Private Sector Recovery*, Department for Business Innovation and Skills, Cm 7923.
- Brown, C., Hamilton, J., and Medoff, J. (1990) *Employers: Large and Small*. Cambridge, MA: Harvard University Press.
- Bruno, A. V. and Tyebjee, T. T. (1985) The entrepreneur's search for capital, *Journal of Business Venturing*, vol. 1, pp. 61-74.
- Cave, F. (2009) *Patters of Equity Investment in UK High Technology Companies*, NESTA.
- Cosh, A., Hughes, A., Bullock, A., & Milner, I. (2008) *Financing UK Small and Medium-sized Enterprises: the 2007 Survey*, Centre for Business Research, University of Cambridge.
- Cosh, A., Hughes, A., Bullock, A., & Milner, I. (2009) *SME Finance and Innovation in the Current Economic Crisis*, Centre for Business Research, University of Cambridge.
- Cressy, R. (2002) *Funding Gaps: A Symposium*, *The Economic Journal*, 112 (February 2002).
- Deakins, D., and Freel, M. (2009) *Entrepreneurship and small firms*, 5<sup>th</sup> edition, McGraw Hill.
- Fraser, S. (2009) *Small Firms in the Credit Crisis: Evidence from the UK survey of SME finances*, Warwick Business School, University of Warwick.
- Glancey Johnston, K. (2009) *The Risk Capital Market in Scotland*, Scottish Enterprise
- HM Treasury/Small Business Service (2003) *Bridging the Finance Gap: a consultation on improving access to growth capital for small businesses*, HM Treasury April 2003.
- IFF Research Ltd (2010) *Results from the 2009 Finance Survey of SMEs*, Report for Department for Business Innovation and Skills, URN 10/636.

Mason, C.M. and Harrison, R.T. (2004) Does investing in high technology-based firms involve higher risk? An exploratory study of the performance of technology and non-technology investments by business angels, *Venture Capital* Vol.6 No.4, pp.313-332.

Mason, C.M. and Kwok, J. (2010) Investment Readiness Programmes and Access to Finance: A Critical Review of Design Issues, *Local Economy*, Vol.25, No.4, pp.269-292

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

NESTA (2008) *Shifting Sands: The changing nature of the early stage venture capital market in the UK*, Research Report, September 2008.

NESTA (2009) *From funding gaps to thin markets: UK Government support for early-stage venture capital*, Research Report, September, 2009

NESTA (2009a) *Siding with the Angels: Business angel investing – promising outcomes and effective strategies*, Research Report, May 2009

NESTA (2009b) *The vital 6 per cent: How high-growth innovative businesses generate prosperity and jobs*, Research Report, October 2009

NESTA (2010) *Venture Capital: Now and After the Dotcom Crash*, Research Report, July 2010.

NESTA (2011) *Vital growth: The importance of high-growth businesses to the recovery*, Research Report, March 2011

Rowlands, C. (2009) *The Provision of Growth Capital to Small and Medium Sized Enterprises*, Report for Department for Business, Innovation and Skills.

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

Shane, S. and Cable, D. (2002) Network ties, reputation, and the financing of new ventures, *Management Science*, vol. 48, pp.364-382.

Siegel, D.S., Westhead, P. and Wright, M. (2003) Science parks and the performance of new technology-based firms: a review of recent U.K. evidence and an agenda for future research, *Small Business Economics*, vol. 20, pp. 177-184.

Stiglitz, J. E. and Weiss, A. (1981) Credit rationing in markets with imperfect information, *The American Economic Review*, vol. 71, no. 3, pp. 393-410.

Trester, J. J. (1998) Venture capital contracting under asymmetric information, *Journal of Banking and Finance*, vol. 22, pp. 675-699.

Ullah, F. (2005) *Financing of Technology-based Small Firms and the Role of Location: Evidence from the United Kingdom*, PhD Thesis, University of Liverpool.

\*\*\*\*\*

## **Appendix 1: Research dissemination**

To date, the research has been presented at the following workshops and conferences:

1. Presented the aims and objectives of the RAKE project at a workshop in London on March 26<sup>th</sup> 2010 sponsored by BIS.
2. ISBE 33<sup>rd</sup> Annual conference held in London from 2-4 November 2010. Paper presented on the SME finance track entitled "The Impact of the Credit Crunch on the Financing and Growth of Established Technology-Based Small Firms in the United Kingdom", (Farid Ullah, David North and Robert Baldock).
3. The 9th IECER Conference: "Financing of New Ventures after the Crisis", Munich, February 16-18, 2011. Paper presented entitled "The Impact of the Financial Crisis on the Financing and Growth of Technology-Based Small Firms in the United Kingdom" (David North, Robert Baldock and Farid Ullah).
4. The 19th International High Technology Small Firms Conference, 9th - 10th June 2011, Manchester Business School, Manchester, UK. Paper presented on the Finance track entitled "The Impact of the Financial Crisis on the Financing and Growth of Young and Established Technology-Based Small Firms in the United Kingdom" (Robert Baldock, David North and Farid Ullah).

## **Appendix 2:**

**The 19<sup>th</sup> International High Technology Small Firms Conference: 9th - 10th June 2011, Manchester Business School, Manchester, UK**

**'The Impact of the Financial Crisis on the Financing and Growth of Young and Established Technology-Based Small Firms in the United Kingdom'**

**Dr Robert Baldock\*, Professor David North\* & Dr Farid Ullah\*\***

**\*Centre for Enterprise and Economic Development Research, Middlesex University Business School, The Burroughs, Hendon, London NW4 4BT, England**

**Email: [d.north@mdx.ac.uk](mailto:d.north@mdx.ac.uk) Tel: +44 (0)20 8411 5514**

**\*\*Aberdeen Business School, Robert Gordon University, Garthdee Campus, Garthdee Road, Aberdeen AB10 7QE**

**Email: [f.ullah1@rgu.ac.uk](mailto:f.ullah1@rgu.ac.uk) Tel: +44 (0)1224 263895**

### **Abstract:**

This paper presents recent UK research, funded under the Institute of Small Business and Entrepreneurship's Research and Knowledge Exchange (RAKE) initiative, to assess the impact of the credit crunch on Technology-Based Small Firms (TBSFs). It reports on findings from an extended telephone survey with the owner-managers of 49 young and 51 more mature TBSFs, undertaken in the Autumn and Winter of 2010.

Even before the onset of the global financial crisis in 2007, research evidence indicated that the growth and development of TBSFs in the UK was hindered by a shortage of external finance and particularly the availability of relatively small amounts of equity finance (NESTA, 2008). It has commonly been thought that TBSFs face greater obstacles, notably in accessing finance, than conventional SMEs. This is because banks have difficulty assessing the viability of new high technology business ventures due to information asymmetries and regard them as too risky to secure lending, whilst other financiers such as venture capitalists and business angels may be unable to provide appropriate and sufficient funds on terms that are acceptable to entrepreneurs. It is therefore argued that the development of TBSFs is adversely affected by market failures and the existence of a finance gap, particularly affecting new and early stage TBSFs, and this has provided the justification for a range of public interventions designed to provide seed corn and early stage capital and to stimulate the venture capital market (Murray, 2007).

Given the difficulties that SMEs in general have been facing in obtaining external finance in recent years (Fraser, 2009; IFF, 2009), it seems reasonable to expect that TBSFs have been particularly adversely affected by the financial crisis. For example, recent evidence indicates that there has been a 40 per cent reduction in investment activity over the past two years and fundraising fell by over 50 per cent (NESTA, 2010). Although technically the recession in the UK may be over and a tentative economic recovery underway, there continue to be concerns about the lack of external funding to SMEs in general and TBSFs in particular with the concern being expressed that this could be holding back the economic recovery (BIS, 2010). Therefore it is clearly important to understand the impact of the credit crunch on TBSFs.

This research demonstrates that TBSFs have exhibited considerable demand for external finance since 2007, particularly for working capital and R&D in early stage product innovation, seeking finance mainly from banks, but also with younger TBSFs seeking business angel finance and innovation grants and more mature TBSFs

seeking venture capital finance. The evidence is that both debt and equity finance has become harder to access for TBSFs and that where funding is offered, it may be insufficient or on unacceptable terms. Thus, the ability of existing TBSFs and particularly young TBSFs to respond to the economic recovery is being hampered by ongoing problems in obtaining the external finance needed for growth.

### **Introduction: Context and Aims**

It is often argued that a dynamic technology based small firm (TBSF) sector<sup>5</sup> is pivotal to enhancing entrepreneurship and innovation, leading to economic growth and the creation of new jobs (Siegel, Westhead and Wright, 2003). At the same time it is commonly thought that these TBSFs face greater obstacles than conventional SMEs and so deserve government support in overcoming them (Bank of England, 1996). This is primarily because of market failures that prevent TBSFs from gaining access to key inputs, notably in relation to external finance. Even before the onset of the credit crunch in late 2007, research evidence was indicating that the growth and development of TBSFs was being hindered by a shortage of external finance and particularly the availability of relatively small amounts of equity finance (NESTA, 2008). Given the difficulties that SMEs in general have been facing in obtaining external finance in recent years (Fraser, 2009; IFF, 2009), it seems reasonable to expect that TBSFs have been particularly adversely affected by the financial crisis. Although technically the recession may be over and a tentative recovery of the UK economy underway, there continue to be concerns about the lack of external funding to SMEs in general and TBSFs in particular with the worry being expressed that this could be holding back the economic recovery (BIS, 2010).

Given this context, it is clearly important to understand the impact of the financial crisis on TBSFs. This paper therefore reports on evidence from research funded under the Institute for Small Business and Entrepreneurship's Research and Knowledge Exchange (RAKE) initiative. The research aims to assess the impact that the financial crisis has had, and continues to have, on a sample of TBSFs. It aims to examine TBSF external finance requirements, both debt and equity finance, since 2007 and the extent to which this has been met from different sources. Different characteristics of TBSFs are explored, including: trading age - younger and more established; broad sector – bio/life-science and electronics/IT (herein referred to as 'bioscience' and 'electronics'); and management capabilities, with a focus on comparing spin outs and non-spin outs. A key underlying question is the extent to which the ability of both young and more established TBSFs to respond to the economic recovery is being affected by ongoing problems in obtaining the external finance needed for growth.

### **Funding Gaps**

There has been considerable research interest over the last thirty years in the financing of TBSFs, much of which has focused on the reasons for the persistence of a funding gap. For example, the work of Myers & Majluf (1984) and Sahlman (1990) suggests that financial markets are informationally opaque and that borrowers know more about the potential and nature of their businesses than do lenders. TBSFs have been shown to experience more acute asymmetric information issues than other SMEs in raising bank funding (e.g. Stiglitz and Weiss, 1981; Bank of England, 1996 and 2001; Cressy, 2002). Particularly at an early stage, information is limited and not always transparent and assets are often intangible and knowledge based (e.g. patents and human capital). Moreover, entrepreneurs may be reluctant to provide full information about the investment opportunity because of concerns that disclosure may make it easier for others to exploit, especially with technology based firms (Shane and Cable, 2002). Banks typically aim to minimise risks when providing

---

<sup>5</sup> TBSFs are defined broadly here as independently owned and managed enterprises with less than 250 employees whose products and services embody innovative and advanced technologies developed by the application of scientific and technological expertise and fit within the high tech sectors defined by Bullock and Millner (2003).

loans to firms, relying on information about the business that is comparatively robust as well as placing greater emphasis on collateral to provide security for their loans. They typically seek returns from investing in well established and relatively stable businesses which are not radically changing and which require minimal monitoring.

With regards to venture capital (VC) finance, Berger and Udell (1998), Trester (1998) and Bruno and Tyebjee (1985) suggest that venture capitalists play an important role in screening, contracting with and monitoring small businesses which helps reduce information opacity as venture capitalists collect information about the business, potential markets, collateral and management teams of small businesses. VC finance becomes available in most cases after firms receive one or two rounds of business angel finance while bank finance often comes after firms' assets become more tangible and able to be offered as collateral (Berger and Udell, 1998). From the entrepreneur's perspective, there are some costs attached to venture finance as they invariably have to relinquish equity in return for the funds provided by the VCs and there are often delays while deals are negotiated which may affect the business adversely. Furthermore, rejection by VCs may affect the entrepreneurs' ability to seek alternative sources of finance.

The issue of information asymmetry in TBSFs is connected to that of transaction costs. It has long been accepted that transaction costs do not rise pro rata with the size of the investment and may even fall in some circumstances as the investment gets larger (HM Treasury, 2003; Rowlands, 2009). This is due to increased professionalization of management in larger businesses enabling them to provide better quality information more rapidly and to anticipate the needs of investors. This means that private sector VC funds tend to move up market in terms of investment size as it leads to more profitable investments relative to transaction costs, leaving an equity gap at the bottom of the market. Thus it could be argued that information asymmetry in the VC market arises not because the information is not available or known to be needed but because it is too expensive to collect relative to the potential benefit from the investment. Similarly, it could also be argued that in the case of small loans, banks typically rely on credit scoring criteria which are generally biased in favour of existing businesses with a track record and collateral as the cost of acquiring more information about new and early stage businesses is prohibitive relative to potential income.

Even before the onset of the financial crisis, available evidence indicates that TBSFs were more likely to experience difficulties obtaining external finance than SMEs as a whole. For example, analysis by the authors of the UK Government's 2007 Small Business Survey (SBS) data indicates that a significantly higher proportion of TBSFs seeking external finance experienced problems than was the case with other SMEs.<sup>6</sup> This is in line with what other researchers have suggested (Mason and Harrison, 2004; Utterback, 1988). In relation to bank finance this is partly a problem of 'short termism' with banks being unwilling to provide debt finance to cover the long lead-times required for developing new products, and partly because the terms and conditions on offer are not acceptable to the business (e.g. with respect to the level of security and personal guarantee that the bank requires). Thus it has been argued by Oakey (2007) that there is a degree of latent demand for bank finance amongst TBSFs which is not helped by the 'quasi-oligopolistic' nature of bank lending in the UK<sup>7</sup>.

---

<sup>6</sup> The SBS is a survey of 9,362 SMEs of which 156 were TBSFs. They were significantly more likely (at beyond the .001 level) to encounter problems obtaining finance (nearly two thirds did not receive any finance from the first source approached compared to 16 per cent of other SMEs). Ultimately, more than two fifths of TBSFs seeking finance did not obtain all the finance that they required, compared to just 16 per cent of other SMEs.

<sup>7</sup> In recent years commercial banking in the UK has been dominated by four banks (Barclays, HSBC, Lloyds TSB, and the RBS group), with these banks accounting for 76% of bank lending to SMEs in 2007 (Cosh et al., 2008). Government action at the start of the financial crisis has resulted in even greater concentration with the merger of Lloyds/TSB with HBOS (Bank of Scotland).

Although only a very small proportion of SMEs seek equity finance (with most large scale SME surveys estimating this to be less than three per cent of those firms seeking external finance<sup>8</sup>), this form of finance is vital for many innovative and growth orientated TBSFs. Equity finance is suitable for businesses that have high growth potential, but also higher level of risk, lack physical assets to provide collateral on debt finance and may also either lack or have uneven revenue streams that make servicing loan repayments difficult (Mason and Harrison, 2004). It has long been recognised by policy makers, practitioners and academics that there is an equity gap in the UK, particularly relating to the seed and early stage venture capital market, which means many potentially viable businesses struggle to raise the finance they need. For example, Oakey (2003; 2007) has suggested on the basis of available evidence that although around five per cent of TBSFs do obtain external equity support, there is another five per cent that are 'probably fundable' but are unlikely to receive funding because of supply-side (e.g. short-termism) or demand-side (e.g. fear of loss of control) problems.

### **Research Methodology**

This research is based on extended telephone surveys with owner-managers from two samples of TBSFs in the second half of 2010. The first sample comprised established TBSFs, defined as businesses established for at least five years (i.e. prior to 2005), drawn from the biosciences and electronics sectors, located mainly in four English regions (Greater London, East of England, South East, North West) and Scotland, where two-thirds of Britain's TBSFs are located (Annual Business Inquiry, 2008).

Initially the plan was to re-survey 50 out of 133 businesses that had participated in a previous on-line survey of TBSF financing carried out in 2003 (Ullah, 2005). This initial survey obtained a low response rate (22%), due mainly to TBSFs being untraceable (29%), sold or acquired (11%), unable or unwilling to participate (38%). Interview requests were also sent to a sub-set of the previous non-respondent firms, resulting in 51 completed interviews with established TBSFs.

A second sample comprised younger TBSFs, established over the last five years (i.e. from 2005 onwards), random quota sampled from Dun & Bradstreet's Global Reference Solutions UK database (3,333 TBSFs distributed evenly across the above English regions and Scotland). A total of 245 firms were purposively contacted, in order to ensure that sufficient numbers of bioscience, manufacturing and contract R&D firms were interviewed, resulting in 49 completed telephone interviews (20%), the main reasons for failure to interview being: unsuitable (8% in wrong sector, too large, overseas based, too old); untraceable (5%); refused (3%); and the remainder being unavailable within the timeframe (65%).

Before focusing on the ability of the TBSFs to access different sources of external finance during the period of the financial crisis, the next section of the paper profiles the characteristics of the surveyed businesses, including their growth orientation and performance over the period.

### **Characteristics and Growth Performance of Surveyed TBSFs**

Table 1 presents the range of sectoral activities undertaken by the surveyed TBSFs: more than one third (35%) are in electronic and scientific instrument engineering; more than one fifth (22%) undertake contract R&D; more than one fifth (21%) provide IT software and services; almost one in seven (14%) are in pharmaceuticals and chemical engineering, with the sectoral distribution of established and younger surveyed businesses being similar. In order to facilitate some comparison between different high-tech sectors, we have assigned the

---

<sup>8</sup> The UK Government's Small Business Survey 2007; Centre for Business Research (CBR) (2008) Financing UK Small and Medium sized Enterprises: the 2007 Survey, University of Cambridge.

TBSFs to one of two broad sectors: bioscience (including life science) activities (38 firms) and electronics (including IT activities) (62 firms).

**Table 1: Sectoral distribution of surveyed TBSFs**

|   | All firms |      | Established firms |      | Younger firms |      |
|---|-----------|------|-------------------|------|---------------|------|
|   | No.       | %    | No.               | %    | No.           | %    |
| <b>IT software</b>                        | 7         | 7.0  | 3                 | 5.9  | 4             | 8.2  |
| <b>IT services</b>                        | 14        | 14.0 | 8                 | 15.7 | 6             | 12.2 |
| <b>Electronic Engineering</b>             | 18        | 18.0 | 8                 | 15.7 | 10            | 20.4 |
| <b>Telecommunication</b>                  | 5         | 5.0  | 3                 | 5.9  | 2             | 4.1  |
| <b>Scientific Instruments/Engineering</b> | 17        | 17.0 | 10                | 19.6 | 7             | 14.3 |
| <b>Chemical Engineering</b>               | 4         | 4.0  | 3                 | 5.9  | 1             | 2.0  |
| <b>Medical/Pharmaceuticals</b>            | 10        | 10.0 | 7                 | 13.7 | 3             | 6.1  |
| <b>Research and Development</b>           | 22        | 22.0 | 7                 | 13.7 | 15            | 30.6 |
| <b>Consultancy/Business Support</b>       | 3         | 3.0  | 2                 | 3.9  | 1             | 2.0  |
| <b>Total</b>                              | 100       | 100  | 51                | 100  | 49            | 100  |

Most of the established TBSFs had been in existence for at least ten years (the median year of establishment being 1997). It is notable that 11% took between one and three years and 7% took over three years to start trading. Bioscience firms were more likely to require a longer lead time to start trading than their electronics counterparts; 19% of bioscience firms taking more than a year to start trading compared with 11% of electronics firms.

Just over a third (37%) of all the firms originated as spin outs from other companies or universities. Interestingly, this was significantly (.01 level) higher amongst the younger firms (53%) than the established ones (22%) which may indicate that spin out companies, which tend to be the most innovative and high technology firms, are more likely to have been sold onto or acquired by other companies once their products are traded than their non-spin out counterparts. A higher proportion of bioscience (45%) than electronics (32%) firms were spin outs.

For just over two thirds (71%) of the established TBSFs, their ownership had not changed during the seven years since the previous survey and they were predominantly (88%) private limited companies.



### ***Employment and Sales Turnover Performance***

Table 2 presents the actual growth performance of the interviewed TBSFs over the 2007-10 period. In terms of the number of employees, half of the established firms experienced an increase in employment as did almost half (49%) of the young TBSFs established by 2007. Overall, the mean employment size of surveyed TBSFs established by 2007 rose from 10.1 employees in 2007 to 13.3 employees in 2010, with part-time employment, representing one in ten staff, rising at a similar rate to full-time employment. The mean size of the established firms increased from 13.5 employees in 2007 to 16.8 employees in 2010, whereas that of the younger firms increased from 3.7 employees to 6.3 employees. Thus many of the surveyed TBSFs were able to increase their employment despite the economic recession. More than two-fifths (43%) also forecast a continued increase in their employment over the next year (2011), with young TBSFs being more likely to forecast employment growth (52% of them) than their established counterparts (34%).

Nearly three fifths (57% of n=77) of TBSFs increased their sales turnover during the 2007-10 period (this proportion remaining the same when deflated turnover figures are used<sup>9</sup>), whereas 29 per cent experienced a decrease. Just over half (53%) of established TBSFs increased their sales turnover in this period, with one third experiencing declining sales. Nearly two thirds (66%) of younger TBSFs established by 2007 increased their sales turnover, with only 23% experiencing a reduction. The mean sales turnover for all firms (where sales data was recorded) increased from £1.2m in 2006-07 to £1.5m in 2009-2010 (i.e. an increase of 22%), with the established firms increasing from £1.8m to £2.3m (+28%) compared to £306k to £567k (+85%) in the case of the younger firms. Moreover, the forecasts for sales turnover in 2010-2011 reflect the more positive outlook with respect to the expected economic upturn with an overall forecast increase of 23% for all firms (based on the mean values); an increase of 36% for younger TBSFs compared to 20% for established firms.

### ***Comparing Bioscience and Electronics***

The bioscience firms tended to be larger than the electronics firms, having an average (mean) employment of 16 compared to 10.5 employees and a mean sales turnover of £1.7m compared to £1.3m in 2009-10. They also exhibited faster growth, their mean sales turnover doubling between 2007-10 compared to just a 6% increase for the electronics firms, resulting in mean employment increases of 6 and 1.5 employees respectively. It is evident that the bioscience TBSFs include some high performing growth firms that appear to have been unaffected by the economic recession. Over half of them (58%) achieved sales turnover growth of more than 50%, compared to a quarter of the electronics firms, and twice the proportion of bioscience TBSFs increased their sales turnover by more than £500,000 in the period (32% compared to 17%).

### ***Comparing Spin outs and Non-Spin outs***

As already mentioned, spin outs were strongly represented amongst the young TBSFs. Compared to the young non-spin outs, they tended to be larger, having a mean of 7.7 employees in 2010 (compared to 5.7 for non-spin outs) and a mean sales turnover of £625k (compared to £505k). They also appear to be the main drivers of growth amongst the younger businesses, on average increasing employment by 3 employees (compared to 2) and having stronger sales turnover growth forecasts (34% growth compared to 20%). This is what we might expect from our understanding of spin outs, where previous research (Rowe 2005; Wiklund and Sodeblom, 2006; Mason and Kwok, 2010) indicates that they are likely to have better management capability and resources, often taking on experienced interim managers and non executive directors with knowledge of the

---

<sup>9</sup> 2010 sales turnover deflated by 105.9 (=94.4%) to reflect UK GDP growth from base year of 2007, source UK Office of National Statistics

VC/equity finance markets, being more willing to seek equity finance, better networked amongst the finance community and better equipped to obtain this type of finance than their counterparts and therefore more growth oriented/achieving (CEEDR, 2010).

**Table 2: Growth characteristics of respondent firms**

| <b>(a) Number of Employees</b>  |                  |                  |              |              | <b>(b) Sales Turnover</b> |             |               |
|---------------------------------|------------------|------------------|--------------|--------------|---------------------------|-------------|---------------|
| <b>All firms (n=92)</b>         |                  |                  |              |              |                           |             |               |
|                                 | <b>Full-time</b> | <b>Part-time</b> | <b>Total</b> |              |                           | <b>Mean</b> | <b>Median</b> |
| <b>2007</b>                     | 9.1              | 0.9              | 10.1         | median = 4   | <b>2006-07</b>            | £1,119,900  | £300,000      |
| <b>2010</b>                     | 12.2             | 1.2              | 13.3         | median = 5.5 | <b>2009-10</b>            | £1,459,200  | £400,000      |
| <b>2011</b>                     | 13.8             | 1.2              | 15           | median = 7   | <b>2010-11</b>            | £1,798,900  | £500,000      |
| <b>Established Firms (n=51)</b> |                  |                  |              |              |                           |             |               |
|                                 | <b>Full-time</b> | <b>Part-time</b> | <b>Total</b> |              |                           | <b>Mean</b> | <b>Median</b> |
| <b>2007</b>                     | 13.5             | 1.1              | 14.5         | median = 5   | <b>2006-07</b>            | £1,798,400  | £550,000      |
| <b>2010</b>                     | 16.8             | 1.4              | 18.3         | median = 6   | <b>**2009-10</b>          | £2,331,300  | £660,200      |
| <b>2011</b>                     | 18.4             | 1.5              | 19.9         | median = 8   | <b>2010-11</b>            | £2,803,600  | £1,000,000    |
| <b>Younger Firms (n=41)</b>     |                  |                  |              |              |                           |             |               |
|                                 | <b>Full-time</b> | <b>Part-time</b> | <b>Total</b> |              |                           | <b>Mean</b> | <b>Median</b> |
| <b>2007</b>                     | 3.7              | 0.8              | 4.6          | median = 3   | <b>2006-07</b>            | £305,700    | £110,000      |
| <b>2010</b>                     | 6.3              | 0.8              | 7.2          | median = 4   | <b>**2009-10</b>          | £566,800    | £250,000      |
| <b>2011</b>                     | 8                | 0.8              | 8.9          | median = 6   | <b>2010-11</b>            | £770,200    | £400,000      |

Note: Employee data: Established firms n=51; Younger firms n=41 (8 TBSFs not established prior to 2007)

\*Sales turnover data: 2007 n=77; 2010 n=87; 2011 n=85

**Table 3: Growth orientation and constraints of surveyed TBSFs**

|                           | All TBSFs (n=100) |    | Established TBSFs (n=51) |      | Younger TBSFs (n=49) |      |
|---------------------------|-------------------|----|--------------------------|------|----------------------|------|
|                           | No.               | %  | No.                      | %    | No.                  | %    |
| <b>Growth orientation</b> |                   |    |                          |      |                      |      |
| Growth                    | 67                | 67 | 33                       | 64.7 | 34                   | 69.4 |
| Survival                  | 15                | 15 | 10                       | 19.6 | 5                    | 10.2 |
| No need                   | 8                 | 8  | 6                        | 11.8 | 2                    | 4.1  |
| Not ready                 | 10                | 10 | 2                        | 3.9  | 8                    | 16.3 |
| <b>Constraints</b>        |                   |    |                          |      |                      |      |
| None                      | 14                | 14 | 8                        | 15.7 | 6                    | 12.2 |
| Finance                   | 24                | 24 | 11                       | 21.6 | 13                   | 26.5 |
| Lack of demand            | 34                | 34 | 19                       | 37.3 | 15                   | 30.6 |
| Workforce                 | 8                 | 8  | 8                        | 15.7 | 0                    | 0    |
| Management time           | 6                 | 6  | 3                        | 5.9  | 3                    | 6.1  |
| Technical barriers        | 6                 | 6  | 3                        | 5.9  | 3                    | 6.1  |
| Trade regulations         | 3                 | 3  | 1                        | 2    | 2                    | 4.1  |
| Premises                  | 3                 | 3  | 0                        | 0    | 3                    | 6.1  |
| Sales & marketing         | 5                 | 5  | 0                        | 0    | 5                    | 10.2 |

Note: 3 cases mentioned two main constraints

### ***Growth orientation***

When asked what the aims of their business had been in the last three years (Table 3), two thirds reported that they had been seeking growth, with 15% aiming to survive and 18% not interested in pursuing growth, either because they were seeking size and performance stability (8%), or because the business was not ready to grow (10%) as it was still in the R&D phase prior to trading. There was little difference in the proportion of younger and established TBSFs seeking growth, (69% and 65% respectively), although spin outs were the most growth orientated (76% of them). Just over a fifth (21%) of bioscience firms responded that they were not ready to grow, which is indicative of the longer lead time to commercialisation of some young bioscience firms.

Despite their growth orientation, most of these established TBSFs remained fairly small in employment terms (61% had less than 10 employees in 2010). However, high tech firms specialising in R&D or consultancies may not grow beyond employing a certain number of employees (i.e. a core team of researchers, consultants and managers), businesses may outsource key activities such as manufacturing and sales (e.g. export agents), or they may have developed using a model of contractor consultants (e.g. IT software consultants) which

facilitates flexible labour for business growth without commitment to employees. For example, one respondent mentioned:

*“growth will take place through outsourcing to a component manufacturer”*

Furthermore, it should be noted that growth can mean different things to different entrepreneurs (Achtenhagen et al., 2010) and is not always associated with employment growth or increased sales turnover. Instead, responses, as captured in this survey, may relate to a wide variety of issues such as improved staff and management capacity, product developments and innovations and workplace efficiencies which can improve bottom-line profitability. Examples of such responses included:

*“customise product development, rather than outright growth”*

*“improve products and services to higher standards...within the existing capacity of business”*

### **Affect of the Credit Crunch and Economic Downturn**

In answer to a question about what have been the main factors constraining the growth of the surveyed TBSFs in the last three years (Table 3), the most frequently mentioned constraint was falling demand and loss of trade (34%), followed by difficulties in accessing external finance (18%). Younger TBSFs were more likely to indicate financial constraints, with established TBSFs being more likely to refer to lack of demand. One in seven surveyed TBSFs experienced no constraints.

Two thirds of TBSFs had made significant changes and innovations to their business over the 2007-10 period and for most of them these were in part a response to either the economic downturn (35 cases) or credit crunch (19 cases). Whilst the economic downturn equally affected established and younger TBSFs, the credit crunch was twice as likely to be a factor for young TBSFs (28%), spin outs (27%) and bioscience firms (26%), with the bioscience firms less affected by the economic downturn (24%) than their electronics counterparts (43%). Other actions that were taken included employing fewer people (including not replacing staff that left), reducing working hours, cutting costs generally, and putting more effort into marketing. Interestingly, there were a few firms where the recession had presented new market opportunities, as for example in the case of a business concerned with heat transfer and fluid flow technology that found an increasing demand for its services because customers wanted to make existing processes more efficient and cost effective rather than invest in new processes.

### **Access to Finance 2007-10**

The interviewed TBSF owner-managers were asked about how their businesses were financed over the 2007-10 period and about any problems that they experienced in obtaining finance from various sources. Table 4 demonstrates that in the 2007-10 period the majority of TBSFs (81%) financed their business wholly or partly from internal sources, using personal funding and ploughing back profits, with two-fifths (43%) solely dependent on internal sources. A higher proportion of younger TBSFs (10% compared to 2% of established TBSFs) used informal finance from family and friends, confirming previous research indicating that TBSFs rely on personal and informal family finance in their early stages because banks have difficulties assessing their viability, they lack collateral and face high R&D costs with lengthy lead times to commercialisation and repayment (Mason and Harrison, 2004).

Just over half of the surveyed TBSFs used formal sources (i.e. banks, venture capital funds etc) over the period, often in combination with internal sources. There was little difference between the young and established TBSFs in their use of formal sources (55% and 52% respectively), although the level of use of formal sources

was highest amongst bioscience firms (66%) and spin outs (61%). Qualitative responses indicated that some TBSF owner-managers were ‘discouraged borrowers’ (Fraser, 2009) not making bank applications because they believe that they cannot get funding on acceptable terms and conditions. There was also evidence of ‘equity aversion’ (Mason and Kwok, 2010) from younger TBSF owner-managers who were wary of forfeiting a high share of equity during the early stage of their business when it was valued at considerably less than it could be at a later stage of development (Mason and Kwok, 2010).

**Table 4: Funding for the business in the last 3 years**

| All TBSFs  | No of firms | Percentage |
|--|-------------|------------|
| Internal sources (e.g. Ploughing back profits, personal funding)     | 81          | 81         |
| Informal external sources (e.g. Family and friends)                  | 6           | 6          |
| Formal external sources (e.g. Banks, VC funds, public sector grants) | 53          | 53         |
| <b>Established TBSFs</b>   |             |            |
| Internal sources (e.g. Ploughing back profits, personal funding)     | 44          | 86         |
| Informal external sources (e.g. Family and friends)                  | 1           | 2          |
| Formal external sources (e.g. Banks, VC funds, public sector grants) | 26          | 52         |
| <b>Younger TBSFs</b>   |             |            |
| Internal sources (e.g. Ploughing back profits, personal funding)     | 37          | 75         |
| Informal external sources (e.g. Family and friends)                  | 5           | 10         |
| Formal external sources (e.g. Banks, VC funds, public sector grants) | 27          | 55         |

Note: Some businesses used more than one source

Table 5 indicates that the main reasons for seeking external finance between 2007-10 were for working capital (44%), followed by R&D (30%). It is notable that the majority (41 of 66) of firms seeking formal external finance over the period tended to be active in doing so, seeking two or more types of formal external finance.

**Table5: Reason for seeking external finance**

| Reason            | All TBSFs (n=100) |    | Established TBSFs (n=51) |      | Younger TBSFs (n=49) |      |
|-------------------|-------------------|----|--------------------------|------|----------------------|------|
|                   | No                | %  | No                       | %    | No                   | %    |
| Working capital   | 44                | 44 | 16                       | 31.4 | 28                   | 57.1 |
| R&D               | 30                | 30 | 13                       | 25.5 | 17                   | 34.7 |
| Acquisition       | 5                 | 5  | 2                        | 3.9  | 3                    | 6.1  |
| Staff development | 5                 | 5  | 2                        | 3.9  | 3                    | 6.1  |

|                |    |    |    |     |    |      |
|----------------|----|----|----|-----|----|------|
| Asset purchase | 6  | 6  | 3  | 5.9 | 3  | 6.1  |
| Other          | 13 | 13 | 3  | 5.9 | 10 | 20.4 |
| Total Seeking  | 70 | 70 | 30 | 60  | 40 | 80   |

Note: Table contains data from 4 cases which only sought informal external finance from family and friends

**Table 6: External funding sources that were considered, approached in the last 3 years and its outcome**

| Source                      | Considered<br>No (% of n*) | Approached<br>No (% of n*) | Outcome   |
|-----------------------------|----------------------------|----------------------------|---|
| <b>Bank overdraft</b>       |                            |                            |   |
| All TBSFs                   | 36 (36%)                   | 36 (36%)                   | Successful: 26; Unsuccessful: 7; Partial: 3                             |
| Established TBSFs           | 16 (32%)                   | 16 (32%)                   | Successful: 13; Unsuccessful: 3;  |
| Younger TBSFs               | 20 (40%)                   | 20 (40%)                   | Successful: 13; Unsuccessful: 4; Partial: 3                             |
| <b>Bank loan</b>            |                            |                            |   |
| All TBSFs                   | 25 (25%)                   | 25 (25%)                   | Successful: 13 (9 taken up); Partial: 1<br>Unsuccessful: 10; Pending: 1 |
| Established TBSFs           | 8 (16%)                    | 8 (16%)                    | Successful: 3 (3 taken up); Unsuccessful: 4;<br>Pending: 1              |
| Younger TBSFs               | 17 (34%)                   | 17 (34%)                   | Successful: 10 (6 taken up); Partial: 1<br>Unsuccessful: 6              |
| <b>Venture capital fund</b> |                            |                            |   |
| All TBSFs                   | 12 (12%)                   | 12 (12%)                   | Successful: 7 (6 taken up); Unsuccessful: 4;<br>Pending: 1              |
| Established TBSFs           | 7 (14%)                    | 7 (14%)                    | Successful: 4 (3 taken up); Unsuccessful: 3                             |
| Younger TBSFs               | 5 (10%)                    | 5 (10%)                    | Successful: 3; Unsuccessful: 1; Pending: 1                              |
| <b>Business angels</b>      |                            | 14 (14%)                   |   |
| All TBSFs                   | 16 (16%)                   |                            | Successful: 6; Unsuccessful: 7  |

|                                    |          |          |   |
|------------------------------------|----------|----------|---|
| Established TBSFs                  | 5 (10%)  | 4 (8%)   | Pending:1                                   |
| Younger TBSFs                      | 11 (22%) | 10 (20%) | Successful: 1; Unsuccessful: 2; Pending: 1  |
| <b>Leasing or hire purchase</b>    |          |          |   |
| All TBSFs                          | 5 (5%)   | 3 (3%)   | Successful: 3                               |
| Established TBSFs                  | 2 (4%)   | 1 (2%)   | Successful: 1                               |
| Younger TBSFs                      | 3 (6%)   | 2 (6%)   | Successful: 2                               |
| <b>Factoring / invoice finance</b> |          |          |   |
| All TBSFs                          | 4 (4%)   | 3 (3%)   | Successful: 3 (2 taken up)                  |
| Established TBSFs                  | 3 (6%)   | 3 (6%)   | Successful: 3 (2 taken up)                  |
| Younger TBSFs                      | 1 (2%)   | 0 (0%)   | Successful: 0                               |
| <b>Public sector grant / award</b> |          |          |   |
| All TBSFs                          | 26 (26%) | 25 (25%) | Successful: 22; Partial: 2; Unsuccessful: 1 |
| Established TBSFs                  | 10 (20%) | 10 (20%) | Successful: 8; Partial: 1; Unsuccessful: 1  |
| Younger TBSFs                      | 16 (32%) | 15 (30%) | Successful: 14; Partial: 1                  |

| <b>Other **</b>   |          |          |  |
|-------------------|----------|----------|--|
| All TBSFs         | 19 (19%) | 16 (16%) | Successful: 11 Unsuccessful: 2<br>Pending: 3 |
| Established TBSFs | 10 (20%) | 9 (18%)  | Successful: 5; Unsuccessful: 2; Pending: 1   |
| Younger TBSFs     | 9 (18%)  | 7 (14%)  | Successful: 6; Pending: 1                    |

Notes: \*All TBSFs n=100; Established TBSFs n=51; Younger TBSFs n=49

\*\*Other: bank asset, supplier finance, credit card, university finance, joint venture

As shown in Table 6, debt finance from the banks was the most commonly considered finance, with more than one third of firms (36%) applying for a bank overdraft and one quarter applying for bank loans. In this respect TBSFs are not that different from SMEs as a whole, but they do differ in that a higher proportion were seeking equity/VC finance, with one in eight firms (12%) applying to VC funds and around one in seven approaching (14%) business angels. One quarter of TBSFs applied for public sector grants and awards, and around one sixth considered (19%) and applied (16%) for a variety of other finance sources including bank asset finance, supplier finance, credit card, and joint venture finance.

Younger TBSFs were twice as likely as more established TBSFs to consider and approach banks for loans and business angels for equity finance and more likely to consider and apply for public sector grants/awards and banks for overdrafts. However, the younger TBSFs were less likely to consider and approach VC funding and invoice finance.

Having given an overview of the demand from the surveyed TBSFs for finance from formal sources during the period of the financial crisis, we now turn to consider in more detail their experiences of different types of finance, starting with debt finance from banks.

### ***Debt finance from banks***

Half of the surveyed TBSFs approached banks to access debt finance during the 2007-10 period, with a higher proportion of younger (60%) than established (40%) TBSFs doing so. Almost two-thirds (64%) of the firms seeking bank finance only considered their existing bank, with just eleven firms making enquiries to three or more banks, these being typically established firms seeking loan finance. This demonstrates a reluctance for owner-managers to shop around when seeking bank finance, preferring to stay with the bank with which they have an existing relationship (for new firms, often through personal banking experience) and assuming that if they are unsuccessful, they are unlikely to fare any better with other banks. Whilst it has been generally thought that longer relationships improve the availability of finance and lending terms (e.g. lower collateral requirements and bank charges), recent research has shown an increase in bank switching during the financial crisis as a result of dissatisfaction with bank charges and terms (Fraser, 2009).

Twenty-five businesses sought bank loans, ranging from £15,000 to £12m (median of £125,000), with younger TBSFs typically seeking less bank loan finance (median £100,000) than established TBSFs (median £175,000). Almost half (12) of these cases related to Small Firms Loan Guarantee (SFLG) or Enterprise Finance Guarantee



(EFG) enquiries<sup>10</sup>. This is a very high proportion referring to SFLG/EFG, given that it is "...designed to operate at the margins of commercial lending decisions..." affecting between 1-2 per cent of all bank loans (BIS, 2009a p.2), suggesting that the respondents were more knowledgeable about the bank lending market than most SMEs or were seen as being more marginal in bank lending terms.

More than a third (10 cases) of the 25 bank loan applications were turned down by the bank. The reasons for application failure varied, relating to insufficient trading record for three new TBSFs and one more established TBSF which had reinvented itself, insufficient collateral in two new TBSF cases and changes resulting in more restrictive bank lending policy which impacted more on established TBSFs. For one established bioscience TBSF with growing sales turnover this related to a package of finance involving a £25,000 overdraft, switching an existing SFLG loan of £100,000 to more advantageous terms under the EFG and £250,000 for equipment asset finance. They only approached their own bank and the matter was referred to a central decision making unit which after a considerable three month delay rejected the whole package, indicating that transfer to EFG was not possible and that, despite the positive trading record of the business, further finance would not be forthcoming. The respondent owner-manager suggested that *"the bank does not understand bio-tech businesses and the timescales they operate on... there is no real relationship with the local bank manager."*

However, a significant finding is that making a successful loan application did not necessarily result in the TBSF taking up the offer from the bank. Of the 13 successful applications for bank loans, only nine were taken up by the business. The successfully completed bank loan cases mainly related to young TBSFs seeking bank loans ranging from £15,000 to £250,000, whilst the three established TBSF cases involved a £12m finance package, £200,000 loan guaranteed by property and a £50,000 loan offer from several banks. In four younger TBSF cases the successful applicant declined the bank's loan offer as the terms were considered unacceptable. In one further young TBSF case the bank turned down an initial application for a £200,000 loan and subsequent offers of a loan of up to £50,000 with directors' guarantees, or a £20,000 overdraft were turned down by the business because the request for directors' guarantees was unacceptable and the level of interest on the overdraft was too high. Several respondents complained about the requirements for directors' personal guarantees, with one mentioning that even under the EFG they were still required to put up 25% personal guarantees against the loan and this was unacceptable. There were also complaints about the high levels of interest and set-up fees which in one case was 9.7% fixed rate with a 1.5% set-up fee, whilst another mentioned paying 7% above base with a 0.5% set-up fee. One manager summed up why they rejected the bank's offer as follows: *"We had been in a similar position a few years ago, both parties knew that nothing had changed but, unlike in the past, the bank was prepared to offer, but on totally unacceptable terms both with regard to interest rates and personal guarantees. There was clearly no point in pursuing matters further."* These findings are indicative of the sharp rise in UK bank lending costs and interest rates from 2008 and the more restricted commercial lending practices of the banks.

Thirty-six businesses sought bank overdraft facilities, including six cases extending existing facilities. Overdraft requirements ranged from £1,000 to £250,000 with a median of £20,000 (median of £5,000 for younger businesses and £20,000 for established businesses). Bank overdraft applications were more likely to be successful than loan applications, with four fifths of them being successful to some extent and nearly three quarters completely successful. Two established TBSFs successfully applied to banks for invoice discounting services to values of around £100,000 and £260,000 respectively, set to 80% of order value at a cost of in excess of £5,000 per annum (dependent upon volume of use), although one subsequently failed to get the level of invoice financing increased by a further £100,000.

---

<sup>10</sup> The SFLG, first introduced in 1981, was the UK's publicly funded debt guarantee scheme until January 2009 when it was replaced by the EFG in an attempt to stimulate additional bank lending to SMEs.

Overall, there were mixed feelings as to whether the banks understood the finance needs of the TBSFs. This was strongly linked to relationship management and continuity of communication with local bank contacts. Over one third of bank finance seekers (18) stated that the banks definitely did not understand their business. Established TBSF owner-managers cited lack of continuity with relationship managers and detached centralised decision making. Some referred to not working to fast enough timescales to proceed with proposed business development arrangements and in nine cases lending decisions took over two months. Other complaints centred on specialist sector and trading issues. The impact on the 20 TBSFs which failed to secure the bank finance they required was that three were unaffected, managing to secure other types of finance, whilst the remainder proceeded more slowly, or on a smaller scale, with one not proceeding at all with their plans.

### ***Equity and venture capital finance***

Nearly one quarter (23%) of the surveyed TBSFs had tried to access equity and VC funding during the 2007-10 period, considerably more than the 3% of SMEs seek equity funding in recent SME finance surveys (Cosh et al., 2008). Most frequently this related to funding further R&D (11 cases) and working capital (10 cases), with other purposes including funding acquisitions and buyouts (2 cases). As might be expected, bioscience firms (37%) and spin outs (29%) were most likely to seek equity/VC finance, particularly for R&D.

Owner-managers indicated that they had sought equity/VC finance because they required risk capital which would not be provided by the banks, particularly where this required a significant amount of early stage funding (i.e. early stage of new product development). Later stage equity finance was related more to working capital and finance for product proofing/ technical standards, sales, marketing and distribution. These firms were seeking funding ranging from £20,000 to £10m (median £250,000) and were willing to cede considerable equity share in their businesses, ranging from 10% to 66% (median 25%). Where early stage equity investment was required, there was an understanding that higher levels of equity share would be ceded, as the value of the business would be considerably lower than at a later stage and this was a factor in some respondents only seeking equity at a later stage.

Almost one in eight TBSFs (12%) had sought finance from venture capital funds, including combinations of public and private equity funds. Eight firms sought institutional VC funding, four firms sought public backed equity funding and three firms sought corporate equity funding (e.g. from large pharma companies, which is a growing trend in the bioscience sector). Overall, older TBSFs were more likely to be seeking institutional and corporate equity funds, whilst younger TBSFs were typically seeking government backed equity funds.

Almost one in seven TBSFs (14%), including 10 younger TBSFs, sought equity finance from business angel investors and in six cases it was combined with searches for VC funds (e.g. combinations of Scottish Business Angel Network and Scottish Enterprise VC Fund); two established TBSFs sought institutional VC funds and four new TBSFs sought government backed VC funding. Only two TBSFs considered using hybrid debt/equity mezzanine type finance, but none took up this option.

Around half of the TBSFs (11 out of the 23 TBSFs; 13 out of 26 applications, with one pending) were successful in accessing equity/VC finance. In one case this related to successfully working with a Business Angel Network (BAN) to get three angel investors for a total of £300,000 for 40% equity. In two young Scottish TBSF cases this involved obtaining co-investment from the Scottish Enterprise VC Fund and Scottish Business Angel Networks, raising £3m for a 50% equity share in one case and £450,000 for a total equity share of 66% in the other. Another TBSF took six months to find and access £250,000 from an institutional VC fund for a 10% equity share. Three other successful VC cases involved established TBSFs receiving top-up, second stage funding from

existing VC funders - in one case this represented an eighteen month extension of £9 million European institutional VC funding facility, for up to a 20% equity share.

Only four out of the six business angel offers were eventually taken up. One successful business angel investment included two investors providing a total of £135,000 for early stage business working capital in return for 25% share in a deal which took almost four months to conclude. Two further offers from business angels were rejected because they wanted too greater share of equity.

Owner-managers typically suggested that equity/VC investors understood their business. However, as one manager of a young TBSF indicated, investor understanding does not necessarily translate into application success: *“VC investors know what they are looking at. Corporate investors know the sector well, but they are unwilling to enter at an early stage.”* Furthermore, four respondents raised concerns indicating that *“equity investors have a short-term view, which is not always in the best interest of the business and they failed to see the potential that existed”* and *“that they are just in it for the money.”* For the majority of these businesses, an important attraction to equity/VC investment is the ability to work with an investor that has specialist industry/sector knowledge and can help develop the business, such as through a non-executive director/board member role (CEEDR, 2010).

The reasons attributed to failure to secure equity/VC funds varied. In one case a deal was struck with an institutional VC fund for £1.25m at 25% equity share, but then the investor backed out as the market deteriorated during the recession. Another new TBSF rejected £100,000 of business angel funding after a search of 18 months because: *“although this funding would have been ideal for product development, the investor wanted more than the 25% share offered.”* Five businesses were rejected because the finance was for early stage product developments that were considered to be too risky and not ready for investment. One respondent seeking £500,000 for 25% equity complained that: *“We looked at US and UK VC funds and found that because we are a British company we cannot access US funds, whilst in the UK most institutional VC funds have left the market.”*

Finding equity/VC funding is typically a lengthy process and in some cases the search for funds had taken several years, with the shortest timescale recorded being three months. Younger TBSFs appear to be less knowledgeable about equity funding than their more established counterparts (most of whom had managers with previous experience accessing this type of finance) and only five younger TBSFs had used external assistance to help find investors. Once a funder is found the process of application through to funding can take several months and can be delayed by extensive due diligence procedures and negotiations over terms and conditions (e.g. equity share). One respondent mentioned: *“we have been seeking equity finance for more than three years and despite considering a wide range including public backed funds like the London Technology Fund and various institutional VC funds, there has been no interest and our best hope is that pharmas are now considering earlier stage investments in order to keep the flow of new products coming through.”*

The cost of arranging and setting up equity/VC finance deals is expensive (typically ranging between 5-10 per cent of the deal value) and where businesses were seeking to establish new equity/VC funding (as opposed to top-ups), it was noted that the cost of due diligence, legal fees and VC consultants could amount to tens of thousands of pounds (e.g. in one case £30,000 to gain £500,000). Several respondents also mentioned that the effort required in order to find and secure funding was *“very intensive and expensive in terms of management time”*. Apart from the financial cost, one manager also highlighted that *“...the management time taken up during more than a two year period of fundraising was immense and probably halved R&D development in this time.”*

### ***Other forms of finance***

The most frequently mentioned alternative finance sourced between 2007-10 was grant finance, which one quarter (Table 6) had approached with a high degree of success (88% were completely successful, with a further 8% receiving at least some of the grant funding that they applied for<sup>11</sup>). Grants ranged from small-scale marketing and export grants for up to £5,000 to sizeable UK SMART/Technology Strategy Board (TSB) and European FP7 awards for up to £675,000. Younger TBSFs (30%) were particularly active in seeking grants, particularly in relation to innovation and product R&D.

One sixth (16%) of TBSFs actively sought other forms of finance, with a high degree of success. The most frequently mentioned alternative source was credit card finance, ranging between £5,000 and £14,000, which was successfully used by five young TBSFs. Three businesses were successful in obtaining leasing and higher purchase arrangements for new equipment. Two businesses mentioned negotiating for joint venture finance, whilst in another case the joint venture agreement had fallen through at the onset of the recession when a manufacturing partner had withdrawn, resulting in the development of the business being put on hold.

### ***Future financial needs***

Around half of the surveyed TBSFs (52%,) stated that they would be seeking formal external finance in the next three years, with higher proportions of younger (57%), spin out (60%) and bioscience (60%) firms expressing this need. On average (median values), established firms would be seeking £1.3m compared with £200,000 for younger firms.

Interestingly, this time a slightly higher proportion of TBSFs expected to be seeking equity finance than bank finance, with almost one in five (19%) seeking equity finance compared to one in seven (14%) seeking bank finance. Others would be seeking grants (12%) or joint venture/partner company finance (7%). More than one fifth (21%) mentioned multiple types of finance, typically involving a combination of bank and equity or grant finance. As before, the main reasons for seeking formal external finance typically related to requiring working capital (27%) to facilitate business growth and sales and marketing development and R&D (16%) including for late stage product proofing and meeting technical regulations.

However, more than two-thirds of those identifying a need for future external finance expressed doubts about their ability to obtain finance from these sources. Established TBSFs and spin outs were more likely to refer to difficulties in finding suitable equity investors, citing the short term view of UK VC investors and the equity finance gap where funds required (i.e. typically £500,000 to £1m) were too much for individual business angels, but too little to be of interest to VC funds, as well as an unwillingness to cede ownership at the level that business angels and VC funds require. These findings are indicative of the trends towards smaller numbers of larger, later stage funding by UK VCs (NESTA 2008, 2009 and 20010) and the need for government VC schemes to take a longer term view in order to finance innovations through to successful commercialisation (which can take more than five years for some bioscience firms).

Some established TBSFs also mentioned the over cautious attitude and lack of sectoral knowledge of the banks in addition to the expense, terms and guarantees required for bank loans. Younger TBSFs were more likely to suggest that their business was too risky, or had insufficient track record to obtain bank finance and also mentioned their lack of knowledge of equity finance, including government backed early stage VC funds, underlining the need for increased public information and transparency in the operation of government backed

---

<sup>11</sup> Some grant funding e.g. Scottish Enterprise business development grants is retrospective and so not always able to be completely taken up.

VC schemes (NAO, 2009). Several respondents also mentioned concerns over the future availability of suitable R&D grants from the Technology Strategy Board.

## **Conclusions**

This paper has reported on research of 100 TBSFs, providing a number of observations about the impact of the recent financial crisis on TBSFs in the UK.

First, it would seem that not only have the majority (two thirds) of the TBSFs been growth seeking over the last three years, but also that around half of them achieved growth (as measured by employment and sales turnover). Thus, a significant proportion of them grew, despite the economic recession. That is not to say that they have been immune from the economic downturn, as around a third of them have faced demand constraints and more intense competition. However, they appear to have been able to respond through a combination of new product development, marketing strategies and efficiencies such as flexible working and subcontracting. The evidence here suggests that TBSFs are making an important contribution to UK economic recovery by generating employment (both directly and through subcontracting) and innovative products for global markets. Furthermore, young spin outs and bioscience businesses (once they have overcome their long lead time to trading) appear to be important contributors to growth within the sector.

Second, as a result of their growth orientation and achievements, the TBSFs continued to have a relatively strong demand for finance over the last three years, particularly to fund working capital and R&D. Whilst this could be entirely funded from internal sources in many firms, two thirds of TBSFs sought funding from at least one formal external source, with over half (53%) being at least partially successful and taking up the finance offered. This suggests that in a period when SME demand for formal external finance has been declining, with increased incidence of 'discouraged borrowers' (Fraser, 2009) TBSFs have been highly active. Moreover, two fifths of the TBSFs had applied for more than one type of external finance.

Third, as expected, banks were the main source of formal external finance used, with those TBSFs applying for overdraft facilities or term loans preferring to stick with their existing bank rather than applying to other banks. The majority applying for overdrafts were successful (81%), as were those applying for term loans although to a lesser extent (52%). An important finding is that several of the TBSFs that were offered bank loans rejected them because they found the conditions (e.g. level of personal guarantee and collateral) and costs (fees and interest rates) involved unacceptable. In this regard our findings are broadly consistent with those of a much larger survey of SME access to finance conducted in late 2008 which found that a higher proportion of firms reported that obtaining commercial loans had become more difficult than was the case with overdrafts and other forms of finance such as leasing and hire purchase finance (Cosh et al, 2009). This was largely because SMEs complained that the costs of obtaining the finance had risen substantially in terms of arrangement fees, the level of collateral required and a doubling in above base interest rates. Thus there is some indication here that the financing of some TBSFs is being constrained by the more stringent requirements of banks following the credit crunch. Furthermore, the high incidence of TBSF bank loan applications involving the SFLG/EFG suggests that many of these applications were on the margins of the bank lending market (BIS, 2009a).

Fourth, although many interviewed owner-managers remain reluctant to seek equity finance, largely because of concerns about the implications for retaining managerial control of their business, it is clear that access to equity and venture capital is important for a significant proportion of TBSFs, and especially those with a strong commitment to R&D. This is indicative of the need for early stage R&D risk finance in the TBSF sector, which is far greater than for the UK SME sector as a whole (Cosh et al., 2008). More than a third of the bioscience and 29% of spin out TBSFs sought this type of finance over the 2007-10 period, with younger firms more likely to seek funding from business angels and public backed VC funds and older firms from corporate and institutional VC funds (NESTA, 2008). However, the findings illustrate the difficulties involved in obtaining this type of

finance. Only half of those applying received offers and not all of these were taken up, resulting in less than half of the cases successfully reaching a deal. Offers were normally rejected because business owner-managers were not prepared to relinquish the level of equity required by investors. Moreover, the process of searching for an appropriate source and then negotiating a deal was invariably lengthy and costly in terms of the due diligence and legal process and management time involved.

This finding is consistent with other research showing that it has become more difficult to raise equity finance over the last three years as VC funds and private investors have become more selective or have withheld completely from making new investments. Corporate and private VC funders have been moving out of the seed and early stage market whilst other investors such as business angels have preferred to support their existing portfolios (or withhold making investments altogether) rather than make new investments. Data from the British Venture Capital Association shows that early stage VC funding fell by 18 per cent between 2008 and 2009 (BIS, 2010).

Fifth, early stage seed finance is vital to the start-up and early development of TBSFs, with almost a third of younger TBSFs referring to receiving 'SMART' awards and early stage R&D and business development grants. In several cases these acted as a catalyst for bank and equity finance, for example where Scottish Enterprise assistance facilitated combinations of grant, and co-investment VC finance linked with business angel network finance. This approach highlights the important role that public assistance can have in facilitating potential high growth TBSFs (Bank of England, 1996; NESTA, 2008), particularly at time when debt and private equity is harder to obtain.

Sixth, whilst TBSFs are very positive about their growth prospects in the next year with 43% predicting employment growth and overall a 23% increase in mean sales turnover, around half will require further external finance in order to facilitate that growth and it is the bioscience and spin outs with the most growth potential that are most in need of external finance. Interestingly future finance is more likely to be sourced from equity/VC funds (19%) than banks (14%). This may indicate a growing acceptance by TBSFs of the need to obtain this type of risk capital, although it may also indicate growing dissatisfaction with bank finance. Importantly, two thirds of those identifying a need for future external finance voiced concerns about access. Established TBSFs and spin outs cited the short-term views of UK VC investors and the equity gap (£500,000 to £1 million), with younger TBSFs indicating some unwillingness to cede equity share. Established TBSFs also mentioned the lack of sector knowledge and increasing caution of banks, whilst younger TBSFs were concerned about their lack of trading record and banks' aversion to risk. Younger TBSFs also mentioned the need for better promotion of public assisted equity/VC grant schemes. It should also be noted that of the almost one fifth of TBSFs that have been constrained by the credit crunch, experiencing most difficulties raising finance, these were predominately spin out and younger businesses.

From the perspective of TBSFs, it would appear that, if anything, the funding gap has grown as a result of the responses of both the banks and private investors to the financial crisis, making it not only more difficult to access certain types of finance, but also available on terms that business owner-managers find unacceptable. Thus the ability of existing TBSFs with growth potential to contribute to the UK's economic recovery is clearly going to be conditional upon a greater willingness on the part of both equity and debt finance providers to address the longer-term investment needs of such businesses than is the case at present, or an increasing role for public backed schemes to fill the void.

## References

Achtenhagen L., Naldi N. and Melin L. (2010) Business Growth – Do Practitioners and Scholars Really Talk About the Same Thing? *Entrepreneurship Theory and Practice*, vol. 34, pp. 289-316.

Bank of England (1996) *The Financing of Technology-based Small Firms*, Domestic Finance Division.

Bank of England (2001) *The Financing of Technology-based Small Firms*, Domestic Finance Division.

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

BIS (2009) Venture capital support to small business, Report by the National Audit Office, December

BIS (2009a) Early Stage Assessment of the Impact of the Enterprise Finance Guarantee (EFG) on Recipient Firms, Department for Business Innovation and Skills URN09/1594

BIS (2010) *Financing a Private Sector Recovery*, Department for Business Innovation and Skills, Cm 7923.

Bruno, A. V. and Tyebjee, T. T. (1985) 'The entrepreneur's search for capital', *Journal of Business Venturing*, vol. 1, pp. 61-74.

Bullock, A. and Millner, I. (2003) Innovation Benchmarking Methodology, ESRC Centre for Business Research Paper, December

CEEDR (2010) Early Assessment of the Impact of BIS Equity Fund Initiatives, Report for the Department for Business Innovation and Skills (BIS) URN 10/1037

CEEDR (2010a) Follow-Up Research into Mid-Cap Businesses having Difficulties in Raising Bank Finance. Report to the Department for Business Innovation and Skills (BIS), December, URN10/1353

Cosh, A., Hughes, A., Bullock, A., & Milner, I. (2008) *Financing UK Small and Medium-sized Enterprises: the 2007 Survey*, Centre for Business Research, University of Cambridge.

Cosh, A., Hughes, A., Bullock, A., & Milner, I. (2009) *SME Finance and Innovation in the Current Economic Crisis*, Centre for Business Research, University of Cambridge.

Cressy, R. (2002) 'Funding Gaps: A Symposium', *The Economic Journal*, 112 (February 2002).

Fraser, S. (2005) *Finance for Small and Medium-Sized Enterprises: A Report on the 2004 Survey of SME Finances*, Centre for Small and Medium-Sized Enterprises, Warwick Business School, University of Warwick.

Fraser, S. (2009) *Small Firms in the Credit Crisis: Evidence from the UK survey of SME finances*, Warwick Business School, University of Warwick.

Glancey Johnston, K. (2009) *The Risk Capital Market in Scotland*, Scottish Enterprise.

Harrison, R., Don, G., Glancey Johnston, K., and Greig, M. (2010) 'The early-stage risk capital market in Scotland since 2000: issues of scale, characteristics and market efficiency', *Venture Capital*, Vol.12, no. 3 pp.211-239.

- HM Treasury/Small Business Service (2003) *Bridging the Finance Gap: a consultation on improving access to growth capital for small businesses*, HM Treasury April 2003.
- Houben A and Kakes J (2002) ICT innovation and economic performance: the role of financial intermediation, *Kyklos*, Vol.55, pp.343-362
- IFF Research Ltd (2010) *Results from the 2009 Finance Survey of SMEs*, Report for Department for Business Innovation and Skills, URN 10/636.
- Irwin, D. and Scott, J. M. (2006) Barriers faced by small and medium-sized enterprises in raising finance from banks.
- Mason, C.M. and Harrison, R.T.. (2001) Investment Readiness: A Critique of Government Proposals to Increase the Demand for Venture Capital, *Regional Studies*, Vol. 35, No.7, pp. 663 - 668
- Mason, C.M. and Harrison, R.T. (2004) Does investing in high technology-based firms involve higher risk? An exploratory study of the performance of technology and non-technology investments by business angels, *Venture Capital* Vol.6 No.4, pp.313-332.
- Mason, C.M. and Kwok, J. (2010) Investment Readiness Programmes and Access to Finance: A Critical Review of Design Issues, *Local Economy*, Vol.25, No.4, pp.269-292
- Murray, G.C. (2007) 'Venture capital and government policy', in Landstrom, H. (ed) *Handbook of Research on Venture Capital*, Edward Elgar, Cheltenham.
- Myers, S. C. and Majluf, N. C. (1984) 'Corporate financing and investment decisions when firms have information that investors do not have', *Journal of Financial Economics*, vol. 13, pp. 187-221.
- NESTA, (2008) *Shifting Sands: the changing nature of the early stage venture capital market in the UK*, Research Report, September 2008.
- NESTA (2009) From funding gaps to thin markets: UK Government support for early-stage venture capital, Research Report, September, 2009
- NESTA (2009a) Siding with the Angels: Business angel investing – promising outcomes and effective strategies, Research Report, May 2009
- NESTA, (2010) *Venture Capital: Now and After the Dotcom Crash*, Research Report, July 2010.
- Oakey, R.P. (2003) 'Funding innovation and growth in UK new technology-based firms: some observations on contributions from the public and private sectors', *Venture Capital*, Vol.5, no.2, pp.161-180.
- Oakey, R. P. (2007) 'A commentary on gaps in funding for moderate 'non-stellar' growth small businesses in the United Kingdom', *Venture Capital*, vol. 9, no. 3, pp. 223-235.
- Rowe, D. N. E. (2005) Investment Readiness: The New Tool for Bringing Equity Markets and High Growth SMEs Together at an Early Stage, Paper by Warwick University Science Park
- Rowlands, C. (2009) *The Provision of Growth Capital to Small and Medium Sized Enterprises*, Report for Department for Business, Innovation and Skills.



Sahlman, W. A. (1990), 'The structure and governance of venture capital organisations', *Journal of Financial Economics*, vol. 27, pp. 473-521.

Shane, S. and Cable, D. (2002) 'Network ties, reputation, and the financing of new ventures', *Management Science*, vol. 48, pp.364-382.

Siegel, D.S., Westhead, P. and Wright, M. (2003), 'Science parks and the performance of new technology-based firms: a review of recent U.K. evidence and an agenda for future research', *Small Business Economics*, vol. 20, pp. 177-184.

Stedler, H. R. and Peters H. H. (2003) Business angels in Germany: an empirical study, *Venture Capital: An International Journal of Entrepreneurial Finance*, Vol.5, pp.269-276.

Stiglitz, J. E. and Weiss, A. (1981) 'Credit rationing in markets with imperfect information', *The American Economic Review*, vol. 71, no. 3, pp. 393-410.

SQW Consulting, (2009) *The Supply of Equity Finance to SMEs: Revisiting the Equity Gap*, Report to the Department for Business Innovation and Skills.

Trester, J. J. (1998) 'Venture capital contracting under asymmetric information', *Journal of Banking and Finance*, vol. 22, pp. 675-699.

Ullah, F. (2005), *Financing of Technology-based Small Firms and the Role of Location: Evidence from the United Kingdom*, PhD Thesis, University of Liverpool.

Utterback, J.M., Meyer, M., Roberts, E. & Reitberger, G. (1988). Technology and Industrial

Innovation in Sweden: A Study of Technology-Based Firms formed between 1965 and 1980. *Research Policy*, 17, pp. 15 – 26.

Wiklund, J. and Soderblom, A. (2006) Factors Determining the Performance of Early Stage High Technology Venture Capital Funds: A Review of the Academic Literature, Report to the Small Business Service, UK Department for Trade and Industry.

Appendix 3: TBSFs telephone interview questionnaire



Confidential

The Impact of the Credit Crunch on the Financing and Growth of Technology-Based Small Firms in the United Kingdom

INTERVIEW QUESTIONNAIRE

1. INTERVIEW DETAILS

|                                      |  |
|--------------------------------------|--|
| 1.1 Business name                    |  |
| 1.2 Interviewer                      |  |
| 1.3 Interview date                   |  |
| 1.4 Interviewee name                 |  |
| 1.5 Interviewee position (job title) |  |
| 1.6 Telephone number                 |  |
| 1.7 Business address                 |  |
| 1.8 Postcode                         |  |
| 1.9 Email contact address            |  |
| 1.10 Website address                 |  |

## 2. BUSINESS PROFILE & TRENDS

| <b>We would firstly like to build up a picture of your business and any changes that have occurred in the business over the last three years.</b>                        |  |
|--|--|
| 2.1 When was your business established?  |  |
| 2.2 When did your business start trading?<br><br>(if different from above)   |  |
| 2.3 Was the business formed as a spin out from another company or organisation?<br><br>(if so, please give details)  |  |
| 2.4 Has the business changed ownership / been acquired at any stage in its development?<br><br>(if so, please give details e.g. changes in structure associated with VC) |  |
| 2.5 What is the present legal status of the business?  | <ol style="list-style-type: none"> <li>1. Sole proprietorship</li> <li>2. Partnership</li> <li>3. Private limited company</li> <li>4. Public quoted company such as AIM</li> <li>5. Joint venture entity</li> <li>6. Branch of another company</li> <li>7. Foreign ownership</li> <li>8. Other (please specify)</li> </ol> |
| 2.6 What proportion of the shares are held by the following kinds of investors?  | <ol style="list-style-type: none"> <li>1. Senior executives / managers</li> <li>2. Non-executive directors</li> <li>3. Business angels</li> <li>4. VC funds</li> <li>5. Other (please specify)</li> </ol>  |
| 2.7 Please describe your main areas of business activity (including your product range)?   |  |
| 2.8 In what ways (if any) do you consider your business to be innovative?<br><br>(If yes) is it at the leading edge of developments within its field?                    | Do we want to give OECD categories here?   |

| <p>2.9 Have you made any significant changes / innovations to the business in the last 3 years?</p> <p>If so, what have these been?</p>  |  |    |       |    |       |      |  |  |  |      |  |  |  |      |  |  |  |
|--|--|----|-------|----|-------|------|--|--|--|------|--|--|--|------|--|--|--|
| <p>2.10 Have you been actively trying to grow the business during the last 3 years (i.e. since 2007)?</p> <p>If so, what are the aims and goals for the business?</p>  |  |    |       |    |       |      |  |  |  |      |  |  |  |      |  |  |  |
| <p>2.11 What have been the main factors constraining the growth of your business during the last 3 years?</p> <p>In what ways have these affected your business?</p>   |  |    |       |    |       |      |  |  |  |      |  |  |  |      |  |  |  |
| <p>2.12 Have these changes been in response to:</p> <ul style="list-style-type: none"> <li>i. The credit crunch</li> <li>ii. The economic downturn?</li> </ul>   |  |    |       |    |       |      |  |  |  |      |  |  |  |      |  |  |  |
| <p>2.13 Are there any other actions you have had to take in response to:</p> <ul style="list-style-type: none"> <li>i. The credit crunch</li> <li>ii. The economic downturn?</li> </ul>  |  |    |       |    |       |      |  |  |  |      |  |  |  |      |  |  |  |
| <p>2.14 What is the current total number of employees in your firm (<i>include both full-time and part-time and including the owner/manager</i>)?</p> <p>How does this compare with the employment 3 years ago (in 2007)?</p> <p>What are your future growth plans e.g. in the next 12 months?</p> | <table border="1"> <thead> <tr> <th></th> <th>Ft</th> <th>Pt</th> <th>total</th> </tr> </thead> <tbody> <tr> <td>2010</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2007</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2011</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> |    | Ft    | Pt | total | 2010 |  |  |  | 2007 |  |  |  | 2011 |  |  |  |
|  | Ft   | Pt | total |    |       |      |  |  |  |      |  |  |  |      |  |  |  |
| 2010   |  |    |       |    |       |      |  |  |  |      |  |  |  |      |  |  |  |
| 2007   |  |    |       |    |       |      |  |  |  |      |  |  |  |      |  |  |  |
| 2011   |  |    |       |    |       |      |  |  |  |      |  |  |  |      |  |  |  |
| <p>2.15 What was the sales turnover of your business in the last financial year? How did this compare with the turnover 3 years previously?</p>  | <p>2009-10</p> <p>2006-07</p>  |    |       |    |       |      |  |  |  |      |  |  |  |      |  |  |  |
| <p>2.16 How profitability has changed in last three years</p>  | <p>2009-10</p> <p>2006-07</p>  |    |       |    |       |      |  |  |  |      |  |  |  |      |  |  |  |

### 3. ACCESS TO FINANCE (General)

| <b>We would now like to turn to asking you about how your business has been financed over the last three years and about any problems that you may have experienced in obtaining finance from various sources.</b>  |  |          |         |
|---|--|----------|---------|
| 3.1 Over the last three years, how has your business been funded?<br><br><i>(i.e. internal sources such as ploughing back profits v. external sources (informal and formal) in terms of amounts or proportions)</i> | 1. Internal sources (e.g. ploughing back profits, personal funding)<br>2. Informal external sources (e.g. family & friends)<br>3. Formal external sources (e.g. banks, VC funds, public sector grants) |          |         |
| 3.2 If you sought external finance for your business over the last three years, what was the purpose of the funding?  | 1. Working capital<br>2. Investment capital  |          |         |
| 3.3 How much funding was required?  | Amount:  |          |         |
| 3.4 What sources of external funding did you (a) consider and (b) approach over the last 3 years and (c) what was the outcome?  | Consider   | Approach | Outcome |
| Bank overdraft  |  |          |         |
| Bank loan   |  |          |         |
| Loan fund (a) public (b) private  |  |          |         |
| Venture capital fund  |  |          |         |
| Business angel  |  |          |         |
| Loans / equity from family or friends   |  |          |         |
| Leasing or hire purchase  |  |          |         |
| Factoring / invoice finance   |  |          |         |
| Public sector grant/award   |  |          |         |
| Other (please specify)  |  |          |         |
| 3.5 Why were the above sources approached? Main reasons?  | 1.<br>2.<br>3.   |          |         |
| 3.6 Do you feel that you had sufficient knowledge of the alternative sources of finance available? If not, what would you have liked more / better knowledge of?  |  |          |         |

|  |   |
|--|---|
| 3.7 In your experience, has obtaining external finance in the last 3 years become more difficult than previously? If so, in what respects?               |   |
| 3.8 If obtaining external finance has become more difficult, how has this impacted upon the development of your business and your future business plans? |   |
| 3.9 If you did not seek external finance in the last 3 years, what were the reasons?   | <ol style="list-style-type: none"> <li>1. Not needed</li> <li>2. Did not want to take on too much risk</li> <li>3. Too expensive</li> <li>4. Thought that would be turned down</li> <li>5. Other reasons (please specify)</li> </ol>      |
| 3.10 If you thought that you would have been turned down, why did you feel this?   | <ol style="list-style-type: none"> <li>1. Poor credit history</li> <li>2. Insufficient collateral</li> <li>3. Strict credit scoring involved</li> <li>4. Would be seen as too risky</li> <li>5. Other reasons (please specify)</li> </ol> |

#### 4. DEBT FINANCE FROM BANKS

|   |  |
|---|--|
| <b>We would now like to ask you some more specific questions relating to each of the sources of finance that you did apply to in the last 3 years</b>                                   |  |
| 4.1 What type of finance did your application relate to?  | <ol style="list-style-type: none"> <li>1. Loan finance</li> <li>2. Overdraft finance</li> <li>3. Invoice discounting</li> <li>4. A combination</li> <li>5. Other (please specify)</li> </ol> |
| 4.2 How much funding were you seeking?  | Amount:  |
| 4.3 How many banks did you approach?  |  |
| 4.4 If only one bank was approached, was this the one that you normally bank with?  |  |
| 4.5 Did the application relate to the Small Firms Loan Guarantee Scheme (SFLGS) or the Enterprise Finance Guarantee (EFG)? If so, did the bank recommend applying for the SFLGS or EFG? |  |
| 4.6 How well did you feel that the presentation of  | Strange question not sure how someone would react  |

|  |  |
|--|--|
| your business case went?   |  |
| 4.7 Did you feel that the bank understood your business needs sufficiently? If not, what aspects didn't they understand?                           |  |
| 4.8 Was the application dealt with at the local branch level or by a central commercial unit?  |  |
| 4.9 What role did your local bank manager (or business relationship manager) play?   |  |
| 4.10 Was your application successful? If so, did you obtain the full amount that you were seeking? If not – proportionally how much was received?  |  |
| 4.11 If only <i>partially successful</i> , what reasons were given for not providing the full amount?  |  |
| 4.12 If <i>unsuccessful</i> , what reasons were given?   | <ol style="list-style-type: none"> <li>1. Insufficient collateral</li> <li>2. Insufficient trading record</li> <li>3. Business plan not strong enough</li> <li>4. Cash-flow projections in sufficient to justify the application</li> <li>5. Funding sought was outside the finance providers range of provision</li> <li>6. Other (please specify)</li> </ol> |
| 4.13 How long did it take to receive a decision on your application?<br><br>Did this cause any problems for the business?                          |  |
| 4.14 What was the cost of obtaining finance (i.e. arrangement, administrative, monitoring fees etc)?<br><br>Do you consider these were reasonable? | <p>Amount:</p> <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol>   |
| 4.15 What is your overall opinion of the process under which you tried to obtain finance?  | <ol style="list-style-type: none"> <li>1. Very poor / very unsatisfactory</li> <li>2. Fairly poor/fairly unsatisfactory</li> <li>3. Satisfactory</li> <li>4. Fairly good/generally above expectations</li> </ol>   |

|   |  |
|---|--|
|   | 5. Excellent/entirely above expectations   |
| 4.16 If unsuccessful (or only partially successful), to what extent have you been able to go ahead with your business plans?                                  | <ol style="list-style-type: none"> <li>1. Have not gone ahead at all, in any format.</li> <li>2. Gone ahead at the same time, but on a smaller scale.</li> <li>3. Has taken longer to go ahead, but at the original planned scale.</li> <li>4. Has taken longer to go ahead and on a smaller scale.</li> <li>5. Have gone ahead at the same time and at the same scale.</li> </ol> |
| 4.17 If successful, has the bank finance helped in obtaining further finance from other sources?<br><br>If yes, please provide details (amounts and sources). | <ol style="list-style-type: none"> <li>1. Amounts:</li> <li>2. Sources:</li> </ol>   |

## 5. EQUITY & VENTURE CAPITAL FINANCE

|   |   |
|---|---|
| 5.1 What were your reasons for seeking equity / venture capital finance?                              | <ol style="list-style-type: none"> <li>1. Working capital</li> <li>2. Asset purchases</li> <li>3. Employing more staff</li> <li>4. R &amp; D</li> <li>5. Acquisition</li> <li>6. Management buy out</li> <li>7. Other (please specify)</li> </ol> |
| 5.2 Why did you feel equity finance was the most appropriate?   |   |
| 5.3 How much equity were you initially seeking?<br><br>What equity stake were you prepared to accept? |   |
| 5.4 Did you have previous experience of obtaining equity finance / venture capital?                   |   |



|   |   |
|---|---|
| <p>5.5 What alternative sources of equity / venture capital finance did you consider?</p>   | <ol style="list-style-type: none"> <li>1. Institutional Equity / Venture Capital Funds</li> <li>2. Government backed Equity Schemes (e.g. Capital for Enterprise Fund)</li> <li>3. Corporate Equity</li> <li>4. Investment Business Angels</li> <li>5. Existing shareholders</li> </ol> |
| <p>5.6 Was mezzanine* funding considered?<br/>(*mezzanine being a hybrid of debt and equity financing)</p>                                      |   |
| <p>5.7 Did you seek funding from a combination of sources? If so, which ones?</p> <p>How did you find sources – were they well publicised?</p>  |   |
| <p>5.8 How much funding did you receive from each separate funding source?</p>  |   |
| <p>5.9 Did you use any external assistance in developing your funding application? If so, what kind of assistance was used?</p>                 |   |
| <p>5.10 How well did you feel that the presentation of your business case went with the sources that you approached?</p>                        |   |
| <p>5.11 Did you feel that the financial providers understood your business needs sufficiently? If not, what aspects didn't they understand?</p> |   |
| <p>5.12 Was your application successful? If so, did you obtain the full amount that you were seeking?</p>                                       |   |
| <p>5.13 If only <i>partially successful</i>, what reasons were given for not providing the full amount?</p>                                     |   |
| <p>5.14 If <i>unsuccessful</i>, what reasons were given?</p>  |   |
| <p>5.15 How long did it take to receive a decision on your application? Did this cause any problems for the business?</p>                       |   |
| <p>5.16 What was the cost of obtaining finance (i.e. due diligence, legal fees etc)?</p> <p>Do you consider these were reasonable?</p>          | <p>Amount:</p>  |
| <p>5.17 What is your overall opinion of the process under which you tried to obtain equity finance /</p>  | <ol style="list-style-type: none"> <li>1. Very poor/very unsatisfactory</li> </ol>  |

|  |  |
|--|--|
| venture capital?   | <ol style="list-style-type: none"> <li>2. Fairly poor/fairly unsatisfactory</li> <li>3. Satisfactory</li> <li>4. Fairly good/generally above expectations</li> <li>5. Excellent/entirely above expectations</li> </ol>   |
| 5.18 If <i>unsuccessful</i> (or only partially successful), what have been the implications for the business?  | <ol style="list-style-type: none"> <li>1. Have not gone ahead at all, in any format.</li> <li>2. Gone ahead at the same time, but on a smaller scale.</li> <li>3. Has taken longer to go ahead, but at the original planned scale.</li> <li>4. Has taken longer to go ahead and on a smaller scale.</li> <li>5. Have gone ahead at the same time and at the same scale.</li> </ol> |
| 5.19 If <i>successful</i> , has the equity finance helped in obtaining further finance from other sources? If yes, please give details (amounts, types and sources). |  |

## 6. OTHER SOURCES OF FINANCE

**If other types pursued, what were these types of sources?**

|  |   |
|--|---|
| 6.1 What were your reasons for seeking finance from these sources? | <ol style="list-style-type: none"> <li>1. Working capital</li> <li>2. Asset purchases</li> <li>3. Employing more staff</li> <li>4. R &amp; D</li> <li>5. Acquisition</li> <li>6. Management buy out</li> <li>7. Other (please specify)</li> </ol> |
| 6.2 Why did you feel this source was the most appropriate?         |   |
| 6.3 How much finance were you initially seeking?                   |   |

|  |   |
|--|---|
| 6.4 How much funding did you receive from this source?   |   |
| 6.5 Did you use any external assistance in developing your funding application? If so, what kind of assistance was used?                       |   |
| 6.6 What was your experience?  |   |
| 6.7 Did you feel that the financial providers understood your business needs sufficiently?<br><br>If not, what aspects didn't they understand? |   |
| 6.8 Was your application successful? If so, did you obtain the full amount that you were seeking?  |   |
| 6.9 If only <i>partially successful</i> , what reasons were given for not providing the full amount?   |   |
| 6.10 If <i>unsuccessful</i> , what reasons were given?   |   |
| 6.11 How long did it take to receive a decision on your application? Did this cause any problems for the business?                             |   |
| 6.12 What is your overall opinion of the process under which you tried to obtain funding from this source?                                     | <ol style="list-style-type: none"> <li>1. Very poor / very unsatisfactory</li> <li>2. Fairly poor/fairly unsatisfactory</li> <li>3. Satisfactory</li> <li>4. Fairly good/generally above expectations</li> <li>5. Excellent / entirely above expectations</li> </ol>  |
| 6.13 If <i>unsuccessful</i> (or only partially successful), what have been the implications for the business?                                  | <ol style="list-style-type: none"> <li>1. Have not gone ahead at all, in any format</li> <li>2. Gone ahead at the same time, but on a smaller scale.</li> <li>3. Has taken longer to go ahead, but at the original planned scale.</li> <li>4. Has taken longer to go ahead and on a smaller scale.</li> <li>5. Have gone ahead at the same time and at the same scale.</li> </ol> |

|   |   |
|---|---|
| <p>6.14 If <i>successful</i>, has the finance helped in obtaining further finance from other sources? If yes, please provide details.</p> | <ol style="list-style-type: none"> <li>1. Amounts:</li> <li>2. Types:</li> <li>3. Sources:</li> </ol> |
|---|---|

**7. FUTURE FINANCIAL NEEDS**

|   |  |
|---|--|
| <p><b>Finally, we would like to ask you about your company's future financial needs, focusing particularly on the next 3 years or so.</b></p>                     |  |
| <p>7.1 What are your anticipated finance needs over the next three years?</p>   |  |
| <p>7.2 Is this likely to involve trying to raise funding from external sources?</p>   |  |
| <p>7.3 What are the main reasons for wanting to raise finance from external sources?</p>  |  |
| <p>7.4 If yes, which sources are you most likely to approach and why?</p>   |  |
| <p>7.5 Are you aware of sources that you would like to apply to but have a number of uncertainties about doing so?</p>  |  |
| <p>7.6 Are there sources that you definitely would not consider? Why is this?</p>   |  |
| <p>7.7 What barriers do you anticipate facing in trying to obtain external finance?</p>   |  |
| <p>7.8 Finally, is there anything else you would like to say about access to finance generally for TBSFs that has not been covered by the previous questions?</p> |  |

Thank you

Appendix 4: TBSFs investors interview questionnaire



Confidential

The Impact of the Credit Crunch on the Financing and Growth of Technology-based Small Firms in the United Kingdom

| General details                  |  |
|----------------------------------|--|
| Organisation (where appropriate) |  |
| Respondent's name                |  |
| Position                         |  |
| Date                             |  |
| Telephone                        |  |
| E-mail                           |  |
| Website (where appropriate)      |  |
| Postal address                   |  |

| Investors' profile  |  |
|---|--|
| 1. How long have you been in the investor's role?   |  |
| 2. Are you a lone investor or part of a syndicate? If the latter, what do you see as the advantages?                                |  |
| <b>If you are a lone investor:</b>  |  |
| 1. What is the range of your investment?  |  |
| 2. What different types of investment (debt, equity, mezzanine, partnering finance etc..) will you consider?                        |  |
| 3. What are your maximum and minimum entry levels of funding?   |  |
| 4. Do you consider investments requiring further tranches of finance over time (crucial for biotechnology and life sciences firms)? |  |
| 5. How many investment propositions do you usually consider annually?   |  |
| 6. How do you find investment opportunities?  |  |
| 7. How many do you actually invest in?  |  |
| 8. How has the number changed in recent years (particularly since the onset of the credit crunch)?                                  |  |
| 9. What is the approximate size (amount) of your investment portfolio?  |  |

|   |  |
|---|--|
| 10. At present, how many businesses constitute your investment portfolio?   |  |
| <b>If you are part of a syndicate:</b>  |  |
| 1. What is the minimum and maximum amount you would invest in a business?   |  |
| 2. What is the approximate size (amount) of your investment portfolio?  |  |
| <b>For all investors:</b>   |  |
| 1. What rate of return over what period of time do you look for?  |  |
| 2. What returns have you made from your investments (over a given period) and are you satisfied with the rate of return?                                      |  |
| 3. How have your investments performed since 2007 (compared to previously)?   |  |
| 4. Is it taking longer to make a return than you expected?  |  |
| 5. Are you making 'follow-on' investments in your existing investee businesses rather than making 'new' investments and if so, what are the reasons for this? |  |
| 6. What other assistance (in addition to providing finance) are you able to bring to investee companies?  |  |
| <b>Organisation's Profile (where applicable)</b>  |  |
| 1. Type of organisation   |  |
| 2. Please explain your investment ethos, aims and objectives  |  |

|   |  |
|---|--|
| 3. How long has your organisation been established as an investment vehicle? How long has it still to run?  |  |
| 4. How many fund managers/investment partners are there in the organisation?  |  |
| 5. What is the scope and size of investment fund/lending (overall/annually)?  |  |
| 6. How many investment opportunities does the organisation consider annually ( <i>if not covered above</i> )?   |  |
| 7. How many investments do you make annually ( <i>if not covered above</i> )?   |  |
| 8. How do you find businesses to invest in?   |  |
| 9. How do you promote your investment services?   |  |
| <b>Investment criteria</b>  |  |
| 1. What criteria do you use when investing in small businesses?   |  |
| 2. Do you require small businesses to give up equity in return for your investment? If so, what level of equity to finance do you typically seek (how is this calculated)?                  |  |
| 3. Do you specialise in investing in technology-based small firms (TBSFs)? Do you target investing in businesses in particular sectors (please specify)?                                    |  |
| 4. What proportion of your (annual) investment goes into TBSFs – has this changed at all in recent years?   |  |
| 5. What in particular, do you look for in small businesses when considering investment? What are the overriding criteria, if a proposition meets the financial requirements for investment? |  |



|   |  |
|---|--|
| 6. Do you tend to invest in businesses that have reached a particular stage of development?   |  |
| 7. How many applications for finance from small business owners do you typically receive annually? How has this changed in recent years (particularly since the onset of the credit crunch)?  |  |
| 8. How do you generally go about assessing the risks involved in a particular investment? How do you try to minimize the risks?   |  |
| 9. What are your business plan/financial forecast/due diligence requirements for investments?   |  |
| 10. How do you find potential investee companies?   |  |
| 11. Do you invest in UK small businesses which derive their revenues mainly from operating internationally? If yes, how do you assess the level of risk involved?   |  |
| 12. How would you describe your investment experience so far? Have you invested in any stellar (i.e. high growth) companies? What proportion of your investments have failed (i.e. because of non-survival of the business; or failure to make a profit)? |  |
| 13. How has your investment experience changed (if at all) in recent years (and particularly since the onset of the credit crunch)?   |  |
| 14. Do you find that your investment in a business then helps attract other sources of funding to the business (if so, please give examples)?   |  |
| 15. Do you think there is a funding gap for small businesses in the UK? Does this relate specifically to equity funding or to all types   |  |

|   |  |
|---|--|
| of funding? What do you consider to be the size and nature of the gap?  |  |
| 16. In your view, how has government regulation and incentives (e.g. the EIS) affected investors behavior in recent years. Have you any suggestions for changes in policy?  |  |
| <b>The impact of credit crunch on your investment</b>   |  |
| 1. How has the recent credit crunch been impacting on your investment?  |  |
| 2. How has it impacted on the level of demand for investment funds?   |  |
| 3. As a result of the credit crunch, have you needed to change your investment criteria, form of investment, tactics or approach towards investing in small businesses?   |  |
| 4. Do you think that securing external finance has become more difficult for small firms in the last 3 years? If so, in what respects? Has it become any more difficult for TBSFs than small businesses in general? |  |
| 5. What could the government do to improve the situation (e.g. further investment tax breaks, develop new government backed funds etc.)?  |  |
| 6. What can investors do better (i.e. network, partner funding etc.)?   |  |
| 7. What can small firms do better (i.e. improve their propositions)?  |  |
| 8. What type of investments do you think you will be making in the next 1-2 years?  |  |
| <b>Thank You</b>  |  |