

What Do We Know About The Relationship Between Entrepreneurial Finance and Growth?

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Entrepreneurial Finance and Growth

CONTENTS

1. Introduction	7
2. Growing Firms and Finance Needs	11
3. Recent trends in entrepreneurial finance	14
4. Informational asymmetry and market failure	19
5. Overcoming market failure	20
5.1 Asset based lending	21
5.2 Banking relationships	22
5.3 Credit/behavioural scoring	23
5.4 Trade credit	23
5.5 Due diligence and monitoring	24
6. Financing Decisions	25
7. Constraints on Investment Decisions and Growth	27
8. Non-bank sources of finance and growth	29
8.1 Estimates of gaps in the venture capital market	29
8.2 Venture capital and firm growth	31
8.3 Private equity buyouts and firm growth	34
8.4 Business angels	36
8.5 Some other sources of non-bank growth capital	37
9. Policy	38
9.1 Credit market intervention	38
9.2 Equity market intervention	41
9.3 Competition	43
10. Further research	43
10.1 The role of finance and entrepreneurial cognition in explaining firm growth	44
10.2 Understanding financing decisions	45
10.3 Governance, finance and growth	46
10.4 Involvement of financiers	46
10.5 Modes and patterns of growth and finance	47
10.6 Context, finance and growth	48
10.7 Scaling-up and finance	49
10.8 Entrepreneurs, finance and growth	49
Appendix: Recent trends in entrepreneurial finance (UKSMEF)	50

Entrepreneurial Finance and Growth

Executive Summary

In the aftermath of the financial crisis, the recovery of the UK economy has been sluggish, and a key concern of policymakers is that private sector firms should have adequate access to finance. Available data suggest a significant decline in both debt and equity finance flows to SMEs. While the degree of success of recent policy initiatives is yet to be fully understood, a widely held perception is that the funding gap of a large proportion of firms is yet to be bridged. The attendant concern is that the prevailing funding gap may be limiting firm growth in the private sector.

Policies targeting funding gaps, with the ultimate aim of promoting firm growth, require an analysis of both the factors that affect funding gaps and the nature of the relationship between funding gaps and business growth. However, these are complex and nuanced issues that are not completely understood. The core aim of this paper is to distinguish between issues that are well understood, and issues (and relationships between economic variables such as funding gap and firm growth) that are less clear (or ambiguous). It does so by drawing on, and examining, the academic literature on the relevant issues. The evidence examined and reported is not restricted to the UK context, and draws on experiences of a wide range of countries. It is therefore not a commentary on funding gaps and the funding gap-firm growth in the UK context per se, but rather an attempt to identify the gaps in the academic literature that should be addressed to better inform policy making in the UK context.

It is well known, for example, that a firm's access to bank finance can increase if it is able to post collateral, if it has a steady relationship with banks, and if they are able to obtain trade credit from their business partners. In this respect larger, established firms with a good track record and good credit ratings tend to get the funding they need while start-ups where entrepreneurs are not able to adequately demonstrate their commitment to the business (for example, through self-finance), high growth and other riskier firms may be less fortunate. However, the

Entrepreneurial Finance and Growth

academic literature on firm's financial decisions and their access to finance indicates that the underlying issues go well beyond traditional discussions of failures in entrepreneurial finance markets to include contingencies such as differences in: entrepreneurs' objectives, ownership types of firms and firm life-cycle stages.

Entrepreneurs may feel discouraged from applying for finance for a variety of reasons such as inadequate information about alternative sources of finance, the perception (rightly or wrongly) that they will have their applications turned down by finance providers, and lack of ambition about business growth. Further, the psychology of entrepreneurs with similar business attributes may differ significantly: they can either be loss averse and hence reluctant to borrow, or over-optimistic about their business prospects and hence over-estimate their financing gap. Similarly, firms with certain organisational structures may be less enthusiastic about funding sources that can reduce the entrepreneurs' control over the firms.

Some of these bottlenecks can be addressed by supply side policies aimed at promoting the provision of credit and equity finance, some others may require different forms of intervention, such as access to information and advice about alternative sources of finance. Yet other bottlenecks are much more intractable. Ambiguous and less understood issues concern the relative impact of entrepreneurial cognition, different ownership and board configurations (for example, family owned firms, management buyouts), financing needs of firms at different stages in their life-cycle, and supply side factors on access to finance and business growth.

In the context of non-bank finance, there is similar evidence about the impact of VC financing on internationalisation and growth of firms. In addition, issues such as cherry picking of good firms by VCs, heterogeneity among VCs, and how VC characteristics are related to the development of portfolio companies have received greater attention. Evidence from systematic worldwide studies also suggests that private equity (PE) funding has a largely positive impact on operating profitability of firms. Further, PE-

Entrepreneurial Finance and Growth

backed buyouts in the UK have exhibited higher average growth than non-PE-buyouts.

However, there is lesser clarity about some other issues. For example, there is scope for debate about how the growth/lifestyle objectives of businesses/entrepreneurs, and the importance of retaining control might affect decisions to look for VC or equity funding (and non-bank source of external funding, in general). Similarly, it is not well understood as to how choice is made between alternative forms of non-bank finance, such as VCs, private equity, and business angels, and how these different forms of financing differently affect firm performance.

Having identified the areas of research that merit greater focus, both because the underlying issues have not been unambiguously resolved, and also because greater clarity about these issues are required for formulation of effective policy, the paper sets out the lines of inquiry that will be followed in the course of the ERC's research (subject to availability of appropriate data). In addition, it briefly discusses the policy interventions that are being pursued by governments and central banks in the UK and comparable OECD countries and emerging market economies.

Entrepreneurial Finance and Growth

1. Introduction

It has been over four years since Lehman Brothers collapsed, signalling the culmination of the financial crisis and sending financial shock-waves which buffeted the world's economies. The UK economy, whose performance before the financial crisis was closely tied to the fortunes of the financial sector and the construction sector which accounted for a significant part of the pre-crisis flow of credit,^{1 2} has fared badly relative to many other leading economies.³

The UK has been through two recessions since 2008 and GDP at the end of 2012 was still 3.4% below its 2008 peak. With public sector spending cuts to reduce government debt expected until 2017-18, policy-makers are looking to a private sector led recovery with entrepreneurs at the vanguard. However, despite various policy measures designed to help fuel recovery, some of which are in their early stages of implementation, there has not yet been a rise in net lending to Small and Medium Sized Enterprises (SMEs)⁴ and venture capital (VC) funding of early stage ventures remains low. Higher capital adequacy requirements under Basel III, as well as recent findings by the Financial Policy Committee that some banks need to raise more capital,⁵ while promoting financial stability may act as a further constraint on future lending.⁶ In this respect, fears that banks may lack the capacity and risk appetite to play their full part in recovery has led to proposals to promote non-bank sources of funding and the announcement of a Business Bank modeled on the lines of the German state-owned bank Kreditanstalt für Weideraufbau (KfW).

The issue of funding gaps, in the provision of debt and equity, as a constraint on the development of small businesses is not new. The MacMillan Committee (1931)⁷ and Bolton Committee (1971)⁸ identified gaps in the supply of small scale equity investments to small businesses. The Small Firms Loan Guarantee (SFLG) was introduced in 1981 to overcome a perceived gap in credit availability reported in Wilson Committee (1979)⁹. More recently, the Cruickshank (2000), Rowlands

Entrepreneurial Finance and Growth

(2009) and Breedon (2012) reports have drawn attention to various shortcomings in the provision of financial support for growth companies.

The issues involved in understanding funding gaps are complex and nuanced. It is not easy to disentangle whether a drop in the amount of funding is an outcome of low demand or contraction in the supply of funds. The explanation of the latter, which has dominated the policy discussion in the UK, is often rooted in market failure: the fixed costs of gathering information about the viability of smaller/younger businesses may be prohibitively high. In these circumstances funding may only be available where the entrepreneur has some track record or is able to demonstrate commitment to the business, such as through the provision of collateral. Recent developments in how banks assess risk, making use of technology, have arguably helped to lower the fixed costs of lending and reduce the reliance on collateral. However, the financial crisis has placed the issue of credit availability to small businesses back at the centre of policy makers' concerns.

What do we understand about the relationship between entrepreneurial finance and growth? Academic research tends to focus on parts of the relationship: capital structure and sources of finance; market failure in the supply of entrepreneurial finance; internal/personal finance constraints on growth; and the special role of venture capital in helping build high growth firms. Little is said about the entire 'journey' over the life-cycle of the firm from the initial decision to seek external finance, the problems, such as rejection, encountered along the way, through to the changing needs over time and the consequences for firm performance. Yet, path dependence may play an important role in locking firms in and out of markets for bank and non-bank finance.

Also, a largely underdeveloped area of research is the role of entrepreneurial cognition in financing/investment decisions that lead to growth.¹⁰ Individuals face limitations in their ability to process information, which may lead to various shortcuts/heuristics in ways of thinking.^{11 12}

Entrepreneurial Finance and Growth

However, these shortcuts may introduce serious biases into decision making. These biases are especially likely in situations involving informational overload,¹³ novelty/uncertainty,¹⁴ high emotions,¹⁵ and time pressures.¹⁶ These are situations which are more often encountered and more intensely experienced by entrepreneurs leading to the inference that they may be especially susceptible to cognitive biases.¹⁷

The implication is that entrepreneurs and people in general do not conform to the tenets of rational decision making.¹⁸ Instead, cognitive biases may affect how they frame and evaluate the options ('prospects') available to them.¹⁹ In this regard, evidence suggests people prefer avoiding losses to making gains of the same magnitude.²⁰ Consequently, loss aversion may cause entrepreneurs to decide not to invest in/grow their businesses. Framing investment decisions in terms of survival rather than growth may prove a greater spur to action.

Related research suggests most people, and entrepreneurs especially, are prone to 'positive illusions'.²¹ For example, entrepreneurs are strongly motivated by a desire for control²² suggesting a belief at least that they can shape their own destiny. Research also suggests entrepreneurs tend to over-estimate their ability/under-estimate risk²³ which may lead to over-investment.²⁴ In short, a range of competing cognitive biases may lead to under- or over-investment in the business. However, while previous research points to the importance of cognitive biases in entrepreneurial finance, we still have little understanding of their actual impact on investment/financing decisions and growth.

In this paper, we attempt to address two issues. We examine the extant literature to identify stylised facts, relationships between the flow of finance and its correlates or determinants about which we are fairly certain, and also relationships that are not unambiguous and hence require further exploration. We discuss these issues in the context of bank and non-bank sources of finance.

Entrepreneurial Finance and Growth

The paper is structured as follows:

In Section 2, we discuss the complexity of the relationship between financing needs and growth of firms.

In Section 3, to set the context for the discussion, we report available evidence about recent trends in entrepreneurial finance, drawing on sources such as the UK Survey of SME Finances (UKSMEF) and the SME Finance Monitor.

In Section 4, we discuss the role of informational asymmetry in precipitating market failure.

In Section 5, we examine ways in which banks and non-bank funding sources such as VCs overcome the adverse selection and moral hazard problems that are associated with informational asymmetry.

In Section 6, we discuss financing decisions of firms, specifically their choice between different sources of finance.

In Section 7, we discuss the relationship between financial constraints (or funding gaps) and growth of firms.

In Section 8, we discuss non-bank sources of finance (such as VCs, private equity, business angels, and alternative stock markets), highlighting available evidence about gaps in these markets and the impact of these financing sources on firm growth.

In Section 9, we discuss some policy interventions in the markets for bank and non-bank finance.

Finally, in Section 10, we enumerate research questions/issues that merit greater attention to better inform policy making in the UK, and those that the ERC will pursue, subject to data availability.

Entrepreneurial Finance and Growth

2. Growing Firms and Finance Needs

We start by locating the different parts of the entrepreneurial finance literature into paths leading from the initial funding decisions through to growth (see Figure 1), mindful of the possibility that we may think we are measuring financial constraints on growth when in fact we are measuring cognitive constraints.²⁵

Entrepreneurs have different growth objectives and may be at different stages in their lifecycle and the lifecycle of their ventures. Indeed many entrepreneurs are motivated by lifestyle factors and may have little need for external finances. Others, whilst having future plans for growth, may not yet be at the stage where they are ready to grow.

Growth orientated/ready businesses, on the other hand, will be more likely to seek external finance to meet their higher capital demands.²⁶ However, given these differences, more dynamic growth orientated firms tend to follow the upper path in Figure 1 and seek external finance while less dynamic lifestyle businesses tend to follow the lower path and rely more on internal finance.

These financing needs depend partly on the entrepreneur's objectives. Entrepreneurial cognition will influence the decision to seek external finance by affecting perceptions of growth opportunities (perceived economic outlook) and/or the desire/perceived ability to exploit these opportunities (relating to control-loss aversion and over-optimism). Start-up entrepreneurs may be reluctant to let go of control but also established family firms with underlying growth prospects may be reluctant to take on external funding that either dilutes the equity of the family or involves taking on of debt that would put family ownership at risk in the event of difficulties in servicing the debt.

Figure 1 provides a snapshot of the financing journey at a particular point in time, yet firms will experience changing needs over the financial growth life-cycle²⁷. Start-ups traditionally tend to rely on insider finance, trade

Entrepreneurial Finance and Growth

credit and, to a lesser degree, angel finance. More recently, start-ups may use crowdfunding and accelerators (see below) as sources of funding. As the firm grows and gains a track record, it is more likely to become 'investor ready' to access external finance in the form of bank debt, venture capital and public debt/equity becomes available.

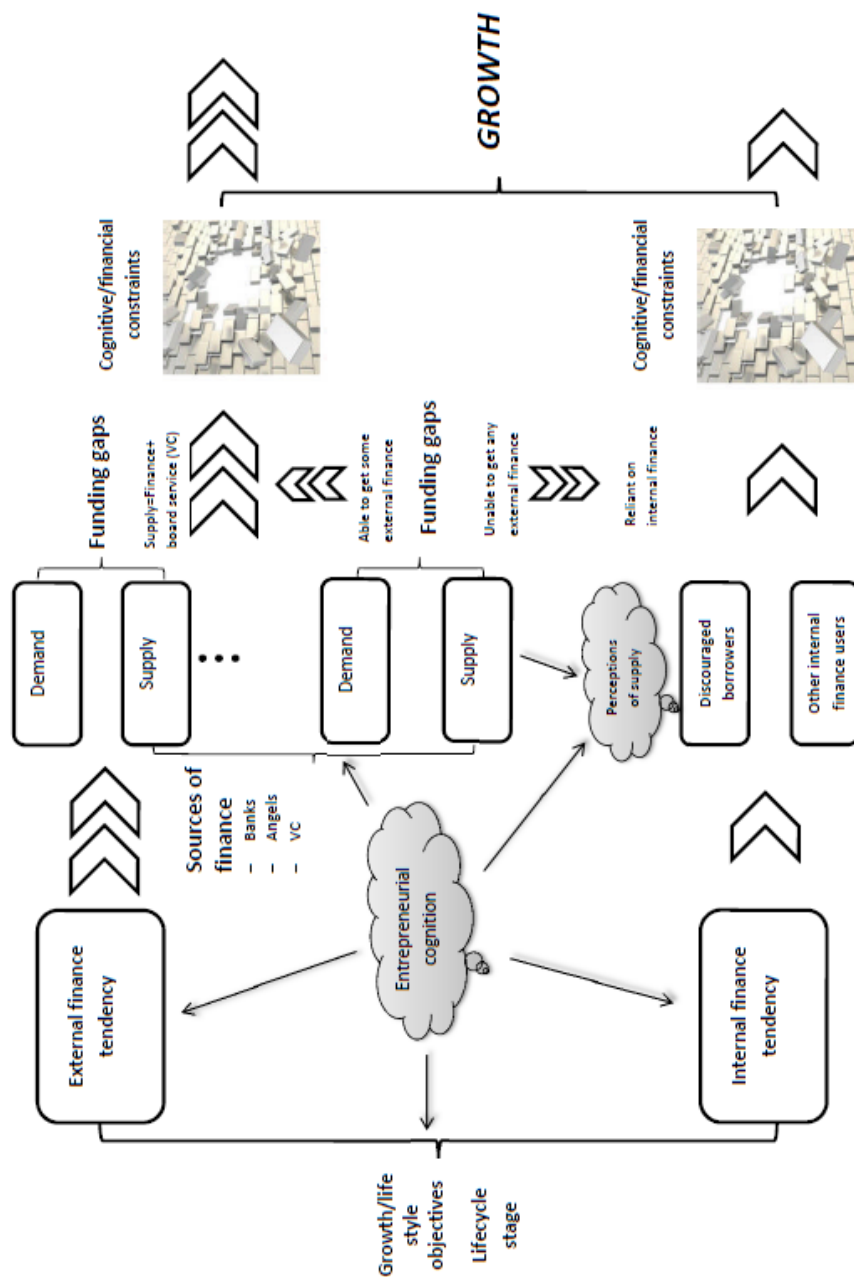


Figure 1: Entrepreneurial Finance and Growth: An Integrated Framework

Entrepreneurial Finance and Growth

For some firms with growth potential, a change in ownership structure associated with additional forms of debt and equity finance may be appropriate, such as in growth oriented management buyouts and listings on stock markets such as AIM. In other words, business size, age and ownership form also affect financing decisions.

Growing firms may need finance to facilitate their growth but they may also require fund providers and associated boards with different expertise to help unlock barriers to growth at different phases in the growth life-cycle²⁸. At early stages, growing firms will be likely to need expertise to sharpen the focus of opportunities and to help build commercial skills of the entrepreneurial team. More established growing firms may be more likely to need board expertise that includes both monitoring skills of financiers and expertise to enable new growth directions such as through acquisition and internationalization.

Perceptions of what funding is available (supply) may also influence the sources from where entrepreneurs seek funding.²⁹ Perceptions that the supply of finance is very poor may result in complete discouragement and reliance on internal finance ('discouraged borrowers'). In short the 'pecking order' of sources of finance (see below) may be skewed towards internal finance not just because it is actually harder/more costly to obtain external finance (due to market failure) but also because, rightly or wrongly, it is perceived to be harder. This is in addition to any preferences for using internal finance due to control-loss aversion and the general sufficiency of internal finance for lifestyle businesses. At the same time, perceptions may be shifted if growing firms recognise and seek advice about what they can do to make themselves ready for different types of investors over different growth phases.

Where market failure gives rise to actual funding gaps, entrepreneurs may have to make do with inadequate levels of finance leading to constraints on their initial growth objectives. However Figure 1 highlights the potential for cognitive constraints on growth to exist alongside those arising due to

Entrepreneurial Finance and Growth

funding gaps. Essentially, then, ‘improving’ the relationship between entrepreneurial finance and growth potentially involves more than simply identifying and filling funding gaps.

3. Recent trends in entrepreneurial finance

In this section we take a look at some key trends in the demand and supply of entrepreneurial finance covering the pre and post financial crisis periods. We preface these findings with a number of caveats. Firstly, increases in financial rejection rates over time may reflect changes in the risk profiles of applicants rather than a tightening of supply. In this respect, international comparisons of rejection rates are also hindered by cross-country differences in business demographics and business support. Secondly, even in studies which are able to control rigorously for risk profiles, there may be a number of underlying causes of tighter supply, which are hard to disentangle, including: increased risk aversion amongst finance providers; increased uncertainty about risk; and higher funding costs. In this respect we note greater economic uncertainty and capital requirements since 2008 may underlie changes in the availability and cost of debt (rather than risk aversion). Thirdly, rising rejection rates does not of itself point to market failure – it might simply reflect, for example, a return to more prudent lending practices following the financial crisis. As a consequence it is important to look at the relationship between funding gaps/rejection rates and business performance to glean information about financial constraints – an argument which we will develop later in the paper and points to one of the core areas for future research. Accordingly the purpose of looking at the following trends is simply to highlight issues on both the demand and supply side that warrant further investigation rather than draw from them substantive policy inferences.

The UK Survey of SME Finances (UKSMEF)³⁰ shows significant falls in overdraft applications down from 19.3% in 2001-4 to 13.1% in 2008-9 - a fall of almost one-third (see Appendix). Term loan applications show a smaller decline in the same period (from 8.8% in 2001-4 to 7.8% in 2008-

Entrepreneurial Finance and Growth

9). The most recent findings from the SME Finance Monitor indicate that overdraft and loan applications rates fell to 9% and 4% respectively in the year ending quarter 4 2012.³¹ On the demand side, applications for leasing and hire purchase agreements fell from 10% in 2001-4 to 6.7% in 2009; this figure fell to 4% in the year ending quarter 4 of 2012.³² Fewer than 1 in 50 SMEs applied for invoice finance (factoring and invoice discounting) both before and after the financial crisis (with the figure at 1% in 2012³³) and less than 1 in 100 sought equity finance from business angels and venture capitalists (VC). Although these specialist forms of finance are only suitable for a small minority of high growth firms,³⁴ entrepreneurs may also prefer not to raise equity from business angels/VCs because they do not want to share ownership with outside investors.

On the supply side, the focus of much of the policy debate, the numbers indicate that bank debt rejection rates have been on an increasing trend. Overdraft rejection rates increased from around 11% in 2001-4 to just over 16% in 2008-9; in the year ending quarter 4 2012 the figure stood at 24%.³⁵ Term loan rejection rates increased from 5.4% in 2001-4 to 14.1% in 2008-9 reaching 34% in the year ending quarter 4 2012.³⁶ Some of these trends may be explained by increased risk following the financial crisis (see Dun and Bradstreet credit ratings in the Appendix). However, further analysis of the impact of the financial crisis on bank lending to SMEs indicates that overdraft rejection rates increased in relative terms by over 50% in 2009 (compared to 2004) and term loan rejection rates increased by 163% controlling for changes in risk.³⁷ In the same period, loan margins increased in relative terms by over 80% (holding risk constant). Also, after the crisis, entrepreneurs had to offer more collateral as a proportion of the value of the loan on loans above £20,000. In this respect we note increased incidences of insufficient collateral being reported as the reason for rejection (see Appendix). We repeat, however, that there are several factors underlying this apparent tightening in the supply of credit including increased risk aversion, increased uncertainty and higher bank funding costs.

Entrepreneurial Finance and Growth

Comparisons of rejection rates for different sources of finance are difficult because of selection effects relating to the kind of businesses that approach the different sources. However, looking at non-bank debt, leasing and hire purchase agreement rejection rates were lower at just over 2% in 2001-4 and 2005-8 (possibly reflecting the lack of need for additional collateral).³⁸ Invoice finance rejection rates were 8.6% in 2001-4 and 5.3% in 2005-8 (see Appendix). Rejection rates for venture capital, are much higher than for bank or non-bank debt. Comparative data covering the most recent period is lacking, but a UK study published in 2009 found that 46% of respondents approaching VCs had experienced rejection and 24% of those approaching private individuals, i.e. business angels, had experienced rejection.³⁹

In the context of the market for bank finance, analysis of overdraft rejection rates by business type indicates rejection rates are higher for high risk firms, high growth firms, start-ups (aged less than two years old) and smaller firms (see Appendix). Notwithstanding the apparent issues for high growth firms, these findings may simply reflect good risk management practices by lenders. Recent analysis reported in the SME Finance Monitor (relating to 2012) also suggests that around 80-90% of larger, established businesses with good credit ratings get the bank funding they need.

Other research suggests that financial rejection rates are significantly higher among Black and Bangladeshi owned businesses which can be largely explained by a lack of collateral and poor credit histories.⁴⁰ As we noted earlier, another issue which is particularly important in this context is the role of business support in improving access to finance. In this respect we note that a higher proportion of White owned businesses receive professional financial advice (from a bank or accountant; see Appendix). In contrast, a significantly higher proportion of Black Caribbean owned businesses receive no financial advice (see Appendix). These findings are important because previous research indicates that financial advice reduces financial delinquency thereby improving access to finance.⁴¹ Cognitive factors relating to awareness of support and perceptions of

Entrepreneurial Finance and Growth

ethnic discrimination, as well as cultural differences, may explain low take-up of advice among some ethnic minorities.

Recent evidence suggests that businesses in the North East, Yorkshire and Humberside, West Midlands, Wales and Northern Ireland are significantly less likely to obtain a loan/overdraft facility compared to other regions but this may be on account of unobservable risks that are correlated with the locations.⁴² Indeed, analysis of loan rejection rates, in the period before 2008, which controls rigorously for risk profiles finds little evidence of regional variations.⁴³ By sector, loan/overdraft rejection rates appear to be higher following the financial crisis in Construction, Wholesale/Retail, Hotels and Restaurants and Real Estate, Renting and Business Activities.⁴⁴

The *determinants* of rejection rates also vary by sector. For example, finance providers' risk assessments of Creative Industry Businesses (CIBs) appear to depend more on the availability of collateral and business/owner track record compared to non-CIBs (credit ratings seem to be more useful in assessing non-CIB finance applications). This suggests that greater uncertainty about CIBs among financiers leads to higher incidences of funding gaps, absent collateral and/or a track record.⁴⁵

International comparisons of loan rejection rates in 2010 show that rates in the UK, at 20.8%, were higher than Germany (8.2%), France (7%), Sweden (6.1%), Italy (4.9%) and Spain (13.2%) but smaller than the Netherlands (22.5%) and Ireland (26.6%).⁴⁶ Also the proportion of businesses in the UK receiving all the funding they requested fell by over 24% points between 2007 and 2010 compared to falls in the same period of 9% points in France and 11% points in Germany.⁴⁷ We re-iterate that these differences may reflect differences in risk profiles and business support rather than supply side issues (and, regardless, funding gaps may not signify market failure).

Still, some estimates suggest UK funding gaps may widen in the next few years as the demand for finance grows which makes it all the more

Entrepreneurial Finance and Growth

important that we develop our understanding of the relationship between funding gaps and business performance.⁴⁸ Regarding high growth businesses, across EU countries, rejection rates doubled from around 10% in 2007 to 20% in 2010 again highlighting particular issues for this type of firm.⁴⁹

Start-up sources of finance (see Appendix) conform to a ‘pecking order’ with internal finance from the entrepreneur’s personal savings used before external finance principally in the form of bank debt followed by equity from business angels/VCs (which is used very infrequently). Notably over 3 out of 4 entrepreneurs relied on personal savings to finance their business whereas only around 1 in 8 used bank loans. This may reflect difficulties in raising external finance at start-up, as highlighted above, but it may also reflect entrepreneurs’ preferences for using internal finance. However, firms are more likely to seek external finance when they have higher growth orientations.⁵⁰

Venture capital funding for early stage ventures remains at a low level and has failed to recover from the 2008 credit crisis. Funding for later stage management buyouts many of which are SMEs has recovered somewhat, however, reflecting their lower risk profile compared to start-ups (see Appendix).

A key message from the above findings is that whilst there has been a tightening in the supply of entrepreneurial finance across debt and equity sources due to the financial crisis – particularly affecting start-ups, high growth and other higher risk businesses – there has also been a significant fall in the demand for finance. One reason for this fall in demand is entrepreneurs’ *perceptions* of financial constraints as reflected in increased levels of financial discouragement.⁵¹ About 1 in 11 entrepreneurs in 2009 felt discouraged from applying for external finance because they believed they would be rejected. This compares with around 1 in 25 businesses before the crisis (see Appendix). This finding points to worsening perceptions about the supply of finance. A further reason for falling demand

Entrepreneurial Finance and Growth

is that entrepreneurs may lack the confidence to invest in the current economic climate.

In the next section, we look at issues related to the supply of entrepreneurial finance -- specifically, the role that information asymmetries and agency issues play in the process -- and factors that might reduce the likelihood of market failure.

4. Informational asymmetry and market failure

The central feature characterising the relationship between a finance provider and a firm/entrepreneur is informational asymmetry; the entrepreneur necessarily knows more about the risk associated of the project for which he/she is seeking external finance, and also about the motivation to eventually provide a return to the finance provider.

When the cash flow generated from a project is observable by both the funder and the entrepreneur, it is, in principle, easy to write contracts that would involve some degree of risk sharing. However, when the expected cash flow is uncertain and is not directly observable, it can only be verified through costly due diligence and audit.⁵² In particular, problems of adverse selection may arise where finance providers tend to be presented with riskier/lower quality projects at the application stage (with it being too costly to distinguish these projects from higher quality projects). Additionally, there is always the potential for a conflict of interest between the entrepreneur and the funder. The entrepreneur might be interested in a wide range of projects, and external finance servicing costs would reduce its ability to finance these projects from internal resources. This may lead to problems of moral hazard where the entrepreneur behaves in a riskier manner, such as exerting less effort on a project, after receiving funding.

Problems of adverse selection and moral hazard may make it unprofitable for banks to raise interest rates to clear the credit market potentially leaving creditworthy firms unfunded (a situation of 'credit rationing').⁵³ Credit rationing can not only be horizontal (i.e., across firms) but also vertical;

Entrepreneurial Finance and Growth

informationally opaque firms (and firms that are unable to post collateral) can be rationed out of the market for loans with long maturity.⁵⁴ Similarly, in the context of equity finance, adverse selection/moral hazard problems may make it unprofitable for investors to provide any funding even though some individual projects may be viable.⁵⁵

5. Overcoming market failure

Economic theory suggests that problems arising from informational asymmetry can be overcome under certain circumstances. A firm can signal (for example, by posting collateral) that it manages *good* projects, or it can act in ways that reduces the informational asymmetry vis-a-vis the finance providers. Such actions can help overcome the problem of adverse selection. Similarly, the problem of moral hazard can be overcome if a firm makes a credible commitment to permit finance providers to monitor its activities closely after funding is provided.

Finance providers have developed several mechanisms to overcome the problems of adverse selection and moral hazard. In the context of debt finance lenders use various lending technologies to cope with these issues. These technologies can be divided broadly into two groups: transactions lending and relationship lending.⁵⁶ Transactions lending relies on the gathering and processing of 'hard' data about the firm/entrepreneur (e.g., credit/behavioural scoring) or the availability of collateral (asset based lending). Relationship lending, on the other hand, relies mainly on 'soft' information, such as the character and trustworthiness of the entrepreneur, which is gathered over time through a relationship between the entrepreneur and a loan officer at the bank.

In the context of debt finance, trade creditors may have an informational advantage over banks regarding firm and sector risk. In this manner working capital may be made available to firms unable to obtain it from other sources.

Finally, firms seeking equity finance often lack a track record and collateral

Entrepreneurial Finance and Growth

to mitigate the informational asymmetry problem. In situations of high informational asymmetries which would deter an ordinary investor, venture capitalists have developed various efficient methods of selecting high quality ventures and monitoring/adding value to their portfolio.⁵⁷

The rest of this section discusses these mechanisms in more detail.

5.1 Asset based lending

Lenders are unable to separate high risk from low risk borrowers using a single term (i.e., the interest rate) in a loan contract. However by writing more complex contracts with additional terms lenders may be able to separate risk types (and overcome credit rationing). An important example of an additional loan term is collateral (another example includes equity investment by the entrepreneur). Lenders can write contracts involving an interest rate and collateral term which are incentive compatible (i.e., separate risk types) and maximize bank profits. In particular the incentive compatible contract for low risk borrowers involves pledging collateral in return for a lower interest rate whereas high risk borrowers prefer a contract with no collateral and a higher interest. In this manner the willingness to offer collateral by low risk borrowers becomes a reliable signal of borrower quality to an imperfectly informed lender.^{58,59} However, the problem with collateralized lending is that creditworthy businesses with insufficient assets to offer as collateral remain financially constrained.⁶⁰

Recent developments in non-bank debt products have reduced entrepreneurs' reliance on traditional (collateralized) bank debt. In particular leasing and hire purchase agreements (asset finance) provides funding for fixed assets which is secured on the asset being funded (i.e., there is no need for additional collateral). Indeed leasing and hire-purchase agreements are now more widely used than term loans.⁶¹ Also invoice finance (asset based finance) provides funding for working capital which is secured against debtors/unpaid invoices (frequently a plentiful asset for high growth businesses).

Entrepreneurial Finance and Growth

5.2 Banking relationships

In the absence of collateral, ability to make equity investments in a project, and a good credit history, a firm may use its relationship with a bank to overcome the problems posed by informational asymmetry. United States evidence suggests that firms with close relationship with a bank are generally better able to access finance, and that the length of this relationship may not always be important.⁶² German evidence indicates that *housebanks* behave in ways consistent with a long term relationship, and provide liquidity insurance to associated firms in case of an unexpected deterioration in the latter's borrower ratings, though these banks typically involve larger firms.⁶³ Importantly, the impact of a banking relationship on availability of bank finance is weakened if a firm has multiple banking relationships.⁶⁴

A long-term relationship between a bank and a firm has two implications. First, it enables a bank to monitor the firm over time, and this in turn reduces the informational advantage of the firm that may result in moral hazard and adverse selection. Second, and more importantly, it offers the bank another mechanism to credibly punish the firm if it wilfully misreports outcomes of projects or wilfully defaults (or indeed consistently undertakes questionable projects). The bank can threaten to cut off supply of credit or alter terms of future credit if it discovers that a borrower is *bad* or that it does not act in good faith.⁶⁵ The credibility of the bank's threat, however, is weakened if the firm has relationships with multiple banks, and that can explain the weakening impact of a banking relationship on availability of bank finance.

Evidence about the impact of banking relationships on loan rates is somewhat mixed. Some research indicates that the impact of banking relationships is much more on the availability of financing than on the pricing of these loans. Evidence from a large sample of small Belgian firms, however, suggests that banking relationships may have an impact on loan rates as well. Specifically, the loan rate may increase with the duration of a

Entrepreneurial Finance and Growth

relationship, and it decreases with an expansion of the scope of the relationship that reveals more information about the firm (or borrower) to the bank.⁶⁶

Evidently, developing strong relations with banks is a mechanism that may enable SMEs without collateral or significant entrepreneurial equity stake in the firms to gain access to bank credit. However, while monogamous relationships with banks may be advantageous in the early stages of a firm's life, some of these advantages may be offset if loan rates rise with the duration of the relationship. Unsurprisingly perhaps, while most firms borrow from a single bank initially, over time many start borrowing from additional banks. The likelihood of multiple banking relationships is higher for firms with more growth opportunities and those with poor performance.⁶⁷

5.3 Credit/behavioural scoring

Credit scoring has a long history in consumer lending but its application to small business loans is relatively recent. Previously, the utility of credit scoring for small businesses was questioned due to the heterogeneity of small businesses (suggesting models with poor predictive power) and the limited availability of financial data for these firms.⁶⁸ In this regard, the key innovation was made in the US by Fair Isaac and Company (FICO) in the 1990s, who noted that personal information about the small business owner (e.g., income, personal assets, home ownership, outstanding debts and previous loan defaults/delinquencies⁶⁹) is highly predictive of the firm's repayment likelihood. However, anti-discrimination legislation prohibits the use of data on the applicant's gender, race or religion to determine credit scores. Empirical evidence suggests that credit scoring may have increased the availability of finance to small firms in the US.⁷⁰ We have no comparable evidence for the UK.⁷¹

5.4 Trade credit

Trade credit offered by suppliers provides an alternative source of financing available to firms rationed out of the credit market. Trade credit suppliers

Entrepreneurial Finance and Growth

have comparative advantages over banks regarding information about the market in which firms operate, and in extracting information about the firms themselves⁷². Further, it is less profitable (and hence less likely) for a firm's management to misuse inputs that are supplied on credit than cash provided by banks, thereby ameliorating a significant incentive compatibility problem that can exist between banks and firms (or borrowers).⁷³

Available evidence is consistent with the argument that trade credit is a contractual solution to the informational asymmetry problems that may adversely affect availability of bank credit.⁷⁴ Firms are more likely to make greater use of trade credit if they do not have banking relationships. The use of trade credit also increases during periods of monetary contractions.⁷⁵ Trade credit may play a signalling role as well, much like credit rating scores; firms using trade credit may gain greater access to bank credit.⁷⁶ Crowding in of bank credit by trade credit has also been observed in other contexts.⁷⁷

5.5 Due diligence and monitoring

In order to address informational asymmetry problems, venture capital firms will engage in extensive due diligence, particularly focusing on market risk and agency risk. Information asymmetry problems may be especially severe in new companies in new markets, and collateral may simply not be available, such that only weak entrepreneurs and businesses may be funded.⁷⁸ For established firms, a track record may be available but accessing information can still pose challenges in private companies, especially where the deal involves new management purchasing the business.⁷⁹ Nevertheless, there is some debate about the effectiveness of VCs' information processing abilities in screening potential investee companies.

To reduce potential agency risk, VCs write appropriate contracts at the time of investment, incorporating performance-based compensation schemes or staging the investment, or by negotiating strong control levers, often disproportionate to the size of their equity investment.⁸⁰ VCs may also

Entrepreneurial Finance and Growth

engage in syndication with other VCs in order to both spread and reduce the risks associated with a particular investment.⁸¹ As contracts are inherently incomplete, VCs closely monitor their portfolio companies by taking a seat on the board of directors and informally such as through periodical check-ups of the day-to-day activities and through interim reports specified in the deal contract. VC monitoring intensity is highest for companies that just entered the VC portfolio or are performing poorly.⁸²

More experienced and powerful VCs have a higher probability of both having a seat on the board⁸³ and of controlling the board, especially for riskier businesses.⁸⁴ The involvement of VCs is not confined to the monitoring dimension of governance but also concerns added value services which may be especially important to facilitate growth.⁸⁵ Although VCs actively use their network to recruit specialist independent board members with industry experience, VC board members may not be of better quality than other external board members⁸⁶, and an important issue concerns the sources of executives with the appropriate skills to be able to add value.⁸⁷ Further, given the limited ability of VC executives to monitor large numbers of portfolio companies, the attention given may be restricted to companies that generate the majority of VC, not those businesses in the highest need of VC advice.⁸⁸ While staging of investments can help entrepreneurs retain a higher fractional ownership if their venture thrives, there is the risk that if their venture does not develop as planned, entrepreneurs may run out of money and be in a poor negotiating position to raise additional finance thereby potentially facing high levels of dilution.⁸⁹

6. Financing Decisions

At this stage of the discussion, it would be instructive to ask what determines entrepreneurs' choices between different sources of finance such as internal versus external finance, debt versus equity, and short term versus long term finance. Early research suggested only investment decisions affect wealth/firm value. Absent market frictions, taxes or bankruptcy costs financing decisions have no bearing on firm value.⁹⁰ This research provided an important benchmark for why in practice financing

Entrepreneurial Finance and Growth

decisions are important.

Several theories have been developed by introducing market imperfections: trade-off theory in which firms set their debt levels to balance the tax-shield benefits of using more debt with rising bankruptcy costs⁹¹; pecking order theory which emphasises the role of information asymmetries leading to preferences for using cheaper internal finance first, only followed by costlier external finance (debt then equity) if there are insufficient internal funds⁹²; and agency theory which points to conflict in the priorities of entrepreneurs and financiers – external debt will be more available where there is collateral to help align interests.⁹³

Overall, the evidence seems to support pecking order and agency theories over tax considerations in financing decisions.^{94,95} Firms that are more profitable (i.e., have greater internal finance) use less external finance.⁹⁶ High growth firms, who have greater funding needs, are more likely to seek external finance⁹⁷ although they also seem to be more reliant on short term debt.^{98,99} Evidence of agency issues is supported by a positive relationship between leverage and tangible assets.¹⁰⁰ Industry effects, relating to the availability of collateral, also affect leverage and debt maturity.¹⁰¹ Access to external finance improves with size and age supporting the idea of a financial growth life-cycle.¹⁰² In addition, the economic cycle is important with reliance on short term debt increasing in a recession.¹⁰³

These explanations typically explain only between 10% and 30% of the observed variation in financing decisions. What accounts for the deficit? Entrepreneurial objectives, control aversion and risk perceptions would seem important yet largely ignored in studies of financing decisions.¹⁰⁴ Some progress has been made - including business planning, growth/lifestyle objectives and the importance of retaining control in models of financing decisions raises explanatory power to almost 60%.¹⁰⁵ However, we still understand relatively little about the role of entrepreneurial cognition/perceptions in financing decisions.

Entrepreneurial Finance and Growth

7. Constraints on Investment Decisions and Growth

The relationship between the availability of internal finance and investment/growth is often seen as evidence of financial constraints ('internal finance approach'). If financial markets are perfect then the firm's investment decisions are independent from its financing decisions. However if entrepreneurs are unable to obtain enough market funding then an increase in internal finance will relax financial constraints, allowing investment/growth to go ahead.¹⁰⁶

US evidence using the internal finance approach indicates financial constraints on new venture creation,¹⁰⁷ survival,¹⁰⁸ sales growth,¹⁰⁹ and employment growth.¹¹⁰ However, contrary evidence of financial constraints on new venture creation in the US has also been reported.¹¹¹ The relationship between personal wealth and becoming a business owner appears to be confined to the top 5% of the wealth distribution which is inconsistent with financial constraints.¹¹² Instead the relationship may reflect that wealthier individuals are less risk averse (and therefore more willing to start a business)¹¹³ have higher human capital (and therefore more able to start a business)¹¹⁴ or that business ownership is due to the lifestyle preferences of the wealthy.¹¹⁵

UK studies have found evidence for financial constraints on business formation/growth based on a positive link between receiving an inheritance/windfall payment and self-employment¹¹⁶ or self-employment income.¹¹⁷ However there is no evidence that financial constraints affect business survival in the UK.¹¹⁸ More recent research on UK firms, which estimates firm-year level measures of (investment efficiency and hence) financial constraints of a sample of firms, does not find significant evidence of changes in the average degree of financing constraint over time, for the 2003-2010 period.¹¹⁹ The average degree of (investment efficiency or) financial constraint is also not significantly different across regions and industrial sectors. However, the distribution of the measure of financial constraints *within* industries suggests that there is significant heterogeneity

Entrepreneurial Finance and Growth

within industries.

Studies of larger firms have looked at the relationship between liquid assets/cash-flows and investment.¹²⁰ Using this approach, evidence of financial constraints on asset growth on US listed firms with assets between \$5m and \$100m has been found.^{121,122} A survey of research in this area concludes there is broad evidence of financial constraints on investment among firms most affected by information asymmetries/agency costs (e.g., smaller firms) in both developed and developing economies.¹²³ However tests of financial constraints involving Tobin's Q are inapplicable for unlisted firms (i.e., the vast majority of small firms) due to the absence of data relating to the market value of the business.¹²⁴

A general problem with the internal finance approach is that finding a relationship between internal finance and business formation/growth may have nothing to do with liquidity. The relationship could instead be due to factors relating to the entrepreneur including: human capital¹²⁵; entrepreneurial talent¹²⁶; risk aversion¹²⁷; or entrepreneurial over-optimism^{128, 129, 130}. In other words, unless we have very good data to control for these alternative explanations, there is ambiguity about whether the relationship signals actual financial constraints.

A more direct approach to testing financial constraints looks at the relationship between funding gaps and business outcomes (new venture creation, survival and growth). Funding gaps (adversely) affect business outcomes if and only if the firm is financially constrained (i.e., is receiving less finance than is needed). If instead the funding gap reflects excessive finance demands (due, for example, to over-optimism) then there is no relationship.

Another advantage of this 'funding gaps approach' is that it can identify financial constraints across different entrepreneurial finance markets by looking at the relationship between business outcomes and funding gaps in different finance markets. By contrast, even assuming the relationship between internal finances and business outcomes captures liquidity, it is a

Entrepreneurial Finance and Growth

blunt approach which is only able to point to a generic financial constraint. Initial applications of the 'funding gaps approach' using UKSMEF data for 2004-2009 indicate that small business growth is constrained by a lack of working capital controlling for a wide range of other business/owner characteristics.¹³¹ Further, looking at the pre-2008 period, only younger businesses (aged less than 7 years) were financially constrained.¹³² The implication of these results is that working capital constraints have spread across the small business population following the financial crisis.

Cognitive issues may also affect investment decisions. In this regard, financial discouragement may lead to under-investment where viable businesses decide not to seek finance.¹³³ The issue of discouragement has increased in importance since the financial crisis (see Section 2). Recent evidence also suggests discouraged term loan borrowers grew significantly more slowly than businesses which successfully applied for term loans controlling for business/owner characteristics.¹³⁴ This suggests that entrepreneurs' perceptions of the supply of finance may be an additional cause of under-investment.

8. Non-bank sources of finance and growth

We noted earlier the information asymmetry issues relating to non-bank sources of finance such as venture capital and the role of monitoring and value adding services provided through board representation and other involvement. In this section we extend this discussion to consider evidence of the gaps in this market and the impact of these financing sources on growth.

8.1 Estimates of gaps in the venture capital market

Various policy measures have been developed over a long period as attempts to address a perceived equity gap.¹³⁵ While some improvements in the provision of venture capital for early stage technology based firms have been noted, major remaining concerns have been identified.¹³⁶ There is a need for more fine-grained analysis of the nature of equity gaps and

Entrepreneurial Finance and Growth

the targeting of policy to fill these specific gaps. For example, equity gaps appear to vary between sectors, regions and stages of finance. Analysis based on matching the financial and non-financial characteristics of firms receiving venture capital with those that did not using UK data covering three million company years for the period 1999-2010 suggests that the actual amounts funded by venture capital in health, pharmaceuticals, household products, insurance, information technology, investment companies and speciality finance were significantly below expectations.¹³⁷

Recent research questions the traditional view that spatial proximity benefits can be leveraged if a venture is located close to centres of VC finance.¹³⁸ Interestingly, in the above study for all regions, but especially the East of England, London and South East have higher matched scores than the actual numbers and values of BVCA investments of venture capital in these regions. This comparison on the basis of the characteristics of firms that receive VC with those that have similar characteristics but who do not involve VC arguably presents a more fine-grained analysis than comparisons based on the stocks of companies within regions.

Looking specifically at university spin-offs located in 'Star' South East England golden triangle universities, there is evidence that these firms are not more likely to receive venture capital funding than those located outside this area. Rather, university spin-offs located outside these areas can signal venture quality, through having an experienced founder, to venture capital firms in order to substitute for their lack of proximity benefits.

Recent evidence suggests that the equity gap for entrepreneurs and the stigma of failure in raising VC finance in Europe, especially serial entrepreneurs, is not as great as previously claimed.¹³⁹ This research found that the success rates of serial entrepreneurs are the same as where serial entrepreneurs are involved in US VC backed deals, and that failed entrepreneurs have the same chance of attracting VC funding for successive ventures in Europe as in the US.

8.2 Venture capital and firm growth

Evidence from several countries generally shows a positive relationship between VC backing and firm performance using various measures, but there are some dissenting studies.¹⁴⁰ Some evidence from matching VC and non-VC backed firms by size has shown that VC backed firms grow revenues faster. Similarly, several studies have shown that VC backed firms also have higher asset and employment growth than non-VC backed firms. The benefits of VC-backing may contribute to higher productivity growth both leading up to an exit, notably through an IPO, as well as afterwards. In contrast, some other studies of the growth of VC and non-VC backed firms that went to IPO have found no effect of VC backing on post-IPO growth. In a Canadian study VCs, along with business angels and bank financing have been shown to contribute significantly to sales growth in biotechnology firms while there is apparently no impact of funding from government, alliance partners and IPOs.¹⁴¹ However, portfolio firms backed by experienced government-related VC firms have higher survival rates compared to those backed by independent VC firms, mainly because government VC firms often have a regional economic development goal and hence prefer to keep the “living deads” alive.¹⁴² Portfolio firms backed by inexperienced government-related VCs had higher failure rates.

Companies backed by VC investors have a higher tendency to internationalize than those funded only by internal owners who tend to be more risk averse.¹⁴³ Similarly, higher equity-holdings of VC firms are associated with the development of the knowledge-based resources needed for internationalization. The monitoring expertise of VCs appears to be most effective in promoting export behavior for late-stage ventures, while VCs’ value-added skills are more important in promoting export behavior in early-stage venture.¹⁴⁴ Venture capital firms may also be closely involved in relocating portfolio companies from developing to developed markets in order to better enable access to resources, trading

Entrepreneurial Finance and Growth

partners and stock markets as an exit route. They thereby positively contribute to a portfolio firm's internationalization. The nature of the financing provided by VCs influences the extent of internationalization. Staged financing and financing through a syndicate have positive effects on internationalization when used separately but not when used in combination.

A number of important issues contribute to explaining these different findings. Some growth studies have been cross-sectional in nature and have often failed to address the issue of survivor bias and endogeneity in VC backing. Differentiating between selection and treatment effects is especially important in the VC context as VCs select ventures with specific characteristics, which differ from ventures that do not seek venture capital.¹⁴⁵

Disentangling the effect of value adding of VC firms from the mere effect of receiving more financial funds is also important. One meta-analysis of 76 studies concluded that VC portfolio companies have higher growth rates compared to non-VC backed companies, but a large fraction of the difference is explained by VCs selecting high growth industries.¹⁴⁶ This study found little effect of VCs selecting the best ventures within an industry. However, there is evidence that VCs select firms with higher total factor productivity (TFP), sales and salaries, which then growth faster after receiving VC.

The impact of the heterogeneity between VC firms on portfolio firm growth needs to be recognized. Different VC investors contribute differently to portfolio firm growth because they are driven by differences in goals, knowledge and processes employed. For example, independent VCs may have limited time horizons because of their closed end funds but have greater expertise in adding value to portfolio companies than public sector or captive VCs.¹⁴⁷

The type of VC matters in other ways as well. Traditional financial VCs rather than corporate VCs appear to strongly spur employment and sales

Entrepreneurial Finance and Growth

revenue growth in their portfolio companies. Companies, backed by independent VC firms, grow more strongly in sales in the first years after VC backing compared to companies backed by corporate VC firms, but not in employees. Differences disappear in the long term, however. Independent VC firms have greater incentives to show short term value growth in order to be able to raise follow-on funds. The apparent disappearance of long term differences may reflect the earlier exit of high growth ventures from independent VC firms' portfolios. Importantly the selection effect by independent VCs appears to be small with growth mainly coming from the treatment effect shortly after the first VC investment.¹⁴⁸

VCS differ in their reputations, skills and expertise. Low-reputation VCs rely on selecting more efficient firms to begin with (screening), but high-reputation VCs are able to improve the efficiency of the firms they invest in to a greater extent, through greater increases in sales with lower increases in production costs. Recently, the question how VC investor characteristics are related with the development of portfolio companies has received more attention. An examination of the influence of human capital and VC backing on the growth of VC backed new technology based firms (NTBFs) in Italy found, after controlling for survivor bias and the endogeneity of VC funding, that once a NTBF receives VC backing the role of founders' skills becomes less important and the coaching skills of VCs become more important in contributing to firm growth.

Portfolio companies receiving funding from domestic VC investors grow more strongly in the short run, but those backed by cross border VC investors grow more strongly in the long run. Portfolio companies backed by a syndicate comprising both domestic and cross border VC investors outperform all other combinations. While domestic investors have expertise about local conditions, cross border investors have the expertise to enable growth in international markets which may take longer to come to fruition.¹⁴⁹

Entrepreneurial Finance and Growth

There is a general debate about whether growth adequately reflects performance with some arguing that it is important to consider profitability as well.¹⁵⁰ Growth studies have tended to focus on product market performance without considering the role of VCs and the financial market. VCs tend to focus on stimulating growth rather than improving profitability, with there being no difference in profitability between VC backed firms and matched non-VC backed firms at the time of exit by the VC backed firms. This apparent contradictory finding in the context of VCs' objectives of seeking financial returns may be consistent with VCs seeking to build value in revenue and technology markets, which take time to feed through into profitability, in order to obtain higher valuations in sales to strategic buyers or through IPOs where the focus is on future earnings growth.¹⁵¹ This role of VC is especially important in complex environments with customers who are difficult to reach. Further, in different environments, it is not just whether a firm is VC backed or not that is important in improving firm performance but also the amount of funding provided.

8.3 Private equity buyouts and firm growth

Besides the classic venture capital reviewed above, private equity finance also provides support for established firms undergoing restructuring through a change in ownership (management buyouts and buy-ins) (see Appendix Table), the majority of which are SMEs.¹⁵²

In contrast to venture capital funding for early stage firms, private equity (PE) funding for buyouts has been quite plentiful¹⁵³ but also quite controversial. Criticism, often based on unrepresentative cases, have claimed that the high leverage often associated with buyouts would lead to short term performance horizons and downsizing as cash generated is needed to service the debt rather than being available for reinvestment. In contrast, defenders counter that close monitoring by PE investors can add value in firms that have been constrained in realizing their growth opportunities under their previous ownership regime.¹⁵⁴ Further, private equity investors can structure deals with debt instruments that allow for

Entrepreneurial Finance and Growth

servicing costs to be aligned with investment needs, and contrary to a few headline cases senior debt has traditionally accounted for around 50 percent of financing structures on average.

Evidence from systematic studies worldwide shows positive effects on growth.¹⁵⁵ These studies identified growth along a variety of measures, including revenue and employment growth, profitability, operating performance and cash-flow, and productivity, although the effects seem less strong than in the first wave. PE involvement generally leads to growth in labour productivity, although the effects on employment are less clear cut. In France, recent evidence from generally smaller buyouts shows growth in operating performance, productivity and employment.¹⁵⁶ In the UK, PE ownership adds significantly to growth in the operating profitability of PE backed buyouts over the first three years after the buyout occurred, compared to peers, with buyouts of divisions of corporations displaying the greatest growth post buyout. Growth was greater in buyouts funded by more experienced PE firms with closer involvement in their portfolio companies.¹⁵⁷ U.K. evidence also shows that while employment appears to fall initially, this is generally followed by subsequent growth, especially for management buyouts but less so for management buy-ins.¹⁵⁸

A recent study covering the population of UK firms over the period 1995-2012, that is including the current recessionary period, finds a consistent pattern of PE backed buyouts showing higher growth rates than non-PE backed buyouts for the first four years post buyout especially in terms of value added.¹⁵⁹ After this period, the picture is less clear but non-PE backed buyouts tend to display higher average growth. The study found clear evidence of growth and performance improvement post-buyout when compared to the pre-buyout period of the company. PE backed buyouts appear to use operating cash flows more effectively than private companies in generating growth. For the recessionary sub-period 2008-2011, PE backed buyouts are significantly and positively associated with growth, suggesting the PE backed firms' growth has held up better than non-PE backed private companies. Controlling for other factors, the extent

Entrepreneurial Finance and Growth

of UK experience of PE firms is significant and positively associated with growth in value added, assets, sales, equity and employment. Also for the recession period of 2008-2011, in the majority of regions mean growth rates for PE backed buyouts are greater than for private company control group companies. However, mean growth of PE backed firms in Yorkshire and Humberside, Wales, and Eastern region, is lower than for private company control sample firms especially in respect of sales and employment.

8.4 Business angels

More firms receive business angel financing than is the case for venture capital and business angel tend to have a lower rejection rate than venture capital firms.¹⁶⁰ Business angel investment tends to be complementary to venture capital especially for smaller investments. Returns to business angel deals tend to be less skewed than those for early stage venture capital investments, that is, business angels tend to avoid bad investments but find fewer where they earn significant returns.¹⁶¹ While business angels may also be involved in their investments, their activities tend to be different from formal venture capital firms notably being more flexible in their monitoring requirements but making less contribution in times of distress.¹⁶² Serial angels may be able to use their greater experience to help reduce risks in investing and in contributing to portfolio companies.

There is some debate about whether business angels predominantly invest locally because of their personal networks and because this facilitates hands-on involvement. However, a significant minority of angel investments are long distance beyond immediately adjacent counties to the angels' home location¹⁶³.

Some problems in assessing the impact of business angels on growth concern the availability of data, with many studies using convenience samples which may be biased. There is also a lack of comparative analysis of the impact of business angels on firm growth compared with other

Entrepreneurial Finance and Growth

sources of finance.

8.5 Some other sources of non-bank growth capital

A number of other sources of growth capital are available. One option concerns secondary tier stock markets typically involving small offerings which are effectively equivalent to private placements.¹⁶⁴ There is a long history in both the UK and Europe of attempts to create and sustain secondary tier stock markets. The four largest European economies (Germany, France, Italy, and the UK) have launched eleven second-tier markets dedicated to particular categories of firms since 1995 and only five still exist which are exchange-regulated markets with minimal regulatory requirements.¹⁶⁵ Although some companies have actively traded stocks, many do not. These markets have been provided small firms with the opportunity to raise funds at the IPO and more than half of their newly listed companies have issued seasoned offerings, although in general their stock market performance appears to be generally weak.¹⁶⁶

More recently, pension funds perhaps concerned about the risk adjusted returns they can earn and the fees they are charged when investing as limited partners in VC and PE funds¹⁶⁷, have become interested in direct investment in these deals. Financial investment arms of family firms (Family Offices) are a further emerging trend in the provision of newer sources of finance for growing firms as they move from being privately managed funds of funds to making direct investments either as lenders or equity providers.¹⁶⁸

Given the importance we have noted of selection, monitoring and added value capabilities for investors, it would seem to be something of an open question for further research whether these new competitors for traditional growth funds providers have or would find it economic to acquire the requisite skills and networks to assist growth of portfolio companies, although some are hiring former investment bankers and hedge fund managers.

Entrepreneurial Finance and Growth

9. Policy

9.1 Credit market intervention

The key criteria for evaluating the effectiveness of intervention relate to whether it leads to a net increase in the availability of finance ('finance additionality') and a net increase in jobs and other measures of economic performance ('economic additionality'). In this regard recent evidence relating to the effectiveness of the SFLG¹⁶⁹ and its successor the EFG¹⁷⁰ provide some promising results. The central message from these findings is the *potential* for credit market intervention to make a difference both in terms of the availability of finance and economic performance.

However, issues remain affecting both the take-up and delivery of assistance. In particular, the number of loans made under the EFG has been on a downward trend since mid-2011. Businesses also show low awareness of the EFG with just over 1 in 5 SMEs aware of the scheme.¹⁷¹

Uncertainty about the economy may also limit the impacts of assistance. In this regard, Funding for Lending aims to provide an additional £80bn in lending to the UK economy. This scheme works by making it cheaper for banks to borrow on capital markets by allowing them to swap their assets for government bonds subject to penalties if they subsequently fail to increase lending. However, while Funding for Lending appears to have improved the availability and cost of residential mortgages, unsecured lending to SMEs continues to fall.¹⁷² This is perhaps not surprising, as it does not address the issue of credit risk, and seems to reflect ongoing issues of risk aversion among banks resulting in a reduced willingness to lend in the absence of sufficient collateral. Equally, business confidence remains low with concerns about the economic outlook an important reason for not seeking finance.¹⁷³ In other words, regardless of how cheap it may be for banks/businesses to borrow, economic uncertainty is an ongoing constraint on credit demand.

Banking relationships were adversely affected by the financial crisis.

Entrepreneurial Finance and Growth

Evidence from UKSMEF showed a significant increase in levels of entrepreneurs' dissatisfaction with their main bank and a trebling of bank switching rates following the financial crisis.¹⁷⁴ The problem was exacerbated by poor communications as demonstrated by a more than doubling of incidences where businesses refused finance said they were given no reason for rejection.¹⁷⁵ Issues of trust/poor communications may also have contributed to increased financial discouragement. The Business Finance Taskforce, now operating under the auspices of Better Business Finance, has taken a number of steps to help re-build trust and improve communications including establishing: the Business Growth Funds; an independently monitored appeals process (Appeals Process) for businesses denied loans; and a network of business mentors. Again these policies have the potential to make an impact: for example, almost 40% of businesses lodging appeals had their original rejection overturned in the first year of the Appeals Process.¹⁷⁶ However, once again there are issues relating to a lack of awareness of these policies: only about 12% of SMEs are aware of the lending appeals process and 23% are aware of mentoring support.¹⁷⁷

There are also issues with low take-up of advice before applying for finance.¹⁷⁸ This is a problem since only 23% of financial decision makers in small firms have any financial qualifications/training¹⁷⁹ and given how much harder it has become to obtain finance since the financial crisis. Equally, if the promotion of non-bank sources of finance is to be successful, entrepreneurs will need specialist help with these unfamiliar products. Again, lack of awareness about who to ask for advice is an underlying problem especially for micro businesses.¹⁸⁰ Low take-up of financial advice may also be one of the underlying reasons for poor access to finance among ethnic minorities.¹⁸¹ Accordingly, more needs to be done to increase awareness of support especially among business groups with poor access to finance.

The majority of successful appeals under the Appeals Process relate to applications which were assessed using credit scoring.¹⁸² This chimes with

Entrepreneurial Finance and Growth

UKSMEF evidence that many businesses denied loans came up against an automated culture of credit assessment. This suggests there may be underlying issues with the design of credit/behavioural scoring models and the data used in these models to predict default.¹⁸³ Policies designed to promote greater sharing of credit information, relating to the business and its owner, held in both private and public bodies (e.g., HMRC), may help to improve credit scoring models and reduce entry barriers for non-bank credit providers. At the same time more research into the design of credit scoring models, how banks use credit/behavioural scoring (e.g., in relation to other credit assessment methods) and the impact on access to finance is required.

Surprisingly, given that competitors in the G8 already have institutions dedicated to SME finance, the UK is only now establishing a Business Bank.¹⁸⁴ We recall evidence that funding gaps appear to be larger, and growth weaker, in the UK relative to other major economies. There is also longstanding evidence that there is insufficient long term finance for UK SMEs.¹⁸⁵ While there is no evidence that state owned banks promote economic growth,¹⁸⁶ perhaps because the performance of these banks is sensitive to political influence,¹⁸⁷ they do help to smooth lending over the business cycle.¹⁸⁸ Further, the credit channel of transmission of monetary policy works much better when banks are state owned.¹⁸⁹ Also, the impact of state owned banks on economic development appears to be higher in countries with well-developed financial and political institutions (indicative of well-functioning control mechanisms on decision-making by politicians/financiers).¹⁹⁰ In these countries the agency costs associated with state owned banks are likely to be lower so that they are less open to interference from politicians.

In this regard we might learn from other countries in terms of best practice in the design and delivery of support from examples such as KfW in Germany, the Small Business Administration (SBA)¹⁹¹ in the US,¹⁹² and even fast growing emerging market counterparts such as the Small Industries Development Bank of India (SIDBI). Also, the Business Bank

Entrepreneurial Finance and Growth

could provide a more coherent framework for delivering financial assistance and advice along the lines of the 'one-stop shop approach' taken by both KfW and SBA. This may go some way to dealing with the awareness issues which seem to be a major constraint on existing policies.

It should, however, be noted that providing access to finance is not an end in itself, and efficiency considerations have to be taken into account as well. Specifically, policy measures should be careful about not sustaining firms that are not innovative and do not experience productivity growth indefinitely, by providing access to finance that is not otherwise available to them. There is some concern that low interest rates and lender forbearance are keeping zombie firms alive in the UK,¹⁹³ a problem that might be aggravated by policy measures that are not designed to increase the flow of credit in an allocationally efficient manner. The Japanese experience suggests that industry-level productivity is negatively correlated to the concentration of zombie firms, and that these zombie firms might capture a larger share of the market and thereby aggravate the problem of weak productivity growth in these industries.¹⁹⁴

9.2 Equity market intervention

The public sector has become more significant as an investor over the past decade, primarily through its use of co-investment with the private sector particularly with business angels organized into groups of some kind¹⁹⁵. These arrangements appear to be especially important in Northern Regions. Regional variations in the relative importance of public sector funds and business angels suggest that in some cases they may be substitutes while in others they are complementary. Further analysis is required to assess this issue.

However, the performance of firms funded by older hybrid public-private schemes does not appear to be greater than matched firms not funded by these schemes.¹⁹⁶ The underlying reasons may partly reflect policy design that limits funds to regions where there may be insufficient deal flow, because the amounts available (including for follow-on funding) are too

Entrepreneurial Finance and Growth

restrictive for high growth firms, especially in high tech and because public funds may not have the requisite expertise, which research reviewed above shows is especially important. It is too soon to judge the effectiveness of newer schemes designed to learn lessons from these shortcomings.

Resolving the claimed spatial mismatch between investors and investees has been an important dimension of policy in the provision of growth funding. However, our review of recent spatial studies of access to venture capital and business angels suggests a potentially fruitful avenue is to consider how to stimulate cross-regional mobility in such funding provision since these financiers may find it difficult to identify enough sufficiently attractive targets in the regions where they are located. Entrepreneurs in investment finance-deficient regions with ventures that may be potentially attractive to venture capital firms and business angels may therefore need to find ways to signal their quality to these financiers located outside their region. An interesting question therefore is whether demonstrated success/sales of the products outside home regions is a signal for VCs and angels, or whether extra-regional sales is an outcome of VC/angel support. In the former case, the appropriate policy intervention might require support for geographical expansion of business, whereas in the latter case the appropriate policy response might be development of incentives and mechanisms to facilitate cross-regional access to VCs and angels.

An interesting consideration is whether a Business Bank can play the role of a VC in regions that private sector VCs and angels may not have an immediate incentive to enter. SIDBI, for example, has a fully owned subsidiary (SIDBI Venture Capital Ltd) which manages three different funds: the National Venture Fund for Software and Information Technology Industry, the SME Growth Fund, and the India Opportunities Fund that is targeted at MSMEs in a number of sectors. Evidence from Canada, however, suggests that government sponsored VCs underperform relative to their private sector counterparts on a number of criteria, including value creation and innovation, even after the selection effect – namely, private sector VCs invest in better firms – is taken into account.¹⁹⁷ Hence, one may

Entrepreneurial Finance and Growth

have to be careful about the nature of equity market intervention by the government.

9.3 Competition

Policy makers are also concerned about competition in the supply of business finance.^{198,199} Indeed one of the objectives of the Business Bank is to promote competition and increase supply through new finance providers. In this respect the literature presents a mixed assessment regarding the impact of competition. Whilst the application of standard industrial organization arguments suggests that increased competition leads to an increase in supply and a reduction in cost, this simple relationship breaks down in markets characterized by information/agency issues. The literature on relationship lending suggests that too much competition may reduce incentives to invest in banking relationships (leading to lower availability and possibly worse terms).²⁰⁰ In view of this possibility some studies have been critical of previous policies designed to promote competition in the provision of SME banking services in the UK.²⁰¹ Other studies suggest increased competition may have neutral or beneficial effects on the availability of bank finance.²⁰² In the context of venture capital, there is some evidence that increased competition in the VC market results in entrepreneurs having to give up less equity in exchange for capital and improves survival rates.²⁰³

10. Further research

Future research would address two broad themes. First, there is a need to address the issue that lies at the heart of the policy debate, namely, that of financing constraints of firms. Second, there is a need to examine the relationship between financing and firm growth. Each of these themes, in turn, encapsulates a number of research questions. For example, in order to better understand the extent to which supply side measures introduced by the government can work, we have to better understand the role that demand side factors such as financing decision of firms play in the flow of credit. Similarly, while access to finance may be a necessary condition for

Entrepreneurial Finance and Growth

firm growth, ownership of firms and contextual factors can influence the nature and strength of the finance-growth relationship. The specific questions that we shall address in the future are as follows:

10.1 The role of finance and entrepreneurial cognition in explaining firm growth

We know comparatively little about the impact of financial constraints on small business growth due to the limitations of 'internal finance approaches' (see above). Future research needs to examine the impact of funding gaps on growth as a more direct approach to examining financial constraints. Research is also needed on how the impact of financial constraints varies over specific types of debt products (overdrafts, term loans, leasing/hire purchase agreements and invoice finance) and across different types of business. This will help to provide a clearer indication (to the Business Bank) of which types of debt product and business would benefit most from assistance.

Alongside funding gaps, analysis of the impact of cognitive factors relating to entrepreneurial perceptions of the economic outlook, discouragement and control aversion will likely provide useful insights currently lacking about behavioral constraints on investment/financing decisions and growth. Such research will yield a clearer indication of the relative impacts of supply side financial constraints versus demand side cognitive constraints on growth.

We have a good understanding of the business/owner demographics associated with financial discouragement.²⁰⁴ However, there is no research showing the relationship between financial discouragement and perceptions of supply.²⁰⁵ Consequently we do not know, for example, whether entrepreneurs systematically under- or over-estimate the supply available to them. In particular which firm/entrepreneur characteristics affect (mis)-perceptions of the likelihood of rejection? What is the role of external influences such as the mass media in shaping these perceptions? Developing our understanding here is important as misperceptions of

Entrepreneurial Finance and Growth

supply may lead to under-investment and lower growth. Further research is therefore needed to analyse factors influencing perceptions of supply including media coverage of bank lending.

10.2 Understanding financing decisions

Studies of financing decisions typically fail to take into account 'non-random selection': businesses that apply for and successfully receive finance may not be like a 'typical' firm (so that any inferences drawn from the financing decisions of a select few may be misleading if applied generally²⁰⁶). In this regard studying application (demand) and approval/rejection (supply) decisions which underlie financing outcomes is important.²⁰⁷ It is also important to understand how the decision making process of the banks, including the algorithms that generate credit scores that are the basis for approval/rejection decisions in the case of arms-length length lending, can affect supply of credit.²⁰⁸ Other issues that are less well understood include: how do entrepreneurs combine financial products – which products tend to be used in conjunction (complements) or instead of each other (substitutes)?; how do these combinations vary with financial advice and context?; and to what extent do second best combinations affect business performance?²⁰⁹

Recent developments including supply chain finance (reverse factoring), peer to peer lending and crowd-funding, may provide businesses with yet more choice about where to find funding.²¹⁰ However these novel sources of finance are currently used by only a very small minority of small businesses. This is due to both a lack of availability and behavioral barriers including a lack of awareness of these products (e.g., only 18% of SMEs are aware of crowd-funding),²¹¹ a lack of financial expertise and a lack of confidence in being able to obtain these sources of funding. Researchers need more data about non-standard sources of finance to better understand the factors that inhibit/promote their use.

Entrepreneurial Finance and Growth

10.3 Governance, finance and growth

To the extent that ownership and governance are considered at all, entrepreneurial growth studies typically focus on founder owned ventures. Recognition that entrepreneurship is not only about new ventures introduces the need to consider how different ownership and governance regimes and their associated financing influence the nature of entrepreneurial growth. First, family firms are characterized by both economic and non-economic goals which may lead to conflicts between different growth trajectories and processes. A longer term, lower risk-taking perspective typically attributed to family firms may influence their willingness to take on external finance to realize growth potential. While family firms may need to be entrepreneurial in order to survive over the longer term, part of their processes for securing longer term survival may be to ring-fence newer, riskier activities in separate entities from the main family business. There is little evidence on the opportunities identified to be ring-fenced, the funding of these activities, which family members are involved and at what point growth in the ring-fenced venture is such that it can be deemed a success or a failure. Further, we know little about how the configuration of the board of directors in family firms differs from non-family firms and how this influences the trade-off between survival and growth.

Second, as we have noted, private equity backed buyouts may be associated with the realization of entrepreneurial growth opportunities that were not possible under the previous ownership regime. Further work is required to compare the growth of these firms with different governance and ownership characteristics involving different financing sources and board configurations.

10.4 Involvement of financiers

There is limited research linking VC characteristics, such as their

Entrepreneurial Finance and Growth

knowledge base, and portfolio company related outcome variables such as innovation, internationalization and growth, although VC characteristics strongly drive their activities. A more in-depth investigation thereof is hence warranted. Research on the processes both by which VC firms orchestrate their own resources and capabilities and how they do so in portfolio companies is limited. In particular, there is a need to understand not only what resources and capabilities are needed for growth but also to know how to accumulate, bundle and leverage them to generate sustainable growth. For example, research needs to consider the role of VC firms in resource orchestration as their portfolio companies develop across different rounds of investment and different life cycle phases. Studies might also examine how VC firms work with entrepreneurs to adopt product market or technology market strategies or to move between markets and orchestrate the resources needed to develop these strategies. To what extent does the VC provide network links to enable entrepreneurs to recruit the people they need to commercialize their products? How does the VC help in developing executive and advisory boards that have the capabilities to assemble the necessary resources for the firm to develop? The appropriate champion of the new venture's development may need to be someone other than the founder, as s/he may not have the capabilities to exploit growth opportunities. We know that VCs often replace founders but the process of doing this successfully is not well-understood.

10.5 Modes and patterns of growth and finance

Few firms experience sustained high growth or even stable growth over long periods of time. Most fast growth firms experience 'erratic one-shot' growth over a short period of time with oscillating development around a low minimum level.²¹² Firms may grow organically but in many sectors acquisition may be an important mode of achieving firm growth, either to consolidate mature sectors or to gain access to new developments in high tech sectors.²¹³ These different patterns of growth create demands for different types of long and short term finance that have yet to be analysed.

Entrepreneurial Finance and Growth

10.6 Context, finance and growth

There is little insight into how contextual factors shape different patterns and modes of growth and associated processes. Environmental contingencies along the dimensions of stable and complex environments affect resource portfolio development and shape different forms of high growth trajectory. Whether growth will be fuelled by internal cash flow from profits generated by sales to customers or will depend upon external financing from venture capital firms depends upon the complexity of the market environment, for example whether there is high appropriability of assets or not.

Much of the focus on growth has traditionally been on the product market.²¹⁴ Earning profits may be important to sustain and enhance growth in this market. However, this is a narrow view. Recent work has also contrasted the conditions for growth in the product market with growth in the technology market. Yet, besides selling technology to other firms, for example through licensing, there is also a need to recognize the importance of the financial and corporate asset markets. Ventures with high growth potential likely attract funding by VCs who can contribute to realization of that potential. But the ultimate objective of commercially oriented VCs is to create growth in the value of their portfolio companies so that they can be floated or sold to strategic buyers, enabling VCs to generate returns for their fund providers. Different growth strategies are available to create value growth. Further, the associated growth paths may not be linear as early stage firms struggle to develop and adapt technology into viable products that will meet emerging market needs. Thus, they face the challenges of obtaining funding rounds to bridge the so-called 'valley (or even valleys) of death', develop internationalization strategies, identify alliance partners and acquisition candidates, and build relationships with incumbent firms that may provide an eventual exit. These growth processes may differ from those pursued by entrepreneurial firms that are not VC-backed but these differences are not well-understood.

Entrepreneurial Finance and Growth

10.7 Scaling-up and finance

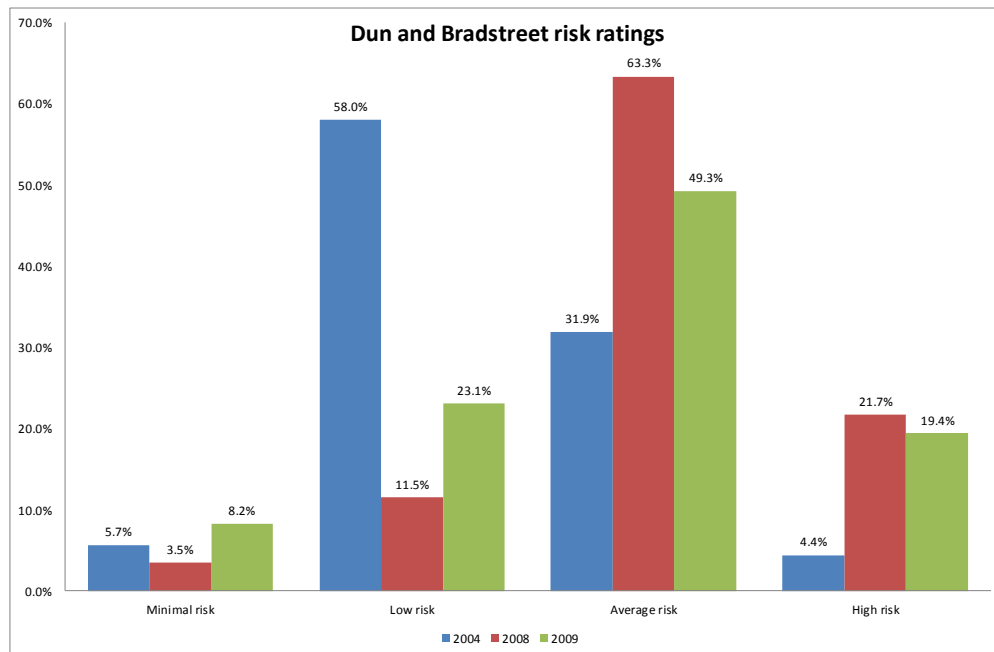
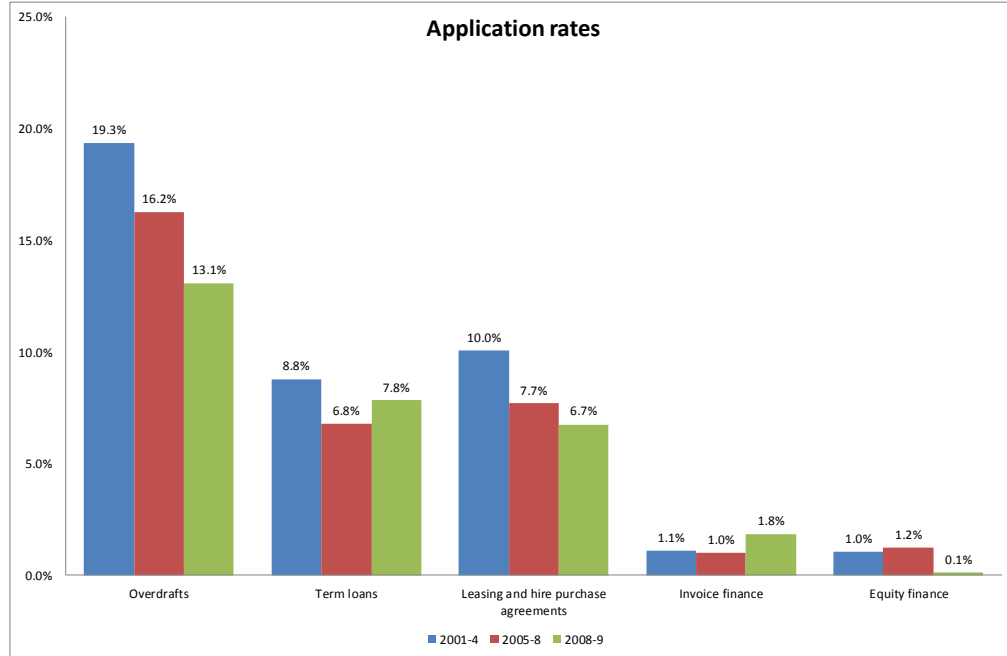
Finance sources such as boot strap finance, bricolage, and crowd funding are frequently used to start businesses. Accelerators and start-up factories can play an important role in enabling entrepreneurs overcome the initial phases of start-up including the provision of pre-seed finance in return for equity²¹⁵. These funding sources help facilitate start-ups, increasingly high tech ones, requiring smaller amounts of funding than would be attractive to venture capital firms and some other traditional sources. However, at present we need to know more about which type of accelerator is appropriate for new ventures with different business models (e.g. capital intensive biotech vs bootstrapping). Further, although these funding sources and activities may help create a pipeline for venture capital firms and business angels, there are important challenges in bridging to the next stage in the financial growth life-cycle discussed in section 2. At the same time, accessing traditional debt and equity funding sources at an early stage may introduce formal monitoring requirements that constrain the flexibility of the entrepreneurial firm to iterate its business model to one that provides a viable basis for growth, unless this monitoring is also balanced by expertise that facilitates growth. Further research is needed to examine how this bridging can be best achieved.

10.8 Entrepreneurs, finance and growth

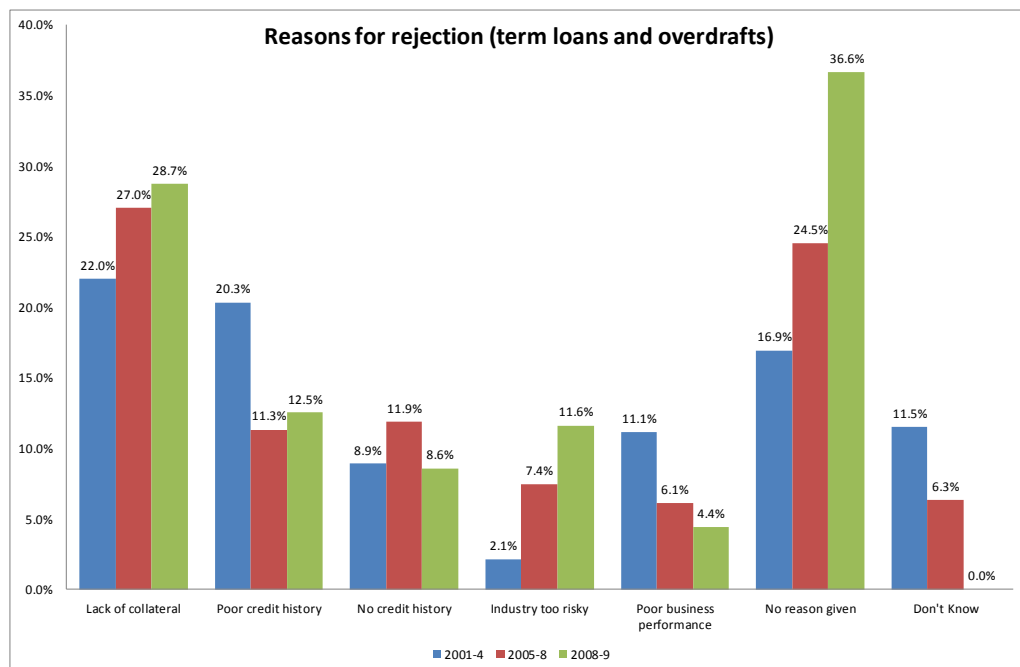
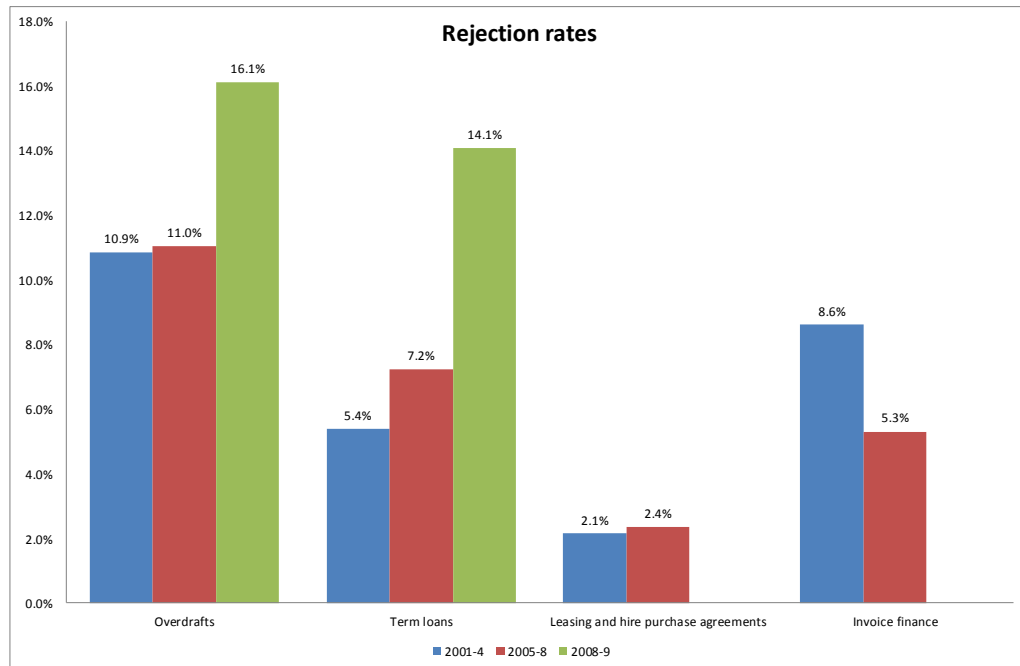
Exhortations on existing finance providers to make more finance available and the development of new forms of non-bank finance that will invest in riskier projects seem unlikely to be successful unless greater consideration is given to matching support to the cognitive characteristics of entrepreneurs and the contexts within which their entrepreneurial activities take place.²¹⁶ For example, support for existing firms with growth potential, such as family firms and management buyouts, may bring greater returns than focusing solely on early stage ventures. Further research is needed to analyse the link between individual entrepreneurs' cognitive characteristics, finance and growth.

Entrepreneurial Finance and Growth

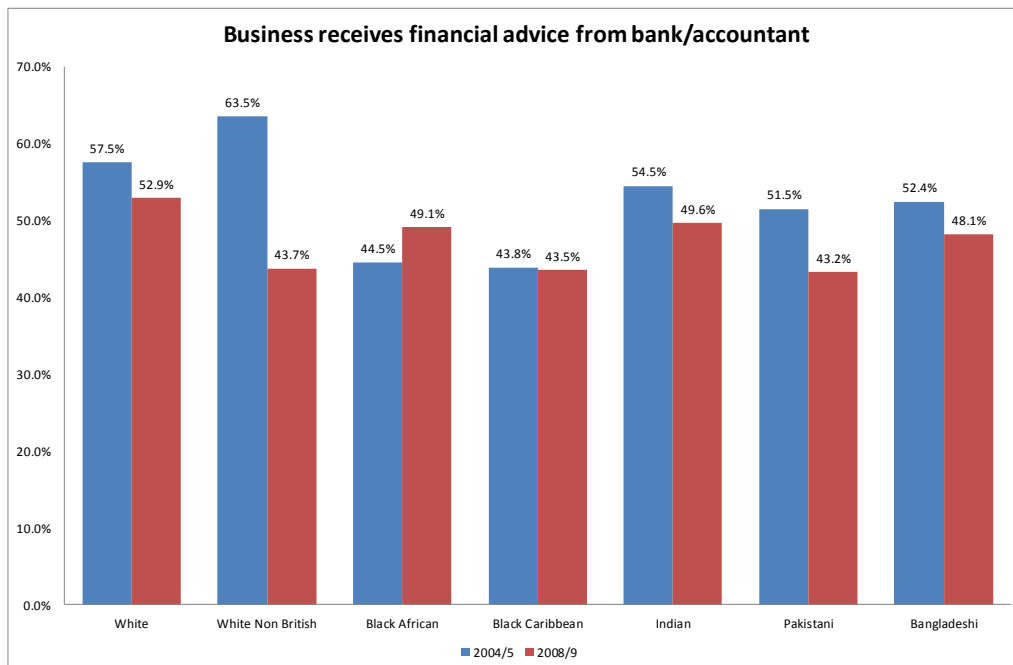
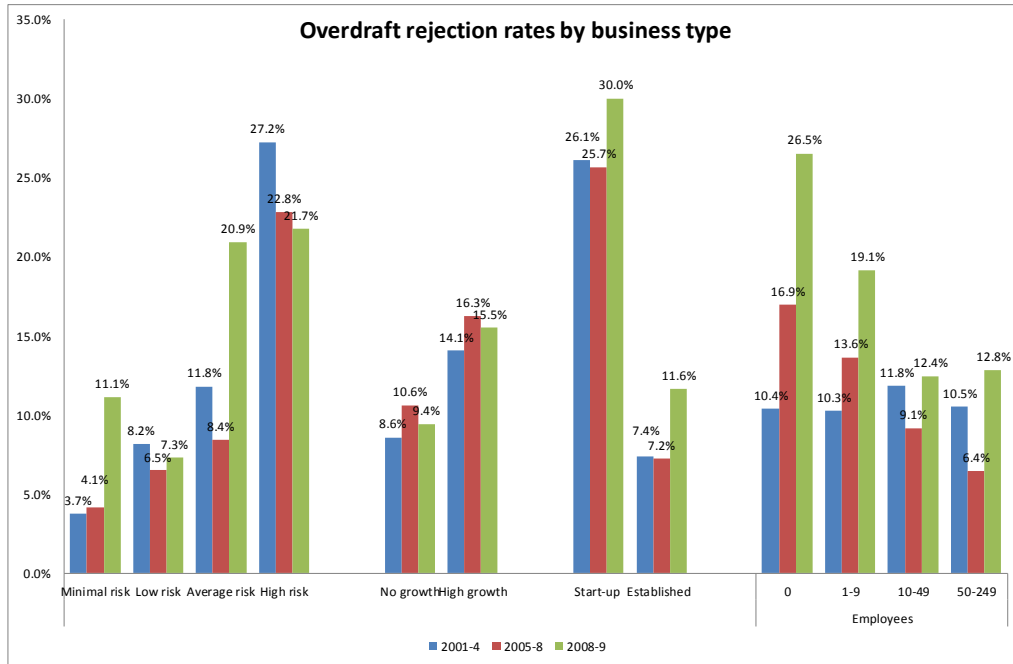
Appendix: Recent trends in entrepreneurial finance (UKSMEF)



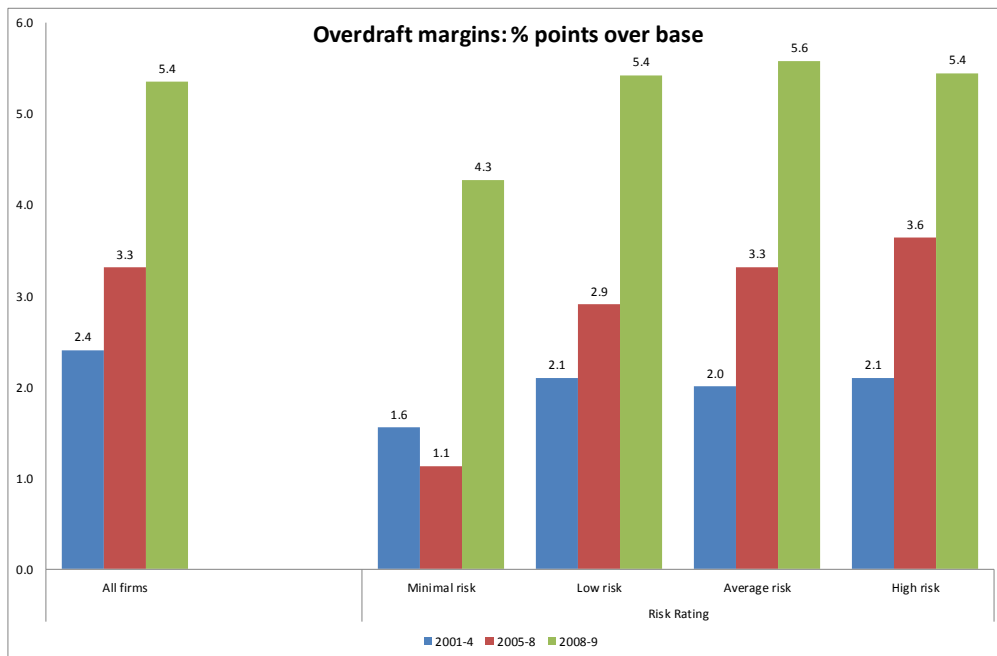
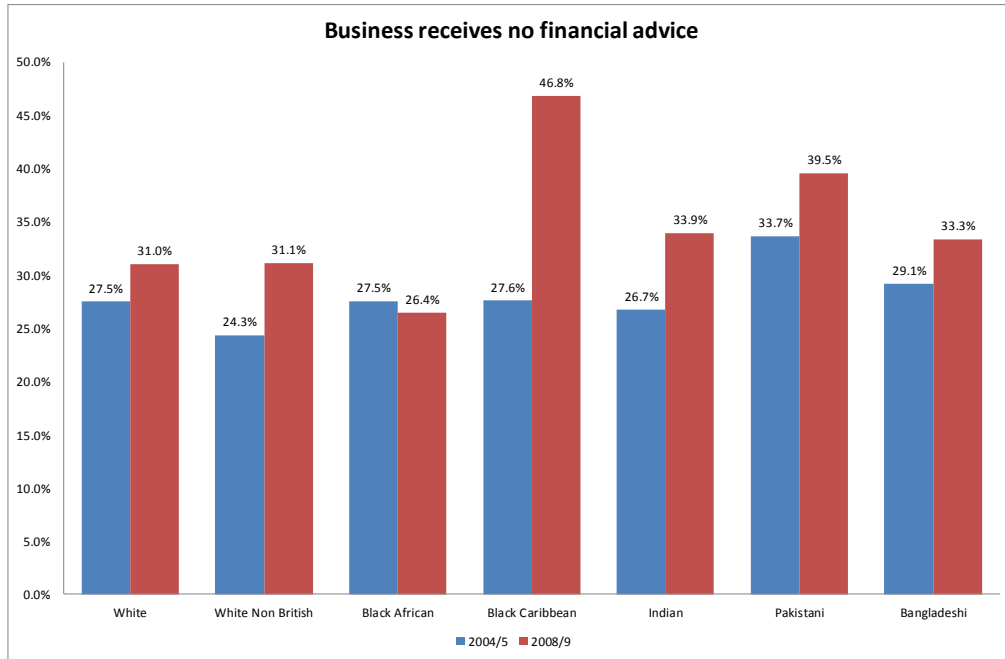
Entrepreneurial Finance and Growth



Entrepreneurial Finance and Growth

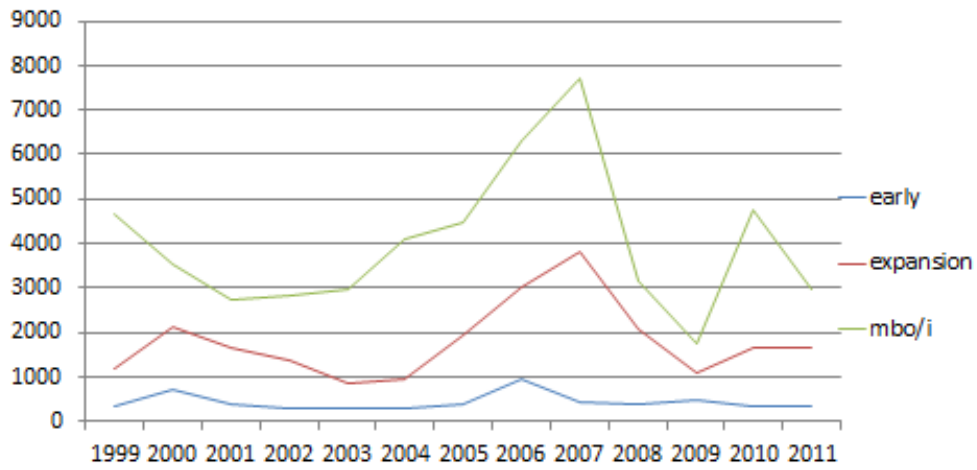


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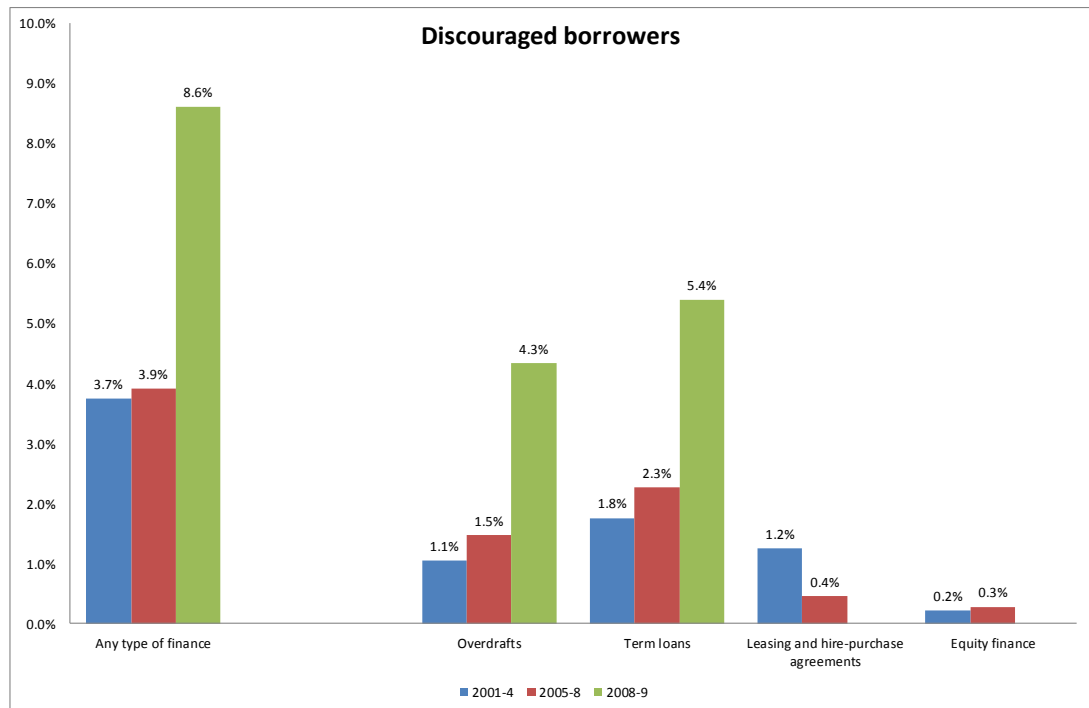


Entrepreneurial Finance and Growth

Venture Capital By Deal Stage (£m of Deals)



Source: BVCA



Entrepreneurial Finance and Growth

NOTES

¹ During the 1997-2007 period, the average calendar year growth rate of the financial sector in the UK was 6.1%, against the average calendar year growth rate of 3% for GDP. At the time of the crisis, financial intermediation accounted for about 7.7% of GDP. (Source: Burgess, S. (2011). Measuring financial sector output and its contribution to UK GDP, *Quarterly Bulletin*, Bank of England, Q3, 234-246.)

² In 2008, construction accounted for 8.5% of UK's GDP; the share can be as high as 10% when supply chains are taken into account. (Source: *Construction in the UK Economy*, A study commissioned by the UK Contractors Group, October 2009.)

³ Since mid-2009 UK growth has been weak in comparison to the US, Germany, Canada, France and Japan. The only G7 country with weaker growth than the UK is Italy.

⁴ Available evidence on non-bank sources of finance suggest that venture capital funding of early stage ventures has remained low as well.

⁵ On 27th March 2013 the FPC announced that the shortfall of capital in UK banks is £25bn. However, allowing for banks existing plans to raise more capital, the net shortfall is about £12.5bn (with shortfalls of around £6bn at Royal Bank of Scotland Group; £3bn at Lloyds Banking Group; and £2bn at Barclays).

⁶ The literature on the impact of capital requirements suggests that capital requirements that are linked to credit risk increase credit rationing and reduce lending. (See, for example, Thakor, A.V. (1996). Capital requirements, monetary policy, and aggregate bank lending: Theory and empirical evidence, *Journal of Finance*, 51, 279-324.) This, in turn, may have implications for the effectiveness with which monetary policy can stimulate growth of bank lending. (See, Van den Heuvel, S.J. (2002). Does bank capital matter for monetary transmissions? *Economic Policy Review*

Entrepreneurial Finance and Growth

(May), Federal Reserve Bank of New York, 259-265.) However, the relationship between bank capital and risk taking by banks can be non-linear; as bank's capital increases, it may initially take less risk, and eventually more risk. (See, Calomiris, P. & Rajan, R. (1999). The impact of capital-based regulation on bank risk-taking, *Journal of Financial Intermediation*, 8, 317-352.) Further, it has been argued that, this does not imply the existence of a simple trade-off between financial stability and growth. (See, Allen, B., Chan, K. K., Milne, A., & Thomas, S. (2012). Basel III: Is the cure worse than the disease?. *International Review of Financial Analysis*, 25, 159-166.)

'We find that in the long run there are few real resource costs from having a safer financial system, but go further even than the position of the Basel committee itself, and argue that in the long run there may even not be any need to trade-off the level of output and the safety of the financial system at all: we can have our cake (financial stability) and eat it (higher economic activity) too. However, at the same time the challenges of transition and the structural implications of reform are profound. While the adjustment is in progress, there are material risks that the supply of credit to the economy will be disrupted by the implementation of the new regulations; moreover the long run rate of growth of the economy will be adversely affected if riskier borrowers such as some small businesses are unable to get adequate access to finance.' Allen et al (2012) op. cit p. 166

⁷ MacMillan Committee (1931) *Report on the Committee on Finance and Industry*, Cmnd. 3897, HMSO, London.

⁸ Bolton Committee (1971) *Report of the Committee on Small Firms*, Cmnd. 4811, HMSO, London.

⁹ Wilson Committee (1979) *The Financing of Small Firms, Interim Report of the Committee to Review the Functioning of the Financial Institutions*, Cmnd. 7503, HMSO, London.

Entrepreneurial Finance and Growth

¹⁰ Wright, M., and Stigliani, I. (2013). Entrepreneurship and growth. *International Small Business Journal*, forthcoming.

¹¹ These shortcuts include making judgements about situations based on their similarity to comparable situations (representativeness); using information which can be called to mind easily (availability); and relying excessively on the first piece of information available (anchoring). See [1] Tversky, A. and Kahneman, D. (1974), Judgement under uncertainty: Heuristics and biases, *Science*, 185 (4187), 1124-1131; [2] Kahneman, D., and Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263-291.

¹² Tversky and Kahneman, (1974) op cit.

¹³ Gilbert, D.T., McNulty, S.E., Giuliano, T.A., and Benson, J.E. (1992). Blurry words and fuzzy deeds: The attribution of obscure behavior. *Journal of Personality and Social Psychology*, 62(1), 18–25.

¹⁴ Fiske, S.T., and Taylor, S. (1991). *Social Cognition*, 2nd ed. New York: Random House.

¹⁵ Oaksford, M., Moreris, F., Grainger, B., and Williams, J.M.G. (1996), Mood, reasoning, and central executive processes, *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 22(3): 476–492.

¹⁶ Wyer, R.S., Jr., and Srull, T.K. (1994). *Handbook of Social Cognition*. Hillsdale, NJ: Erlbaum.

¹⁷ Baron, R.A. (1998). Cognitive mechanisms in entrepreneurship: Why and when entrepreneurs think differently than other people. *Journal of Business Venturing*, 13(4), 275-294.

¹⁸ The axioms of subjective expected utility maximisation theory are: transitivity – if A is preferred to B and B is preferred to C then A is preferred to C; dominance – if option A is better than option B in at least one aspect

Entrepreneurial Finance and Growth

and no worse than option B in all other aspects then A is preferred to B; and invariance – preferences are unaffected by either the order or method of presentation of the options. However studies have shown that people's decision making systematically violate these assumptions. Indeed prospect theory was developed to provide a more accurate description of decision making under uncertainty.

¹⁹ Prospect theory was developed in a seminal paper by Kahneman and Tversky (1979) - Kahneman received a Nobel prize in 2002 for this work (Tversky died in 1996). In prospect theory people make decisions under uncertainty in two stages: firstly simplifying the available options and setting a reference point to gauge potential losses/gains (editing/framing); secondly evaluating the potential losses/gains of the different options, relative to the reference point, to determine the best option. The value function (value of the prospect as a function of losses/gains) is: i) defined on deviations from a reference point; ii) generally concave for gains and convex for losses; and iii) steeper for losses than gains. The second feature of the value function arises because people tend to overweight outcomes that are considered certain relative to outcomes that are merely probable (certainty effect). This bias leads to risk averse behaviour in the domain of gains and risk seeking in the domain of losses (reflection effect). The third feature of the value function gives rise to loss aversion.

²⁰ 'The aggravation that one experiences in losing a sum of money appears to be greater than the pleasure associated with gaining the same amount' Kahneman and Tversky, (1979) p 279.

²¹ Taylor, S. E. (1989). *Positive illusions: Creative self-deception and the healthy mind*. Basic Books.

²² Shaver, K.G., and Scott, L.R. (1991). Person, process, choice: The psychology of new venture creation. *Entrepreneurship Theory and Practice*, 16: 23–42.

Entrepreneurial Finance and Growth

²³ [1] Cooper, A.C., Dunkelberg, W., and Woo, C. (1988). Entrepreneur's perceived chances for success. *Journal of Business Venturing* 3(2), 97–108; [2] Kahneman, D., and Lovallo, D. (1994). Timid choices and bold forecasts: A cognitive perspective on risk taking. In R.P. Rumelt, D.E. Schendel, and D.J. Teece, eds., *Fundamental Issues in Strategy: A Research Agenda*. pp. 71-96.

²⁴ De Meza, D., and Southey, C. (1996). The borrower's curse: Optimism, finance and entrepreneurship. *The Economic Journal*, 106(435), 375-386.

²⁵ The role played by financiers, venture capitalists in particular, in supplying non-financial services which may help businesses meet their growth objectives is also recognised in Figure 1.

²⁶ Cosh, A., Cumming, D., and Hughes, A. (2009). Outside entrepreneurial capital. *The Economic Journal*, 119(540): 1494-1533.

²⁷ Berger, A., and Udell, G., (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking & Finance*, 22(6), 613-673.

²⁸ Zahra S., Filatotchev, I. and Wright, M. (2009). How do Threshold Firms Sustain Corporate Entrepreneurship? The role of Boards of Directors and Knowledge, *Journal of Business Venturing*, 24: 248-260.

²⁹ It is also quite possible that control aversion, over-optimism and perceptions of the supply of finance will have indirect effects on financing decisions by affecting initial growth objectives (encompassed by the arrow leading from entrepreneurial cognition to growth objectives).

³⁰ This survey provides a large representative sample of SMEs with less than 250 employees and covers three waves, 2004, 2008, 2009.

³¹ SME Finance Monitor 2011-2012 (<http://www.sme-finance-monitor.co.uk/>)

Entrepreneurial Finance and Growth

³² SME Finance Monitor op. cit.

³³ SME Finance Monitor op. cit.

³⁴ Other reasons include high cost and, with invoice finance in particular, a poor image among entrepreneurs.

³⁵ See evidence on rejection rates in the appendix and SME Finance Monitor op. cit.

³⁶ See evidence on rejection rates in the appendix and SME Finance Monitor op. cit.

³⁷ Fraser, S. (2012), The Impact of the Financial Crisis on Bank Lending to SMEs: Econometric Analysis from the UK Survey of SME Finances, 2012, *Department for Business, Innovation and Skills*:

<http://www.bis.gov.uk/assets/biscore/enterprise/docs/i/12-949-impact-financial-crisis-on-bank-lending-to-smes>

³⁸ No data on non-bank debt were collected for UKSMEF in 2008-9.

³⁹ Cosh et al (2009) op. cit.

⁴⁰ Fraser, S. (2009). Is there ethnic discrimination in the UK market for small business credit? *International Small Business Journal*, 27, 583-607.

⁴¹ Fraser (2009) op. cit.

⁴² SME Finance Monitor op. cit.

⁴³ See Fraser (2009) op. cit. Interestingly, the analysis here suggests that businesses located in Northern Ireland in 2004/5 were less likely to have their loan applications denied (other things being equal).

⁴⁴ Fraser, (2010). op. cit; SME Finance Monitor op.cit

Entrepreneurial Finance and Growth

⁴⁵ Fraser, S. (2011). Access to Finance for Creative Industry Businesses, 2011, *Department for Business, Innovation and Skills and Department for Culture, Media and Sport*: <http://www.bis.gov.uk/assets/biscore/enterprise/docs/a/11-898-access-to-finance-for-creative-industry-businesses>

⁴⁶ Eurostat (2011), Access to Finance Statistics: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Access_to_finance_statistics

⁴⁷ Eurostat (2011) op. cit.

⁴⁸ Breedon (2012) op. cit. estimates the gap may be between £26bn and £59.3bn by 2016 based on the relationship between GDP growth and corporate lending.

⁴⁹ Eurostat (2011) op. cit.

⁵⁰ Cosh et al. (2009) op. cit.

⁵¹ Kon, Y., and Storey, D.J. (2003). A theory of discouraged borrowers. *Small Business Economics*, 21(1), 37-49.

⁵² [1] Townsend, R. (1979). Optimal contracts and competitive markets with costly state verification. *Journal of Economic Theory*, 21, 265-293; [2] Gale, D. & Hellwig, M. (1985). Incentive compatible debt contracts: The one period problem. *Review of Economic Studies*, L11, 647-663.

⁵³ [1] Stiglitz, J.E. and Weiss, A. (1981). Credit rationing in markets with imperfect information. *American Economic Review*, 71(3), 393-410; [2] Williamson, S. (1987). Costly monitoring, loan contracts, and equilibrium credit rationing. *Quarterly Journal of Economics*, 102(1), 135-145.

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⁵⁴ Ortiz-Molina, H. and Penas, M.F. (2008). Lending to small businesses: The role of loan maturity in addressing information problem. *Small Business Economics*, 30(4), 361-383.

⁵⁵ Amit, R., Brander, J., and Zott, C. (1998). Why do venture capital firms exist? Theory and Canadian evidence. *Journal of Business Venturing*, 13(6), 441-466.

⁵⁶ Berger, A. N., & Udell, G. F. (2002). Small business credit availability and relationship lending: The importance of bank organisational structure. *The Economic Journal*, 112(477), F32-F53.

⁵⁷ Amit et al (1998) op.cit.

⁵⁸ [1] Bester, H. (1987). The role of collateral in credit markets with imperfect competition. *European Economic Review*, 31(4), 887-899. [2] Bester, H. (1985). Screening vs. rationing in credit markets with imperfect information. *American Economic Review*, 75(4), 850-855

⁵⁹ An alternative explanation for the role of collateral in entrepreneurial finance is that banks require it to be pledged by *observably* riskier businesses: see Berger, A. N., & Udell, G. F. (1990). Collateral, loan quality and bank risk. *Journal of Monetary Economics*, 25(1), 21-42.

⁶⁰ Evans, D.S., and Jovanovic, B., (1989). An estimated model of entrepreneurial choice under liquidity constraints. *Journal of Political Economy*, 97(4), 808-827.

⁶¹ Bank of England (2004), Finance for small firms – an eleventh report: <http://www.bankofengland.co.uk/publications/financeforsmallfirms/annualreports.htm>; UKSMEF 2004-2009, UK Data Archive, <http://data-archive.ac.uk/>

⁶² [1] Petersen, M.A. and Rajan, R.G. (1994). The benefits of lending relationships: Evidence from small business data. *Journal of Finance*, 49(1), 3-37; Cole, R.A. (1998). The importance of relationships to the

Entrepreneurial Finance and Growth

availability of credit. *Journal of Banking & Finance*, 22(6-8), 959-977.

⁶³ Elsas, R. and Krahnert, J.P. (1998). Is relationship lending special? Evidence from credit-file data in Germany. *Journal of Banking & Finance*, 22(10-11), 1283-1316.

⁶⁴ Cole (1998) examines 1993 NSSBF data and demonstrates, among other things, that "the likelihood that a potential lender will extend credit to the firm decreases with the number of sources of financial services used by the firm, supportive of the theory that multiple relationships diminish the value of the private information generated by the potential lender" (pp. 976).

⁶⁵ Bolton, P. and Scharfstein, X. (1990). A theory of predation based on agency problems in financial contracting. *American Economic Review*, 80(1), 93-106.

⁶⁶ Degryse, H. and Van Cayseele, P. (2000). Relationship lending within a bank-based system: Evidence from European small business data. *Journal of Financial Intermediation*, 9(1), 90-109.

⁶⁷ Farinha, L.A. and Santos, J.A.C. (2002). Switching from single to multiple bank lending relationships: Determinants and implications. *Journal of Financial Intermediation*, 11(2), 125-151.

⁶⁸ Rutherford, R. (1994/1995).. Securitizing small business loans: A banker's action plan'. *Commercial Lending Review*, 10(1), Winter 1994-95, 62-74.

⁶⁹ Mester, L.J. (1997). What's the point of credit scoring?, *Federal Reserve Bank of Philadelphia Business Review* (September/October), 3-16.

⁷⁰ [1] Frame, W.S., Srinivasan, A. and Woosley, L. (2001). The effect of credit scoring on small business lending. *Journal of Money, Credit and Banking*, 33(3), 813-825; [2] Berger, A.N., Frame, W.S. and Miller, N.H.

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(2005). Credit scoring and the availability, price and risk of small business credit. *Journal of Money, Credit and Banking*, 37(2), 191-222.

⁷¹ Discussions with a senior SME banker on this issue suggest that, viewed across a portfolio of customers, credit scoring may lead to a more efficient allocation of credit and give loan officers more confidence to lend up to an agreed point. However it may still be desirable for loan officers to intervene in some individual cases.

⁷² Petersen, M.A., and Rajan, R.G. (1997). Trade credit: Theory and evidence. *Review of Financial Studies*, 10(3), 661-691.

⁷³ Burkart, M., and Ellingsen, T. (2004). In-kind finance: A theory of trade credit. *American Economic Review*, 94(3), 569-590.

⁷⁴ Ng, C.K., Smith, J.K., and Smith, R.L. (1999). Evidence on the determinants of credit terms used in interfirm trade. *Journal of Finance*, 54(3), 1109-1129.

⁷⁵ Biais, B., and Gollier, C. (1997). Trade credit and credit rationing. *Review of Financial Studies*, 10(4), 903-937.

⁷⁶ Cook, L. (1999). Trade credit and bank finance: Financing small firms in Russia. *Journal of Business Venturing*, 14(5-6), 493-518.

⁷⁷ Giannetti, M., Burkart, M., and Ellingsen, T. (2011). What you sell is what you lend? Explaining trade credit contracts. *Review of Financial Studies*, 24(4), 1261-1298.

⁷⁸ Amit, R., Glosten, L. and Muller, E. (1990). Entrepreneurial ability, venture investments and risk sharing. *Management Science*, 36, 1232-1245.

⁷⁹ For example in a management buy-in it may be difficult to discern the true state of the order book.

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⁸⁰ Kaplan, S. and Stromberg, P. (2003). Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts. *Review of Economic Studies*, 70(2),281-315.

⁸¹ Wright, M. and Lockett, A. (2003). The structure and management of alliances: Syndication in the venture capital industry. *Journal of Management Studies*, 40(8), 2073-2104.

⁸² Kaplan and Stromberg, op.cit.

⁸³ Chahine, S., & Goergen, M. (2011). VC board representation and performance of U.S. IPOs. *Journal of Business Finance and Accounting*, 38(3-4), 413-445.

⁸⁴ Kaplan and Strömberg (2003) showed that U.S. VCs have on average a quarter of all board seats, but they control the board in 25% of their portfolio companies. Control over the board is more common when the company has no revenues or profits yet or when the company operates in a volatile industry, or with higher agency risk, i.e. when the CEO owns no equity, has shorter tenure in the venture or is replaced.

⁸⁵ Amit et al. (1998) op. cit.

⁸⁶ Rosenstein, J., Bruno, A. V., Bygrave, W. D., and Taylor, N. T. (1993). The CEO, venture capitalists, and the board. *Journal of Business Venturing*, 8(2), 99-113. Suchard, J. (2009). The impact of venture capital backing on the corporate governance of Australian initial public offerings. *Journal of Banking and Finance*, 33(4), 765-774.

⁸⁷ Wright, M., Jackson, A., Frobisher, S. (2010). Private Equity: Building the new Future. *Journal of Applied Corporate Finance*, 22, 86-95.

⁸⁸ Cumming, D., and Dai, N. (2011). Fund size, limited attention and valuation of venture capital backed firms. *Journal of Empirical Finance* 18(1), 2-15.

Entrepreneurial Finance and Growth

⁸⁹ Heirman, A., and Clarysse, B. (2004). How and why do research-based start-ups differ at founding? A resource-based configurational perspective. *Journal of Technology Transfer*, 29(3-4), 247-268.

⁹⁰ Modigliani, F., and Miller, M.H., (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review*, 48(3), 261-297.

⁹¹ DeAngelo, H., and Masulis, R. W., (1980). Optimal capital structure under corporate and personal taxation. *Journal of financial Economics*, 8(1), 3-29.

⁹² [1] Myers, S.C., (1984). Capital structure puzzle. *Journal of Finance*, 39(3), 575-592; [2] Myers, S.C., and Majluf, N.S., (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187-221.

⁹³ Jensen, M.C., and Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, 3(4), 305-360 Rajan, R.G., and Zingales, L., (1995). What do we know about capital structure? Some evidence from international data. *Journal of Finance*, 50(5), 1421-1460.

⁹⁴ [1] Titman, S., and Wessels, R., (1988). The determinants of capital structure choice. *Journal of Finance*, 43(1), 1-19; [2] Michaelas, N., Chittenden, F., and Poutziouris, P., (1999). Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data. *Small Business Economics*, 12(2), 113-130.

⁹⁵ The results in Michaelas et al (1999) op. cit. 'indicate that tax effects do not appear to influence, at any significant level, the total debt position of small firms, although, tax considerations may become an important element in the longer term capital structure decisions in these businesses.' pp.126.

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⁹⁶ [1] Rajan and Zingales, (1995) op. cit; [2] Chittenden, F., Hall, G., and Hutchinson, P., (1996). Small firm growth, access to capital markets and financial structure: Review of issues and an empirical investigation. *Small Business Economics*, 8(1), 59-67; [3] Michaelas et al, (1999) op. cit; [4] Cosh et al, (2009) op. cit

⁹⁷ [1] Titman and Wessels, (1988) op. cit.; [2] Cosh et al, (2009) op. cit.

⁹⁸ Chittenden et al, (1996) op. cit.

⁹⁹ 'What is of concern [for economic growth] is that unlisted dynamic small firms may be curtailing their growth to match their financial resources. The long term finance that is available to unlisted firms is provided on the basis of collateral rather than profitability.' Chittenden et al (1996) p 67

¹⁰⁰ [1] Harris, M., and Raviv, A., (2012). The theory of capital structure. *Journal of Finance*, 46(1), 297-355; [2] Rajan and Zingales, (1995) op cit; [3] Chittenden et al, (1996) op cit; [4] Michaelas et al, (1999) op cit

¹⁰¹ Michaelas et al, (1999) op cit

¹⁰² [1] Chittenden et al, (1996) op. cit.; [2] Michaelas et al, (1999) op. cit.; [3] Cosh et al, (2009) op. cit.

¹⁰³ Michaelas et al, (1999) op. cit.

¹⁰⁴ [1] Norton, E., (1991). Capital structure and small public firms. *Journal of Business Venturing*, 6(4), 287-303; [2] Cressy, R., (1995). Business borrowing and control: A theory of entrepreneurial types. *Small Business Economics*, 7(4), 291-300.

¹⁰⁵ Romano, C.A., Tanewski, G.A., and Smyrniotis, K.X., (2001). Capital structure decision making: A model for family business. *Journal of Business Venturing*, 16(3): 285-310.

Entrepreneurial Finance and Growth

¹⁰⁶ In a perfect market the value of the firm is independent from its financing decisions (Modigliani and Miller, 1958 op. cit).

¹⁰⁷ Evans and Jovanovic(1989) op. cit.

¹⁰⁸ Holtz-Eakin, D., Joulfaian, D. and Rosen, H.S., (1994). Sticking it out: Entrepreneurial survival and liquidity constraints. *Journal of Political Economy*, 102(1), 53–75.

¹⁰⁹ Holtz-Eakin et al, (1994) op. cit.

¹¹⁰ Haynes, G.W. and Brown, J.R., (2009). How strong is the link between internal finance and small firm growth? Evidence from Survey of Small Business Finances, in: *Small Business in Focus: Finance*, Small Business Administration.

¹¹¹ Hurst, E., and Lusardi, A., (2004). Liquidity constraints, household wealth, and entrepreneurship. *Journal of Political Economy*, 112(2), 319-347.

¹¹² We would expect less wealthy individuals to be more affected by financial constraints.

¹¹³ Cressy, R., (2000), Credit rationing or entrepreneurial risk aversion? An alternative explanation for the Evans and Jovanovic finding. *Economics Letters*, 66(2), 235-240.

¹¹⁴ Cressy, R., (1996). Are business startups debt-rationed? *The Economic Journal*, 106(438), 1253-1270.

¹¹⁵ The idea here is that business ownership is a luxury good – individuals demand more of it as wealth increases. At low levels of wealth a job is needed to make a living. At higher levels of wealth there is more opportunity for work to reflect lifestyle (non-pecuniary) preferences. There is substantial evidence that people start businesses to satisfy lifestyle

Entrepreneurial Finance and Growth

preferences (e.g., to fulfil a desire for independence) more often than to satisfy pecuniary wants. UKSMEF 2008 indicates that over 1 in 3 entrepreneurs started a business to fulfil a desire for independence; less than 1 in 10 did so to get rich.

¹¹⁶ [1] Blanchflower, D.G., and Oswald, A.J., (1998). What makes an entrepreneur? *Journal of Labor Economics*, 16(1), 26-60; [2] Taylor, M.P. (2003). Self-employment and windfall gains in Britain: Evidence from panel data. *Economica*, 68(272), 539-565.

¹¹⁷ Taylor, (2001) op. cit.

¹¹⁸ [1] Cressy, (1996) op. cit.; [2] Taylor, (2001) op. cit.

¹¹⁹ Bhaumik, S.K., Bonner, K. and Hart, M., (2012). Investment efficiency among a cross-section of UK firms: Implications for the debate on financing constraints, NESTA Working Paper No. 12/11. The methodology is based on: Bhaumik, S.K., Das, P. & Kumbhakar, S.C., (2011). A stochastic frontier approach to modelling financial constraints in firms: An application to India, *Journal of Banking & Finance*, 36(5), 1311-1319. The methodology argues that, in the absence of market imperfections, a firm's investment requirements depend on its Tobin's q (i.e., future prospects) and current and past sales. Any deviation from the frontier that defines the relationship between a firm's investment and the aforementioned characteristics is inefficiency on account of factors such as inability to post collateral that lead to market failure. Using the stochastic frontier approach, it is possible to use this measure of inefficiency to generate corresponding measures of investment efficiency, which is inversely related to financial constraint; the greater the efficiency with which a firm can translate future prospects and sales into investment, the less is its degree of financial constraint. The methodology therefore enables us to generate a measure of investment efficiency (and hence financial constraint) for each firm and for each year. This, in turn, can be used to generate average measures by industry, region and time period.

Entrepreneurial Finance and Growth

¹²⁰ [1] Fazzari, S., Hubbard, R.G., and Petersen, B.C., (1988). Financing constraints and corporate investment, NBER Working Paper No. 2387; [2] Carpenter, R.E., and Petersen, B.C. (2002). Is the growth of small firms constrained by internal finance? *Review of Economics and Statistics*, 84(2), 298-309.

¹²¹ Carpenter and Petersen (2002) op. cit.

¹²² These studies also usually involve looking at the relationship on sub-samples of firms thought more/less likely to be affected by financial constraints such as smaller and younger firms. Carpenter and Petersen (2002) split the sample by new equity issues and find, as expected, a weaker relationship between cash-flow and asset growth for high equity finance firms (i.e., firms expected to be less financially constrained).

¹²³ Schiantarelli, F., (1996). Financial constraints and investment: methodological issues and international evidence. *Oxford Review of Economic Policy*, 12(2), 70-89.

¹²⁴ Tobin's Q, the measure of investment opportunities, is given by the ratio of the market to book value of the firm.

¹²⁵ Cressy, (1996) op. cit.

¹²⁶ Hurst and Lusardi, (2004) op. cit.

¹²⁷ Cressy, (2000) op. cit.

¹²⁸ de Meza and Southey, (1996) op. cit.

¹²⁹ The implication with over-optimism is that the funding gap (and hence reliance on internal finance) arises because the entrepreneur has asked for too much funding which financiers are (rationally) unwilling to supply.

¹³⁰ In Tobin's Q models, Q may be a poor proxy for investment opportunities where stock markets are inefficient. In these circumstances

Entrepreneurial Finance and Growth

cash-flows may pick up effects relating to future profitability rather than current liquidity (Schiantarelli, 1996 op. cit.).

¹³¹ Fraser, (2011) op. cit.

¹³² Fraser (2012), 'Mind the Gap: Growth, Financial Constraints and the Credit Crisis', Research supported by ESRC grant no. RES-189-25-0135

¹³³ Han et al, (2009) op. cit.

¹³⁴ Fraser, (2011) op. cit.

¹³⁵ [1] Martin, R, Berndt, C, Klagge, B. and Sunley, P. (2005). Spatial proximity effects and regional equity gaps in the venture capital market: evidence from Germany and the United Kingdom. *Environment and Planning A*, 37, 1207–1231; [2] Babcock-Lumish, T.L, (2009). Financing clusters of innovation: The geography of venture capital investment, US and UK, Available at SSRN: <http://ssrn.com/abstract=1358931>.

¹³⁶ Lockett, A., Murray, G. and Wright, M., (2002). Do UK venture capitalists still have a bias against investment in new technology firms. *Research Policy*, 31, 1009-1030.

¹³⁷ Wilson, N., and Wright, M., (2011). Equity gap in the UK venture capital industry. Report prepared for NESTA.

¹³⁸ Mueller, C., Westhead, P., and Wright, M., (2011). Formal venture capital acquisition: can entrepreneurs compensate for the spatial proximity benefits of south east of England and 'star' golden triangle universities? *Environment and Planning A*, forthcoming.

¹³⁹ Axelson, U., and Martinovic, M., (2013). European Venture Capital: Myths and Facts. London: LSE.

¹⁴⁰ For review see: Manigart, S. and Wright, M., (2013). Venture capital firm involvement in their portfolio companies. *Foundations and Trends in Entrepreneurship*, forthcoming.

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¹⁴¹ Ahmed, S., and Cozzarin, B. P. (2009). Start-up funding sources and biotechnology firm growth. *Applied Economics Letters*, 16(13), 1341-1345.

¹⁴² Manigart S., Baeyens K., and Van Hyfte W. (2002). The survival of venture capital backed companies. *Venture Capital*, 4(2), 103-124.

¹⁴³ George, G., Wiklund, J., and Zahra, S.A., (2005). Ownership and the internationalization of small firms. *Journal of Management*, 31(2), 210-233.

¹⁴⁴ Lockett, A., Wright, M., Burrows, A., Scholes, L., and Paton, D., (2008). The export intensity of venture capital backed companies. *Small Business Economics*, 31(1), 39-58.

¹⁴⁵ Bertoni, F., Colombo, M.G., and Grilli, L., (2011). Venture capital financing and the growth of high tech start-ups: Disentangling selection from treatment effects. *Research Policy*, 40(7): 1028-1043.

¹⁴⁶ Rosenbusch, N., Brinckmann, J., and Müller, V., (2012). Does acquiring venture capital pay off for the funded firms? A meta-analysis on the relationship between venture capital investment and funded firm financial performance. *Journal of Business Venturing*, forthcoming.

¹⁴⁷ Manigart and Wright, op.cit.

¹⁴⁸ Bertoni, F., Colombo, M.G., and Grilli, L., (2011). Venture capital financing and the growth of high tech start-ups: Disentangling selection from treatment effects. *Research Policy*, 40(7), 1028-1043. Bertoni, F., Colombo, M.G., and Grilli, L., (2012). Venture capital investor type and the growth mode of new technology based firms. *Small Business Economics*, Forthcoming.

¹⁴⁹ Devigne, D., Vanacker, T., Manigart, S. and Paeleman, I. (2012). The impact of syndication and cross-border venture capital on the growth of technology companies. *Small Business Economics*, forthcoming. Mäkelä, M. and Maula, M.(2006). Interorganizational commitment in syndicated

Entrepreneurial Finance and Growth

cross-border venture capital investments. *Entrepreneurship Theory and Practice*, 30, 273-298.

¹⁵⁰ Davidsson, P., Steffens, P. and Fitzsimmons, J., (2009). Growing profitable or growing from profits: Putting the horse in front of the cart? *Journal of Business Venturing*, 24, 388-406.

¹⁵¹ Clarysse, B., Bruneel, J. and Wright, M., (2011). Explaining growth paths of young technology-based firms: Structuring resource portfolios in different competitive environments. *Strategic Entrepreneurship Journal*, 5, 137-157.

¹⁵² CMBOR, (2013). Management Buyouts. London: CMBOR, Imperial College.

¹⁵³ CMBOR (2013). Management Buyouts: Quarterly Review. Centre for Management Buyout Research: Imperial College Business School, Winter 2012/13.

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¹⁵⁵ For review see: Gilligan, J., and Wright, M., (2012). *Private Equity Demystified - 2012 edition*. London: ICAEW.

¹⁵⁶ Boucly, Q., Sraer, D., and Thesmar, D., (2011). Growth LBOs. *Journal of Financial Economics*, 102, 432-453.

¹⁵⁷ Meuleman, M., Amess, K., Wright, M., and Scholes, L., (2009). Agency, strategic entrepreneurship and the performance of private equity backed buyouts. *Entrepreneurship Theory and Practice*, 33, 213-240.

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¹⁵⁸ Amess, K., Girma, S., and Wright, M., (2008). What are the wage and employment consequences of leveraged buyouts, private equity and acquisitions in the UK? Research Paper No 2008-01, Nottingham, UK: Nottingham University Business School.

¹⁵⁹ [1] Wilson, N., and Wright, M., (2013). A convenient truth: Private equity and portfolio company growth. London: BVCA; [2] Wilson, N., Wright, M., Siegel, D. S., and Scholes, L., (2012). Private equity portfolio company performance during the global recession. *Journal of Corporate Finance*, 18, 193–205.

¹⁶⁰ Cosh et al (2009) op. cit.

¹⁶¹ Parhankangas, A., (2012). The economic impact of venture capital. in: Landstrom, H. and Mason, C. eds. *Handbook of Venture Capital Research* (Vol 2), Edward Elgar, Cheltenham, UK.

¹⁶² Ehrlich, S. et al. (1994). After the cash arrives: A comparative study of venture capital and private investor involvement in entrepreneurial firms, *Journal of Business Venturing*, 9(1), 67-82.

¹⁶³ Harrison, R., Mason, C., and Robson, P., (2010). Determinants of long-distance investing by business angels in the UK. *Entrepreneurship and Regional Development*, 22(2), 113-137.

¹⁶⁴ Vismara, S., Paleari, S. and Ritter, J. (2011). Europe's Second Markets for Small Companies. Working Paper University of Florida. The authors find that the long-run performance of second-market IPOs in Europe is poor relative to main market IPOs and that this underperformance is present even when internet bubble-period IPOs are accounted for. The long-run performance is the worst on the exchange-regulated markets, such as AIM.

¹⁶⁵ Op.cit.

¹⁶⁶ Op. cit.

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¹⁶⁷ Phalippou, L. (2011). Why is the Evidence on Private Equity Performance So Confusing? (June 14, 2011). Available at SSRN: <http://dx.doi.org/10.2139/ssrn.1864503>

¹⁶⁸ Madigan, P. (2013). Keeping it in the family. Family Office Investment Summit:UK, 12-13March. Event Guide, pp. 8-11.

¹⁶⁹ Around 79% of SFLG recipients reported that the loan did not displace alternative sources of funding ending. SFLG recipients also created about 3,500-6,300 extra jobs in 2006-8 (2.8-5 jobs per firm) and generated in total between £75m and £150m in additional sales in 2006-8. Overall, for every £1 spent on SFLG there was a return to the economy of £1.05 in terms of additional economic output. See BIS (2010), Economic Evaluation of the Small Firms Loan Guarantee Scheme, Dept for Business, Innovation and Skills/Institute for Employment Studies. <http://www.employment-studies.co.uk/pdflibrary/bis10512.pdf>

¹⁷⁰ An early evaluation of the Enterprise Finance Guarantee indicated additional jobs and sales were being created among participants. See BIS (2009) Early stage assessment of the impact of the Enterprise Finance Guarantee on Recipient Firms, Dept for Business, Innovation and Skills. <http://www.bis.gov.uk/files/file54076.doc>

¹⁷¹ SME Finance Monitor op. cit.

¹⁷² Reports indicate that some banks are still tightening lending terms to SMEs with a preference for making asset backed loans with additional personal guarantees from entrepreneurs (Bank of England Agents Summary of Business Conditions November 2012: <http://www.bankofengland.co.uk/publications/Documents/agentssummary/agsum12nov.pdf>). However, we do not know whether unsecured SME lending would have fallen still further in the absence of Funding for Lending.

¹⁷³ SME Finance Monitor op. cit.

Entrepreneurial Finance and Growth

¹⁷⁴ Fraser (2010) op. cit.

¹⁷⁵ Fraser (2010) op. cit

¹⁷⁶ Appeals Process Independent External Reviewer Annual Report 2011/2012:

http://www.betterbusinessfinance.co.uk/images/uploads/Annual_Report_Master_2012.pdf

¹⁷⁷ SME Finance Monitor op. cit.

¹⁷⁸ 10% of overdraft applicants and 18% of loan applicants sought advice before applying (SME Finance Monitor op. cit.)

¹⁷⁹ SME Finance Monitor op. cit.

¹⁸⁰ SME Finance Monitor op. cit.

¹⁸¹ Fraser (2009) op. cit. highlights the role of financial advice in reducing financial delinquency which is one of the main reasons for poorer access to finance among Black and Bangladeshi owned businesses.

¹⁸² Appeals Process Independent External Reviewer Annual Report 2011/2012 op. cit.

¹⁸³ Appeals Process Independent External Reviewer Annual Report 2011/2012 op. cit. p34:

'i) We need to examine how personal credit scoring data is used in bank credit decisions to see that it is effective.

ii) Credit Rating Agencies and others need to be much more transparent on how they let people know what they do can affect their score. While some companies are good in letting you know this, not all are and, with the part that the internet plays in all our lives, it is easier than ever to breach a rule without knowing it.

Entrepreneurial Finance and Growth

iii) We need to re-examine some of the behavioural aspects used in the score to see if they are now relevant in this new economic world we find ourselves.'

¹⁸⁴ See Building the Business Bank – Strategy Update Department for Business Innovation and Skills, March 2013.

¹⁸⁵ See e.g., Chittenden et al, (1996) op. cit.; Michaelas et al, (1999) op. cit

¹⁸⁶ [1] La Porta, R., Lopez-de-Silanes, F., and Shleifer, A., (2002). Government ownership of banks. *Journal of Finance*, 57, 265–301; [2] Körner, T, and Schnabel, I., (2010). Public ownership of banks and economic growth – The role of heterogeneity. Working Paper No. 2010_41, Max Planck Institute for Research on Collective Goods.

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¹⁸⁹ Bhaumik, S.K., Dang, V., and Kutan, A., (2011). Implications of bank ownership for the credit channel of monetary policy transmission. *Journal of Banking & Finance*, 35(9), 2418-2428.

¹⁹⁰ Korner, and Schnabel, (2010) op. cit.

¹⁹¹ Although, unlike KfW, the SBA is not a bank. However, it performs many similar functions to KfW, and the proposed Business Bank, in terms of using state funding and guarantees to channel affordable long term finance to small businesses.

Entrepreneurial Finance and Growth

¹⁹² See IPPR (2012), Investing for the future. Why we need a Business Bank.

¹⁹³ *U.K.'s ONS Warns on Zombie Firms*, The Wall Street Journal, Europe Edition, January 16, 2013; *Zombie companies stalk UK economy*, (by) M. Stothard and C. Giles, ft.com, November 18, 2012.

¹⁹⁴ Ahearne, A.G., and Shinada, N. (2005). Zombie firms and economic stagnation in Japan. *International Economics and Economic Policy*, 2(4), 363-381.

¹⁹⁵ Mason, C., and Pierrakis, Y., (2013). Venture capital, the regions and public policy: the United Kingdom since the post-2000 technology crash. *Regional Studies*, forthcoming.

¹⁹⁶ Nightingale, P., Murray, G., Cowling, M., Baden-fuller, C., Mason, C., Siepel, J., Hopkins, M., and Dannreuther, C., (2009). *From Funding Gaps to Thin Markets: Designing Hybrid VC Schemes for the 21st century*. Science and Policy Research Unit (SPRU), University of Sussex, Falmer, Brighton, for the British Venture Capital Association (BVCA) and the National Endowment for Science, Technology and the Arts (NESTA).

¹⁹⁷ Brander, J.A., Egan, E., and Hellmann, T.F., (2008). Government sponsored versus private venture capital: Canadian experience. Working paper no. 14029, National Bureau of Economic Research, Cambridge, Massachusetts.

¹⁹⁸ Competition Commission (2002) The supply of banking services by clearing banks to small and medium sized enterprises.

¹⁹⁹ Independent Commission on Banking (2011) Final Report: <http://www.hm-treasury.gov.uk/d/ICB-Final-Report.pdf>

²⁰⁰ Petersen, M.A., and Rajan, R.G.(1995). The effect of credit market competition on lending relationships. *Quarterly Journal of Economics*, 110 (2), 407-443.

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²⁰¹ Ashton, J., & Keasey, K. (2005). Competition and the provision of banking services to SMEs in the UK. *Small Business Economics*, 24(5), 477-485.

²⁰² Beck, T, Demirguc-Kunt, A., and Maksimovic, V. (2004). Bank competition and access to finance: International evidence. *Journal of Money, Credit, and Banking* 36(3), 627-648, find that bank concentration has no effect on firm's access to finance in countries with high GDP, well developed institutions, efficient credit registry and a high share of foreign banks. However bank concentration increases financing obstacles in countries with low levels of economic and institutional development. Across all levels of economic development concentration increases financing obstacles in countries with more restrictions on banks' activities, higher government intervention in the banking system and a higher share of government owned banks.

²⁰³ Hong, S., Serfes, K. and Thiele, V. (2012). The Market for Venture Capital: Entry, Competition and the Survival of Start-Up Companies (October 29, 2012) SSRN.

²⁰⁴ Han et al, (2009) op. cit.

²⁰⁵ One exception here is Fraser (2011) which reports that entrepreneurs in some Creative Industry Businesses (CIBs) (including Publishing; Video Film and Photography; and Radio and TV) have poorer perceptions of the supply of finance than entrepreneurs in comparable non-CIBs: Fraser, S. (2011) op. cit.

²⁰⁶ This relates to the need to develop a better understanding of 'customer journeys' from application through to outcomes.

²⁰⁷ Cosh et al (2009) op. cit. makes important inroads in disentangling demand from supply and dealing with non-random selection.

Entrepreneurial Finance and Growth

²⁰⁸ Banerjee, A., and Duflo, E., (2001). The nature of credit constraints: Evidence from an Indian bank. Mimeo, Massachusetts Institute of Technology.

²⁰⁹ This latter question is motivated by the observation that whilst the majority of small firms tended to get most of the finance they needed (pre financial crisis) many did not receive it from their preferred source (Cosh et al, 2009). The implication is that business performance may be constrained by finance *choice* gaps instead of, and/or in addition to, gaps in the *amount* of finance.

²¹⁰ Breedon, T., (2012). Boosting Finance Options for Business. Department for Business Innovation and Skills.

²¹¹ SME Finance Monitor op. cit.

²¹² Delmar, F., Davidsson, P., and Gartner, W.B., (2003). Arriving at the high-growth firm. *Journal of Business Venturing*, 18, 189–216.

²¹³ McKelvie, A., and Wiklund, J., (2010). Advancing firm growth research: A focus on growth mode instead of growth rate. *Entrepreneurship Theory & Practice*, 34: 261-288.

²¹⁴ Clarysse, B., Bruneel, J., and Wright, M., (2011). Explaining growth paths of young technology-based firms: Structuring resource portfolios in different competitive environments. *Strategic Entrepreneurship Journal*, 5, 137-157.

²¹⁵ Miller, P., and Bound, K., (2011). The Startup Factories: The rise of accelerator programmes to support new technology ventures. Discussion Paper: June 2011. London: NESTA.

²¹⁶ Wright, M., and Stigliani, I., (2013). Entrepreneurship and growth. *International Small Business Journal*, forthcoming.



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