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What do we know about entrepreneurial finance and its relationship with growth?

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Abstract

This article explores what we do (and do not) know about entrepreneurial finance and its relationship with growth. Broadly, there is a need for research to go beyond traditional supply side/market failure issues to better understand the role of entrepreneurial cognition, objectives, ownership types and firm life-cycle stages in financing/investment decisions. We show that little is known about the pivotal relationship between access to external finance and growth due to limitations in current approaches to testing financial constraints. Instead, we propose that the relationship between funding gaps and business performance as a direct and nuanced approach to identifying financial constraints in different entrepreneurial finance markets requires scrutiny. There is also a necessity for research to disentangle cognitive from financial constraints and to better understand the role of financiers in enabling growth. In particular, there is a need to explore the relationship between non-bank sources of finance and growth, shorn of inherent survival and selection bias. We outline an agenda for future research to address gaps in our understanding.

Keywords

entrepreneurship, finance, firm growth

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Introduction

Following the financial crisis, many economies have seen a significant decline in both debt and equity finance flows to small and medium-sized enterprises (SMEs) (Cowling et al., 2012) and with an associated negative impact on firm performance (Cowling et al., 2014). Consequently, there are concerns that the associated funding gap may be limiting firm growth and as a result, constraining economic recovery. The United Kingdom, in particular, provides strong prima facie evidence about the persistent structural problems in the markets for both traditional bank credit and alternative sources of finance such as venture capital (VC) (Breedon, 2012; Nightingale et al., 2009). Indeed, the UK government has established a British Business Bank, modelled on the lines of the German state-owned bank Kreditanstalt für Weideraufbau (KfW), to help improve flows of debt/equity finance to SMEs.

The issue of funding gaps, in the provision of debt and equity, as a constraint on the development of small businesses is not new. In the United Kingdom, The MacMillan Committee (1931) and Bolton Committee (1971) long ago 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). More recently, reports have drawn attention to the following: the lack of competition in the supply of banking services to SMEs (Cruickshank, 2000; Independent Commission on Banking, 2011), shortcomings in the provision of growth capital (Rowlands, 2009), the need to promote the supply of non-bank sources of finance since the financial crisis (Breedon, 2012) and the benefits of establishing a 'one stop shop' for business support in the United Kingdom similar to KfW (Breedon, 2012).

The issues involved in understanding funding gaps are complex. It is not easy to disentangle whether a drop in the amount of funding results from low demand or contraction in funding supply. The explanation of the latter, which has dominated the policy discussion, is often rooted in market failure: the fixed costs of screening and monitoring smaller/younger businesses, which are more informationally opaque, may be prohibitively high (Stiglitz and Weiss, 1981). The resulting information asymmetries may give rise to problems of adverse selection and/or moral hazard leading to credit rationing (Stiglitz and Weiss, 1981). In these circumstances, funding may only be available where the entrepreneur has some track record (Petersen and Rajan, 1994) or can demonstrate commitment to the business, such as through providing collateral. Developments in credit scoring have helped lower the fixed costs of lending and reduce reliance on collateral, improving SME access to finance (Allen et al., 2004; Van Gestel and Baesens, 2009). Indeed, improvements in the credit information infrastructure might be expected to help the flow of finance and overcome some of the asymmetries. A potential downside is that existing lenders hoard information on commercial lending via the credit referencing agencies (CRAs), which creates a barrier to entry for new lenders (Ariccia, 1998; Bofondi and Gobbi, 2006). The need to make credit data on SMEs available is understood and acknowledged by governments; in the United Kingdom, it is an integral part of the policy discussion concerning competition in the banking industry.[1]

As with bank borrowing, firms seeking equity finance often lack a track record to mitigate the informational asymmetry problem. In situations of high informational asymmetries which would deter an ordinary investor, venture capitalists have developed various methods of selecting high-quality ventures and monitoring/adding value to their portfolio (Amit et al., 1998). However, the contrast between the experience of the United Kingdom and that of the United States suggests that the growth of a VC industry to support SME financing is not guaranteed (Wright et al., 2005).

While research has focused on supply side issues, a largely underdeveloped area is the role of entrepreneurial cognition in financing/investment decisions (Wright and Stigliani, 2013). Individuals face limitations in their ability to process information, which may lead to various heuristics and cognitive biases (Kahneman and Tversky, 1979); such biases are especially likely in entrepreneurial contexts (Baron, 2007). Cognitive biases may affect how entrepreneurs frame and evaluate the options available to them; for example, preferences for avoiding losses may mean entrepreneurs decide not to invest in and grow their businesses. Other research suggests a tendency towards 'positive illusions' (Taylor, 1989) such that entrepreneurs tend to overestimate their ability and so, underestimate risk (Hmieleski and Baron, 2009; Kahneman and Lovallo, 1994), prompting over-investment (de Meza and Southey, 1996). While previous research (for a review, see Gregoire et al., 2011) 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.

These supply and demand side factors persist over the financial life-cycle of the firm. The informational opacity of the firm changes over time (Berger and Udell, 1998) and this affects the nature of firm financing. On the demand side, cognitive biases may change over time as the entrepreneur gains experience (Fraser and Greene, 2006); additionally, path dependencies can lock firms in and out of markets for finance. In aggregate, the overall observed changes in access to finance would then be affected by the distribution of firms along the aforementioned life-cycle.

Recognizing the nuanced and dynamic nature of supply and demand side factors, our aim is to address the following question: What do we understand about the relationship between entrepreneurial finance and growth? We review the academic literature on the relevant issues. In the next section, we present a schematic view of the relationship between entrepreneurial finance and growth, which draws together different parts of the literature, while also highlighting areas we are less sure about. This sets the scene for the discussion in the remainder of the article: financing decisions ('Financing decision'); debt and equity funding gaps and their relationship with growth ('Funding gaps and growth'); and, beyond finance, the role of financiers in enabling growth ('Venture capital and firm growth – more than finance?'). We conclude by discussing some of the gaps in understanding that future research needs to address. Overall, we indicate gaps in the literature that should be addressed to better inform policy making.

Relationship between entrepreneurial finance and growth – schematic overview

Entrepreneurs have differing growth objectives over the stages of their own life-cycle and that of their ventures. Many entrepreneurs, for example, are motivated by lifestyle factors and may have little need for external finance (Davidsson and Henrekson, 2002). Others, while having future growth plans, may not yet be ready to grow. There are also other complexities. Entrepreneurial cognition influences the decision to seek external finance by affecting perceptions of growth opportunities and/or the desire/perceived ability to exploit these opportunities (Wiklund et al., 2003). Start-up entrepreneurs may be reluctant to relinquish control of their ventures while established family firms with underlying growth prospects may be reluctant to draw upon external funding that either dilutes family ownership, or involves assuming debt potentially putting family ownership at risk should there be difficulties in servicing the debt (Le Breton-Miller and Miller, 2013).

Previous research has looked at different parts of the relationship between entrepreneurial finance and growth: 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 VC in building high growth firms. We therefore, start by reviewing these different parts of the

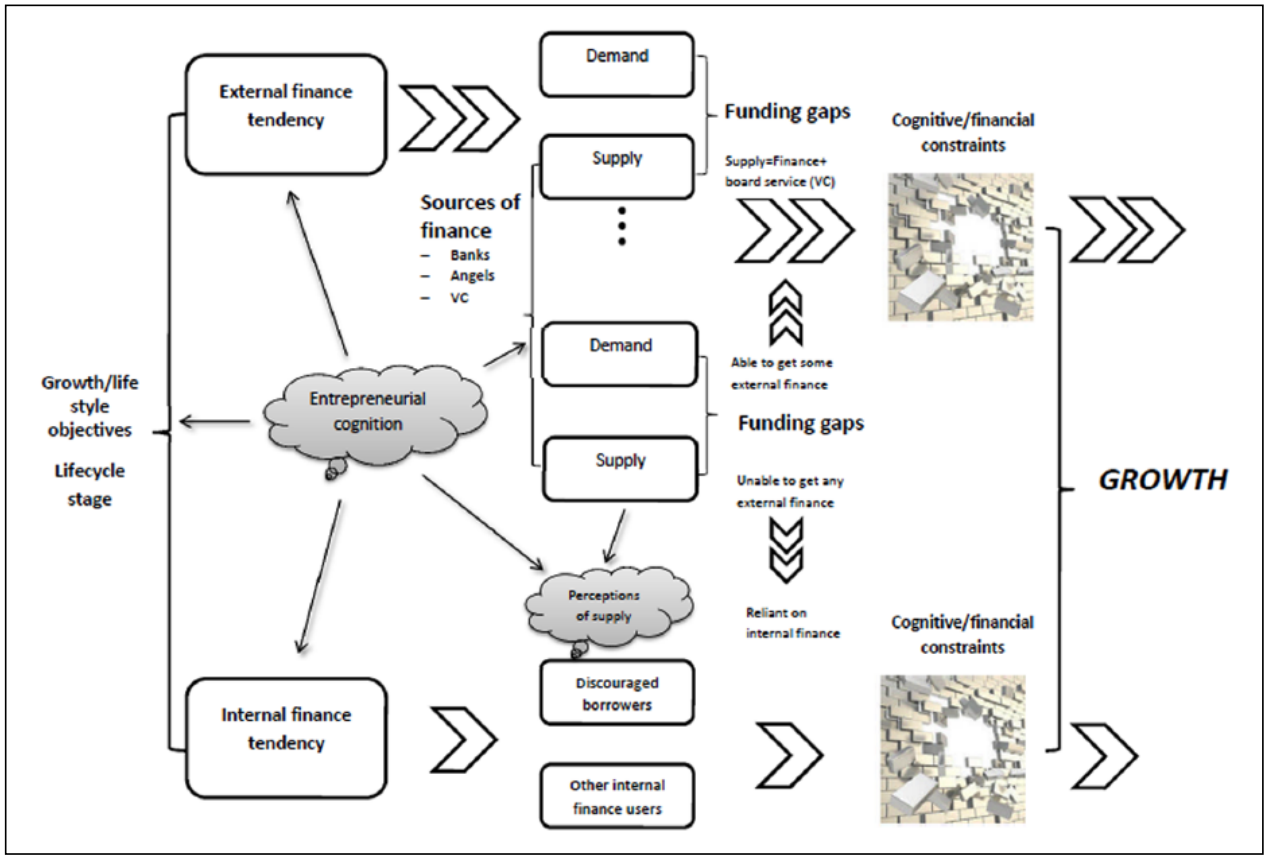

Figure 1. Entrepreneurial finance and growth – an integrated framework.
VC: venture capital.

entrepreneurial finance literature mindful that, in view of the gaps in understanding identified in the 'Introduction' section, we may think we are measuring financial constraints on growth when in fact, we are measuring cognitive (and motivational) constraints.

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-cycle. Start-ups traditionally rely on insider finance, trade 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 such as bank debt, VC and public debt/equity (Vanacker and Manigart, 2010).

The pace of growth also matters. Growth-orientated/ready businesses will be more likely to seek external finance to meet their higher capital demands (Cosh et al., 2009). Hence, 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. 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. In other words, business size, age and ownership form interact with growth potential to affect financing decisions.

Aside from factors such as growth potential and growth objectives, perceptions also matter. Thus, the perception that the supply of finance is poor may result in discouragement and reliance on internal finance ('discouraged borrowers': Kon and Storey, 2003; or discouraged finance seekers: Xiang et al., 2014). In short, the 'pecking order' of sources of finance (see below) may be skewed towards internal finance not just because it is actually harder to obtain external finance

(due to market failure) but also because it is perceived to be harder (Fraser, 2014). 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. Perceptions may shift if growing firms recognize and seek advice about what they can do to make themselves ready for different types of investors over different growth phases.

Figure 1 highlights the potential for funding gaps to constrain growth (and points to a more direct approach to testing financial constraints, outlined below). But while growing firms may need finance to facilitate growth, 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-cycle (Zahra et al., 2009). At early stages, growing firms are likely to need expertise to sharpen the focus of opportunities and to help build commercial skills of the entrepreneurial team (Mosey and Wright, 2007). Established growing firms are 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 (Uhlaner et al., 2007).

The complexity of issues related to financing entrepreneurial firms is now palpable. It goes well beyond the much discussed issues of market failure and information-cost-driven preferences for certain types of financing, some of which we have referred to earlier in the article and some of which we shall refer to in the following sections. Growth potential, as well as growth objectives, matter as do entrepreneurial perceptions. Ownership structures can preclude certain types of financing, and growth potential can interact with some of these other factors to ensure that financing needs and the nature of financing gaps vary over a firm's life-cycle.

Financing decisions

Asymmetric-information-based theories, which contribute to explaining market failure, have also been developed to examine demands for financing. Notably, the well-known pecking order hypothesis emphasizes the role of information asymmetries, leading to preferences for cheaper internal finance first, only followed by costlier external finance (debt then equity) if there are insufficient internal funds (Myers and Majluf, 1984; Vanacker and Manigart, 2010). Agency theory points to conflict in the priorities of entrepreneurs and financiers – external debt will be more available where there is collateral to help align interests (Rajan and Zingales, 1995).

While doubts have been raised about the applicability of specific theories such as the pecking order theory in all contexts (Frank and Goyal, 2003), the evidence seems to support pecking order and agency theories over tax considerations in financing decisions (Lopez-Garcia and Sogorb-Mira, 2008; Michaelas et al., 1999), including in the UK context (Beattie et al., 2006). More profitable firms use less external finance (supporting the pecking order hypothesis) (Chittenden et al., 1996). High growth firms, with greater funding needs, are more likely to seek external finance (Cosh et al., 2009) although they are more reliant on short-term debt (Chittenden et al., 1996). Evidence of agency issues is supported by a positive relationship between leverage and tangible assets (Harris and Raviv, 1991). Industry effects, relating to the availability of collateral, also affect leverage and debt maturity (Michaelas et al., 1999). Access to external finance improves with size and age, supporting the idea of a financial growth life-cycle (Mac an Bhaird and Lucey, 2011). In addition, the economic cycle is important with reliance on short-term debt increasing in a recession (Michaelas et al., 1999). However, these explanations typically explain only between 10% and 30% of observed variation in financing decisions. What accounts for the deficit? Entrepreneurial objectives, control aversion and risk perceptions are important yet largely ignored in studies on financing decisions (Mueller, 2008). 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% (Romano et al., 2001). We are also in the early stages of understanding how cognitive biases may affect finance application decisions (Fraser, 2014). Nonetheless, we still understand relatively little about the role of entrepreneurial cognition/perceptions in financing decisions and this is an important area for further research.

Funding gaps and growth

Rejection rates and the proportion of refused finance applicants are a widely used measure of gaps between finance demand and supply (Cressy, 2007; Fraser, 2012). However, there are caveats in the use of such rejection rates; essentially, (high) rejection rates do not per se point to market failure; rather, providers may simply be turning down unviable businesses. Consequently, as Figure 1 shows, it is important to examine the relationship between funding gaps and business performance to understand financial constraints (see below). However, first we review the evidence on debt/equity funding gaps and how they vary over time, business characteristics and location.

Funding gaps

Following the 2008 financial crisis, 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 credit risk (Fraser, 2012). Rejection rates for VC are much higher than for bank or non-bank debt. For example, a UK study published in 2009 found that 46% of respondents approaching VCs and 24% of those approaching private individuals, that is, business angels, had experienced rejection (Cosh et al., 2009). Loan rejection rates are higher for high-risk and smaller firms and those with shorter banking relationships (Fraser, 2009b, 2012); larger firms obtain a higher proportion of the amount of bank finance sought (Cosh et al., 2009). This reflects underlying issues relating to lack of track record and/or collateral which inhibit access to bank finance. By ethnicity, rejection rates are significantly higher among Black- and Bangladeshi-owned businesses, although this is largely explained by a lack of collateral and poor credit histories (Fraser, 2009a). However, in the United States, Black-owned firms are more likely to be denied loans, *ceteris paribus*, raising the possibility of ethnic discrimination (Blanchflower et al., 2003).

Male-founded firms generally obtain a lower proportion of the amount of bank finance sought compared to female-founded firms (Cosh et al., 2009), consistent with evidence that females are more risk averse (Jianakoplos and Bernasek, 1998) and, therefore, tend to run less risky ventures. Similarly, high-tech service firms obtain less bank finance (Cosh et al., 2009). Also loan/overdraft rejection rates are higher following the financial crisis in construction, wholesale/retail, hotels and restaurants and real estate, renting and business activities (reflecting falling asset/property values) (Fraser, 2009b). International comparisons of loan rejection rates in 2010 show that in the United Kingdom, these were higher than in Germany, France, Sweden, Italy and Spain but smaller than in The Netherlands and Ireland (Eurostat, 2011). However, 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.

Regarding VC, various policy measures have been developed as attempts to address a perceived equity gap (Babcock-Lumish, 2009). While some improvements in VC provision for early-stage technology-based firms have been noted, major concerns remain (Lockett et al., 2002). Equity gaps vary between sectors, regions and stages of finance. Analysis based on matching characteristics of firms receiving VC, with those that did not suggests that the actual amounts funded by VC in health, pharmaceuticals, household products, insurance, information technology, investment companies and specialty finance were significantly below expectations (Wilson and Wright, 2011).

Recent evidence suggests that the equity gap for entrepreneurs and the stigma of failure in raising VC finance in Europe, especially for serial entrepreneurs, is less than previously claimed (Axelson and Martinovic, 2013). 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 United States.

There is some debate about whether credit rationing and funding gaps are transitory in terms of temporary or permanent disequilibrium given information asymmetries (Stiglitz and Weiss, 1981). Periods of tight monetary policy exacerbate credit constraints stemming from asymmetric information and limited collateral problems; accordingly, SMEs may substitute debt finance for trade credit (Atanasova and Wilson, 2003, 2004). In 2012, SMEs supplied more than £80bn in trade credit and received more than £130 billion and so were net recipients of around £50 billion (Wilson, 2014). SMEs are also more likely to utilize trade credit as they come out of recession and where bank funding is in relatively short supply. Government schemes such as the UK's Trade Credit Enterprise Finance Guarantee (TCEFG) scheme provide further support for firms unable to obtain traditional bank lending by enabling suppliers to extend trade credit to firms outside their normal risk profiles. Other government schemes designed to address the funding constraints faced by SMEs include the Enterprise Finance Guarantee, the Supply Chain Finance and the Funding for Lending schemes. The Supply Chain Finance scheme helps SMEs address working capital constraints resulting from late payments by large customers.

Temporary financing gaps can affect firms with growth potential that experience expected growth in cash flows but do not have commensurate collateral. In some cases, such as family businesses, the funding gaps arise from an unwillingness to raise equity capital or use funding that eventually leads to equity dilution (Lopez-Garcia and Sanchez-Andujar, 2007). For these firms, funding can be provided by way of bespoke structured products broadly classified as mezzanine finance and those that lie – in terms of characteristics, risk to investors and cost to firms – between debt and equity (Organisation for Economic Co-operation and Development (OECD), 2013). The uptake of mezzanine finance is low in European Union 20 (EU20) countries; however, and the percentage of unsuccessful requests for mezzanine finance is high compared to that for other forms of non-bank finance such as trade credit and leasing (OECD, 2012). The main barriers to growth in the market for mezzanine finance are high fixed costs for due diligence relative to deal size for smaller SMEs, the absence of exit routes through the market, the greater complexity of mezzanine products and greater transparency requirement relative to bank funding and the higher cost of mezzanine loans compared to bank credit and debt. Some form of public support, perhaps through publicly owned (or supported) business banks might therefore, be necessary to provide growth finance through these financing vehicles.

Testing financial constraints – relationship between funding gaps and growth

We begin by considering evidence from existing approaches to testing financial constraints before arguing that a better approach is to examine the relationship between funding gaps and growth. The relationship between the availability of internal finance and investment/growth is typically seen as evidence of financial constraints. 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.

US evidence using this approach indicates financial constraints on new venture creation (Aghion et al., 2007), survival (Musso and Schiavo, 2008), sales and assets growth (Carpenter and Petersen, 2002; Musso and Schiavo, 2008) and employment growth (Haynes and Brown, 2009). However,

one study suggests the relationship between personal wealth and becoming a business owner is confined to the top 5% of the population by wealth distribution; this is inconsistent with financial constraints (Hurst and Lusardi, 2004). Instead, the relationship may reflect that wealthier individuals are less risk averse (and therefore more willing to start a business; Cressy, 2000; Kan and Tsai, 2006), have higher human capital (and therefore, more able to start a business; Bosma et al., 2004) or that business ownership is due to the lifestyle preferences of the wealthy (Hurst and Lusardi, 2004). UK studies show financial constraints on business formation/growth based on a positive link between receiving an inheritance/windfall and self-employment (Taylor, 2003) or self-employment income (Taylor, 2003). However, there is little or no evidence that financial constraints affect business survival in the United Kingdom (Helmers and Rogers, 2010; Holmes et al., 2010) Other UK research looking at investment efficiency does not find significant evidence of changes in the average degree of financing constraint over time, for the 2003–2010 period (Bhaumik et al., 2012). The average degree of 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 within industries.

Studies of larger firms have examined the relationship between liquid assets/cash-flows and investment using Tobin's Q to control for investment opportunities (Carpenter and Petersen, 2002). Using this approach, evidence of financial constraints on asset growth of US listed firms with assets between $5 million and $100 million has been found (Carpenter and Petersen, 2002). A survey of related research 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 (Pawlina and Renneboog, 2005). However, one has to be careful about drawing conclusions from these results about the implications for SME finance. Empirical 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.

Even aside from the debate about the interpretation of the cash flow sensitivity of investment that acts as the indicator for financial constraint in this literature, a general problem with the internal finance approach is that finding a relationship between internal finance and business performance may have nothing to do with liquidity. The relationship could instead be due to factors relating to the entrepreneur, including the following: human capital (Bosma et al., 2004), entrepreneurial talent (Hurst and Lusardi, 2004), risk aversion (Cressy, 2000; Kan and Tsai, 2006), or entrepreneurial over-optimism (de Meza and Southey, 1996; Fraser and Greene, 2006). 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. Funding gaps (adversely) affect business outcomes only if the firm is financially constrained (Cressy, 2002). If, instead, the funding gap reflects excessive finance demands (due, for example, to over-optimism) then there is no relationship (Fraser, 2011). Hence, the 'funding gaps approach' allows us to focus directly on measurable impacts of a lack of funding on business outcomes rather than draw inference from indirect evidence about financial constraints.

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 blunt approach only able to point to a generic financial constraint. This is of limited use to policy makers who need to understand how issues of financial constraints vary across different debt/equity finances and the

potential (differential) returns, principally increased employment, from relaxing these constraints. The 'funding gaps approach' is better able to provide policy makers with this kind of specific information.

At the same time, cognitive issues may also affect investment decisions and contribute to funding gaps. In this respect, financial discouragement may lead to under-investment where viable businesses decide not to seek finance (Fraser, 2014). Again, this suggests a (negative) relationship between discouragement and growth exists only if discouragement leads to under-investment; alternatively, discouragement may be economically efficient (suggesting no relationship with growth) if unviable businesses decide not to seek finance because they (rightly) believe they will be turned down (Han et al., 2009).

Initial applications of the 'funding gaps approach' using UK Survey of SME Finances (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 (Fraser, 2011). There is also evidence of cognitive constraints on growth inasmuch as discouraged term loan borrowers grew significantly more slowly (*ceteris paribus*) than businesses which successfully applied for term loans (Fraser, 2011). However, much more research is required to understand how the impacts of funding gaps on performance vary over the financial life-cycle of the firm and across different debt/equity finances.

VC and firm growth – more than finance?

The emphasis so far has been on issues affecting the supply and demand of finance and the impact on growth. However, finance providers often do more than simply supply businesses with finance. While both banks and VCs monitor the businesses they are engaged with to reduce agency risk, VCs (unlike banks) are not confined to the monitoring dimension of governance; they are also active in providing added value services which may be especially important to facilitate growth. Accordingly, we conclude our overview of the relationship between entrepreneurial finance and growth by looking at the relationship between VC and firm growth, with a view to understanding the role of VC-added value services. In relation to earlier and later stages in the financial growth cycle, we also look at the impact of business angel finance and private equity (PE) buyouts on growth.

Evidence from several countries generally shows a positive relationship between VC backing and firm performance (Manigart and Wright, 2013). Evidence from matching VC and non-VC backed firms by size has shown that VC-backed firms grow revenues faster (Puri and Zarutskie, 2012). Similarly, VC-backed firms also have higher asset and employment growth than non-VC-backed firms (Chemmanur et al., 2011). The benefits of VC backing may contribute to higher productivity growth leading up to an exit, notably through an initial public offering (IPO). In contrast, one study of the growth of VC- and non-VC backed firms that went to IPO found no effect of VC backing on post-IPO growth (Bottazzi and Da Rin, 2002). 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 (Ahmed and Cozzarin, 2009). 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 dead' alive (Manigart et al., 2002). Portfolio firms backed by inexperienced government-related VCs have 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 (George et al., 2005). 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 behaviour for late-stage ventures, while VC value-added skills are more important in promoting export behaviour in early-stage ventures (Lockett et al., 2008). VC firms may also be closely involved in relocating portfolio companies from developing to developed markets to better enable access to resources, trading 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 also 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 (Lockett et al., 2008).

Several important issues contribute to explaining these different findings, not least cross-sectional studies and often a failure to address the issue of survivor bias and endogeneity in VC backing (Manigart and Wright, 2013). Differentiating between selection and treatment effects is especially important as VCs select ventures with specific characteristics, which differ from ventures not seeking VC (Bertoni et al., 2011). Disentangling the effect of value adding of VC firms from the mere effect of receiving more financial funds is also important. One meta-analysis (Rosenbusch et al., 2013) 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. There is evidence that VCs select firms with higher total factor productivity (TFP), sales and salaries, which then grow faster after receiving such investment (Chemmanur et al., 2011).

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 (Manigart and Wright, 2013). The type of VC matters in other ways. Traditional financial VCs, rather than corporate VCs, appear to generate employment and sales revenue growth in their portfolio companies (Bertoni et al., 2011). Those 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, this may reflect the earlier exit of high growth ventures from independent VC firm 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 (Bertoni et al., 2013).

VCs differ in their reputations, skills and expertise (Manigart and Wright, 2013). 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. An examination of the influence of human capital and VC backing on the growth of new technology-based firms (NTBFs) in Italy (Colombo and Grilli, 2010) found, after controlling for survivor bias and the endogeneity of VC funding, that after receipt of VC backing the role of founder skills becomes less important – and the coaching skills of VCs more important – in contributing to growth.

Portfolio firms receiving funding from domestic VC investors grow more strongly in the short run, but those backed by cross-border VC investors grow more in the long run (Devigne et al., 2013). Such firms backed by a syndicate comprising both domestic and cross-border VC investors outperform all other combinations (Devigne et al., 2013). While domestic investors have expertise about local conditions, cross-border investors have expertise enabling growth in international markets, which may take longer to come to fruition (Mäkelä and Maula, 2006).

There is a general debate about whether growth adequately reflects performance; some argue that it is also important to consider profitability (Davidsson et al., 2009). 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 former. This apparent contradictory finding 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 (Clarysse et al., 2011).

More firms receive business angel financing than is the case for VC (Cosh et al., 2009), although it tends to be complementary to VC, especially for smaller investments. Compared to early-stage VC investments, business angels tend to avoid bad investments but find fewer opportunities to earn significant returns (Parhankangas, 2012). Business angel involvement with their investments differs from formal VC firms, notably being more flexible regarding monitoring requirements but making less contribution in times of distress (Ehrlich et al., 1994; Vanacker et al., 2013). There is some debate about whether business angels predominantly invest locally because of personal networks and greater possibilities for 'hands-on' involvement. However, a significant minority of angel investments are long distance beyond immediately adjacent counties to the home location (Harrison et al., 2010). Some problems in assessing the impact of business angels on growth concern the availability of data, with many studies (Kelly, 2007) 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 sources of finance.

Besides the classic VC reviewed above, PE finance also provides support for established firms undergoing restructuring through a change in ownership (management buyouts and buy-ins) (CMBOR, 2013). Close monitoring by PE investors can add value in firms that have been constrained in realizing their growth opportunities under their previous ownership regime (Bacon et al., 2010; Wood and Wright, 2010). Furthermore, PE investors can structure deals with debt instruments that allow for servicing costs to be aligned with investment needs.

Evidence from systematic studies worldwide shows positive effects on growth (Gilligan and Wright, 2012). These studies identified growth along a variety of measures, 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 clearcut. In France, recent evidence from generally smaller buyouts shows growth in operating performance, productivity and employment (Boucly et al., 2011). In the United Kingdom, PE ownership adds significantly to growth in operating profitability of PE-backed buyouts over the first 3 years post buyout, compared to peers. Growth was greater in buyouts funded by more experienced PE firms with closer involvement in their portfolio companies (Meuleman et al., 2009). UK 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 (Amess et al., 2008).

Analyses of the population of UK firms over the period 1995–2012 find a consistent pattern of PE-backed buyouts with higher growth rates than non-PE-backed buyouts for the first four years post buyout, especially in terms of value added (Wilson and Wright, 2013; Wilson et al., 2012). 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 compared to the pre-buyout period. For the recessionary sub-period 2008–2011, PE-backed buyouts are significantly and positively associated with growth, suggesting that PE-backed growth is more robust. Controlling for other factors, the extent of UK experience of PE firms is significant and positively associated with growth in value added, assets, sales, equity and employment.

Emerging forms: supply chain financing, crowdfunding, peer-to-peer lending, accelerators

Recent developments, including supply chain finance (see above), peer-to-peer lending and crowdfunding may contribute to filling gaps in the supply of bank funding (Breedon, 2012). Such sources of finance are currently used by a very small minority of small businesses; this is due to both a lack of availability and behavioural barriers on crowdfunding, a lack of financial expertise and access issues (SME Finance Monitor, 2013).

However, from a low base, crowdfunding, including gifting, reward, loan and equity models, is growing rapidly as those with small amounts to invest are attracted by apparently greater returns than available through bank deposit savings (Belleflamme et al., 2013). Equity crowdfunding has experienced slower growth than other models but recent regulatory developments may address this issue (Financial Conduct Authority (FCA), 2014). Nevertheless, there is debate about the likely effectiveness of crowdfunding in helping SMEs to grow (Harrison, 2013; Mollick, 2014). Investors face difficulties in conducting due diligence creating a 'lemons' problem, although this may be alleviated to some extent by the development of reputation systems, friendship networks and discussion boards (Tomboc, 2013). However, entrepreneurs may be able to provide potentially misleading signals about the quality of an investment by using personal networks as early investors in the online process (Franzoni et al., 2014).

One of the issues associated with alternative modes of financing, such as crowdfunding or peer-to-peer lending, is that investors may not be in a position to undertake the roles played by investors and financial intermediaries aside from providing funding or capital. Traditional investors, whether equity or bond holders, can facilitate governance issues in firms in which they invest, by way of market discipline (Lane, 1993). Financial intermediaries – banks in particular – can, on the other hand, monitor debtor firms on behalf of the dispersed group of depositors whose savings are used to provide credit, thereby resolving incentive problems between lenders and borrowers (Besanko and Kanatas, 1993; Diamond, 1984). While the platforms used for crowdfunding and peer-to-peer lending may facilitate the flow of information in a way that results in better monitoring and governance (Moenninghoff and Wieandt, 2013), the exact role of the providers of these alternative forms of financing in the context of monitoring and governance remains somewhat unclear.

Accelerators involve programmes enabling entrepreneurs to access initial amounts of funding together with mentoring support from experienced entrepreneurs and business angels (Miller and Bound, 2011). Three broad strategic foci have been identified: ecosystem developers, investors and matchmakers (Clarysse et al., 2014). *Ecosystem builders* aim to create business ecosystems as well as to try to reduce the rate of failure of young ventures. They are typically publicly funded and tend to select entrepreneurial teams in the idea stage onwards. *Investors* and *matchmakers* prefer ventures with a working prototype and more mature teams. As expected, *investors* have a business model of a high-risk investment fund and are sponsored by private investors and/or corporates. In contrast, *matchmakers* have a focus on customers and implement structured methods to drive this. Some accelerators are generic, while others focus on providing focused support for early-stage ventures in particular sectors. Accelerators may help entrepreneurs better attract funding from VC firms and business angels, but the challenges in bridging to this next stage of achieving growth are little understood. Researchers need more data about non-standard sources of finance to better understand the factors that might influence take-up of these sources and their success rates.

Discussion and conclusion

Our examination of the academic literature indicates that the underlying issues go well beyond traditional discussions of market failure to include contingencies such as differences in

entrepreneurial cognition, objectives, ownership types and firm life-cycle stages. While we have reveiwed the evidence regarding entrepreneurial finance and its relationship with growth, significant gaps in our understanding of both these issues remain. In this respect, we believe future research should address, among others, the key issues described below.

Understanding financing decisions

It is important to have a better understanding of financing decisions for a 'typical firm' as studies usually fail to take into account non-random selection. In this respect, studying both application and approval/rejection decisions which underlie financing outcomes is important. Other less well understood issues relate to how entrepreneurs combine financial products (as complements or substitutes) and the impact of different (possibly second-best) combinations on business performance. Researchers need more data about non-standard sources of finance to better understand the factors that might influence take-up of these sources.

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' to testing financial constraints. Future research needs to examine the impact of funding gaps on growth and how this varies over specific types of finance and across different types of business. There is also a need for more research to better understand (potential) cognitive constraints, including discouragement, on investment/financing decisions and growth.

Governance, finance and growth

There is a need to consider how different ownership and governance regimes and their associated financing influence the nature of entrepreneurial growth. Longer-term, lower risk-taking perspectives typically attributed to family firms may influence their willingness to take on external finance to realize growth potential. For family firms, part of their processes for securing longer-term survival may be to ring-fence 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.

Involvement of financiers

There is limited research linking VC characteristics and portfolio company outcomes such as innovation, internationalization and growth. More in-depth investigation is 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 both what resources and capabilities are needed for growth and to know how to accumulate, bundle and leverage them to generate sustainable growth.

Modes and patterns of growth and finance

Few firms experience sustained high or even stable growth over long periods. Most fast-growth firms experience 'erratic one-shot' growth over a short period, with oscillating development around a low minimum level (Delmar et al., 2003). Firms may grow organically but in many sectors

acquisition is an important growth mode, either to consolidate mature sectors or gain access to new developments in high-tech sectors (McKelvie and Wiklund, 2010). These different growth patterns create demands for different types of long- and short-term finance that have yet to be analysed.

Scaling-up and finance

Finance sources such as boot-strap finance, bricolage and crowdfunding 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 (Miller and Bound, 2011). These funding sources help facilitate start-ups requiring smaller amounts of funding than would be attractive to traditional sources. However, at present we need to know more about which type of accelerator is appropriate for new ventures with different business models. Furthermore, although these funding sources may help create a pipeline for VC firms and business angels, important challenges remain in bridging to the next stage in the financial growth life-cycle. More research is needed to examine how this bridging can be best achieved.

Further probing into the above research areas can have immediate and significant impact by helping identify factors such as the specific financing needs of SMEs with certain combinations of age, ownership and other characteristics which, in turn, can feed into strategic discussions of organizations like the British Business Bank. A better understanding of the link between alternative sources of finance and sustained growth can, at the same time, inform policy decisions about the creation of institutional infrastructure within which relevant modes of financing will thrive. The importance of the research agenda discussed above cannot, therefore, be overemphasized.

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Note

1. See https://www.gov.uk/government/consultations/competition-in-banking-improving-access-to-sme-credit-data/competition-in-banking-improving-access-to-sme-credit-data

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