



Access to finance for innovative SMEs since the financial crisis



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ABSTRACT

In the wake of the 2008 financial crisis, there has been increased focus on access to finance for small firms. Research from before the crisis suggested that it was harder for innovative firms to access finance. Yet no research has considered the differential effect of the crisis on innovative firms. This paper addresses this gap using a dataset of over 10,000 UK SME employers. We find that innovative firms are more likely to be turned down for finance than other firms, and this worsened significantly in the crisis. However, regressions controlling for a host of firm characteristics show that the worsening in general credit conditions has been more pronounced for non-innovative firms with the exception of absolute credit rationing which still remains more severe for innovative firms. The results suggest that there are two issues in the financial system. The first is a structural problem which restricts access to finance for innovative firms. The second is a cyclical problem has been caused by the financial crisis and has impacted relatively more severely on non-innovative firms.

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1. Introduction

The fallout from the 2008 financial crisis has focused attention on access to finance for small and medium sized enterprises (SMEs). The roots of the financial crisis lay in overvalued assets, mainly those backed by mortgages. As these assets began to lose value, it was unclear who owned them and so was exposed to the losses. Banks were unwilling to lend to each other, and restrictions in lending fed through into the wider economy: the 'credit crunch' (Cowling et al., 2012). Five years after the initial shock to the economy, bank lending had still not recovered—particularly for smaller firms. There is now a general consensus that this held back the economic recovery of many countries, including the United Kingdom (UK) (Filippetti and Archibugi, 2011).

However, while policymakers talk in general terms about enterprise and small firms, not all firms will drive the economic recovery. SMEs constitute almost 60 per cent of private sector employment

in the UK and are an important area of government policy (BIS, 2013a). However, the majority of SMEs create few jobs (Storey, 1994; Cowling et al., 2004) with only a small minority having a disproportionate impact on the national economy (Mason and Brown, 2013; Nightingale and Coad, 2014). In particular, innovative small firms – those introducing new products, processes or business models – are most likely to create new markets, achieve rapid growth, and help the economy recover. External finance may be particularly important for innovative small firms, as they can lack the internal resources to successfully commercialise innovations (Beck and Demirguc-Kunt, 2006; Schneider and Veugelers, 2010).

Yet it is innovative small firms which often find it the hardest to obtain finance (Freel, 2007; Schneider and Veugelers, 2010; Hutton and Lee, 2012; Mason, 2013; Mina et al., 2013). Innovative firms tend to have riskier business models, which are important to create new markets but are also difficult for banks to value. They are often more reliant on intangible assets, rather than physical property, but intangibles are difficult to value as they are context specific, and thus hard to use as collateral for lending. The evidence on this point is not conclusive, but some authors suggest that the most important firms for the economy often find it hardest to obtain finance (Freel, 2007).

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However, while there is good evidence of a general problem in access to finance in the economy, there is little evidence on how the credit crunch and its aftermath has impacted on access to finance for innovative small firms in particular. This led [Mina et al. \(2013: 26\)](#) to argue that the “specific short- term and long-term effects of the post-2007 financial crisis are an open question on which further research is much needed.” Studies have suggested innovation investments may have been reduced in this period. For example, [Paunov's \(2012\)](#) important study shows firms with significant public financial support were less likely to reduce their innovation investments during the crisis.

This paper investigates these issues using the UK Small Business Survey – a government survey of over 10,000 SME employers – in 2007/8, 2010 and 2012. This gives rich data on firm characteristics including innovation and applications for finance. It also provides sufficient sample size and comparability between years to allow us to investigate how financing for innovative firms changed in the crisis. We use a combination of simple quantitative analysis and econometric analysis to investigate the link between innovation and access to finance while controlling for both firm characteristics and likelihood of applying. We also draw out the policy implications of our research findings.

Our results suggest that innovative SMEs – those introducing entirely new products or processes – have a higher probability of applying for finance than other firms (higher demand), but that they are more likely to find it difficult to access finance (restricted supply). From our bivariate results, innovative firms who apply for finance are more likely to find it difficult to obtain. This absolute credit rationing effect has worsened significantly since the crisis. When controlling for the other characteristics of the firm and their likelihood of applying we find that whilst access to finance has worsened for innovative firms overall (in absolute terms), but that in relative terms the gap with non-innovative firms in credit access (quantity rationing) has generally closed. The one notable, and important, exception is for absolute credit rationing from all sources which has worsened in absolute and relative terms for innovative firms.

This suggests that there are two distinct effects operating. First, we find a significant structural issue in the UK financial system which means it is harder for innovative firms to access finance *per se*. Second, we find evidence of a cyclical issue caused by significant reductions in bank lending since the credit crunch. This cyclical problem has caused problems for all firms. The worsening absolute credit rationing problem for innovative firms is of concern. Thus, we have an interesting dual effect at work: less credit is available in general (quantity rationing), but even though there is a narrowing of the ‘gap’ between innovative and non-innovative firms, it remains the case that innovative firms still find it harder to access credit. Of even greater concern is that innovative firms are increasingly more likely to face absolute credit rationing in the market during and after financial crises.

This paper makes a number of contributions to the literature on access to finance for small innovative firms. It is the first to empirically consider how access to finance for innovative small firms has changed since the crisis. To date the majority of the finance-innovation literature has focused exclusively on Venture Capital and other equity instruments ([North et al., 2013](#)). Instead, we focus on more standard, but more widespread, forms of finance. We also extend the analysis beyond R&D intensive, high-technology industries ([Hall, 2002](#)). Moreover, our measure of innovation is more inclusive than that in other studies which have tended to focus on R&D activity.

The remainder of this paper is structured as follows. Section 2 considers the literature on access to finance for innovative firms. Section 3 describes the data, the Small Business Survey, and how we define access to finance and innovation. Section 4 presents

descriptive results and shows that innovative SMEs are more likely to apply for finance than other firms (higher loan demand), but find it harder to obtain (lower loan supply). Section 5 estimates a series of probit regression models, with Heckman selection effects, which investigate this further. Section 6 considers implications for research and government policy in this area.

2. Access to finance for innovative SMEs

Since the analysis of Schumpeter, finance has been seen as a vital part of innovation processes ([O'Sullivan, 2005](#); [Mazzucato, 2013](#)). Yet it is not always clear that innovative firms are able to access the finance they need. For some time, researchers have been concerned about the potential for structural problems in the UK financial system which make it harder for innovative firms to access the finance they need ([Freel, 2007](#)). In addition, the credit crunch of 2008 will have had a cyclical effect. Restrictions in credit will have worsened the availability of finance for all firms and may also have exacerbated problems for certain firms in particular, such as younger or smaller firms.

2.1. Structural problems in the supply of finance for innovative SMEs

There are three main reasons why there may be a structural problem of access to finance for innovative small firms. First, the returns to innovation may be uncertain and thus make innovation riskier to finance ([Hall, 2002](#); [Coad and Rao, 2008](#); [Mazzucato, 2013](#)). Only a fraction of firms tend to experience significant growth following investments in innovative activity, with many products failing to be successfully commercialised or simply failing in the marketplace. There is no guarantee that investments in research and development (R&D) activity will lead successfully to new products. Failure rates are often high, making innovation an inherently risky activity.

This problem of uncertainty may be particularly acute for small and medium sized enterprises (SMEs) who lack the scale to invest in multiple projects and so risk ‘putting all their eggs in one basket’ ([Freel, 2007: 23](#)). Past research has shown that the returns from innovation may be highly uneven, with a small number of innovative projects leading to significant gains but most yielding little ([Coad and Rao, 2008](#)). Large firms are able to field more diverse portfolios and, even if they have more failures, they are also more likely to achieve at least one highly profitable innovation.

Second, there may be information asymmetries making it harder for banks to value innovative investments ([O'Sullivan, 2005](#)). In part, this stems from the problems of uncertainty outlined above. But it might also be because innovative products are by definition new—they may require specialist valuation, such as that provided by a Venture Capitalist (VC). The skills needed to evaluate innovative investments may be different from those for other types of SME lending and investment and may be highly sector specific. As banks are less interested in the value of the business, compared to VCs or other outside investors, they are less likely to finance innovation as a key criterion in banks loan evaluation process is the judgement of ‘serviceability’, the ability of the stream of cash-flow generated by an investment to repay the capital and interest ([Mina et al., 2013](#)). One view is that these ‘information opaque’ SMEs require different sorts of lending focused on long-term relationships—although it may also make them more reliant on credit scoring technologies ([Berger and Udell, 2006](#)). Because the firm has more information on the potential success of innovations than the financier, in some cases the market for innovation finance can resemble [Akerlof's \(1970\)](#) ‘market for lemons’—a lack of information on which firms

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