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Understand the Dynamics of UK Covid-19 SME Financing

Raffaella Calabrese

University of Edinburgh

Marc Cowling

University of Derby

Weixi Liu

University of Bath

Abstract

The scale of the UK government's response to the Covid-19 crisis after the first lockdown in March 2020 was unprecedented. For the business sector two financing schemes were particularly relevant, the Coronavirus Business Interruption Loan (CBILS) and the Bounce Back Loan (BBLS). Both were designed to support the capitalisation of businesses through this difficult trading period. In this paper we use data covering the first two quarters of the Covid-19 crisis to explore the dynamics of SME financing and in particular the role of government support schemes. Our findings show that 92.1% of all debt funds provided in this period were backed by the UK government which compares to less than 5% under normal circumstances. We find that the demand, supply, and government share of SME lending increased from Covid-19 quarter 1 (April to June 2020) to quarter 2 (July to September 2020), that micro and small businesses had the highest demand for loans, and that better-performing firms were more likely to receive loans. Further, in a world where more loan requests than ever were granted the government share of this pool of loans had a different risk profile than the small pool of non-government backed loans.

Keywords: SME lending, government-backed loans, Covid-19 pandemic.

Introduction

In the Global Financial Crisis (GFC) the UK government sought to address problems with access to finance through recapitalisation of the banking system (OECD, 2013; UK Finance, 2018). These efforts worked to a degree in the sense that banks began to increase their willingness to lend to smaller businesses after immediately initiating a 'standards'-based policy of severe credit rationing in late 2008 after the Lehman's collapse although there was clear evidence that the period 2009 through to 2011 was characterised by disequilibrium between small business demand for loans and the willingness of banks to fulfil their requests for funding (OECD, 2020). As the Covid-19 crisis hit the UK in early 2020, the UK government chose a different policy response in respect of business financing. Again it used the banking system, the single largest provider of capital to businesses (HM Treasury, 2020), but this time it chose to implement two guarantee loan schemes (Coronavirus Business Interruption Loan Scheme CBILS and its smaller counterpart the Bounce Back Loan Scheme BBLS) which acted to underwrite bank lending to businesses through the provision of an 80% and 100% on outstanding debt respectively (HM Treasury, 2020).

In this paper we use the first two Covid-19 quarters of the SME Finance Monitor data which relates to the period April – September 2020 and covers 9,000 small- and medium-sized enterprises (SMEs) to explore key questions relating to (a) the level of demand for lending during the initial Covid-19 period, (b) the extent to which banks fulfilled loan requests, and (c) the role of UK government schemes in supporting banks to lend to smaller businesses. In addressing all these questions, we also consider the demographic composition of those firms that have a demand for loans, those who get offered loans (or refused), and those who use government backed lending schemes or go through banks normal lending channels. This latter issue is fundamental to developing an understanding of crisis lending in the context of which

firms are capital constrained, and how different they are from firms that borrowed in GFC and also 'normal' pre-crisis times. Equally important is that the underlying quality of the pool of government backed lending will fundamentally determine not only the stream of future capital and interest repayments but the potential scale of loss-given-default (LGD). Using this unique and large-scale data set that covers the duration of the first wave of the pandemic, we hope to provide timely and context relevant evidence that will have meaningful impact on public policy over the long run (Budhwar and Cumming, 2020).

The rest of the paper is organised as follows. In Section 2 we review the general literature on SME credit constraints and lending, the role of publicly supported guarantee schemes, and patterns in the demand for loans and the willingness of banks to supply loans. In Section 3 we discuss our data and present the descriptive statistics. Section 4 contains the core loan demand, supply, and government scheme lending modelling. We conclude in Section 5.

Literature review

There is a voluminous literature on the potential problems that SMEs face when seeking to raise capital from banks (Berger and Udell, 1992; Freel, 2007; Cosh, Cumming and Hughes, 2009; Cole, Cumming and Li, 2016). Much of the modern literature takes as its departure point the classic theoretical models of credit rationing (Jaffee and Modigliani, 1969) which are underpinned by information-based problems and the difficulties banks have when assessing the underlying quality of funding propositions from smaller, informationally opaque, businesses. Information asymmetry can affect the credit granting process in the initial stage when the lenders are unable to distinguish between "good" and "bad" borrowers when deciding which credit applications should be granted (adverse selection), and in the following stage of monitoring the borrower's behaviours that could follow a riskier approach (moral hazard).

Jaffee and Russell (1976) and Stiglitz and Weiss (1981) show that adverse selection and moral hazard can lead to credit rationing.

It is evident that whilst credit rationing may be a pervasive problem that manifests itself with greater intensity amongst the small business sector, it is likely that any capital constraints are magnified in periods of economic crisis. This is evidenced by the fact that the majority of empirical research attention on financial constraints relating to (exogenous) economic shocks focuses very explicitly on the small business sector and on debt market interactions with SMEs (Bank of England, 2011, 2013 and 2015; Cowling, Liu and Ledger, 2012; Armstrong et al., 2013; Fraser, Bhaumik and Wright, 2015). But there are tensions within this literature as the earliest crisis-based research showed that small businesses become more dependent on external finance in crisis periods (Bank of England, 1993; Block et al., 2018). On the contrary, the more recent GFC appears to have changed behaviours. For example, Cowling, Liu and Ledger (2012) using a large sample of UK SMEs show that the number of finance-seeking firms dropped by 12% during the GFC, and this depressed demand persists for two years after the GFC (BDRC Continental, 2013 and 2014). This appears to suggest that small firms are slow to react to changes in banks willingness to supply credit be it an increase or a decrease in lending standards. However, a greater incidence of credit rationing in a deteriorating economic environment is usually found to be associated with a drying-up of liquidity and cash-flow (Acharya and Viswanathan, 2011) or tight monetary conditions (Bougheas, Mizen and Yalcin, 2006). It is observed that banks become less capable of evaluating the riskiness of loan applicants during a recession due to an increase in market noise, and defer to the use a smaller set of firm specific characteristics to make their lending decisions (Cowling, Liu and Ledger, 2012). However, whilst banks are often cited as the sole cause of all small business lending problems in crisis periods, the behaviours of small firms, it could be argued, exacerbates these problems as they often have low levels of precautionary savings and lack sufficient financial

management skills (Karadag, 2015; Howorth and Westhead, 2003). These factors are also commonly associated with an increased chance of failure (Carter and Auken, 2006). We note however, that similar problems can also occur in calmer economic periods when greater numbers of small firms pursue growth opportunities (Oliveira and Fortunato, 2006). Here as the capital investment precedes realised growth, and the associated increase in revenues, good quality small firms can simply run out of cash.

Empirical studies (Frank and Goyal, 2003; Cumming, 2006; Cosh, Cumming and Hughes, 2009; Serrasqueiro and Caetano, 2015) show that small businesses follow the Pecking Order Theory which states that firms' capital structure changes over time based on hierarchical financing decisions (Shyam-Sunder and Myers, 1999; Escribá-Esteve, Sánchez-Peinado and Sánchez-Peinado, 2009; Blaseg, Cumming and Koetter, 2020). Under the assumption that a SME should only borrow the minimum amount to start a project, Luoa et al. (2019) show that financing constraints are eliminated by a partial guarantee that partially exchanges a future cash flow of an SME for cash available to finance the SME's funding gap. This result shows the importance of loan guarantee schemes in alleviating credit rationing for SMEs. Berger and Udell (1992), however, find that credit rationing is not consistent with the theory that only borrowers with a good risk profile can offer collateral against borrowing, as suggested by Besanko and Thakor (1987). This finding supports the concept that loan guarantee schemes can redress market imperfections by providing collateral to banks on firms' behalf.

The US started implementing loan guarantee schemes in 1953. In 1981 the UK government set up its first loan guarantee scheme, adjusting it over time to changes in the market conditions and the dynamic financing needs of UK SMEs. The UK Small Firms Loan Guarantee Scheme (SFLG) achieved between 55% and 72% of fully repaid loans over the period 1984-1998 (Cowling and Mitchell, 2003). This means that SFLG successfully addressed the credit

constraint for UK SMEs that took out loans under this government scheme (Cowling, 2010). Cowling and Mitchell (2003) also found that default increases in periods of economic upturns, suggesting that banks may relax their lending criteria during a macroeconomic growth period and accept lower quality SFLG borrowers. A relevant change to the SFLG occurred in 2008 by removing the 5- Year Rule on eligibility. Cowling et al. (2018) found that the 5-Year Rule had no impact on the sales growth but was more effective in job creation.

Brault and Signore (2019) investigated the impact of around 360,000 guaranteed loans over 19 European countries under the SME Guarantee Facility of the European Union's MAP and CIP programmes from 2002 to 2016. The authors found that guaranteed loans had a positive impact on the firms' assets, sales, and employment and decreased their probability of default. Cerulli and Ventura (2021) analyse the Italian Central Guarantee Fund for SMEs funded by the Italian Government, over the period 1999−2006. Their main finding is that the effectiveness of guaranteed loans increases as the coverage ratio increases up to 70% and then decreases.

Many loan guarantee schemes have been implemented to deal with the decline in SME lending due the Global Financial Crisis (GFC) of 2007-2008, as governments around the globe have intensified regulation of financial institutions with a strong focus on the banking sector (Block et al., 2018). Montorial-Garriga and Wang (2012) found that US small business borrowers were more likely to be rationed than large firms in the bank loan market during the GFC. In addition to this result, DeYoung et al. (2015) show that banks focused on relationship lending increased their supply of SME loans during 2008. The types of SMEs that faced higher levels of credit constrains in the UK during the financial crisis are firms with a high-risk rating or a record of financial delinquency, instead older firms were more likely to receive external finance (Cowling et al. 2016). In Belgium the firms that were more likely to be financial constrained

are those which had a large part of their long-term debt maturity in a year from the beginning of the GFC.

The previous analyses are mainly focused on the supply-side restrictions during the GFC. Cowling et al. (2016) instead focused their attention on potential changes in the demand for credit and found that the level of discouragement among UK SMEs is quite low (2.7% of the total UK small business population). The majority of these discouraged borrowers would have got loans if they had applied for. Also Ogawa and Tanaka (2013) consider shocks on the demand side and how this was faced by seeking help from suppliers and banks. Particularly, the measures taken by small businesses depended on the kind of relationship with the financial institutions, but not on the customer-supplier relationship (Ennew and Binks, 1996).

The main financial shock after the GFC is the 2020 Covid-19 crisis (Verbeke, 2020). The crisis triggered unprecedented levels of fiscal support to protect businesses and jobs (IMF, 2021). Most business failures in Europe in 2020 arose from the contraction of credit to SMEs rather than too generous 2020 policies (Gourinchas et al., 2021). Lambert et al. (2020) analyse the effects of the Irish policy support package on SME financial distress and show that there has been a higher mitigation of the risk and that SMEs cannot service interest on bank debt. Another important result on the liquidity risk during the pandemic is obtained by Cowling et al. (2020) showing that one in twelve UK SMEs do not hold any spare cash. These companies are classified at immediate risk and if they do not have any evidence of building up cash revenues, they are considered at medium-term risk. Micro businesses, which represent the large majority of UK firms, are the dominant form of business in both immediate and medium-term risk profiles.

Based on our knowledge, there is no study that analyses the impact of the two Covid-19 SME Business Loan Support Schemes (CBLSS) implemented in the UK: Coronavirus Business

Interruption Loan Scheme (CBILS) the Bounce Back Loan Scheme (BBLS). The main aim of this paper is to fill this gap.

Data and methodology

The data we use is from the SME Finance Monitor (SFM) special Covid-19 survey waves for the period April to September 2020. In total the two (non-panel) survey waves contain individual firm responses from 9,000 UK SMEs. These particular survey waves are unique within the context of the 36 SFM waves that preceded them as they incorporated some specific questions relating to the UK government Covid-19 lending schemes (CBILS and BBLS). It is this additional information that we use to tackle our key research questions.

To qualify for the SFM interview, SMEs had to meet three criteria in addition to the quotas by size, sector, and region: (i) not 50%+ owned by another company; (ii) not run as a social enterprise or as a not-for-profit organisation; and (iii) turnover of less than £25m. Quotas were set overall by number of employees. The classic B2B sample structure over-samples the larger SMEs compared to their natural representation in the SME population, in order to generate robust sub-samples of these bigger SMEs. Fewer interviews were conducted with zero employee businesses to allow for these extra interviews. Each quarter's sample matched the previous quarter's results as closely as possible. Further quotas were set by sector and region, which were then allocated within employee size band to ensure that SMEs of all sizes were interviewed in each sector and region.

Each of the 5,000 respondent firms interviewed per wave (by CATI using the quota sampling method) is allocated a Dun & Bradstreet and Experian credit risk rating and this is added to the data set on a case-by-case basis. Sample weights were applied based on the above three strata—size, sector and region, and then for firms trading for fewer than two years (start-ups). Weights were initially applied separately to each wave and both waves were then combined and grossed

to the total of 5,002,010 SMEs, based on UK SME population data. This ensured that each individual wave is representative of all SMEs while the total interviews conducted are weighted to the total of all SMEs. After eliminating missing values[1], we have 5,803 valid observations across the first two quarters of 2020.

Variables and descriptive statistics

The key dependent variables that link to our research questions are: (i) *Sought Loan* – coded 1 if firm sought a bank loan and 0 if not; (ii) *Got Loan Offer* – conditional on applying for a loan in the first instance, coded 1 if the firm received an offer from the bank and 0 if refused; and (iii) *Government Backed Loan Offer* – conditional upon applying for a loan and receiving an offer, coded 1 if firms offer was a government backed loan and 0 if not (i.e a conventional bank loan).

We also have additional two, forward looking survey questions which we are interested in as they relate to the potential immediate and longer-term future demand for lending (which we now know was particularly important as (a) the Covid-19 crisis is still here, and, (b) the government Covid-19 schemes are still operational). These are: (i) *Thinking about applying for loan in near future* – coded 1 if firm is currently considering making a loan application and 0 if not; and (ii) *No plans to seek finance* - coded 1 if firm has no plans for seeking finance and 0 if it has plans. For analysis purposes we combine the two into a new variable where thinking about applying is coded 1 and no plans for seeking finance is coded 0.

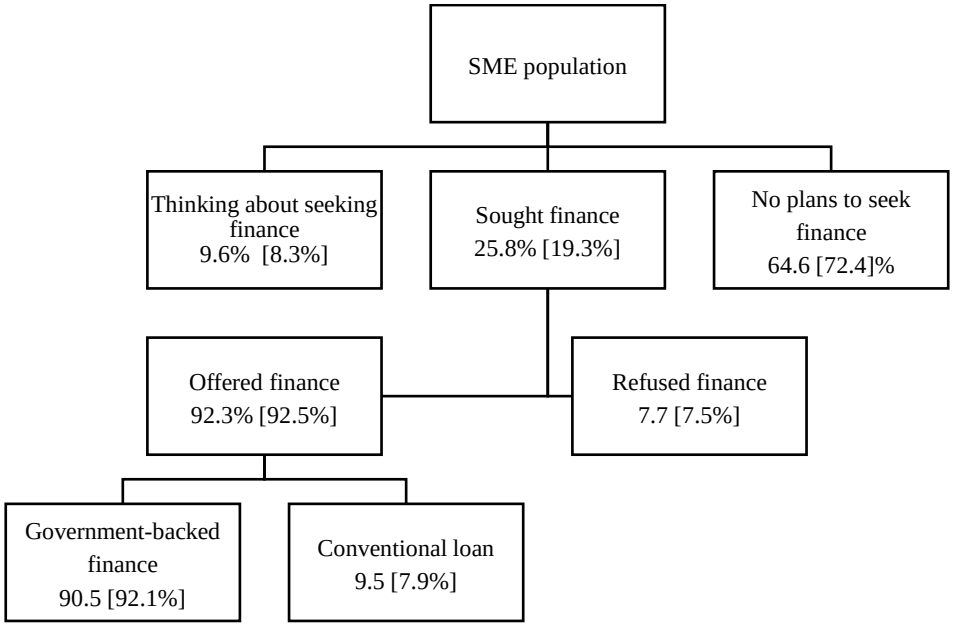
Figure 1 shows the share of UK SMEs that correspond to each of our key research questions. We observe that one in five businesses had a demand for external funds and a further 8.3%

[1] The missing values are a result of including additional controls, and primarily come from the sales data. A third of the responses on sales are "don't know" or "refused", and were subsequently treated as missing values. We confirm the robustness of our results with respect to the missing data, which is discussed and reported in Section 4.5 and the Online Appendix.

were considering making an application in the near future. It is interesting to note that nearly three quarters of all SMEs had no plans to seek any external finance at all. This is consistent with other empirical evidence on the clear preferences of SMEs to fund their operational and investment activities from internally generated funds and only then seek recourse to external financiers (Frank and Goyal, 2003). When external applications for funding are made, the overwhelming majority is for basic bank debt products including overdrafts (lines of credit) and term loans (Cowling et al., 2016). The external financing pattern remains similar during the pandemic, when looking at the full information on the types of external finance SMEs sought (Online Appendix Table 1A). Over 90% of the finance sought was bank loans including the government-backed Covid fund, followed by other grants (4%) and leasing (2%), and the demand for equity finance including crowdfunding was very small.

For those businesses who made an application for a loan, banks made an offer to 92.5% and refused only 7.5%. These figures are comparable, if not above, those in a year of relative economic stability and above-trend GDP growth. For example, Cowling, Marlow, and Liu (2020) using the same data set for the post-GFC period 2011-2013 report loan acceptance rates of 89.9% for male owned businesses and 90.4% for female owned businesses, within an overall climate where 23.7% of SMEs applied for bank loans. They are far above the GFC crisis rate of loan approval of 70% reported for UK SMEs (Cowling et al., 2016). The importance of the CBILS and BBLS supported lending is key to this overall high offer rate for SME funding applications with 92.1% of all loan offers backed by one of these schemes and only 7.9% of bank loan offers made outside of these government guarantee schemes.

Figure 1: Distribution (weighted shares in brackets) of SMEs within each category



We further report the definitions and summary statistics of all dependent and independent variables in Table 1. The independent variables capture common business characteristics, firm-level risk indicators, and firm orientations. Firm characteristics include sales, employee number, legal status, sector, firm age, and performance. Performance is measured by firstly a (made a positive) profit dummy variable and secondly a fast-growth variable. We use the Experian risk classification to measure credit risk from minimum to above average. Firm orientation is proxied by two variables: the owner-manager's aims to grow the business (*AIMGROW*) and an export dummy to gauge internationalisation orientation.

We then conduct two sets of univariate mean-comparison tests, for finance applicants and non-applicants, and recipients of government- and non-government-backed loans, respectively. It is shown that non-applicants were on average smaller (both in sales and employment), less profitable and had higher credit risk, lending support to the discouraged borrower literature that lower expected (or perceived) approval probability would deter firms from submitting loan applications. Further, SMEs with higher growth and internationalisation orientations were more likely to seek finance. There is some, but limited, evidence that government-backed

finance was targeting at most deprived businesses (firms less than 5 years old) and regions (such as North West and Midlands). We also report the summary statistics by region in the online Appendix (Table A2) to highlight potential location-driven difference in financing activities and firm characteristics.

[Insert Table 1 Here]

Empirical methodology

In total we seek to model five basic binary outcomes identified in Figure 1, namely: (a) sought finance, (b) loan application outcome, (c) government backed loan offer, (d) thinking about making an application in near future, (e) no plans to make an application at all[2]. As all these key dependent variables are expressed in binary (0,1) form we estimate a set of probit models. By definition, application outcomes are only observable for applicants. Similarly, future financing intention is conditional on not making an application now. To correct for potential sample selection bias, the two-stage maximum likelihood method (Van de Ven and Van Praag, 1981) is used. So that the model is correctly specified, the first-stage selection equation should include a vector of variables (exclusion restrictions) that is not included in the second-stage outcome equation, which we discuss in detail next.

For specification (b) loan application outcome conditional on loan application, the two exclusion restrictions are entrepreneurial growth objectives (*AIMGROW*) and the perception of cash flow problems as the main growth obstacle (*FINPROBLEM*). Growth objectives are commonly used as the exclusion restriction in previous credit rationing studies (c.f. Cowling et al., 2016), as they are obviously unobservable by lenders but found to be significant in explaining the finance-seeking behaviour by individual businesses (Michaelas et al. 1999; Psillaki and Daskalakis, 2008). The use of the second exclusion restriction is justified by the

[2] Categories (d) and (e) become mutually exclusive after accounting for sample selection.

relationship between cash constraints and external finance need according to the pecking order theory (Myers and Majluf, 1984).

For specification (c) government-backed loan offer conditional on an application being approved, the export dummy is used as the exclusion restriction. The variable is by construction unrelated to government loan offers, because the UK government COVID financial support explicitly excludes the use of public funds to support export-related activities (British Business Bank, 2021), whereas there is no such restriction for private-sector lending.

For specification (d) SMEs' future financing intention for those not currently seeking external finance (non-applicants). We use *FINPROBLEM* as the exclusion restriction, arguing that cash flow constraints are more associated with imminent capital requirement than future financial planning.

Results

Table 2 reports the coefficient estimates as well as the marginal effects to show their economic significance. Models 1 to 4 correspond to specifications (a) to (d) in the methodology section, and the last three models are adjusted for sample selection. All the regressions are population weighted and we thematically discuss the effects of different categories of explanatory variables on the dependent variables.

For all models with sample selection correction, the exclusion restrictions are significantly related to the selection equations, and the χ^2-test of independence between the selection and main equations is rejected at 5% level or lower (except for Model 3). The validity of the exclusion restrictions is further confirmed using a set of standard instrumental variable (IV) diagnostics, following a pseudo GMM-IV approach by Grilli and Murtinu (2014) and Cowling

et al. (2016). Our results (Table 3) show that both the under- and weak-identification hypotheses are strongly rejected, and the validity of over-identifying restrictions cannot be rejected, justifying the validity and relevance of the sample-selection-correction approach used in the regressions.

[Insert Table 2 Here]

[Insert Table 3 Here]

Sought finance

Model 1 highlights an interesting time dynamic as the Covid-19 crisis extended into its second quarter. Here we find that the proportion of businesses seeking finance increased by 9.6 percentage points as we moved deeper into the crisis. This is consistent with liquidity problems being exacerbated as businesses faced restricted trading conditions and lower revenues in the formal lockdown. In essence firms were running out of cash even if they had precautionary savings (Brown and Cowling, 2021; Cowling et al. 2020) at the point of entering the Covid-19 crisis. This would imply that nine months on, when the UK is still in a partial lockdown, the demand for external finance should be even higher.

Across the geographic regions of the UK there were significant wealth and economic inequalities thus we would *a priori* expect that a common crisis would have differential effects and impacts according to one's starting position leading up to Covid-19. At the city level, Brown and Cowling (2021) forecast that the most serious effects of the Covid-19 crisis on the business sector in terms of firm failure and potential job losses would be felt in the most disadvantaged and peripheral towns and cities. Our evidence does highlight that firms in three of the most prosperous regions of the UK, London, the East and South-East of England had a significantly lower demand for bank loans during the initial crisis period, by 6.7, 8.6 and 7.1 percentage points, respectively.

On firm demographics, we find that larger firms (> 50 employees) had a significantly lower probability of seeking bank loans after controlling for all other factors. This suggests that larger firms are potentially better capitalised and hold more cash balances because of their higher tendency towards precautionary saving (Cowling, Brown, and Rocha, 2020). Moreover, loan demand increased with both sales and the growth of sales, which are seen as common risk-indicators when SMEs make borrowing decisions (Cowling, Liu and Zhang, 2016). At the sector level, we find the highest loan application rates amongst businesses in Hotels & Catering and Transport & Communication, which suffered disproportionately from social distancing imposed restrictions. This highlights the relative liquidity positions for businesses in sectors that were banned or extremely limited in terms of their ability to trade and those in key sectors of the economy allowed to function for economic or health related reasons. Regarding firm age, we find no significant differences. In this respect the Covid-19 crisis does not appear to have impacted on younger firms more severely in terms of running out of cash. Firm orientation has a positive effect on the demand for finance, where firms aiming to grow their businesses exhibit a 3.5% higher application rate.

Loan offers and refusals

Model 2 reports the banks loan decision in the context of whether it made a loan offer to the firm or refused it, conditional on loan application. In the context of an increasing demand for loans as we moved from Covid-19 quarter 1 to quarter 2, we also find an upward shift in positive loan decisions. However, an increased probability of being offered a loan of 2.1% in the second quarter was much lower than the increased loan application rate of 9.6% over the same period. The simple fact that the UK government had signalled its continued support for the Covid-19 lending schemes may have underpinned banks willingness to make more offers *per se*. Firms with higher sales and sales growth were more likely to be approved, implying

that application decisions were generally based on an unbiased evaluation of the true approval probability. However, we find a significant size effect on banks' lending decisions, as loan rejection increased monotonically with the number of employees. Overall this may suggest that during the pandemic, banks made their lending decision strictly based on an evaluation the riskiness of borrowers. Other than the above, it seems that during this severe economic and market shock, loan offers were evenly distributed with respected to firm characteristics such as sector, region and credit risk.

Government supported lending

Here we seek to identify what distinguishes between successful loan applicants who got routed through the UK Covid-19 lending schemes and those who managed to secure a traditional loan offer. Consistent with our results for loan demand and loan offers, we also find that moving deeper into the initial Covid-19 crisis was associated with an increase in the share of loan offers that were routed onto the UK Covid-19 lending schemes. The increase in probability was 5.7 percentage points between Covid-19 quarter 1 and quarter 2. This may reflect both the Government's continued commitment to supporting these schemes but also a general expansion in the number of financial institutions approved to make loans under the schemes.

Our key findings relate to firm credit risk. On this we find that government supported loan offers were highest amongst firms with low and average risk and lowest to those firms with minimal and above average risk. In this sense there was a clear separation in the respective risk distribution of the lending pools for 'normal' and government supported lending with the former being more concentrated at the extremes of the risk distribution and the latter in the middle. Surprisingly, sectors worst hit by the shutdown of businesses during the pandemic, such as wholesale/retail and hotel/catering, were the least likely to receive government support. This may relate to the wage protection schemes available which covered 80% of pay for

workers in sectors forced to lock down and the relatively low capital requirements in service sectors. However, we do find evidence that government support was channelling towards the youngest businesses and those located in more deprived regions (Yorkshire & Humberside, North West and East Midlands), likely to be worst hit by the pandemic.

Thinking about loan application currently

The final model (Model 4) considers SMEs' future financing intention for those not currently seeking external finance (non-applicants). We find that there was a 4.4% lower probability that firms were thinking currently about preparing a funding application in the second Covid-19 crisis quarter, implying that those most in need may have already turned to the capital market earlier in the pandemic. Firms located in the East Midlands, East and South East of England exhibited higher probability of future application, but no sector-level effect was found. Larger-sized businesses previously not applying showed a significant increase in future finance demand. Here micro, small and medium firms with up to 249 employees were between 4 to 14% more likely to anticipate future loan applications compared to non-employing SMEs. Similar increase in financing intention is found in businesses organised as limited liability entities. These findings suggest that while larger firms managed to cope with the initial Covid breakout due to their size, they were starting to experience more challenges in running businesses without further capital injection as the economy worsened with the pandemic.

Firms with higher 'survivability' measured by age and those with more abundant revenue sources proxied by turnover and overseas sales, exhibited a lower intention to seek extra funding. On average, firms between six and fifteen years old were 9% less likely to be thinking about making an application, with a decrease by 7% for exporting businesses. Finally, we note some interesting findings relating to firm specific credit risk. On this businesses with average and above-average credit risks were more likely to be currently thinking about making a

finance application. This would re-shape the risk profile of the potential future borrower pool and may impact on the future contingent liability of the government backed loan portfolio.

Next we summarise our findings on key groups of variables going across the 4 dependent variables. This is intended to give a more all-encompassing summary of how key firm specific factors influence the whole spectrum from loan demand through to potential future demand. The key variable groups we consider are time into the crisis, risk profiles, firm size, industry sector, and geography.

Thematic summary of business characteristics' effects on access to finance measures

Time since start of crisis

As the crisis extended into its second quarter we find that the demand for bank loans and the willingness of banks to extend loans including government guaranteed loans increased. Future potential demand for new loans decreased the further into the crisis we were suggesting that firms were cautious about taking on new debt when the outcome and extent of the crisis still remained unknown. In general, this suggests that the nature of the government response was correct and the timing was appropriate.

Risk profile of firms

In the normal course of small business lending, banks take serious consideration of the risk rating of potential loan applicants. Our findings suggest that in the crisis firms of all risk profiles sought loans and were offered them, although the government guaranteed lending favoured low and average risk firms. In terms of future demand for loans, firms with the lowest risk rating were most likely to be thinking about a loan suggesting that they were either stretching their current cash flows or were considering new investment.

Firm size class

On firm size class we find some very clear patterns with loan demand being negatively related to firm size class and also banks willingness to supply loans. However, for government guaranteed loans there was no discrimination by firm size with all classes having equal access. In future, our findings show that this negative firm size relationship will be reverse as larger size classes of firm seek loans.

Industry

Focusing on the two industry sectors most severely restricted from trading by the crisis, retail and hotels & catering, we found that both sectors had a high demand for loans. Yet the availability of bank loans did not differentiate between these severely hit sectors and others. But the availability of government guaranteed lending was less evident for firms from these sectors meaning that they were supported through conventional lending channels more than most sectors.

Geography

There are significant regional differences in wealth and incomes across the UK and we would expect that this is reflected in patterns of demand for bank loans, particularly in crises. Our findings suggest that the specific 'global' nature of the crisis meant that geography was less important in a UK context as the lockdown was nationwide. Our findings in respect of the demand for loans and the banks offer of finance reflects this as geography was not particularly important. However, for government guaranteed loans it was with evidence that firms from some of the poorer regions (e.g Yorkshire & Humber, the North West, and East Midlands) having greater access to government supported loans. We also identified a regional differential

in respect of future financing needs but here it was more likely to come from firms in wealthier regions.

Robustness checks

In this section, we outline the additional analyses we undertook to test the robustness of our main findings. All the results are reported in the Online Appendix for further reference. First, given the low rejection rate and low percentage of commercial loans approved (Figure 1), the legitimacy of conventional binary (probit or logit) regressions may be compromised by the 'rare-event' problem first noted by King and Zeng (2001). To account for the potential small sample bias, we re-estimate Models 2 and 3 in Table 2 using the penalized maximum likelihood estimation proposed by Firth (1993), as statistical simulations have found this method of bias correction to be more effective with large sample size (Leitgob, 2013). As reported in Table A3, our headline findings regarding the time dynamics of general and government-backed loan approval, as well as the risk distribution of government lending still hold.

Second, whilst sales appear to be an important control variable in our regressions, the variable is included at the expense of substantial data loss, where around a third of responses were 'don't know' or 'refused' and were subsequently treated as missing values. To test the potential effect of missing data and without introducing further complexity into our empirical models, we use the multiple imputation method to 'predict' the true value of the missing data. As shown in Table A4, the sample size is increased to 8,994 and the empirical findings remain qualitatively similar.

Third, we replace the regional dummies in Table 2 with several regional economic indicators in order to highlight the potential economic drivers of the regional differences identified in some of our main specifications, namely the supply of public lending and future financing plans. These regional economic indicators include median income per capita, unemployment

and population. As reported in Table A5, these variables show little statistical significance across all empirical models, suggesting that the geographical disparity in the credit market during the pandemic was driven by unobserved factors other than the common economic indicators.

Finally, we re-estimate Models 2 to 4 in Table 2 using the original Heckman (1979) two-step estimator and the results are reported in Table A6. We use the same selection equations as before but instead of the maximum likelihood estimator, we compute the inverse Mills ratio (IMR) from the selection equation and include it as an explanatory variable in the outcome equation. It is shown that all three IMRs are significant at 5% level or lower, which further justify our empirical approach to correct for sample selection. We also observe the close resemblance of coefficient estimates with our main results.

Discussions and Conclusions

We set out to understand what had happened to UK SMEs when faced with the Covid-19 crisis and the diminishing revenues and increasing cash-flow pressures associated with the economic lockdown. Our study was clearly focused on capital market interactions and how firms and banks reacted to this unanticipated and overwhelming event. We overlaid our core analysis relating to the demand for bank loans and the willingness of banks to make loan offers to consider how the presence of two of the broadest and most generous loan guarantee schemes in the history of the UK shaped what happened subsequently.

The basic findings show that loan demand from smaller businesses increased as we advanced further into the Covid-19 crisis which suggests that more firms were running out of cash as time elapsed. Yet, around 3/4s had neither present nor future demand for external finance. However, the most exciting findings were that bank made loan offers to 92.5% of loan applications and that the overwhelming majority of loan offers were backed by a UK

government loan guarantee. In fact less than 8% of loan offers were made on a conventional basis. These facts alone explain why the UK government currently has a contingent liability of £70bn on its Covid-19 loan guarantee schemes.

If follows that understanding precisely who is borrowing during Covid-19 and specifically who is borrowing with a UK government backed guarantee is fundamental to understanding what types of smaller business were most affected by the crisis. Equally, the nature of the pool of borrowing firms on the guarantee schemes will help us to understand more about the potential risk to the UK Treasury and ultimately the tax payer arising from future non-repayment and default. To establish our evidence base we adopted a sequential approach which considered the causal process from having a need for finance, through the application process and the banks decision-making, and potentially the use of one of the two guarantee schemes.

On the effects of the Covid-19 crisis itself we find that as the crisis extended demand for finance increased and importantly the use of the government guarantee schemes increased too. This is clear evidence that the loan guarantee is an appropriate public policy instrument in crises and requires a serious and ongoing commitment of public funds to accommodate the increasing demand for loans from the smaller business sector. There was a spatial aspect to borrowing with businesses located in the richest regions of the UK having less need to borrow funds. In this sense, with a universal guarantee scheme any spatial variation occurs due to the relative differences in economic prosperity across regions which is precisely how it should work if designed to correct market failure unrelated to underlying firm quality.

In terms of borrower risk and the potential implications for contingent liability from the pool of guaranteed funds we find that the demand for loans is driven by the general severity of the crisis across all risk classes for firm. However, we also find that the guaranteed loan portfolio is more concentrated in the ‘middle’ segment (low & average risk) of risk distribution than the

general pool of firms seeking loans. A potential explanation is that unlike conventional loan guarantee schemes, the due diligence requirement was removed for the Bounce Back Loan scheme to speed up the process as the first Covid-19 lockdown occurred. So in a world where banks did not do full due diligence on their guarantee-backed lending, they used known customer risk ratings to separate out their customers. If the bank wanted to reward its minimal risk borrowers with lower interest rate loans (below 2.5%) and punish its high-risk borrowers with high interest rate loans (above 2.5%), it could only do so through normal lending channels.

In terms of the 'who' needed and got loans during the crisis, we find that loan demand was highest amongst micro and non-employing businesses and was comparatively low amongst larger businesses. The finance offered, with the majority being government guaranteed loans, was also disproportionately weighted towards micro/non-employing businesses. This may relate to their relatively modest amounts of funding required and the ease of access to the (smaller) Bounce Back Loan Scheme which had a cap of £50,000 and also a 100% guarantee. In this sense it was risk-free lending. Perhaps surprisingly, we do not find firm age had any impact on the willingness of the banking system to meet these lending requirements. However, with the disproportionate negative impact of Covid-19 across industry sectors suffered from social distancing and lockdown restrictions (e.g. retail, hotels & catering, and transport & communication) and less prosperous areas (Yorkshire & Humberside, North West and East Midlands), we find clear evidence that government supports were targeting at these disadvantaged sectors/regions.

To summarise we have explored a unique crisis period of global magnitude and reach on the financing of smaller UK businesses in the presence of two of the largest and most generous loan guarantee schemes ever available in the history of the UK. We find that the guarantee schemes had unprecedented reach and scale which suggests that in their absence tens of

thousands of smaller firms would have been under severe cash-flow pressures and may have failed. Indeed the longer the crisis extended the more important the role of these guarantee schemes was. Given the sheer magnitude of the government liability which is estimated to be around £70bn for guaranteed lending, we were reassured to some degree that the most risky borrowers were excluded.

Yet, we could not extend our analysis into the next quarters of the ongoing Covid-19 crisis as we are waiting for release of the next survey waves. This data, when available, ensures the replicability of our analyses, which is seen as most important for pandemic related research (Budhwar and Cumming, 2020). This can add even more knowledge, understanding and insight into the fate of smaller firms during severe crises. Equally, there is a clear call to conduct replication studies in other countries so we understand more about economic, cultural and environmental context and how it shapes firm, bank and government responses during crises. Finally, the general SME focus of this study means that the sources of finance are inevitably dominated by bank finance. A natural extension is to look specifically at high-growth, technology-based entrepreneurial firms which seek a wider array of sources of finance (e.g. Cosh, Cumming and Hughes, 2009), and thus provide a more integrated view that links entrepreneurship and finance (Cumming and Vismara, 2017).

In general though, our findings suggest that the general policy instrument of the loan guarantee scheme was appropriate for supporting small businesses through a very severe Covid-19 crisis. This has wider relevance given that loan guarantees, alongside 'furlough' worker schemes have been the most widely used Covid-19 interventions across the world. However, as with all public interventions they use tax payers' dollars so we must say something about what our evidence suggests about default and repayment. The first key finding is that micro businesses, those most at risk in any crisis, represented a high share of total lending supported by the guarantee

schemes. In this sense the guarantee scheme most certainly prevented a bankruptcy crisis in the short-term. As with any small business that was able to survive, the jobs of their workers were also protected. Our initial estimates suggest that the numbers of small business saved in the short-run was around 120,000 and around 1.2m associated jobs (Brown and Cowling, 2021).

The situation for lending banks was atypical. One the one hand, banks are unlikely to ever turn down a 100% guarantee, even if it is from the UK government rather than the entrepreneur. But the interest rate cap of 2.5% is much lower than the rate it would normally charge on small business lending. In this sense, it may be that a proportion of the government guaranteed lending actually crowded out lending that, even in a crisis, banks were willing to make. The final piece of the jigsaw is the potential consequences of guaranteeing £70bn of small business loans. This would approximate 6 years of UK national defence spending for context. All final losses ultimately end up in the taxpayers lap whether it leads to cuts in social welfare and general government spending or increases in direct and indirect taxes. Here our evidence on potential default must balance two countervailing forces. Firstly, the concentration of guaranteed lending to micro firms would imply a relatively high default rate and hence a high government liability. But the distribution of credit risk across the guaranteed loan portfolio suggests that default may actually be lower than average as there was a greater concentration in the lowest risk classes. To conclude, we are drawn to conclude that the guarantee schemes were the correct policy choice given the nature and scale of the crisis, and the final taxpayer liability might not be as severe as some commentators believe.

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Table 1: Variable Definition and Descriptive Statistics (Weighted; N = 5,802*)

		Full Sample		(1) *Sought* = 1	(2) *Sought* = 0	*t*-test	(3) Gov Fin = 1	(4) Gov Fin = 0	*t*-test
Variable Name	Variable Definition	Mean	Std Dev	Mean	Mean	(1) = (2)	Mean	Mean	(3) = (4)
Dependent Variables									
Sought Finance	= 1 if firm applied for a bank loan; 0 otherwise	0.193	0.394						
Thinking Currently Applying	= 1 if firm consider making a loan application; 0 otherwise	0.083	0.276						
No Plans for Seeking Finance	= 1 if firm has no plan seeking finance; 0 otherwise	0.724	0.447						
Offered Finance	= 1 if firm offered the finance applied for; 0 otherwise	0.925	0.263						
Offered Government Finance	= 1 if firm's offer was a gov't-backed loan; 0 otherwise	0.921	0.269						
Independent Variables									
Sales (£ mil)	Annual sales turnover of the past year	0.281	1.195	0.415	0.255	***	0.374	0.894	
AIMGROW	= 1 if firm aimed to grow the business; 0 otherwise	0.177	0.382	0.175	0.380				
FINPROBLEM	= 1 if firm saw cash flow and/or external finance as main growth obstacle; 0 otherwise	0.314	0.464	0.420	0.293	***	0.423	0.332	
Profit	= 1 if firm made a surplus over the past year; 0 otherwise.	0.156	0.363	0.248	0.138	***	0.228	0.149	
Fast Growth	= 1 sales growth ≥ 20% by two consecutive years; 0 otherwise	0.715	0.452	0.702	0.717		0.724	0.403	**
Export	= 1 if firm exports goods/services; 0 otherwise	0.034	0.181	0.073	0.026	***	0.077	0.005	
Risk Rating	Dummy variables: Experian risk rating								
Minimum		0.054	0.226	0.058	0.053		0.049	0.263	
Low		0.124	0.330	0.144	0.120		0.137	0.088	
Average		0.272	0.445	0.233	0.279	*	0.245	0.205	
Above Average		0.431	0.495	0.454	0.427		0.455	0.444	
Not Known		0.119	0.324	0.111	0.121		0.114		
Employment Size	Dummy variables: number of employees excluding owner								
0		0.763	0.425	0.660	0.783	***	0.666	0.712	
1-9		0.197	0.398	0.271	0.183	***	0.269	0.204	
10-49		0.036	0.186	0.063	0.031	***	0.060	0.080	
50-99		0.003	0.055	0.005	0.003	***	0.004	0.003	
100-249		0.001	0.033	0.001	0.001		0.001	0.001	
Industry	Dummy variables: industry sector								
Primary		0.031	0.174	0.018	0.034	*	0.019	0.004	***
Manufacturing		0.056	0.229	0.039	0.059	**	0.028	0.059	
Construction		0.190	0.392	0.152	0.197	**	0.157	0.019	***
Wholesale / retail		0.101	0.301	0.133	0.094	**	0.150	0.124	
Hotels / catering		0.035	0.184	0.047	0.033	**	0.050	0.066	
Transport & communications		0.121	0.326	0.171	0.111	**	0.156	0.175	
Business services		0.265	0.442	0.275	0.264		0.277	0.373	
Health		0.074	0.262	0.051	0.078	**	0.059	0.013	***
Other community		0.127	0.333	0.113	0.130		0.103	0.166	
Legal Status	Dummy variables: legal form of the firm								
Sole proprietorship		0.583	0.493	0.436	0.611	***	0.414	0.245	
Partnership		0.033	0.179	0.032	0.034		0.033	0.018	
Limited liability (LTD)		0.384	0.486	0.529	0.356	***	0.553	0.738	*
Firm Age	Dummy variable: time when firm was first established								
<12 months		0.068	0.252	0.079	0.066		0.080	0.020	**
1-2 years		0.131	0.337	0.165	0.124	*	0.167	0.196	
2-5 years		0.142	0.350	0.193	0.133	**	0.211	0.010	***
6-9 years		0.131	0.337	0.126	0.132		0.133	0.106	
10-15 years		0.176	0.381	0.145	0.182	*	0.137	0.122	
15+ years		0.352	0.478	0.292	0.363	***	0.273	0.546	**
Region	Dummy variable: geographic region								
Scotland		0.057	0.232	0.072	0.054		0.059	0.183	***
North/North East		0.031	0.172	0.030	0.031		0.017	0.061	
Yorkshire/Humberside		0.072	0.258	0.088	0.069		0.095	0.046	
North West		0.098	0.298	0.106	0.097		0.106	0.041	*
West Midlands		0.072	0.259	0.091	0.068		0.095	0.084	
East Midlands		0.072	0.258	0.083	0.069		0.102	0.002	***
East of Engand		0.099	0.299	0.067	0.106	**	0.056	0.099	
Wales		0.042	0.201	0.045	0.042		0.038	0.046	
South West		0.105	0.307	0.085	0.109		0.090	0.040	
London		0.174	0.379	0.178	0.173		0.184	0.296	
South East		0.158	0.365	0.134	0.162		0.144	0.060	**
Northern Ireland		0.020	0.141	0.020	0.020		0.015	0.042	

Note: Except for *Offered Finance* (N = 1,035 and only observed if *Sought* = 1), and *Offered Government Finance* (N = 955 and only observed if *Offered Finance* = 1).

Table 2: SME Finance Applications, Outcome and Future Plans for Funding Applications During the Initial Covid-19 Outbreak (April – September 2020, Population Weighted)

	(1) **Sought Finance** (Probit)		**(2) Offered Finance** (Probit with sample selection)			**(3) Offered Government Finance** (Probit with sample selection)			**(4) Thinking Currently Applying** (Probit with sample selection)		
			Sel. Eq.	Outcome Eq.		Sel. Eq	Outcome Eq.		Sel. Eq	Outcome Eq.	
	Coeff.	dy/dx	Coeff.	Coeff.	dy/dx	Coeff.	Coeff.	dy/dx	Coeff.	Coeff.	dy/dx
Survey Wave											
Q3 2020	0.454***	0.096	0.629***	0.594***	0.021	0.159	0.476**	0.057	-0.220***	-0.279***	-0.044
	(0.074)		(0.080)	(0.143)		(0.206)	(0.232)		(0.079)	(0.091)	
Risk Rating											
Low	0.114	0.023	-0.030	0.008	0.011	-0.062	1.058***	0.138	-0.077	0.376**	0.054
	(0.152)		(0.160)	(0.233)		(0.388)	(0.322)		(0.158)	(0.148)	
Average	0.095	0.019	0.025	0.237	0.064	0.273	0.926**	0.130	-0.086	0.312**	0.044
	(0.154)		(0.159)	(0.246)		(0.353)	(0.372)		(0.159)	(0.141)	
Above Average	0.183	0.038	0.079	0.308	0.070	0.341	0.465	0.082	-0.164	0.410***	0.064
	(0.161)		(0.167)	(0.258)		(0.350)	(0.399)		(0.167)	(0.151)	
Not Known	0.137	0.028	0.031	0.041	0.006	-0.095	1.105**	0.141	-0.157	0.398**	0.061
	(0.179)		(0.184)	(0.273)		(0.430)	(0.480)		(0.189)	(0.179)	
Employment Size											
1 – 9	-0.043	-0.009	-0.090	-0.343*	-0.080	-0.557**	0.215	0.017	0.035	0.220**	0.040
	(0.091)		(0.098)	(0.179)		(0.255)	(0.290)		(0.092)	(0.101)	
10 – 49	-0.262*	-0.050	-0.328**	-0.637**	-0.120	-0.694*	-0.057	-0.014	0.251*	0.631***	0.135
	(0.140)		(0.149)	(0.250)		(0.383)	(0.416)		(0.142)	(0.143)	
50 – 99	-0.612***	-0.100	-0.722***	-1.043***	-0.158	-0.881*	0.174	0.009	0.578***	0.588***	0.109
	(0.178)		(0.188)	(0.298)		(0.505)	(0.555)		(0.180)	(0.195)	
100 – 249	-1.219***	-0.144	-1.310***	-2.022***	-0.440	-1.863***	0.621	0.032	1.189***	0.644**	0.112
	(0.232)		(0.257)	(0.462)		(0.691)	(0.780)		(0.237)	(0.255)	
Industry											
Manufacturing	-0.032	-0.005	-0.098	-0.353	-0.079	-0.662	-1.606***	-0.187	0.056	0.176	0.034
	(0.173)		(0.183)	(0.316)		(0.493)	(0.471)		(0.179)	(0.217)	
Construction	0.185	0.034	0.143	-0.122	-0.067	-0.445	0.025	0.000	-0.200	-0.004	0.006
	(0.152)		(0.165)	(0.284)		(0.426)	(0.420)		(0.161)	(0.194)	
Wholesale/retail	0.241	0.045	0.254	0.278	0.013	0.208	-0.814*	-0.052	-0.188	0.030	0.012
	(0.153)		(0.162)	(0.271)		(0.468)	(0.424)		(0.159)	(0.194)	
Hotel & catering	0.387**	0.078	0.384**	0.385	0.013	0.181	-1.349***	-0.124	-0.344**	0.049	0.023
	(0.159)		(0.167)	(0.278)		(0.475)	(0.445)		(0.162)	(0.196)	
Trans & Comms	0.523***	0.112	0.448***	-0.088	-0.154	-0.784*	-1.090***	-0.097	-0.477***	0.071	0.035
	(0.163)		(0.170)	(0.356)		(0.424)	(0.398)		(0.170)	(0.201)	
Business Service	0.311**	0.060	0.278*	0.191	-0.008	-0.106	-0.713*	-0.044	-0.220	-0.151	-0.020
	(0.146)		(0.157)	(0.252)		(0.409)	(0.367)		(0.151)	(0.182)	
Health	0.118	0.021	0.077	0.385	0.045	0.638	-0.388	-0.017	-0.130	-0.269	-0.039
	(0.178)		(0.190)	(0.349)		(0.492)	(0.424)		(0.187)	(0.244)	
Other services	0.245	0.046	0.181	0.293	0.025	0.264	-1.170***	-0.096	-0.157	-0.329	-0.046
	(0.163)		(0.175)	(0.279)		(0.419)	(0.451)		(0.168)	(0.231)	
Legal Status											
Partnership	0.035	0.007	0.122	0.019	-0.026	-0.121	0.567	0.039	-0.024	0.300	0.058
	(0.161)		(0.172)	(0.280)		(0.491)	(0.364)		(0.169)	(0.220)	
LTD	0.086	0.019	0.154	0.349*	0.054	0.482**	-0.280	-0.026	-0.080	0.206*	0.040
	(0.094)		(0.100)	(0.180)		(0.226)	(0.265)		(0.098)	(0.121)	
Firm Age											
1-2 years	0.101	0.026	0.111	0.269	0.043	0.345	-1.435**	-0.081	-0.050	0.018	0.008
	(0.169)		(0.183)	(0.290)		(0.408)	(0.601)		(0.170)	(0.191)	
2-5 years	0.001	0.000	0.015	-0.023	-0.010	-0.033	-0.067	-0.001	-0.080	-0.316	-0.063
	(0.166)		(0.177)	(0.268)		(0.455)	(0.691)		(0.170)	(0.203)	
6-9 years	-0.244	-0.054	-0.142	-0.252	-0.045	-0.182	-1.297**	-0.070	0.181	-0.428**	-0.089
	(0.177)		(0.191)	(0.278)		(0.422)	(0.611)		(0.182)	(0.217)	
10-15 years	-0.277	-0.061	-0.261	-0.229	-0.005	0.039	-1.849***	-0.148	0.201	-0.415**	-0.088
	(0.171)		(0.183)	(0.283)		(0.429)	(0.653)		(0.175)	(0.203)	
>15 years	-0.317*	-0.069	-0.282	-0.076	0.038	0.374	-1.615***	-0.105	0.251	-0.296	-0.071
	(0.165)		(0.179)	(0.311)		(0.404)	(0.615)		(0.169)	(0.187)	
Region											
North East	-0.078	-0.019	-0.270	-0.005	0.046	0.527	-0.340	-0.063	0.132	0.160	0.019
	(0.211)		(0.236)	(0.331)		(0.503)	(0.690)		(0.210)	(0.246)	
York & Humber	-0.089	-0.022	0.047	0.026	-0.003	-0.114	1.301**	0.139	0.086	0.295	0.044
	(0.170)		(0.177)	(0.289)		(0.450)	(0.523)		(0.172)	(0.198)	
North West	-0.198	-0.047	-0.132	-0.206	-0.030	-0.148	0.832**	0.109	0.133	0.152	0.018
	(0.176)		(0.188)	(0.301)		(0.527)	(0.378)		(0.182)	(0.223)	
West Midlands	-0.064	-0.016	0.072	-0.087	-0.046	-0.260	0.717	0.098	0.021	0.076	0.010
	(0.169)		(0.178)	(0.285)		(0.422)	(0.447)		(0.172)	(0.201)	
East Midlands	-0.128	-0.031	0.038	0.224	0.042	0.316	2.288***	0.161	0.114	0.492**	0.085
	(0.175)		(0.180)	(0.276)		(0.426)	(0.541)		(0.179)	(0.200)	
East England	-0.392**	-0.086	-0.285	-0.634*	-0.162	-0.672	0.234	0.027	0.385**	0.462**	0.067

	(0.176)		(0.186)	(0.329)		(0.519)	(0.486)		(0.179)	(0.198)	
Wales	-0.119	-0.029	-0.038	-0.150	-0.037	-0.199	-0.042	-0.012	0.105	0.281	0.041
	(0.180)		(0.193)	(0.314)		(0.497)	(0.488)		(0.186)	(0.224)	
South West	-0.285	-0.065	-0.217	0.145	0.060	0.757*	0.767*	0.108	0.224	0.068	0.003
	(0.182)		(0.193)	(0.331)		(0.439)	(0.419)		(0.184)	(0.204)	
London	-0.295*	-0.067	-0.157	-0.023	0.026	0.208	0.559	0.085	0.275*	0.273	0.033
	(0.161)		(0.171)	(0.267)		(0.470)	(0.413)		(0.163)	(0.190)	
South East	-0.315*	-0.071	-0.229	0.060	0.051	0.513	0.553	0.086	0.227	0.395**	0.059
	(0.163)		(0.171)	(0.290)		(0.414)	(0.370)		(0.167)	(0.180)	
N.Ireland	-0.310	-0.070	-0.199	-0.512	-0.135	-0.644	0.059	-0.003	0.308	0.410*	0.058
	(0.196)		(0.211)	(0.345)		(0.519)	(0.513)		(0.194)	(0.217)	
Other Controls											
ln (*Sales*)	0.261***	0.056	0.251***	0.295***	0.023	0.165*	-0.003	0.001	-0.252***	-0.098**	-0.009
	(0.036)		(0.037)	(0.053)		(0.089)	(0.108)		(0.037)	(0.039)	
Profit	-0.049	-0.010	-0.025	-0.042	-0.006	0.001	0.646***	0.069	0.070	-0.156	-0.030
	(0.081)		(0.087)	(0.124)		(0.198)	(0.222)		(0.084)	(0.099)	
Fast Growth	0.369**	0.079	0.268	0.557*	0.088	0.722*	0.595	0.069	-0.319*	0.213	0.049
	(0.162)		(0.183)	(0.329)		(0.413)	(0.392)		(0.171)	(0.215)	
Export	0.179	0.038	0.033	-0.261	-0.075	-0.602**			-0.164	-0.450***	-0.075
	(0.137)		(0.137)	(0.234)		(0.245)			(0.137)	(0.128)	
AIMGROW	0.165**	0.035	0.089		-0.019				-0.174**	-0.183*	-0.027
	(0.078)		(0.074)						(0.080)	(0.103)	
FINPROBLEM	0.394***	0.084	0.277***		-0.059				-0.507***		
	(0.090)		(0.096)						(0.095)		
Constant	-4.326***		-4.451***	-4.451***		-0.632	1.919		4.018***	-0.476	
	(0.457)		(0.474)	(0.806)		(1.116)	(1.329)		(0.470)	(0.504)	
N Obs	5,802		5,802			1,035			5,802		
Censored N			1,035			955			4,767		
Wald χ2	315.69***		100.52***			123.95***			114.48***		
Pseudo R2	0.130										
Log likelihood	-271.976		-255.539			-35.975			-405.573		
χ2 (ρ = 0)			4.98**			0.61			16.55***		

* $p < .10$; ** $p < .05$; *** $p < .01$. Asymptotic robust standard errors reported. Weights applied. Base categories: *Survey Wave* = Q2 2020; *Risk Rating* = minimum; *Employment size* = 1; *Industry* = Primary; *Legal Status* = Sole proprietorship; *Firm Age* = 0 – 1 year; *Region* = Scotland. Model 2 selection equation = Prob (*Sought Finance*); Model 3 selection equation = Prob (*Offered Finance*); Model 5 selection equation = Prob (*Non-Applicants*) = 1 – Prob (*Sought Finance*).

Table 3: Instrumental Variable Test for Exclusion Restrictions

	Specification			
	Offered Finance		**Thinking Currently Applying**	
	Test statistic	P-value	Test statistic	P-value
Overidentification test				
Hansen J statistic $\chi^2(1)$	0.28	0.60	-	-
Sargan $\chi^2(1)$	0.56	0.46		
Underidentification test				
Kleibergen-Paap rank LM $\chi^2(2)$	48.69	0.00	24.27	0.00
Weak instrument test				
Anderson-Rubin Wald $\chi^2(2)$	9.80	0.00	8.48	0.00
Cragg-Donald Wald F*	21.83	19.93	72.68	16.38
Endogeneity test				
GMM C (difference-in-Sargan) statistic $\chi^2(1)$	12.81	0.00	12.27	0.00

Note: 10% critical value for Cragg-Donald F-statistic (Stock and Yogo, 2005) is reported instead of p-value.

Online Appendix

Table A1: types of finance (% of all that applied for external finance, N = 1,035)

Finance Type	Unweighted	Weighted
Bank + COVID loan	92.41	93.05
Commercial mortgage	0.30	0.16
Other grants	4.66	4.68
Equity	0.05	0.01
Leasing	2.94	1.98
Credit card	0.81	0.96
Crowdfunding + P2P	0.10	0.05
Factoring & asset-based	0.60	0.42
Others	1.97	2.02

Table A2: Descriptive Statistics by UK Region (Weighted)

	Scotland		North/North East		York/Humberside		North West		West Midlands		East Midlands		East of Engand		Wales		South West		London		South East		Northern Ireland	
	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.
Dependent Variables																								
Sought Finance	0.206	0.405	0.158	0.365	0.198	0.399	0.176	0.381	0.204	0.404	0.189	0.392	0.110	0.313	0.174	0.380	0.131	0.337	0.167	0.373	0.138	0.345	0.159	0.366
Thinking Currently Applying	0.067	0.250	0.091	0.288	0.108	0.310	0.083	0.277	0.090	0.287	0.163	0.370	0.124	0.330	0.110	0.313	0.075	0.264	0.094	0.293	0.116	0.321	0.126	0.332
No Plans for Seeking Finance	0.933	0.250	0.909	0.288	0.892	0.310	0.917	0.277	0.910	0.287	0.837	0.370	0.876	0.330	0.890	0.313	0.925	0.264	0.906	0.293	0.884	0.321	0.874	0.332
Offered Finance	0.921	0.272	0.967	0.180	0.897	0.305	0.915	0.280	0.913	0.284	0.947	0.226	0.799	0.403	0.922	0.271	0.977	0.152	0.941	0.236	0.969	0.173	0.823	0.385
Offered Government Finance	0.817	0.389	0.806	0.401	0.966	0.182	0.958	0.202	0.916	0.279	0.998	0.040	0.879	0.328	0.813	0.393	0.967	0.181	0.893	0.310	0.958	0.202	0.818	0.390
Independent Variables																								
Sales (£ mil)	0.213	0.906	0.222	1.038	0.223	0.988	0.427	1.769	0.248	1.117	0.217	0.867	0.280	1.308	0.192	0.802	0.219	0.932	0.340	1.259	0.293	1.214	0.310	1.174
AIMGROW	0.322	0.468	0.304	0.461	0.321	0.467	0.348	0.477	0.289	0.454	0.319	0.467	0.288	0.453	0.365	0.482	0.310	0.463	0.310	0.463	0.304	0.460	0.337	0.474
FINPROBLEM	0.110	0.313	0.167	0.373	0.211	0.409	0.136	0.343	0.203	0.403	0.205	0.404	0.127	0.334	0.174	0.379	0.145	0.353	0.159	0.366	0.120	0.325	0.228	0.420
Profit	0.731	0.444	0.754	0.431	0.781	0.414	0.711	0.454	0.622	0.485	0.666	0.472	0.787	0.410	0.785	0.411	0.674	0.469	0.701	0.458	0.714	0.452	0.733	0.443
Fast Growth	0.032	0.176	0.034	0.181	0.039	0.194	0.037	0.188	0.022	0.147	0.034	0.180	0.018	0.133	0.053	0.225	0.050	0.219	0.043	0.202	0.024	0.154	0.015	0.120
Export	0.062	0.242	0.040	0.197	0.101	0.302	0.052	0.222	0.064	0.246	0.027	0.164	0.065	0.246	0.058	0.235	0.082	0.275	0.082	0.275	0.074	0.261	0.116	0.321
Risk Rating																								
Minimum	0.125	0.331	0.034	0.182	0.041	0.198	0.025	0.158	0.050	0.218	0.054	0.226	0.076	0.265	0.066	0.249	0.049	0.216	0.053	0.224	0.047	0.213	0.037	0.189
Low	0.086	0.280	0.149	0.356	0.121	0.327	0.138	0.345	0.085	0.280	0.133	0.340	0.140	0.347	0.075	0.263	0.117	0.322	0.142	0.349	0.126	0.332	0.140	0.347
Average	0.244	0.430	0.281	0.450	0.349	0.477	0.233	0.423	0.331	0.471	0.334	0.472	0.272	0.445	0.323	0.468	0.220	0.415	0.270	0.444	0.232	0.422	0.309	0.463
Above Average	0.450	0.498	0.380	0.486	0.381	0.486	0.484	0.500	0.414	0.493	0.394	0.489	0.368	0.483	0.411	0.493	0.483	0.500	0.417	0.493	0.481	0.500	0.384	0.487
Not Known	0.095	0.294	0.156	0.364	0.109	0.311	0.119	0.324	0.120	0.326	0.085	0.279	0.144	0.352	0.126	0.332	0.131	0.338	0.119	0.324	0.114	0.318	0.130	0.337
Employment Size																								
0	0.748	0.434	0.780	0.415	0.785	0.411	0.756	0.430	0.737	0.441	0.784	0.412	0.769	0.422	0.728	0.445	0.776	0.418	0.756	0.430	0.765	0.424	0.770	0.422
1-9	0.211	0.408	0.180	0.385	0.178	0.383	0.206	0.405	0.223	0.417	0.174	0.380	0.194	0.396	0.227	0.420	0.184	0.388	0.197	0.398	0.200	0.400	0.192	0.395
10-49	0.037	0.188	0.035	0.184	0.033	0.178	0.034	0.181	0.035	0.184	0.037	0.189	0.032	0.177	0.040	0.196	0.035	0.185	0.044	0.205	0.031	0.173	0.034	0.182
50-99	0.003	0.056	0.004	0.060	0.003	0.052	0.003	0.058	0.003	0.056	0.004	0.062	0.003	0.058	0.004	0.060	0.003	0.056	0.002	0.049	0.003	0.051	0.002	0.043
100-249	0.001	0.030	0.001	0.037	0.001	0.032	0.001	0.024	0.001	0.029	0.001	0.026	0.001	0.036	0.001	0.026	0.001	0.036	0.001	0.030	0.002	0.041	0.002	0.041
Industry																								
Primary	0.034	0.181	0.019	0.136	0.024	0.153	0.040	0.195	0.031	0.174	0.039	0.195	0.035	0.185	0.064	0.244	0.031	0.175	0.011	0.107	0.032	0.177	0.066	0.248
Manufacturing	0.060	0.237	0.041	0.199	0.068	0.253	0.050	0.218	0.059	0.235	0.060	0.238	0.076	0.265	0.048	0.215	0.065	0.247	0.037	0.188	0.055	0.229	0.056	0.231
Construction	0.116	0.320	0.320	0.467	0.219	0.414	0.248	0.432	0.118	0.323	0.189	0.392	0.224	0.418	0.175	0.381	0.191	0.394	0.185	0.389	0.174	0.380	0.095	0.293
Wholesale / retail	0.141	0.349	0.145	0.353	0.069	0.253	0.079	0.271	0.167	0.373	0.150	0.358	0.079	0.270	0.146	0.354	0.092	0.289	0.096	0.295	0.063	0.242	0.119	0.324
Hotels / catering	0.094	0.292	0.036	0.187	0.029	0.167	0.051	0.221	0.045	0.207	0.025	0.155	0.028	0.166	0.067	0.250	0.032	0.176	0.025	0.157	0.016	0.125	0.039	0.194
Transport & com	0.161	0.368	0.101	0.302	0.166	0.372	0.095	0.294	0.119	0.325	0.182	0.386	0.148	0.356	0.143	0.350	0.092	0.289	0.080	0.272	0.112	0.316	0.190	0.393
Business services	0.226	0.419	0.132	0.339	0.197	0.398	0.279	0.449	0.262	0.440	0.116	0.321	0.292	0.455	0.148	0.355	0.313	0.464	0.340	0.474	0.304	0.460	0.232	0.423
Health	0.045	0.207	0.041	0.199	0.072	0.259	0.054	0.226	0.100	0.300	0.070	0.255	0.068	0.253	0.053	0.224	0.061	0.239	0.081	0.272	0.108	0.311	0.047	0.211
Other community	0.125	0.331	0.164	0.371	0.157	0.364	0.104	0.305	0.100	0.300	0.169	0.375	0.050	0.217	0.156	0.364	0.123	0.328	0.145	0.352	0.136	0.343	0.157	0.364
Legal Status																								
Sole proprietorship	0.649	0.478	0.667	0.472	0.579	0.494	0.553	0.498	0.582	0.494	0.625	0.485	0.600	0.490	0.672	0.470	0.586	0.493	0.490	0.500	0.599	0.490	0.649	0.478
Partnership	0.070	0.256	0.083	0.277	0.038	0.191	0.032	0.176	0.034	0.181	0.030	0.170	0.034	0.181	0.061	0.240	0.035	0.185	0.023	0.149	0.011	0.103	0.048	0.214
Limited liability (LTD)	0.280	0.447	0.250	0.432	0.383	0.486	0.415	0.492	0.384	0.486	0.345	0.476	0.367	0.481	0.267	0.443	0.378	0.484	0.487	0.500	0.390	0.487	0.303	0.458
Firm Age																								
<12 months	0.082	0.274	0.091	0.289	0.078	0.268	0.032	0.177	0.054	0.227	0.060	0.237	0.059	0.235	0.129	0.336	0.062	0.242	0.072	0.258	0.080	0.271	0.050	0.217
1-2 years	0.132	0.339	0.144	0.351	0.120	0.326	0.151	0.359	0.194	0.396	0.175	0.380	0.059	0.235	0.139	0.347	0.117	0.322	0.123	0.329	0.113	0.317	0.271	0.445
2-5 years	0.140	0.347	0.135	0.343	0.122	0.328	0.123	0.328	0.158	0.365	0.186	0.390	0.128	0.334	0.122	0.328	0.194	0.395	0.137	0.344	0.132	0.339	0.094	0.292
6-9 years	0.161	0.368	0.082	0.274	0.095	0.294	0.136	0.343	0.085	0.279	0.147	0.355	0.201	0.401	0.151	0.359	0.127	0.333	0.135	0.342	0.110	0.313	0.086	0.281
10-15 years	0.118	0.322	0.187	0.391	0.247	0.432	0.159	0.366	0.186	0.389	0.181	0.386	0.190	0.392	0.118	0.323	0.151	0.358	0.169	0.375	0.203	0.403	0.150	0.358
15+ years	0.368	0.483	0.361	0.481	0.338	0.473	0.398	0.490	0.323	0.468	0.250	0.434	0.365	0.482	0.340	0.474	0.349	0.477	0.365	0.482	0.362	0.481	0.350	0.478

Table A3: Rare-Event Logit Regression Using the Firth (2003) Model

	(1) Offered Finance		(2) Offered Government Finance	
	Coeff.	dy/dx	Coeff.	dy/dx
Survey Wave				
Q3 2020	0.440*	0.036	0.835***	0.083
	(0.260)		(0.233)	
Risk Rating				
Low	0.713*	0.059	1.121***	0.125
	(0.389)		(0.338)	
Average	0.426	0.039	0.946***	0.111
	(0.373)		(0.344)	
Above Average	0.491	0.043	0.808*	0.098
	(0.440)		(0.436)	
Not Known	0.153	0.015	1.081*	0.122
	(0.553)		(0.636)	
Employment Size				
1 – 9	-0.317	-0.022	0.473	0.041
	(0.416)		(0.450)	
10 – 49	-0.227	-0.015	0.097	0.010
	(0.540)		(0.532)	
50 – 99	-0.656	-0.052	-0.131	-0.014
	(0.679)		(0.655)	
100 – 249	-2.081**	-0.260	-0.195	-0.021
	(0.823)		(0.938)	
Industry				
Manufacturing	0.046	0.004	-0.843	-0.076
	(0.636)		(0.640)	
Construction	-0.093	-0.009	-0.451	-0.035
	(0.551)		(0.574)	
Wholesale/retail	0.714	0.051	-0.306	-0.023
	(0.651)		(0.643)	
Hotel & catering	0.693	0.050	-0.409	-0.031
	(0.691)		(0.631)	
Trans & Comms	-0.078	-0.007	-0.752	-0.065
	(0.569)		(0.585)	
Business Service	0.423	0.034	-0.411	-0.031
	(0.566)		(0.574)	
Health	0.166	0.014	-0.500	-0.040
	(0.701)		(0.689)	
Other services	0.563	0.043	-0.264	-0.019
	(0.602)		(0.601)	
Legal Status				
Partnership	0.856	0.062	-0.312	-0.031
	(0.749)		(0.557)	
LTD	0.366	0.031	-0.032	-0.003
	(0.392)		(0.433)	
Firm Age				
1-2 years	0.475	0.045	-0.477	-0.037
	(0.695)		(0.964)	
2-5 years	0.975	0.078	0.434	0.023
	(0.718)		(1.046)	
6-9 years	0.164	0.017	-0.691	-0.057
	(0.654)		(0.954)	
10-15 years	0.698	0.062	-0.435	-0.033
	(0.663)		(0.953)	
>15 years	0.535	0.050	-0.603	-0.048

Sensitivity: Public
Sensitivity: Public

	(0.626)		(0.924)	
Region				
North East	-0.104	-0.010	0.758	0.067
	(0.650)		(0.744)	
York & Humber	-0.204	-0.020	0.621	0.058
	(0.515)		(0.543)	
North West	0.953	0.062	0.309	0.032
	(0.672)		(0.503)	
West Midlands	-0.390	-0.041	0.491	0.048
	(0.499)		(0.537)	
East Midlands	0.395	0.031	1.686**	0.110
	(0.575)		(0.736)	
East England	0.345	0.028	0.002	0.000
	(0.579)		(0.496)	
Wales	0.673	0.048	-0.130	-0.015
	(0.684)		(0.482)	
South West	0.258	0.021	0.130	0.014
	(0.577)		(0.500)	
London	0.600	0.044	0.784	0.069
	(0.539)		(0.491)	
South East	0.218	0.018	0.157	0.017
	(0.519)		(0.479)	
N.Ireland	0.289	0.024	-0.497	-0.066
	(0.667)		(0.516)	
Other Controls				
ln (*Sales*)	0.164	0.013	-0.002	0.000
	(0.111)		(0.112)	
Profit	0.561**	0.043	0.504*	0.046
	(0.259)		(0.262)	
Fast Growth	-0.781*	-0.060	-0.454	-0.041
	(0.468)		(0.488)	
Export	-1.325***	-0.102		
	(0.300)			
Constant	-1.670		0.951	
	(1.479)		(1.642)	
N Obs	1,035		955	
Wald $\chi 2$	55.35**		49.42*	
Log likelihood	-213.299		232.687	

* $p < .10$; ** $p < .05$; *** $p < .01$. Asymptotic robust standard errors reported. Weights applied. Base categories: *Survey Wave* = Q2 2020; *Risk Rating* = minimum; *Employment size* = 1; *Industry* = Primary; *Legal Status* = Sole proprietorship; *Firm Age* = 0 – 1 year; *Region* = Scotland.

Sensitivity: Public
Sensitivity: Public

Table A4: Regression Results Using Multiple Imputation for Missing Sales Observations

	(1) **Sought Finance** (Probit)		(2) **Offered Finance** (Probit with sample selection)			(3) **Offered Government Finance** (Probit with sample selection)			(4) **Thinking Currently Applying** (Probit with sample selection)		
			Sel. Eq.	Outcome Eq.		Sel. Eq	Outcome Eq.		Sel. Eq	Outcome Eq.	
	Coeff.	dy/dx	Coeff.	Coeff.	dy/dx	Coeff.	Coeff.	dy/dx	Coeff.	Coeff.	dy/dx
Survey Wave											
Q3 2020	0.455***	0.093	0.648***	0.649***	0.035	0.255	0.602***	0.092	-0.220***	-0.372***	-0.061
	(0.063)		(0.067)	(0.110)		(0.184)	(0.205)		(0.067)	(0.078)	
Risk Rating											
Low	0.065	0.013	0.015	-0.023	-0.01	-0.172	1.004***	0.150	-0.038	0.209*	0.035
	(0.120)		(0.129)	(0.198)		(0.350)	(0.320)		(0.124)	(0.114)	
Average	0.041	0.008	0.029	0.089	0.024	-0.017	0.781**	0.130	-0.045	0.149	0.024
	(0.121)		(0.126)	(0.189)		(0.315)	(0.364)		(0.125)	(0.116)	
Above Average	0.060	0.012	0.034	0.319	0.087	0.447	0.473	0.095	-0.048	0.219*	0.036
	(0.127)		(0.134)	(0.221)		(0.326)	(0.378)		(0.131)	(0.121)	
Not Known	0.110	0.022	0.046	0.121	0.030	0.066	0.710	0.123	-0.151	0.209	0.038
	(0.144)		(0.148)	(0.226)		(0.385)	(0.454)		(0.151)	(0.149)	
Employment Size											
1 – 9	0.026	0.005	-0.014	-0.135	-0.039	-0.251	0.327	0.037	-0.015	0.156*	0.032
	(0.077)		(0.083)	(0.127)		(0.214)	(0.257)		(0.078)	(0.091)	
10 – 49	-0.120	-0.023	-0.154	-0.281	-0.052	-0.281	0.025	0.000	0.143	0.346**	0.072
	(0.120)		(0.129)	(0.192)		(0.323)	(0.406)		(0.121)	(0.140)	
50 – 99	-0.344**	-0.060	-0.382**	-0.432*	-0.038	-0.202	-0.148	-0.027	0.352**	0.402**	0.080
	(0.147)		(0.158)	(0.248)		(0.427)	(0.515)		(0.149)	(0.178)	
100 – 249	-0.735***	-0.103	-0.755***	-1.139***	-0.227	-1.013*	0.123	-0.001	0.764***	0.509**	0.096
	(0.200)		(0.211)	(0.341)		(0.569)	(0.623)		(0.205)	(0.231)	
Industry											
Manufacturing	-0.173	-0.031	-0.241	-0.682**	-0.126	-1.031**	-0.317	-0.069	0.159	0.116	0.018
	(0.149)		(0.160)	(0.289)		(0.442)	(0.528)		(0.156)	(0.174)	
Construction	-0.053	-0.010	-0.151	-0.452*	-0.070	-0.573	0.370	0.045	0.001	-0.073	-0.013
	(0.132)		(0.143)	(0.248)		(0.374)	(0.532)		(0.140)	(0.159)	
Wholesale/retail	0.070	0.014	0.043	-0.406	-0.109	-0.775*	0.020	-0.002	-0.032	0.034	0.009
	(0.132)		(0.141)	(0.273)		(0.396)	(0.474)		(0.137)	(0.156)	
Hotel & catering	0.244*	0.054	0.197	-0.012	-0.030	-0.290	0.046	0.006	-0.197	0.063	0.021
	(0.135)		(0.144)	(0.259)		(0.435)	(0.489)		(0.138)	(0.156)	
Trans & Comms	0.270*	0.060	0.184	-0.423	-0.163	-0.981**	0.071	0.003	-0.225	0.125	0.038
	(0.141)		(0.150)	(0.301)		(0.406)	(0.500)		(0.147)	(0.164)	
Business Service	0.061	0.012	-0.015	-0.284	-0.054	-0.550	0.428	0.051	0.002	-0.149	-0.026
	(0.126)		(0.137)	(0.240)		(0.371)	(0.462)		(0.131)	(0.148)	
Health	-0.174	-0.031	-0.234	-0.305	-0.017	-0.216	0.828*	0.081	0.163	-0.150	-0.030
	(0.152)		(0.163)	(0.263)		(0.419)	(0.495)		(0.159)	(0.188)	
Other services	0.060	0.012	-0.104	-0.236	-0.025	-0.327	0.045	0.005	0.019	-0.242	-0.040
	(0.146)		(0.155)	(0.249)		(0.397)	(0.524)		(0.149)	(0.187)	
Legal Status											
Partnership	-0.011	-0.002	0.047	0.102	0.020	0.139	0.341	0.030	0.033	0.306*	0.057
	(0.131)		(0.143)	(0.245)		(0.453)	(0.318)		(0.136)	(0.172)	
LTD	0.133	0.028	0.170*	0.321**	0.052	0.388*	-0.361	-0.043	-0.115	0.190*	0.039
	(0.082)		(0.088)	(0.139)		(0.216)	(0.252)		(0.085)	(0.104)	
Firm Age											
1-2 years	0.182	0.043	0.181	0.274	0.027	0.237	-1.184**	-0.083	-0.136	-0.037	-0.001
	(0.151)		(0.164)	(0.253)		(0.378)	(0.522)		(0.153)	(0.165)	
2-5 years	0.217	0.052	0.184	-0.195	-0.121	-0.725*	-0.372	-0.015	-0.304**	-0.123	-0.011
	(0.149)		(0.159)	(0.279)		(0.413)	(0.587)		(0.153)	(0.176)	
6-9 years	-0.087	-0.018	-0.053	-0.248	-0.063	-0.364	-1.294**	-0.105	0.012	-0.378**	-0.068
	(0.157)		(0.170)	(0.264)		(0.424)	(0.568)		(0.161)	(0.191)	
10-15 years	-0.148	-0.030	-0.124	-0.228	-0.036	-0.170	-1.504***	-0.141	0.054	-0.339*	-0.063
	(0.150)		(0.161)	(0.263)		(0.459)	(0.581)		(0.154)	(0.175)	
>15 years	-0.227	-0.044	-0.226	-0.201	-0.003	0.037	-1.266**	-0.096	0.151	-0.232	-0.049
	(0.145)		(0.158)	(0.251)		(0.405)	(0.545)		(0.147)	(0.162)	
Region											
North East	-0.077	-0.019	-0.250	-0.427	-0.069	-0.431	-0.171	-0.033	0.120	0.090	0.009
	(0.174)		(0.191)	(0.313)		(0.538)	(0.656)		(0.175)	(0.214)	
York & Humber	-0.146	-0.035	-0.042	-0.138	-0.028	-0.370	0.027	0.001	0.148	0.153	0.019
	(0.143)		(0.150)	(0.266)		(0.444)	(0.437)		(0.146)	(0.182)	
North West	-0.212	-0.049	-0.194	-0.308	-0.042	-0.286	0.551	0.061	0.148	0.208	0.027
	(0.145)		(0.154)	(0.292)		(0.543)	(0.381)		(0.151)	(0.183)	
West Midlands	-0.092	-0.022	-0.029	-0.085	-0.016	-0.128	0.359	0.044	0.080	0.079	0.009
	(0.142)		(0.150)	(0.259)		(0.444)	(0.444)		(0.146)	(0.183)	
East Midlands	-0.082	-0.020	-0.016	0.215	0.040	0.388	0.769	0.077	0.084	0.408**	0.071
	(0.143)		(0.150)	(0.250)		(0.426)	(0.564)		(0.147)	(0.183)	
East England	-0.463***	-0.095	-0.409***	-0.876***	-0.228	-1.002**	-0.001	-0.014	0.463***	0.302*	0.035
	(0.146)		(0.158)	(0.300)		(0.462)	(0.437)		(0.150)	(0.177)	
Wales	-0.145	-0.034	-0.128	-0.228	-0.034	-0.245	-0.295	-0.055	0.137	0.224	0.031
	(0.151)		(0.165)	(0.283)		(0.458)	(0.486)		(0.157)	(0.199)	
South West	-0.276*	-0.062	-0.230	0.154	0.052	0.789*	0.305	0.042	0.243	0.130	0.012
	(0.149)		(0.161)	(0.305)		(0.465)	(0.393)		(0.152)	(0.180)	
London	-0.326**	-0.071	-0.231	-0.257	-0.017	-0.175	0.054	0.007	0.322**	0.318*	0.042
	(0.133)		(0.143)	(0.243)		(0.415)	(0.401)		(0.136)	(0.165)	
South East	-0.287**	-0.064	-0.294**	-0.321	-0.020	-0.253	0.081	0.010	0.223	0.359**	0.054
	(0.135)		(0.142)	(0.246)		(0.434)	(0.350)		(0.139)	(0.164)	
N.Ireland	-0.254	-0.057	-0.173	-0.641**	-0.202	-1.045**	-0.074	-0.027	0.266	0.326*	0.045
	(0.166)		(0.180)	(0.323)		(0.477)	(0.515)		(0.167)	(0.193)	

Sensitivity: Public
Sensitivity: Public

Other Controls											
ln(*Sales*)	0.180***	0.037	0.173***	0.222***	0.024	0.143	0.068	0.010	-0.180***	-0.067*	-0.007
	(0.032)		(0.034)	(0.054)		(0.089)	(0.119)		(0.032)	(0.039)	
Profit	0.012	0.002	0.053	0.188	0.043	0.372**	0.310	0.043	0.001	-0.118	-0.021
	(0.067)		(0.070)	(0.122)		(0.181)	(0.213)		(0.069)	(0.082)	
Fast Growth	0.296**	0.061	0.214	0.570**	0.117	0.863**	0.662**	0.092	-0.241*	0.152	0.037
	(0.137)		(0.152)	(0.263)		(0.339)	(0.284)		(0.142)	(0.167)	
Export	0.191	0.039	0.099	-0.083	-0.049	-0.330			-0.178	-0.454***	-0.075
	(0.121)		(0.125)	(0.181)		(0.244)			(0.123)	(0.114)	
AIMGROW	0.114*	0.023	0.067						-0.130*	-0.106	-0.015
	(0.066)		(0.058)						(0.068)	(0.086)	
FINPROBLEM	0.428***	0.088	0.346***						-0.540***		
	(0.079)		(0.082)						(0.083)		
Constant	-3.354***		-3.477***	-3.299***		0.121	0.356		3.161***	-0.667	
	(0.387)		(0.411)	(0.707)		(1.053)	(1.401)		(0.394)	(0.458)	
N Obs	8,994		8,994			1,451			8,994		
Censored N			1,451			1,350			7,543		
# Imputation	30		30			30			30		

* $p < .10$; ** $p < .05$; *** $p < .01$. Asymptotic robust standard errors reported. Weights applied. Base categories: *Survey Wave* = Q2 2020; *Sales Band* = £0 - £25k; *Risk Rating* = minimum; *Employment size* = 1; *Industry* = Primary; *Legal Status* = Sole proprietorship; *Firm Age* = 0 – 1 year; *Region* = Scotland. Model 2 selection equation = Prob (*Sought Finance*); Model 3 selection equation = Prob (*Offered Finance*); Model 5 selection equation = Prob (*Non-Applicants*) = 1 – Prob (*Sought Finance*).

Sensitivity: Public
Sensitivity: Public

Table A5: Regression Results with Further Controls on Economic Indicators

	(1) **Sought Finance** (Probit)		(2) **Offered Finance** (Probit with sample selection)			(3) **Offered Government Finance** (Probit with sample selection)			(4) **Thinking Currently Applying** (Probit with sample selection)		
			Sel. Eq.	Outcome Eq.		Sel. Eq	Outcome Eq.		Sel. Eq	Outcome Eq.	
	Coeff.	dy/dx	Coeff.	Coeff.	dy/dx	Coeff.	Coeff.	dy/dx	Coeff.	Coeff.	dy/dx
Survey Wave											
Q3 2020	0.454***	0.096	0.629***	0.529***	0.015	0.111	0.396*	0.049	-0.220***	-0.272***	-0.043
	(0.074)		(0.080)	(0.190)		(0.229)	(0.235)		(0.079)	(0.091)	
Economic Indicators											
Median Income (£)	-0.020	-0.004	-0.017	-0.030	-0.004	-0.023	-0.042	-0.005	0.026*	0.027	0.004
	(0.013)		(0.014)	(0.032)		(0.050)	(0.045)		(0.014)	(0.018)	
Unemployment (%)	0.055	0.012	0.041	0.012	-0.004	-0.042	-0.002	0.000	-0.026	-0.018	-0.002
	(0.047)		(0.049)	(0.088)		(0.110)	(0.187)		(0.048)	(0.056)	
Population (Mil)	0.001	0.000	0.004	0.077	0.016	0.130	0.112	0.015	-0.021	-0.032	-0.005
	(0.026)		(0.027)	(0.065)		(0.090)	(0.092)		(0.027)	(0.036)	
Risk Rating											
Low	0.095	0.019	-0.045	-0.093	-0.017	-0.147	0.936**	0.123	-0.063	0.374**	0.053
	(0.154)		(0.162)	(0.290)		(0.437)	(0.368)		(0.159)	(0.146)	
Average	0.081	0.016	0.022	0.205	0.043	0.217	0.841**	0.116	-0.076	0.337**	0.047
	(0.155)		(0.162)	(0.271)		(0.377)	(0.403)		(0.160)	(0.139)	
Above Average	0.163	0.034	0.059	0.214	0.040	0.188	0.348	0.061	-0.146	0.420***	0.065
	(0.162)		(0.170)	(0.279)		(0.369)	(0.432)		(0.168)	(0.149)	
Not Known	0.116	0.023	0.008	-0.024	-0.008	-0.123	0.952*	0.124	-0.143	0.399**	0.061
	(0.180)		(0.187)	(0.327)		(0.471)	(0.501)		(0.189)	(0.179)	
Employment Size									0.016		
1 – 9	-0.036	-0.008	-0.090	-0.288	-0.055	-0.396	0.160	0.016	0.028	0.215**	0.040
	(0.091)		(0.098)	(0.187)		(0.275)	(0.284)		(0.092)	(0.100)	
10 – 49	-0.249*	-0.048	-0.323**	-0.449	-0.051	-0.364	-0.108	-0.016	0.235*	0.609***	0.131
	(0.140)		(0.149)	(0.280)		(0.420)	(0.412)		(0.142)	(0.143)	
50 – 99	-0.598***	-0.098	-0.721***	-0.822**	-0.074	-0.494	0.168	0.016	0.557***	0.591***	0.112
	(0.178)		(0.188)	(0.345)		(0.513)	(0.539)		(0.180)	(0.193)	
100 – 249	-1.164***	-0.143	-1.167***	-1.660***	-0.291	-1.348**	0.399	0.030	1.123***	0.691***	0.127
	(0.243)		(0.260)	(0.468)		(0.686)	(0.742)		(0.249)	(0.265)	
Industry											
Manufacturing	-0.017	-0.003	-0.085	-0.242	-0.044	-0.368	-1.687***	-0.199	0.046	0.145	0.028
	(0.174)		(0.183)	(0.328)		(0.465)	(0.431)		(0.180)	(0.214)	
Construction	0.186	0.034	0.142	-0.149	-0.067	-0.376	-0.074	-0.003	-0.206	-0.014	0.004
	(0.152)		(0.165)	(0.320)		(0.427)	(0.383)		(0.161)	(0.194)	
Wholesale/retail	0.258*	0.049	0.274*	0.393	0.031	0.362	-0.842**	-0.053	-0.209	0.019	0.011
	(0.153)		(0.163)	(0.319)		(0.461)	(0.387)		(0.159)	(0.193)	
Hotel & catering	0.398**	0.080	0.386**	0.322	0.007	0.104	-1.455***	-0.145	-0.353**	0.017	0.017
	(0.157)		(0.166)	(0.327)		(0.475)	(0.404)		(0.161)	(0.194)	
Trans & Comms	0.537***	0.115	0.466***	-0.104	-0.138	-0.631	-1.035***	-0.082	-0.491***	0.078	0.038
	(0.162)		(0.170)	(0.368)		(0.400)	(0.398)		(0.170)	(0.199)	
Business Service	0.315**	0.061	0.275*	0.224	0.004	0.022	-0.838**	-0.053	-0.228	-0.175	-0.024
	(0.147)		(0.157)	(0.300)		(0.415)	(0.338)		(0.152)	(0.182)	
Health	0.129	0.023	0.097	0.599	0.059	0.815*	-0.478	-0.021	-0.140	-0.266	-0.039
	(0.177)		(0.189)	(0.394)		(0.482)	(0.388)		(0.186)	(0.246)	
Other services	0.259	0.049	0.192	0.430	0.042	0.448	-1.209***	-0.100	-0.175	-0.312	-0.045
	(0.163)		(0.175)	(0.309)		(0.397)	(0.433)		(0.168)	(0.227)	
Legal Status											
Partnership	0.032	0.007	0.105	0.021	-0.015	-0.052	0.514	0.039	-0.014	0.292	0.057
	(0.157)		(0.168)	(0.344)		(0.524)	(0.357)		(0.165)	(0.221)	
LTD	0.085	0.018	0.155	0.341**	0.048	0.392*	-0.196	-0.020	-0.078	0.189	0.037
	(0.094)		(0.100)	(0.174)		(0.221)	(0.281)		(0.098)	(0.121)	
Firm Age											
1-2 years	0.092	0.024	0.115	0.255	0.032	0.299	-1.316**	-0.080	-0.035	0.010	0.005
	(0.168)		(0.181)	(0.295)		(0.373)	(0.550)		(0.169)	(0.189)	
2-5 years	-0.008	-0.002	0.013	-0.015	-0.006	0.023	0.095	0.001	-0.070	-0.330*	-0.068
	(0.165)		(0.177)	(0.312)		(0.465)	(0.580)		(0.169)	(0.200)	
6-9 years	-0.258	-0.058	-0.150	-0.269	-0.041	-0.166	-1.221**	-0.070	0.197	-0.425**	-0.091
	(0.177)		(0.191)	(0.308)		(0.415)	(0.577)		(0.182)	(0.215)	
10-15 years	-0.288*	-0.064	-0.257	-0.259	-0.017	-0.010	-1.598***	-0.125	0.209	-0.407**	-0.089
	(0.171)		(0.182)	(0.311)		(0.425)	(0.590)		(0.175)	(0.203)	
>15 years	-0.336**	-0.073	-0.298*	-0.162	0.012	0.204	-1.606***	-0.124	0.271	-0.305	-0.075
	(0.165)		(0.178)	(0.319)		(0.420)	(0.582)		(0.168)	(0.186)	
Other Controls											
Ln(*Sales*)	0.260***	0.055	0.252***	0.253***	0.015	0.098	0.008	0.001	-0.249***	-0.093**	-0.008
	(0.036)		(0.037)	(0.064)		(0.086)	(0.113)		(0.037)	(0.039)	
Profit	-0.048	-0.010	-0.030	0.020	0.009	0.102	0.647***	0.074	0.068	-0.137	-0.027
	(0.082)		(0.088)	(0.145)		(0.208)	(0.239)		(0.084)	(0.101)	
Fast Growth	0.372**	0.079	0.268	0.674*	0.106	0.751*	0.506	0.061	-0.321*	0.172	0.043
	(0.162)		(0.183)	(0.356)		(0.426)	(0.393)		(0.170)	(0.210)	
Export	0.176	0.038	0.032	-0.331	-0.079	-0.592**			-0.161	-0.447***	-0.075
	(0.137)		(0.137)	(0.240)		(0.249)			(0.137)	(0.127)	
AIMGROW	0.161**	0.034	0.091						-0.171**	-0.177*	-0.026
	(0.078)		(0.075)						(0.080)	(0.102)	
FINPROBLEM	0.399***	0.085	0.293***						-0.516***		
	(0.090)		(0.094)						(0.094)		
Constant	-4.100***		-4.240***	-3.394**		0.233	2.855		3.581***	-0.823	
	(0.591)		(0.623)	(1.470)		(1.712)	(1.741)		(0.598)	(0.685)	
N Obs	5,802		5,802			1,035			5,802		
Censored N			1,035			955			4,767		
Wald $\chi 2$	304.69***		86.24***			761.35**			99.30***		
Pseudo R2	0.129										
Log likelihood	-272.324		-257.696			-38.630			-406.981		
$\chi 2$ ($\rho = 0$)			5.18**			0.48			10.95***		

* $p < .10$; ** $p < .05$; *** $p < .01$. Asymptotic robust standard errors reported. Weights applied. Base categories: *Survey Wave* = Q2 2020; *Sales Band* = £0 - £25k; *Risk Rating* = minimum; *Employment size* = 1; *Industry* = Primary; *Legal Status* = Sole proprietorship; *Firm Age* = 0 – 1 year. Model 2 selection equation = Prob (*Sought Finance*); Model 3 selection equation = Prob (*Offered Finance*); Model 5 selection equation = Prob (*Non-Applicants*) = 1 – Prob (*Sought Finance*).

Sensitivity: Public
Sensitivity: Public

Table A6: Regression Results Using 2-Step Heckman Models

	(1) Offered Finance	(2) Offered Government Finance	(3) Thinking Currently Applying
Survey Wave			
Q3 2020	0.644**	0.457*	-0.595***
	(0.312)	(0.235)	(0.137)
Risk Rating			
Low	0.178	1.093***	0.327**
	(0.390)	(0.320)	(0.162)
Average	0.535	0.832**	0.258*
	(0.337)	(0.362)	(0.152)
Above Average	0.689*	0.340	0.314*
	(0.356)	(0.403)	(0.167)
Not Known	0.192	1.231**	0.335*
	(0.442)	(0.488)	(0.191)
Employment Size			
1 – 9	-0.555**	0.415	0.252**
	(0.252)	(0.308)	(0.107)
10 – 49	-0.968**	0.192	0.821***
	(0.404)	(0.450)	(0.163)
50 – 99	-1.485***	0.465	1.010***
	(0.569)	(0.599)	(0.248)
100 – 249	-3.128***	1.643	1.432***
	(0.857)	(1.010)	(0.382)
Industry			
Manufacturing	-0.579	-1.331***	0.181
	(0.491)	(0.460)	(0.227)
Construction	-0.262	0.247	-0.117
	(0.425)	(0.433)	(0.204)
Wholesale/retail	0.453	-0.876**	-0.119
	(0.465)	(0.421)	(0.205)
Hotel & catering	0.554	-1.391***	-0.175
	(0.475)	(0.445)	(0.222)
Trans & Comms	-0.296	-0.728*	-0.244
	(0.477)	(0.442)	(0.234)
Business Service	0.284	-0.614*	-0.332*
	(0.444)	(0.373)	(0.200)
Health	0.830*	-0.566	-0.351
	(0.482)	(0.437)	(0.255)
Other services	0.586	-1.190***	-0.481*
	(0.433)	(0.455)	(0.252)
Legal Status			
Partnership	-0.080	0.679*	0.329
	(0.495)	(0.393)	(0.232)
LTD	0.569**	-0.431	0.174
	(0.224)	(0.268)	(0.129)
Firm Age			
1-2 years	0.476	-1.552**	-0.027
	(0.393)	(0.624)	(0.201)
2-5 years	-0.055	0.022	-0.302
	(0.437)	(0.726)	(0.212)
6-9 years	-0.496	-1.145*	-0.286
	(0.411)	(0.647)	(0.233)
10-15 years	-0.306	-1.802***	-0.252
	(0.425)	(0.685)	(0.219)
>15 years	-0.022	-1.696***	-0.111
	(0.417)	(0.641)	(0.204)
Region			
North East	0.334	-0.525	0.194
	(0.470)	(0.703)	(0.259)
York & Humber	-0.176	1.355**	0.344
	(0.452)	(0.533)	(0.213)
North West	-0.414	0.928**	0.311
	(0.538)	(0.381)	(0.240)
West Midlands	-0.362	0.803*	0.096
	(0.444)	(0.436)	(0.215)
East Midlands	0.226	2.171***	0.608***
	(0.447)	(0.533)	(0.215)
East England	-1.210**	0.640	0.715***
	(0.523)	(0.551)	(0.227)
Wales	-0.340	0.045	0.372
	(0.513)	(0.509)	(0.238)
South West	0.317	0.555	0.209
	(0.463)	(0.431)	(0.227)
London	-0.148	0.527	0.461**
	(0.472)	(0.414)	(0.209)
South East	0.162	0.426	0.618***
	(0.440)	(0.380)	(0.207)
N.Ireland	-0.998*	0.350	0.576**
	(0.546)	(0.561)	(0.235)
Other Controls			
ln(*Sales*)	0.454***	-0.055	-0.263***
	(0.139)	(0.116)	(0.071)

Sensitivity: Public
Sensitivity: Public

Profit	-0.089	0.605***	-0.131
	(0.195)	(0.222)	(0.104)
Fast Growth	1.109**	0.344	-0.011
	(0.435)	(0.379)	(0.269)
Export	-0.385		-0.645***
	(0.236)		(0.145)
AIMGROW			-0.305***
			(0.117)
Lambda	1.380**	-2.216**	2.222***
	(0.542)	(0.938)	(0.594)
Constant	-6.301**	2.819*	0.995
	(2.537)	(1.445)	(0.751)
N Obs	5,802	1,035	5,802
Censored N	1,035	955	4,767
Wald $\chi 2$	115.01***	149.73***	141.05***
Pseudo R2	0.195	0.324	0.088
Log likelihood	-19.655	-15.813	-144.605

* $p < .10$; ** $p < .05$; *** $p < .01$. Asymptotic robust standard errors reported. Weights applied. Base categories: *Survey Wave* = Q2 2020; *Sales Band* = £0 - £25k; *Risk Rating* = minimum; *Employment size* = 1; *Industry* = Primary; *Legal Status* = Sole proprietorship; *Firm Age* = 0 – 1 year; *Region* = Scotland. Model 1 selection equation = Prob (*Sought Finance*) in Table 2; Model 2 selection equation = Prob (*Offered Finance*) = Model 1; Model 3 selection equation = Prob (*Non-Applicants*) = 1 – Prob (*Sought Finance*). For each model, only coefficient estimates of step-2 outcome equations are reported. *Lambda* is the coefficient estimate of the inverse Mills ratio computed from the selection equation.

Sensitivity: Public
Sensitivity: Public