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Discouraged Borrowers: Evidence for Eurozone SME's

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Abstract

This study examines the decision by firm owners not to apply for intermediated debt due to a perception that their application will be rejected for a sample of small firms in 9 European countries- these are “discouraged” borrowers. Compared with firms that applied for bank loans, discouraged borrowers are smaller, younger, have declining turnover and an increasing debt to assets ratio. Transmission of macro effects through the banking system and the economic environment also leads to higher levels of discouragement. Higher regulatory quality results in greater borrower discouragement, indicating the importance of regulation and enforcement mechanisms for the efficient functioning of private debt markets. Codewords and classifications

Keywords

Entrepreneurial finance, SME, Discouraged borrowers, Eurozone

Introduction

Efficient supply of adequate investment finance to the small firm sector is a persistent policy concern and recurring theme in the SME literature (Cole and Dietrich, 2013). One view is that there is an inadequate supply of debt finance to the SME sector (Stiglitz and Weiss, 1981), whereas the polar opposite view contends overinvestment in excess of socially efficient levels (De Meza and Webb, 1987). Whilst it is important to ensure a supply of private sector credit to encourage investment, it is equally important not to fuel the over optimistic plans of entrepreneurs (Hayward et al., 2006). Efficient allocation of funds should, therefore, seek to ensure adequate investment finance for ‘good’ borrowers, and deny finance to ‘bad’ borrowers. This should result in greater amounts of finance at a lower cost for the former, and a reduction in loan applications from the latter. A primary obstacle in avoiding under/overinvestment is information asymmetries between lender and borrower, which lead to misallocation of credit (adverse selection) and potential misuse of funds (moral hazard). Although banks employ a number of lending techniques to advance finance to informationally opaque firms, a number of SMEs continue to experience financial constraints (Artola and Genre, 2011). A frequently cited factor for the inadequate supply of finance to ‘good’ borrowers is the rate of loan refusals, although relatively few applications are rejected (Fraser, 2004), and these rejections may be justified as not creditworthy (Freel et al., 2012). Notwithstanding this evidence, studies continue to concentrate on the issue of loan rejection, and this is reflected in policy responses which are typically concentrated on the supply side as governments attempt to promote rates of investment.

A more significant barrier to investment, however, may be the decision of the firm owner not to apply for intermediated debt because of fear of refusal (Levenson and Willard, 2000; Cavalluzzo and Wolken, 2005). Levenson and Willard (2000) and Freel et al. (2012) find that twice as many firms were discouraged from making a loan application as were rejected. In the case of uncreditworthy firms, self-selection of discouragement is not problematic as it adds to the efficient functioning of SME finance markets. By contrast, reluctance to apply for debt by firms with good credit prospects leads to sub-optimal levels of investment. We therefore adopt Kon and Storey’s (2003: 47) definition of a discouraged borrower as “...a good firm, requiring finance, that chooses not to apply to the bank because it feels its application will be rejected...”. Heretofore it was difficult to investigate this subject as, unlike loan refusals, discouragement is largely unobservable. Empirical studies have been facilitated by compilation of surveys such as the Investment World Bank-EBRD Business Environment and Enterprise Performance Survey (BEEPS), the Federation of Small Business Survey

(FBS), and the ECB Survey on the access to finance of SMEs (SAFE). Recent studies include Central and Eastern Europe (Popov, 2013), US (Han et al., 2009), UK (Freel et al., 2012) and underdeveloped economies (Chakravarty and Xiang, 2013).

Levels of borrower discouragement may be exacerbated by macroeconomic factors and events. In times of financial crisis, for example, borrower discouragement may be greater as increased pressures are potentially transferred through the banking system, resulting in a decreased supply of credit to SMEs (Popov, 2013). This can result in a credit crunch, at which time small businesses may be particularly vulnerable (Carbó-Valverde et al., 2009). A further issue is that discouragement in small firm owners may be increased even further in times of recession, as declining business conditions result in added liquidity pressure on SMEs. These interrelated issues have, as yet, not been empirically examined for small firms in the European Union. We address this lacuna by examining potential determinants of borrower discouragement in a number of European countries. We add to the literature in a number of ways. Firstly, we investigate potential firm characteristic determinants. We examine fundamentals such as changes in profitability, debt to assets ratio, and level of capital reserves. We add to the sparse literature on the effect of financial distress on firm owners' borrowing behavior by conducting an empirical examination of financial stress on the application decision. Secondly, we investigate the effect of macroeconomic factors on discouragement, including Gross Domestic Product, the level of financial distress in an economy, and the level of private sector credit. Thirdly, we examine the effect of regulatory and banking sector variables on levels of discouragement, specifically the quality of regulation, and the concentration of the banking sector. In a departure from the traditional supply and demand literature approach, we examine factors of (a) a difficult business environment, (b) a difficult financial environment, and (c) latent levels of discouragement simultaneously. Our study is therefore a novel investigation of subjective perceptual issues, which are likely at increased levels during periods of financial crisis. We aim to inform policy debate about intervention in SME financing markets, and whether such intervention is justifiable or needed.

Previous relevant literature

The burgeoning literature on SME financing focuses predominantly on issues of supply and demand for finance, commonly addressing the perennial question of whether there is adequate supply of finance to the sector. Studies can be categorized as microeconomic investigations of firm and owner characteristics of finance (Blackburn et al., 2013), and broader studies examining macroeconomic and structural issues (Djankov et al., 2007). These studies test theoretical predictions about the importance of country specific issues such as the

institutional and legal environment (Beck et al., 2011), and firm characteristics (Psillaki and Daskalakis, 2009), although it is rare for both to be included in the same study. Of particular interest for researchers is firms' success rate in applications for intermediated debt from financial institutions, and determinants of success or failure (Casey and O'Toole, 2014). There has been an increase in the number of these studies in the aftermath of the financial crisis, with a particular emphasis on how demand for investment finance has changed (Cowling et al., 2012; Mac an Bhaird, 2013). In the following sections we review empirical evidence from previous literature which has a significant impact on levels of investment in small firms, and is relevant when investigating perceptual issues.

Firm characteristics and financial conditions

The principal barrier to efficiency in SME lending markets stems from information asymmetries. The optimal solution is for full information on small firms, but the primary barrier to collecting this information is that it is costly and thus inefficient for financial institutions (Baas and Schrooten, 2006). Lack of full information may result in inappropriately allocated capital (adverse selection), or agency costs (Lopez-Gracia and Mestre-Barberá, 2013). Banks employ a number of lending techniques to safeguard against potential losses, including asset-based, financial statement, credit scoring and relationship lending. A firm's capacity to fulfill lenders' requirements is dependent on availability of resources, which is determined by the profile of the firm. Firm characteristics are, therefore, an important determinant of finance (Mateev et al., 2012). In general, larger, older firms are likely to have greater reserves than younger, smaller firms (Mac an Bhaird and Lucey, 2010). Additionally, older firms have established relationships with one or more banks (Freel et al., 2012), and these reputational effects result in easier access to bank debt (Diamond, 1989) because of reduced opacity over time. These borrowers are also more likely to apply for finance given past experience, as application costs (Kon and Storey, 2003) are likely to be relatively lower for this group.

A firm's external financing requirement is dependent on the availability of internal capital to finance positive net present value (NPV) investment projects. Firms with adequate financial reserves, and/or accumulating retained profits may not require external finance (Vos et al., 2007), or may be relatively confident of securing outside investment. Businesses experiencing financial distress will likely experience a much more difficult external financing environment than their well-resourced counterparts, notwithstanding age or size (Keasey et al., 2014). Financial pressure is often triggered by declining turnover, commonly due to external business conditions impacting negatively on trading. This, in turn, results in a decline in capital reserves, increasing debt to assets ratio, and increased financing needs (Pindado et al., 2006). Liquidity problems result in late payments,

leading to increased uncertainty, which increases financing constraints. Firms are therefore likely to have a greater need for increased amounts of external finance, but will have more difficulty in accessing the required amount. In addition, the financing requirement may be more intense because of liquidity pressures. This, in turn, impacts negatively on loan interest rates (Neuberger and R athke-D oppner, 2015), and increases the likelihood of bankruptcy (Ghosal and Ye, 2014). The impact is particularly severe on small firms, as they have a higher likelihood of financial constraint (Brancati, 2015). It may cause them to act in an unintended manner, as “...[distressed] firms seem to be disoriented and do not follow any pattern of debt policy, probably because they find numerous obstacles when adjusting their debt ratios and, more importantly, they can not appropriately react to their situation, given the pressure exerted on them by their lenders...” (Pindado et al., 2006: 388). Firms experiencing deteriorating business and financial conditions are therefore more likely to be discouraged from applying for bank loans, especially from institutions using financial statement based lending technologies or relationship lending. They are also more likely to perceive reluctance of banks to advance debtⁱ as they may perceive that their business and financing difficulties preemptively exclude them.

Macroeconomic and regulatory factors

Cross country variations in capital structure indicate the importance of macroeconomic and country-level factors in the availability and use of bank finance (Hall et al., 2004). In larger, more developed economies, SME loans constitute a much larger percentage of GDP than in developing countries (Ardic et al., 2012). Empirical evidence indicates that ‘as financial development is highly correlated with legal and institutional development’ (Beck et al., 2006: 946), private debt markets in developed countries are deeper, more sophisticated, have greater variation and have less opacity than in less developed economies (Beck et al., 2010). Additionally, firms in countries with a higher GDP per capita report lower financing obstacles (Beck et al., 2006). Evidence suggests that borrower discouragement is negatively related to economic development as measured by GDP, as “...developed economies are likely to have better informed banks, so that screening errors will be lower, bank applications higher and discouragement lower...” (Kon and Storey, 2003: 47).

The structure of legal, judicial and bankruptcy environments are important in order to ensure enforceability of contracts and the efficient functioning of financing markets (Beck et al., 2005; Hernandez-Canovas and Koeter-Kant, 2011). Countries with stronger creditor protection have deeper credit markets (Djankov et al., 2007), as poorly regulated financial markets suffer consequences of less competition, poor enforcement, and judicial inefficiency, which results in decreased access to credit (Jappelli et al., 2005). Smaller firms are particularly negatively affected from deficient financial, legal and enforcement structures and mechanisms (Beck et al.,

2005), and experience greater financing constraints as a result. Although Chakravarty and Xiang (2013) find little impact on borrower discouragement from regulatory factors for small firms in developing countries, Vitols (1998) and Wieneke and Gries (2011) stress the importance of regulatory quality as a context for firm credit. Greater regulation is beneficial to potential borrowers, as not only does it result in deeper and more efficient financial markets, but also ensures enforceability of contract and protects borrowers' interests (Beck et al., 2006).

Supply of investment finance to small firms is also determined by sovereign bond yields and the level of outstanding private credit in an economy. These factors operate through the credit channel and have an impact on the availability and price of credit. Increased sovereign bond rates have a direct effect on capital markets, and during financial crisis, turmoil in sovereign bond markets impacts negatively on the banking sector. This, in turn, may exacerbate a banking crisis (Blundell-Wignall, 2012). Sovereign bond yields influence the supply of bank finance through three channels (Holton et al., 2014), namely price, liquidity and bank balance sheets. Increased sovereign bond yields leads to increased rejection of bank loan applications, indicating that the real economy is significantly affected by turbulence in bond markets (Holton et al., 2014). The negative effect of increased sovereign bond yields is likely to be even greater on levels of borrower discouragement, as perception of additional pressure in the banking system further dissuades potential loan applicants.

The outstanding level of private sector credit has a significant effect on lending, and Holton et al. (2014) find that in countries with greater levels of private sector credit, small firms face higher loan application rejection rates and increased interest rates. This factor operates through the credit channel, and in times of financial crisis it exacerbates difficulties in private debt markets. This is further compounded when a financial crisis is preceded by a period of expanded credit, during which firms may become reliant on debt finance (Hughes, 1997), and accumulate large debt to assets ratios (Mac an Bhaird, 2013). Small firms may therefore proceed to deleverage (ECB, 2012), which consequently reduces demand for investment finance. There are also supply side effects, as banks may need to deleverage to satisfy capital ratios (Holton et al., 2014). If firms correctly interpret the potential debt overhang of their economy, they will have greater fear of loan application refusal and thus borrower discouragement will be higher.

Banking industry factors

The bank market power (BMP) hypothesis suggests that less competitive banking markets lead to lower credit availability and higher interest rates for borrowers. The alternative information hypothesis posits that greater competition in banking markets reduces the incentive for banks to invest in relationship banking, and therefore less competitive markets lead to greater credit availability (Carbó-Valverde et al., 2009). Greater competition in banking markets is hypothesized to result in greater access to credit for small firms, as they maintain more financing relationships in competitive banking systems (Mercieca et al., 2009), and borrower discouragement is greater when there are less financing alternatives (Kon and Storey, 2003).

In support of the BMP hypothesis, Beck et al. (2004) and Love and Martinez Peria (2012) find that increased banking concentration results in restricted access to finance, although this is mitigated in countries with better levels of economic and institutional development and a greater presence of foreign banks. By contrast, a number of studies find empirical evidence to support the information hypothesis. Kon et al. (2003) posit that the level of discouragement in an economy depends on the screening error of banks. A more concentrated bank industry should lead to less appearance of these errors, as fewer banks tend to have a more centralized, complete and continuous information about potential borrowers in an economy. Han et al. (2009) find that low risk borrowers are less discouraged in concentrated markets, and that the length of financial relationship is positively related with discouragement for high risk borrowers. Canton et al. (2013) also find that increased banking concentration leads to improved perceived access for bank credit, suggesting that banks' willingness to invest in soft information results in a positive perception of loan accessibility.

Interest rates charged by banks are used both as a screening mechanism and a signaling mechanism. Brown et al (2011) find that creditworthy firms are discouraged from applying for a loan because of high interest rates. They report significant cross-country differences, and note that high interest rates are the most significant factor for borrower discouragement in Eastern Europe, although this effect is mitigated for audited firms. Whilst high interest rates are used by banks as a screening mechanism, this is inefficient in the absence of complete information, and results in increased application costs for the 'good borrower' (Kon and Storey, 2003). Additionally, increased interest rates may not reflect a screening mechanism, but may be a result of higher financing costs for banks. Firms with positive NPV investment opportunities may therefore be discouraged by a higher interest rate, and may forego or postpone the investment opportunity.

In advancing credit, banks also take account of the extent of average recovery of credit under bankruptcy, which they seek to optimize. Bank recovery rates in default are significant, as banks are likely to charge higher interest

rates and/or seek greater collateral to mitigate the adverse effects of recovery rates (Davydenko and Franks, 2008). Recovery rates are higher for firms providing a higher level of collateral and ensuring seniority of debt, and thus vary by industry and size (Dewaelheyns and Van Hulle, 2008). Altman (2006) notes that recovery rates decline in economic downturns, although this should not result in greater discouragement for firms willing to provide adequate collateral.

Data and Methodology

Data and variables

Our sample is based on the “Survey on the access to finance of SMEs” (SAFE), which consists of a questionnaire administered to firms in the European Union, conducted on behalf of the European Commission (Directorate General Enterprise and Industry) and the European Central Bank (ECB). Data for this paper was extracted from the first five waves of the survey, from 2009 to 2011. Companies in the sample were randomly selected from the Dun & Bradstreet database of firms. The sample is stratified by firm size class, economic activity and countryⁱⁱ. The number of firms in each strata of the sample was modified to increase its accuracy by activity and size class. We include micro (1 to 9 employees), small (10 to 49 employees) and medium-sized firms (50 to 249 employees). For consistency and homogeneity, we only consider items included in all waves of the survey. The dependent variable is the question: ‘*With respect to Banks’ loans (either new or renewal): did you apply for them over the past 6 months, or not?*’, with a response choice: ‘1: Applied, 2: No, because of possible rejection, 3: No, because of sufficient internal funds, 4: No, for other reasons, 9: DKNA.’ Our analysis considers the ‘Applied’ and the ‘No, because of possible rejection’ groups, as the ‘No, because of sufficient internal funds’ group is in a precedent phase of the lending process and the factors that determine inclusion in this group may be different from those that determine a funding requirement. The dependent variable is thus binary, with the base case representing firms that applied for bank loans, and the alternative those that did not apply for fear of refusal. Independent variables are described in table 1, along with hypothesized relationships. The original database contained 21,610 firm–semester observations. Firms in the financial services, non-profit, and public administration sectors were omitted, as well as large and listed firms. Further observations were dropped due to missing data in one or more of the variables, yielding a final dataset of 6,287 firm level observations. Distribution of firms across countries is similar to that of the original database, as shown in Table 2. There are significant cross-country differences in non-application rates for fear of refusal, presented in table

3. Firms in Ireland have the greatest non-application rates because of fear of rejection (44%), followed by Germany (24%), Greece (19%), Belgium (18%), Austria (17%) and Spain (17%).

Insert tables 1 and 2 approximately here.

Methodology

Binomial logit regression is the most appropriate methodology to test models containing two categories of the dependent variable. This methodology requires one of the categories to be declared as the base outcome, and thus, the sign of the coefficients of the explanatory variables are interpreted as effect of the independent variable compared with the base variable. The category ‘*Applied*’ (for bank loans) is our base category. Potential determinants of borrower discouragement are grouped in categories and tested in turn. Our first set of firm characteristic variables includes the number of employees (SIZE) and age (AGE). Variables included to test the potential effect of trading and financial conditions on borrower discouragement are extracted from the survey and include change in turnover (Δ TURNOVER), change in the debt/assets ratio (FINSLACK), increase in need for bank loans (NEEDS), and change in the level of financial capital (CAPITAL). These variables are all based on objective information, although they may directly affect perception and discouragement. We also test cognitive issues, including perception of access to finance as most pressing problem (ACCESS), the perception of the firm about its credit history with lenders in the previous 6 months (CREDHISTORY), and perception of willingness of banks to provide loans (WILLING). These variables are presented in our core vector.

Firm = F(SIZE, AGE, Δ TURNOVER, FINSLACK, NEEDS, CAPITAL, ACCESS, CREDHISTORY, WILLING)

Macroeconomic variables tested in vector (2) include Gross Domestic Product (GDP), government bond yields (10YEAR) and supply of private sector credit (PRIVATECREDIT). Similar to Beck et al. (2006: 946), inclusion of country-level variables also “...constitutes a robustness test for the firm-level regressions that only controlled for country-specific effects, but not country-specific variables”, and are contained in our second vector:

Macro = M(GDP, 10YEAR, PRIVATECREDIT)

We include the regulatory variable ‘regulatory quality’ (REGQUAL) in vector (3).

Regulatory = R(REGQUAL)

Regarding the degree of concentration in the banking sector, we employ the Herfindahl-Hirschman index, which is measured as the sum of squares of all credit institutions according to total assets. (For robustness, we also tested banking concentration using the Lerner index (Dell'Ariccia, 2001), and found similar results). Our vector of banking industry variables therefore includes the rate of recovery under bankruptcy (BANKRUPTCY), the degree of concentration in the banking sector (HERFINDAL) and a measure of the prime rate of lending (BANKRATE). This is represented in vector 4:

$$Banking = B(BANKRUPTCY, HERFINDAL, BANKRATE)$$

Four sectoral dummy variables are included in all models, including industry (IND), construction (CON), trade (TRADE), and services (SER). Five time dummy variables are also included, representative of each iteration of the survey. Our 'omnibus' model can therefore be represented by:

$$Apply_t^i = \delta_0^i + Firm + Macro + Regulatory + Banking + Ind + Year + \xi_t^i$$

Although some of the variables appear related, tests for multicollinearity indicate that this is not a concern, as VIF factor values are below 5 in all cases.

Insert table 3 approximately here.

Determinants of borrower discouragement

Estimated coefficients and marginal probabilities for the logistic analysis are presented in tables 4 and 5 respectively. The firm vector is included for all regressions, along with industry, year and country dummies (base model). Macroeconomic, regulatory and banking vectors are introduced separately, with all vectors included in the 'omnibus' model.

Results for firm characteristic variables are generally consistent in direction, significance and, size across all models. As hypothesised, younger, smaller firms are more likely to be discouraged and less likely to apply for intermediated debt. Analysis of marginal probabilities in table 5 indicates that size is a relatively more important issue than age, suggesting that application costs (Kon and Storey, 2003) significantly contribute to discouragement. There are two important implications: firstly, smaller firms are at a relative disadvantage in applying for intermediated debt, as it is more costly for banks to collect information on them. Secondly, older firms are in a better position to alleviate information asymmetries, as they may have established banking relationships. Our findings confirm the stylised fact that older and larger firms are less likely to be rejected for

debt (Xiang et al., 2013). It is also consistent with the findings of Artola and Genre (2011) who suggest that younger and smaller firms suffer most when credit conditions dis-improve.

Variables related to the prevailing economic and financial status of firms in the sample indicate that those experiencing declining business and financial conditions experience greater discouragement. As hypothesized, falling turnover, an increasing debt to assets ratio, and decreasing capital reserves lead to an increase in discouragement. These factors are likely to be even more pronounced in an economic recession, as many firms experience liquidity pressure due to declining business conditions. This combination of results suggests that discouragement is procyclical and increases progressively over time as external business conditions manifest in financial pressure. It is at this juncture that small firms are most in need of financial support from banking institutions, particularly short-term sources of finance. The principal importance of these results is in how they impact on firm owners' perceptions, as they become pessimistic about the success of a loan application because of declining internal firm factors.

Insert table 4 approximately here.

Need for bank debt is negatively related to discouragement, i.e. the greater firms' needs, the less likely they are to be discouraged. This finding is not unexpected in the case of 'good borrowers'. A more interesting implication is that it may also indicate 'distressed bad borrowers'. For these firms, financial need may be so great that discouragement is replaced by an acute need for survival. Pindado et al. (2006: 387) posit that "...may be that, once the distressed situation becomes apparent, ex-ante insolvency costs cease to be a deterrent to the use of debt finance...". Unsurprisingly, firms perceiving access to finance as the most pressing problem are more likely to be discouraged than loan applicants. Marginal analysis indicates that there is a 5.4% greater probability of firms with this perception being discouraged from applying for debt. Firm owners' perceptions about banks' willingness to lend has a significant negative effect on levels of discouragement. Whilst this result is not unexpected, it has important implications, i.e. perceptions have real and tangible effects on financing the SME sector. Considered together, these results indicate that firms with an acute financing problem, perceiving an increasing hostile banking environment and a deteriorating credit history, are most discouraged in applying for intermediated debt. Negative perceptions may therefore exacerbate real economic and financial effects, and result in reduced investment.

Results for models including macroeconomic, regulatory and banking industry variables are provided in table 4, columns 2-5. The insignificant relationship of GDP per capita suggests that macroeconomic development is

relatively unimportant for borrower discouragement, confirming the finding of Chakravarty and Xiang (2013). Higher government bond yields (10YEAR) result in increased discouragement, suggesting that stress in the financial sector adversely affects SME demand for lending by transmission of higher sovereign yields through the credit channel. The ratio of private credit to GDP is negative, indicating that a higher ratio of private sector credit (to GDP) reduces the level of discouragement. This result may indicate an inertial effect, i.e. as firms realize that there is a greater supply of private credit, they may be more inclined to apply for bank debt, even when existing credit to the private sector is abundant. Although this result is contrary to the finding in Holton et al. (2014), it confirms the procyclical nature of intermediated debt markets (Ruis et al., 2009). Overall, these results suggest that macroeconomic effects are transmitted as prior censoring mechanisms for other variables, such as overall banking sector variables. Macroeconomic stress therefore translates into the SME financing environment via direct channels, particularly the banking sector, and may result in restricted amounts of lending and/or increased interest rates. Firm owners' experience or perception of these transmitted macro effects have a significant effect on the level of discouragement.

Increased regulatory quality is positively related with borrower discouragement. This result confirms findings from previous studies (Demigürç-Kunt et al., 2004), and emphasizes the importance of a robust regulatory environment. A highly developed regulatory system deters moral hazard, and thus discourages 'bad' borrowers. Heightened discouragement of 'bad' borrowers may result in less adverse selection, with a more efficient transfer of resources and lower interest rates for 'good' borrowers.

Finally, the banking industry has a significant effect on rates of borrower discouragement. We find that greater average recovery under bankruptcy reduces the likelihood of discouragement, although the marginal effects of this measure are small. The Herfindahl-Hirschman index, our proxy for competition in the banking sector, enters negatively, indicating that greater concentration in the banking sector reduces the likelihood of discouragement. Marginal analysis indicates that this results in a 24% decrease in the probability of firms being discouraged from borrowing. This finding supports the information hypothesis, and it indicates the importance of maintaining relationships with lenders for small firms (Chakravarty and Xiang, 2013). A more concentrated banking system results in a smaller number of banks for each firm, and so deeper relationships make information transfer between lender and borrower more fluent, leading to less discouragement. 'Good borrowers' are therefore less likely to be discouraged, and "...Discouragement [may thus be] an efficient rationing mechanism.." (Han et al., 2009: 415), particularly in concentrated markets. Whilst this is a generalisation, our analysis of country

differences indicates that the effect is stronger in countries where relationship banking is more prevalent. Previous studies suggest that interest rates charged by banks have an effect on loan application rates (e.g. Popov, 2013), although we find that the 6 month bank overdraft rate (BANKRATE) does not significantly impact rates of discouragement.

Insert table 5 approximately here.

Conclusion and Policy Implications

Investigating potential determinants of borrower discouragement, we provide first-time evidence of significant factors for small firms in 9 European countries, as well as confirming findings of previous studies (e.g. Canton et al., 2013; Freel et al., 2012). Our results provide further evidence about the nature and effect of information asymmetry, which is the principal issue in private debt markets. Firm specific characteristics are of primary importance in explaining borrower discouragement. Younger, smaller firms are more likely to be discouraged from applying for debt, which is consistent with the long evidenced difficulty of firms with this profile accessing investment finance. Borrower discouragement increases as internal firm financial conditions deteriorate. Financial and business factors have a real and significant effect in increasing discouragement, with a consequent dampening effect on investment, and also leading to a heightened perception that banks are unwilling to advance finance. Perceptions may therefore be self-perpetuating. There are, of course, exceptions. Need for bank debt is negatively related to discouragement, which may seem contrary to the above, but for firms in severe financial distress, survival is likely a stronger motivation than discouragement.

The banking sector also has a significant impact on borrower discouragement, which may be structural (concentration of the banking sector) or financial (recovery of credit under bankruptcy). We find less borrower discouragement in more concentrated banking sectors, which, in the absence of complete information, may be an efficient credit allocation mechanism. In more concentrated banking markets, banks have an incentive to invest in soft information, and therefore potential for screening error (Kon and Storey, 2003) is reduced. Similarly, firms have an incentive to maintain relationships with lenders (Hernandez-Canovas and Koeter-Kant, 2011), reducing the motivation for moral hazard, improving access to finance and reducing borrower discouragement. Our findings indicate that policy provisions to increase competition in the banking sector may be counterproductive, as consequent increases in loan application rates may be more than offset by increased inefficiency in debt markets. Adverse effects of inefficiencies will be greater for good borrowers, including higher costs of borrowing (Freel et al., 2012).

We find that increased regulatory quality results in greater borrower discouragement. As well as discouraging moral hazard, sound regulation leads to improved credit provision and conditions for good borrowers. A priority for governments seeking to improve the efficiency of SME financing markets is the provision of a sound regulatory and enforcement environment. Lenders are also more willing to advance finance when quick and efficient contract enforcement mechanisms are in place. An efficient regulatory infrastructure leads to increased average recovery under bankruptcy, which also serves to increase liquidity in financial markets.

Our findings confirm that borrower discouragement is a significant phenomenon, partly explained by firm, macroeconomic and banking characteristics. There are significant cross-country differences in discouragement across the European Union, indicating the need for further studies investigating the nature, extent and effects of borrower discouragement. In particular, future studies should explore cognitive aspects of discouragement, and effects in investment rates of small firms. Borrower discouragement is not problematic, per se, particularly if discouraged firm owners resemble potential borrowers likely to have loan applications refused. The group of most concern are discouraged borrowers who would likely have successful loan applications, although the appropriate policy response – if, indeed, one is required – is unclear. Policy attempts to support the small firm sector predominantly consist of supply side measures (e.g. The Small Business Act in the US, the Merlin agreement in the UK), although the efficacy of these programmes is undetermined. Our results indicate that governments should consider broader measures than solely increasing the supply of finance. One means of reducing discouragement in good borrowers is to alleviate barriers in monetary transmission mechanisms, which in turn will remove barriers to the efficient operation of SME credit markets.

Table1. Frequency distribution of sample by country.

Country	Frequency	Retained %	Original %
Austria	617	4.04	5.79
Belgium	633	5.06	5.53
Germany	1,917	15.25	18.42
Spain	2,111	22.52	18.03
Finland	500	2.39	4.88
France	2,356	19.76	17.86
Greece	569	6.39	5.95
Ireland	534	4.28	4.69
Italy	2,156	20.31	18.85
Total	11,393		

Table 1 shows the number of firm level observations by country in the final analyses, along with the percentage distribution retained, and the distribution by country of the original unfiltered dataset.

Table 2. Distribution of dependent variable by country.

Country	Applied (%)	Did not apply because of fear of rejection (%)
Austria	82.57	17.43
Belgium	81.96	18.04
Germany	76.07	23.93
Spain	83.36	16.64
Finland	94.55	5.45
France	85.48	14.52
Greece	80.92	19.08
Ireland	55.97	44.03
Italy	89.95	10.05
Total	82.70	17.30

Table 3. Description of dependent variables.

Variable	Description	Hypothesised effect on discouragement
<i>Firm specific variables</i>		
SIZE	Firm size as defined by the number of employees (categorical variable).	-
AGE	Firm age in years (categorical variable).	-
ΔTURNOVER	Change in firm turnover in the past 6 months (categorical variable).	-
FINSLACK	Change in firm debt/assets ratio over the past 6 months (categorical variable).	?
NEEDS	Increased/decreased need for bank loans in past 6 months (categorical variable).	?
CAPITAL	Increase/decrease in firm's own financial capital level in past 6 months (categorical variable).	-
ACCESS	Whether firm owner perceives access to finance as the most pressing firm level problem (dummy variable).	+
CREDHIST	Firm owner's perception of credit history in past 6 months (categorical variable).	-
WILLING	Firm owner's perception about bank's willingness to provide loans in past 6 months (categorical variable).	-
<i>Macroeconomic variables.</i>		
GDP	Natural log of Gross Domestic Product in current € terms.	-
10YEAR	Average ten year government bond yield (previous six months)	+
PRIVATECREDIT	Ratio of private sector credit to GDP, ratio variable (Source: World Bank).	+
<i>Regulatory variable.</i>		
REGQUAL	A composite measure of overall quality of regulation and enforcement (Source: World Bank Doing Business Database).	-
<i>Banking industry variables.</i>		
BANKRUPTCY	A measure of the extent of average recovery of credit under bankruptcy (Source: World Bank Doing Business Database).	-
HERFINDAL	Herfindahl-Hirschman index for credit institutions (Source: European Central Bank).	-
BANKRATE	Bank overdraft rate for new business, non-financial corporations, Annualised APR, average of 6 months of survey period (Source: Eurostat).	+

Table 4. Determinants of borrower discouragement – estimated binomial logit regression coefficients.

	Firm specific	Macroeconomic	Regulatory	Banking	Omnibus
SIZE	-0.639*** (-10.820)	-0.638*** (-10.790)	-0.616*** (-10.400)	-0.619*** (-10.370)	-0.600*** (-10.010)
AGE	-0.201*** (-4.260)	-0.201*** (-4.260)	-0.241*** (-5.050)	-0.201*** (-4.220)	-0.234*** (-4.870)
ΔTURNOVER	-0.084* (-1.680)	-0.078 (-1.530)	-0.127** (-2.510)	-0.103** (-2.030)	-0.150*** (-2.860)
FINSLACK	0.156*** (3.260)	0.151*** (3.140)	0.141*** (2.910)	0.141*** (2.910)	0.115** (2.350)
NEEDS	-0.493*** (-8.660)	-0.497*** (-8.700)	-0.507*** (-8.840)	-0.517*** (-8.960)	-0.540*** (-9.260)
CAPITAL	-0.227*** (-3.450)	-0.230*** (-3.480)	-0.204*** (-3.110)	-0.199*** (-2.980)	-0.204*** (-3.050)
ACCESS	0.500*** (6.050)	0.498*** (6.000)	0.516*** (6.180)	0.519*** (6.200)	0.537*** (6.330)
CREDHISTORY	-0.037 (-0.570)	-0.036 (-0.550)	-0.071 (-1.070)	-0.084 (-1.260)	-0.108 (-1.610)
WILLING	-0.757*** (-10.180)	-0.756*** (-10.060)	-0.752*** (-10.030)	-0.741*** (-9.890)	-0.742*** (-9.780)
GDP		0.900 (0.950)			0.464 (0.480)
10YEAR		0.035* (1.820)			0.049* (1.880)
PRIVATECREDIT		-0.001 (-0.850)			-0.004*** (-2.760)
REGQUAL			0.108*** (8.490)		0.111*** (7.300)
BANKRUPTCY				-0.021*** (-8.730)	-0.014*** (-4.760)
HERFINDAL				-1.424 (-1.470)	-2.650*** (-2.770)
BANKRATE				0.000 (-0.030)	0.009 (0.740)
CONSTANT	2.438*** (7.810)	2.326*** (5.930)	1.011*** (2.860)	3.712*** (10.520)	2.297*** (4.440)
N	6287	6287	6287	6287	6287
CHI2	644.03	647.99	716.87	725.33	782.80
MCFADDEN'S PSEUDO R2	0.124	0.125	0.138	0.140	0.151
LOGL	-2268.641	-2226.661	-2232.225	-2227.993	-2199.255

Variables are described in table 3. Z values reported in parentheses. *, ** and *** indicate statistical significance at 10%, 5% and 1% levels respectively.

Table 5. Marginal analysis.

SIZE	-0.055***
	-(10.490)
AGE	-0.021***
	-(4.880)
ΔTURNOVER	-0.014***
	-(2.860)
FINSLACK	0.010**
	(2.350)
NEEDS	-0.049***
	-(9.390)
CAPITAL	-0.019***
	-(3.060)
ACCESS	0.054***
	(5.770)
CREDHISTORY	-0.010
	-(1.610)
WILLING	-0.068***
	-(10.190)
GDP	0.042
	(0.480)
10YEAR	0.004*
	(1.890)
PRIVATECREDIT	0.000***
	-(2.770)
REGQUAL	0.010***
	(7.320)
BANKRUPTCY	-0.001***
	-(4.720)
HERFINDAL	-0.241***
	-(2.780)
BANKRATE	0.001
	(0.740)

Table 5 shows the average marginal probabilities for the omnibus regression.

Variables are described in table 1. P values are reported in parentheses,
*, ** and *** indicate statistical significance at 10%, 5% and 1% levels respectively.

References

- Altman E (2006) Default recovery rates and LGD in credit risk modeling and practice: An updated review of the literature and ⁱⁱⁱempirical evidence. New York University. http://www.econ.hku.hk/~yjtang/CRM/Altman2006_RecoveryRate.pdf \npapers3://publication/uuid/CF86CA93-5729-4465-83DB-364ACE58EC2C. (accessed 28 January 2015).
- Ardic OP, Mylenko N and Saltane V (2012) Access to finance by small and medium enterprises: A cross-country analysis with a new data set. *Pacific Economic Review* 17(4): 491–513.
- Artola C and Genre V (2011) Euro Area SMEs Under Financial Constraints: Belief or Reality? *CESifo Working Paper Series 34* CESifo Group Munich (2011).
- Baas T and Schrooten M (2006) Relationship Banking and SMEs: A Theoretical Analysis. *Small Business Economics* 27(2-3): 127-137.
- Beck T, Demirgüç-Kunt A and Maksimovic V (2004) Bank competition and access to finance: International evidence. *Journal of Money, Credit, and Banking* 36(3): 627–648.
- Beck T, Demirguc-Kunt A and Maksimovic V (2005) Financial and legal constraints to firm growth: Does firm size matter? *Journal of Finance* 60(1): 137–177.
- Beck T, Demirgüç-Kunt A, Laeven L and Maksimovic V (2006) The determinants of financing obstacles. *Journal of International Money and Finance* 25(6): 932–952.
- Beck T, Demirgüç-Kunt A and Peria M (2011) Bank financing for SMEs: Evidence across countries and bank ownership types. *Journal of Financial Services Research* 39(1): 35–54.
- Blackburn R, Hart M and Wainwright T (2013) Small business performance: Business, strategy and owner-manager characteristics. *Journal of Small Business and Enterprise Development* 20(1): 8 - 27.
- Blundell-Wignall A (2012) Solving the financial and sovereign debt crisis in Europe. OECD Journal: Financial Market Trends. doi:10.1787/fmt-2011-5k9cswmzsdwj.
- Brancati E (2015) Innovation financing and the role of relationship lending for SMEs. *Small Business Economics* 44(2): 449-473.
- Brown M, Ongena S, Popov A and Yeşin P (2011) Who needs credit and who gets credit in Eastern Europe? *Economic Policy* 26(65): 93-130.
- Canton E, Grilo I, Monteagudo J and Van Der Zwan P (2013) Perceived credit constraints in the European Union. *Small Business Economics* 41(3): 701–715.
- Carbó-Valverde S, Rodríguez-Fernández F and Udell GF (2009) Bank market power and SME financing constraints. *Review of Finance* 13(2): 309-340.
- Casey E and O’Toole CM (2014) Bank lending constraints, trade credit and alternative financing during the financial crisis: Evidence from European SMEs. *Journal of Corporate Finance* 27(2014): 173–193.
- Cavaluzzo K and Wolken J (2005) Small business loan turndowns, personal wealth and discrimination. *Journal of Business* 78(5): 2153-2178.
- Chakravarty S and Xiang M (2013) The international evidence on discouraged small businesses. *Journal of Empirical Finance* 20(1): 63-82.
- Cole R and Dietrich A (2013) SME credit availability around the world: Evidence from the World Bank's enterprise surveys. Available at <http://dx.doi.org/10.2139/ssrn.2043624>. (accessed 19 January 2015).
- Cowling M, Liu W and Ledger A (2012) Small business financing in the UK before and during the current financial crisis. *International Small Business Journal* 30(7): 778-800.
- Davydenko SA and Franks R (2008) Do bankruptcy codes matter? A study of defaults in France, Germany, and the U.K. *Journal of Finance* 63(2): 565–608.
- De Meza D and Webb DC (1987) Too Much Investment: A Problem of Asymmetric Information. *The Quarterly Journal of Economics* 102(2): 281-292.
- Demirgüç-Kunt A, Laeven L and Levine R (2004) Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation. *Journal of Money, Credit and Banking* 36(3): 593-622.
- Dewaelheyns N and Van Hulle C (2008). Legal reform and aggregate small and micro business bankruptcy rates: Evidence from the 1997 Belgian bankruptcy code. *Small Business Economics* 31(4): 409–424.
- Diamond DW (1989) Reputation acquisition in debt markets. *Journal of Political Economy* 97(4): 828-862.
- Djankov S, McLiesh C and Shleifer A (2007) Private credit in 129 countries. *Journal of Financial Economics* 84(2): 299–329.
- European Central Bank (2012) Survey on the access to finance of SMEs in the Euro area - October 2011 to March 2012, European Central Bank, April 2012.
- Fraser S (2004) Finance for small and medium-sized enterprises: A report on the 2004 UK Survey of SME Finances. CSME, University of Warwick. <http://www.wbs.ac.uk/downloads/research/wbs-sme-main.pdf>. (accessed 19 November 2014).
- Freel M, Carter S, Tagg S and Mason C (2012). The latent demand for bank debt: Characterizing “discouraged borrowers”. *Small Business Economics* 38(4): 399–418.
- Ghosal V and Ye Y (2015) Uncertainty and the employment dynamics of small and large businesses. *Small Business Economics* 44(3): 529-558.

- Hall G, Hutchinson P and Michaelas N (2004) Determinants of the capital structures of European SMEs. *Journal of Business Finance and Accounting* 31(5/6): 711-728.
- Han L, Fraser S and Storey DJ (2009) Are good or bad borrowers discouraged from applying for loans? Evidence from US small business credit markets. *Journal of Banking and Finance* 33(2): 415-424.
- Hayward M, Shepherd D and Griffin D (2006) A hubris theory of entrepreneurship. *Management Science* 52(2): 160-172.
- Hernandez-Canovas G and Koeter-Kant J (2011) SME financing in Europe: Cross-country determinants of bank loan maturity. *International Small Business Journal* 29(5): 489-507.
- Holton S, Lawless M and McCann F (2014) Firm credit in the Euro area: A tale of three crises. *Applied Economics* 46(2): 190-211.
- Hughes A (1997) Finance for SMEs: A U.K. perspective. *Small Business Economics* 9(2): 151-166.
- Jappelli T, Pagano M and Bianco M (2005) Courts and banks: Effects of judicial enforcement on credit markets. *Journal of Money, Credit, and Banking* 37(2): 223-244.
- Keasey K, Pindado J and Rodrigues L (2014) The determinants of the costs of financial distress in SMEs. *International Small Business Journal*, 2014(April), 1-20.
- Kon Y and Storey DJ (2003) A theory of discouraged borrowers. *Small Business Economics* 21(1): 37-49.
- Levenson A R and Willard K L (2000) Do firms get the financing they want? Measuring credit rationing experienced by small businesses in the U.S. *Small Business Economics* 14(2): 83-94.
- Lopez-Gracia J and Mestre-Barberá R (2015) On the relevance of agency conflicts in SME debt maturity structure. *Journal of Small Business Management* 53(3): 714-734.
- Love I and Martinez Peria M (2012) How bank competition affects firms' access to finance. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2127999. (accessed 02 December 2014).
- Mac an Bhaire C (2013) Demand for debt and equity before and after the financial crisis. *Research in International Business and Finance* 28(2013): 105-117.
- Mac An Bhaire C and Lucey B (2010) Determinants of capital structure in Irish SMEs. *Small Business Economics* 35(3): 357-375.
- Mateev M, Poutziouris P and Ivanov K (2012) On the determinants of SME capital structure in Central and Eastern Europe: A dynamic panel analysis. *Research in International Business and Finance* 27(1): 28-51.
- Mercieca S, Schaeck K and Wolfe S (2009) Bank market structure, competition, and SME financing relationships in European regions. *Journal of Financial Services Research* 36(2-3): 137-155.
- Neuberger D and Rätthke-Döppner S (2015) The role of demographics in small business loan pricing. *Small Business Economics* 44(2): 411-424.
- Pindado J, Rodrigues L and De la Torre C (2006) How does financial distress affect small firms' financial structure? *Small Business Economics* 26(2): 377-391.
- Popov A (2013) Monetary policy, bank capital and credit supply: A role for discouraged and informally rejected firms. *ECB Working Paper Series*, European Central Bank: 1593.
- Psillaki M and Daskalakis N (2009) Are the determinants of capital structure country or firm specific? *Small Business Economics* 33(3): 319-333.
- Ruis A, Van Stel A, Tsamis A, Verhoeven W and Whittle M (2009) Cyclicity of SME finance, EIM Business and Policy Research, Brussels. http://ec.europa.eu/enterprise/newsroom/cf/_getdocument.cfm?doc_id=3127. (accessed 11 February 2015).
- Stiglitz JE and Weiss A (1981) Credit rationing in markets with imperfect information. *The American Economic Review* 71(3): 393-410.
- Vitols S (1998) Are German banks different? *Small Business Economics* 10(2): 79-91.
- Vos E, Jia-Yuh Yeh A, Carter S and Tagg S (2007) The happy story of small business financing. *Journal of Banking and Finance* 31(9): 2648-2672.
- Wieneke A and Gries T (2011) SME performance in transition economies: The financial regulation and firm-level corruption nexus. *Journal of Comparative Economics* 39(2): 221-229.
- Xiang D, Worthington AC and Higgs H (2014) Discouraged finance seekers: An analysis of Australian small and medium-sized enterprises. *International Small Business Journal*. Epub ahead of print 21 January. DOI: 10.1177/0266242613516138

ⁱ In recessions, companies demand for debt is lower in any case as firms may not just have lower quality of investment opportunities but also will act to pay down existing debt. Thus there is a procyclical nature to the application-lending dyad of decisions.

ⁱⁱThe four largest euro area countries Germany, Spain, France, and Italy have a larger number of observations. Within these the survey is representative of the distribution of firms, but not necessarily for other countries.