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Scared away? - discouraged borrowers and capital market information

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The demand for external finance is articulated through applications to financial institutions and is displayed in the statistics on e.g. bank lending, venture capital investments etc. However, an unarticulated part of demand is the part of entrepreneurial firms who abstain from applying due to anticipation that their application will be rejected; these firms are often denoted 'discouraged borrowers'. Using survey data from two waves of surveys we do the first study on discouraged borrowers in Denmark. We test the hypothesis that characteristics of firms such as their age, size, and industry may impact their likelihood of being discouraged from entering the capital markets in the first place. We discuss if the self-perception of firms regarding their development is a stronger predictor of discouragement than the objective firm characteristics. We find that the general level of discouraged borrowers in Denmark is comparable to other European countries, although slightly above these. Firm characteristics do not show out strongly in our results. We find that the self-perception of firms is a stronger predictor of discouragement than firm characteristics. We contribute to a better understanding of the demand side of financing of entrepreneurship and innovation. The study is valuable in pointing to the importance of behavioral factors in the further development of the research in this area.

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The demand for external finance is articulated through applications to financial institutions and is displayed in the statistics on e.g. bank lending, venture capital investments etc. However, an unarticulated part of demand is the part of entrepreneurial firms who abstain from applying due to anticipation that their application will be rejected; these firms are often denoted 'discouraged borrowers'. Using survey data from two waves of surveys we do the first study on discouraged borrowers in Denmark. We test the hypothesis that characteristics of firms such as their age, size, and industry may impact their likelihood of being discouraged from entering the capital markets in the first place. We discuss if the self-perception of firms regarding their development is a stronger predictor of discouragement than the objective firm characteristics. We find that the general level of discouraged borrowers in Denmark is comparable to other European countries, although slightly above these. Firm characteristics do not show out strongly in our results. We find that the self-perception of firms is a stronger predictor of discouragement than firm characteristics. We contribute to a better understanding of the demand side of financing of entrepreneurship and innovation. The study is valuable in pointing to the importance of behavioral factors in the further development of the research in this area.

1 Introduction

Vivid capital markets are particularly important in the financing of innovation and entrepreneurship. Hence, financial constraints on firm development are likely to have adverse effects on economic dynamics at both the firm level and at the level of the economy (Botazzi et al., 2014). Through their decision to whom to provide capital and to whom not, financial institution such as banks and stock markets represent the major external ex-ante selection device, every innovating firm and project has to face (Dosi, 1990, Aoki and Dosi, 1992). This selection mechanism has, however two faces. First, financial institutions receive applications that are assessed and selected/rejected. Another, less discussed and (perhaps related) less visible selection mechanism is the self-selection that firms do in their decision-making regarding whether to apply for external funding or not.

Traditionally, financial constraints are said to stem from asymmetric and imperfect information (Stiglitz and Weiss, 1981, Berger and Udell, 2001, Meyers and Majluf, 1984). Imperfect markets make banks and other financiers in need of gathering firm specific soft and private information for a proper assessment of creditworthiness. The majority of the literature discusses if banks got it right. However, there exists another side of information asymmetry on the part of the firm who assesses the likelihood of successfully applying for finance but cannot know a priori if the application will succeed, which is much less discussed in the literature.

The fear of rejection may discourage firms, or more precisely their leaders, to enter the credit application process in the first place, despite an unfulfilled desire for additional finance. In the literature such firms are termed ‘discouraged borrowers’¹. This fear may be justified or not. In the case where the credit application would have been turned down anyway, discouragement represents an effective self-constraining mechanism, and such firms are denoted as ‘appropriate discouraged borrowers’ (Freel et al., 2012). In the case of firms who would have been accepted at the loan² market but did not en-

¹ The term ‘discouraged borrowers’ is a phrase borrowed from private consumer credit literature (e.g. Jappelli, 1990), but the general idea was also used even earlier, in labor market studies to characterize those individuals who do not apply for jobs due to expectations of being rejected (e.g. Finegan, 1981).

² The majority of studies refer to ‘borrowers’, ‘credit’, and ‘loan markets’ indicating that the phenomenon is confined to firms in need of debt. However, firms can also be discouraged seeking for equity finance (Xiang et al., 2014)., thus in the present study we ask firms about ex-

ter due to discouragement, an 'inappropriate discouraged borrower' situation occurs. Reasons therefore are likely to be subjective in nature, thus to be rooted in the firms' perceptions of own performance as well as the banks' evaluation criteria. The subjective perceptions thus relates to both how managers project the future economic performance of firms and to their beliefs in convincingly conveying this information and projection to bank managers. The additional asymmetry and uncertainty related to radically innovative projects and firms amplify this challenge.

On this background, the objective of this study is threefold. Firstly, we intend to investigate how the demand for external finance is affected by a combination of objective, firm specific factors, and subjective performance assessment factors. The former relates to the characteristics of firms. The latter relates to expectations to future development for the firm itself. Our attempt is to identify single firm characteristics or systematic combinations of them leading to a disproportional likelihood of discouragement but also to investigate if these characteristics are stronger predictors of discouragement than the perceived economic development. In doing so we follow Freel et al. (2007, 2012) in trying to identify firms who are likely to be discouraged from entering the capital markets, but include other characteristics variables than those traditionally used (age, size, industry).

Secondly, we relate discouragement with the extent and type of the firms' innovation activities. Thereby we contribute to a better understanding of the endogenous dynamics of financing of entrepreneurship and innovation, an area which is generally under-researched (Hall, 2010, Hall and Lerner, 2009) especially regarding the demand side of the equation.

Thirdly, the vast bulk of literature on the discouraged borrower has hitherto been focused on the US and the UK contexts. It has also primarily been done in a context with economic progress whereas there are few studies during the crisis. With our empirical setting we follow the concluding remarks by Kon and Storey (2003) and Charakverty and Xiang (2013) when they call for more empirical work on the extent and scale of discouraged borrowers, the latter source also calling for more studies in Western Euro-

ternal finance broadly, not just debt. Nevertheless, we most often refer to 'borrowers' to comply with the terminology in the literature.

pean countries after the onset of the financial crisis. Furthermore, to the best of our knowledge, we provide the first Danish study on discouraged borrowers³.

The inexpedient phenomenon of ‘inappropriate discouraged borrowers’ potentially has implications regarding missed opportunities for firms to pursue their objectives of investments and growth. Thus, if this is a pervasive phenomenon it is likely to have deterrent effects on overall economic growth. Implications for financial institutions are that they will not only miss out on business opportunities (the share of inappropriately discouraged borrowers), they also will have difficulties in fine-tuning their credit assessment tools when all demand is not surfaced. Moreover, policy implications would be that the current paradigm of supply side initiatives for enhancing access to capital should be supplemented with new types of demand side initiatives other than those that are currently in the capital market policy toolbox.

We use data from two waves of a survey on discouraged borrowers in a region in Denmark conducted in 2012 and 2013, including 358 unique firms which make up a total of 692 observations. We ask firms specifically on the discouraged borrower phenomenon, but since the data also contains information on expressed financial needs of the participants, we are able to also consider factors influencing the general demand for external finance.

We find that the firm characteristics related to discouraged borrowers as stipulated in the literature do not show out strongly in our results. For example, the prominent explanatory variable *firm age* shows no, *firm size* only modest statistical significance in predicting discouragement. In contrast, bad self-perceived financial performance as well as high levels of radical innovation activity of the firm show to be good predictors of discouragement. We furthermore find that the firms who believe in the long term prospects of the firm and therefore invest in capacity building are less discouraged to apply for finance. These results indicate that the discouraged borrower phenomenon is stronger related to individual, subjective perceptions by the management than to the objective characteristics and type of firm. We finally find that the general level of discouragement of borrowers in Denmark is on par with those found in other European country studies, although slightly above these.

³ The ECB Access to Finance Survey, SAFE, (see section 2) includes statistics on discouraged borrowers in a number of European countries but does not include Danish figures. Among the Nordic countries only Finland is part of the survey.

The remainder of the paper is structured as follows. In section 2 we first survey the existing literature with respect to the earlier studies on discouraged borrowers. Secondly, in section 3, we develop our hypotheses. The empirical strategy, data, variables and results are elaborated in section 4, before discussing the results and summing up in section 5.

2 Literature Review

2.1 Financial constraints and demand for capital in general

Imperfections in the capital market stemming from asymmetric information and adverse selection problems has for long been realized and acknowledged by scholars and has entered economic textbooks as a basic foundation for explaining hindrances to a smooth operating of financial markets (Arrow, 1962, 1973; Akerlof, 1970). This discussion has been mainly about firms that get directly rationed by financial institutions by either rejecting their loan application or by increasing the risk premium for certain types of firms. Seminal theoretical works on this issue are the models developed by Stiglitz and Weiss (1981 and subsequent work).⁴ Their model leads to undersupply of capital even if there is a demand and even if there is credit available. Some borrowers are restricted from credit even if willing to pay any risk premium. The demand is taken as given, that is, firms will demand credit, and articulate this demand, if it is available, although access to it may be restricted. When assuming all credit demand is articulated in the market the screening procedures can be optimized over time. The literature on discouraged borrowers generally challenges this often used assumption.

Generally, the demand side of the financial constraints discussion is under-researched. Some financial literature does, though, also consider the demand side, such as the pecking order theory of capital choice and the capital structure theories. The former posits that demand for different types of capital will be prioritized because the cost of capital increases with asymmetric information. Therefore firms prefer internal funds, and if external finance is needed, debt is preferred over equity (Myers and Majluf,

⁴ In a popular alternative model, De Meza and Webb (1978) come to the opposite conclusion. Here, with increasing information asymmetries banks cannot identify bad borrowers and thus provide an oversupply of capital.

1984). The latter theory was originally (Modigliani and Miller, 1958) occupied with why the capital structure of the firm is irrelevant to its valuation, however, later theories have argued that firms are indeed very conscious about the effects of demanding different types of capital.

Regarding the interplay of firm characteristic and financial constraints, larger and older firms are often said to have better access to internal as well as external finance (e.g. Murray, 1999). Reasons are less concern by financial institutions about agency costs, and reputational advantages. They are also closer to the financial sector in culture and logic as they more often have specialized financial departments and more often have long-term relationships with banks. This relationship increases not only their good will at banks but also their knowledge of lending criteria and sense of what are realistic proposals and requirements to applications, which in turn of course will impact on to which extent firms are likely to misjudge capital markets' valuation of their applications⁵.

2.2 The extent and characteristics of the discouraged borrower phenomenon

As pointed out above, the pecking order and more generally, capital structure theories do consider demand side issues. However, lately more nuanced analyses of demand have appeared pointing out that indeed the demand may be restricted not only by financiers but also by firms themselves.

One branch of literature on this deals with 'investment readiness'. Generally, it posits that especially entrepreneurs and new, small firms are not very good at qualifying their demand in terms of preparing the business plan; presenting their business; and knowing where to target their demand, i.e. which financial institutions to approach (Mason, 2009)⁶. This deficiency in capabilities in preparing, articulating, and directing the demand has led to a number of policy initiatives to enhance investment readiness with entrepreneurs (Mason and Harrison, 2001, 2004) . We focus the remainder of the pa-

⁵ This has caused some studies to use the capital market traditions regarding relationship banking as possible explanatory factor (Chakravarty and Xiang, 2013 and Chakravarty. and Yilmazer, 2009)

⁶ Mason and Stark (2004) find that there are differences in what different investors, in their study venture capital firms, banks, business angels, look for in a business plan. Therefore it is important to not just be skillful in presenting and drafting a business plan, but also to articulate the demand in a manner that match the type of investor that entrepreneurs want to direct the application to.

per on a step even prior to this. Whereas the majority of the literature assume that firms will demand credit if they have a need there are firms who have needs but nevertheless decide not to enter the application process, as mentioned in the introduction, they are discouraged to do so.

Generally, the literature on discouraged borrowers is quite young. Even if this is a difficult issue to research with precision this is an up to now neglected issue, which has started to receive attention from academics. We mentioned above a number of possible implications of the discouraged borrower phenomenon, arguing that it is potentially an important problem. It is, though, only important if it applies to a non-negligible share of the firms. Earlier studies may provide us with an idea of how many firms we are typically talking about, and what are characteristics of discouraged borrowers.

Utilizing data from the US national survey of small businesses, Levenson and Willard (2000) find twice as many businesses with unfulfilled desire for credit than those who actually applied for a loan and were rejected. In other words, the discouragement of applying at all means that actual demand is much larger than applications that were actually either accepted or rejected. Around 4% of their sample are found to be discouraged. To the best of our knowledge, Cavalluzzo et al. (2002) are the first who in further detail discuss the subgroup of credit demanding firms, who do not apply for a loan at all because they anticipate their application to be turned down. They report that a minority business operators are less likely to have their credit needs met in general, and in particular are discouraged to apply for loans at all. They also claim that near half of small firms in their sample who were in need of finance did not apply for fear of rejection. Financial characteristics and credit history are found to impact the level of discouragement.

Kon and Storey (2003) likewise discuss in detail the phenomenon of the discouraged borrower, which they define as “a good firm, requiring finance that chooses not to apply to the bank because it feels its application will be rejected” (p. 47). In their model, discouragement is influenced by (i.) screening errors of the bank, (ii.) scale of application costs, and (iii.) interest rate differential between the loan and alternative sources of finance. Their work was specifically directed towards estimating the scale of the problem. Additionally, their objectives was to consider theoretical propositions on discouraged borrowers. Among these propositions is the idea that the level of discouraged borrowers is likely to vary between different countries (Chakravarty and Xiang, 2013).

Han et al. (2009) examine if discouragement is an effective self-rationing mechanism that mainly affects 'bad borrowers'. Identifying 'bad borrowers' through their Dunn and Bradstreet (D&B) scores, they report that riskier borrowers are more likely to be discouraged, especially in concentrated banking markets, indicating the self-selection mechanism to work, even if not perfect.

Chakravarty and Yilmazer (2009) provide a multistage model which emphasizes the role of the lender-borrower relationship, taking potential discouragement into account. They conclude that the strength of this relationship decreases discouragement. Moreover financial characteristics and the time period that current management has been operating has a bearing on decisions to apply for credit.

Chakravarty and Xiang (2013) study discouraged borrowers in a range (10) of developing countries. Using World Bank survey data they find that characteristics of firms matter – larger, older firms are less likely to be discouraged. This is influenced heavily by the level of competition in the economy and by the strength of relationships between firms and financial institutions.

Freel et al. (2012) investigate discouraged SMEs in the United Kingdom, considering the characteristics of the entrepreneur, the characteristics of the firm and its strategic focus. In the context of the present paper this study is important because it also add behavioral variables to the characteristics of discouraged borrowers. Their operationalization of these variables is the business strategy of the firm as reflected in respondents' answers to a range of questions on priorities regarding what determines the company's competitive strength, including quality, innovation, and costs. They find that indeed discouraged borrowers are different from other firms in their sample along the strategy dimension, the sector, and relationship with banks. Thus, they find firms operating in the knowledge intensive service sectors, planning for fast growth, and applying a low cost strategy are more likely to be discouraged. It is also affecting the degree of discouraged borrowers (downwards) if the lending criteria of banks are transparent and common, accessible knowledge.

Sánchez-Vidal et al. (2012) is probably one of the most comprehensive cross-country studies on the extent of the discouraged borrower phenomenon. Moreover, they add to the traditionally used firm characteristics variables, by incorporating not only institutional and regulatory variables, but also cultural factors (to some extent also the degree of relationship banking traditions in the economy can be viewed as a cultural phenomenon). Their study is closely in line with Holten and McCann and uses the same data set

(European Commission SAFE-data). Cultural variables are derived from a typology developed by Hofstede. These cultural variables impact only slightly in their model. They furthermore find that the total level of discouraged borrowers across the whole sample of 9 Western European countries (Austria, Belgium, Germany, Spain, Finland, France, Greece, Italy, and Ireland) in the period 2009-2011, covering 5 waves of the survey, is 7.94 %. The majority of countries are in the range of 4.92% to 9.33%. Three countries have levels outside this range: Finland (1.20%), Greece (11.78%), and Ireland (20.97%). The survey data cover almost all EURO-zone countries. The data show that the total level of discouraged borrowers across the whole sample is 7 % and has remained relatively stable around this figure. The majority of countries are in the range of 4% to 10%, with the exception of Finland and Austria well below, and Greece and Ireland well above this range. The results for Greece and Ireland most likely reflect the difficult situation in the financial sector in these countries.

Most recently, Fastenbauer and Robson (2014) conducted one of the rare qualitative studies, using in-depth interviews with 12 UK and 13 Austrian entrepreneurs. They report discouragement to be a temporary rather than a permanent condition, mostly occurring in business that yet not reached maturity or declined from a level of stability. They also find strong relationships with banks to increase 'appropriate discouragement', since firms are already signaled if they qualify for credit in advance of a formal application

In sum, even if the relative weights of explanatory factors vary across the studies reviewed above, they generally report that discouragement is more likely in firms that are (i.) young, (ii.) small, (iii.) knowledge based, (iv.) operating in competitive markets, and (v.) maintain less and weaker relationships to banks. The empirical literature has primarily been quantitative and found that between 4 and 10 % of firms is the typical share of discouraged borrowers in the economy.

2.3 Reasons for Discouragement Costs of Rejection

There may be different reasons for discouraged borrowers to believe that their application would be unsuccessful, hence making them abstain from applying. The 'strongest' version of these reasons is that the borrower expects the application to be rejected. Another version of these reasons is that the terms (interest rate, collateral requirements) of the loan are likely to be unacceptable. Even if interest rates are often negotiable the level of interest rate is transparent a priori. Likewise, the lending criteria, in-

cluding requirements to collateral, are often transparent at least to some degree. A third version is that the application procedure as such is deemed too demanding in terms of the time and effort to establish complicated contractual arrangements; the underlying information such as a business plan may be seen as requiring too much time and effort; and the process of pitching and presenting the purpose of the application may be assessed troublesome and difficult. The literature on discouraged borrowers has until now not surveyed if reasons for not entering the loan markets relates to one or more of these three types of explanations.

A small part of the literature has also pointed out that there are other types of costs associated with application, including also psychological (Kon and Storey, 2003). The fear of rejection relates often to a desire to avoid criticism, which a rejection is often equalized to. Financial institutions evaluate the firm and its prospects but also the abilities of the management team. Hence, a rejection is not only about financial key figures but also reflect the way the financial institution see the personal capabilities of the manager(s). It could be added that in principle financial institutions should not forward information regarding turned down applicants amongst them, and there is inherently also asymmetric information in-between banks as well, meaning that banks cannot assess perfectly the information on borrowers coming from other financial institutions, similar to the information problems associated with assessing entrepreneurs. Nevertheless, there is likely to be some degree of transparency in the capital markets, therefore firms might fear that information on unsuccessful applications will be distributed in the market, which will negatively affect their reputation. The negative effect from rejection on reputational capital is likely to be sticky and affect future decisions to apply for finance.

3 Hypotheses Development

3.1 The characteristics of the Discouraged Borrowers

Young and small firms are said to be more dependent on external sources of capital, since their ability to finance daily business, expansion and development activities with internally accumulated profits is relatively more constrained. Due to the more severe information asymmetries and potential moral hazard problems young, small firms may face increased costs of external capital (Hall, 2010). With given demand for external

finance, we follow prior literature pointing out that young and small firms are likely to show a higher tendency to be discouraged (Chakravarty and Xiang, 2013; Freel et al., 2012; Cavalluzzo et al., 2002). Reasons for not entering the credit application process therefore might be (i.) the small, young firm recognize that such firms are characterized by high asymmetric information, which hamper the ability of financiers to assess creditworthiness (Berger et al., 2001). (ii.) Young, small firms most often are relatively inexperienced with the process of sourcing in external capital and moreover have limited track record, collateral, and reputational capital. Hence, they face relatively high efforts to prepare and provide the necessary information to financiers. (iii.) Finally, as opposed to large, well-established firms the young, small firm expect lacking confidence due to high power distance between firm and financier.

HYPOTHESIS 1:

Young and/or small firms will show a higher likelihood of being discouraged to apply for external finance.

Despite the arguments for firm characteristics influencing the discouragement of potential borrowers, the roots for financial discouragements lay in the firm's subjective perception that credit would not be granted anyhow, or if it is available then to unacceptable costs and terms. This believe is, in turn, reliant on the knowledge of bank lending criteria and –practices and on the belief in the ability of the management team to convey in a convincing manner the information and expectations regarding the prospects of the firm.

From a societal perspective it is important if this perception capture the reality properly. If that is the case, financial discouragement represents an effective self-constraining mechanism (Han, Fraser, & Storey, 2009), which prevents the preparation and assessment of anyhow unsuccessful credit applications. This is the case if (i.) the firm's self-assessment is correct, (ii.) it can be communicated completely and unbiased to the financier, and (iii.) the firm knows and understands the creditworthiness assessment routines of the financiers. All three conditions are related to the information efficiency of financial markets. To put the efficiency of the discouragement mechanism, derived by the overall market efficiency, to a test we posit that:

HYPOTHESIS 2:

A firm's likelihood to be discouraged to apply for finance decreases in case of a positive self-assessed perception of its current and expectation of future economic performance, and increases in case of negative perception and expectation.

However, this only holds conditional to a minimum level of documentation and accounting transparency that allows to convincingly prove the economic performance to external financiers (Kon and Storey, 2003).⁷ Thus, even well performing small and young firms might realize that the asymmetric information problem caused by their high financial opacity (Berger et al. 2001) will prevent them from getting access to external finance at all, or only when undertaking great efforts to gather and prepare relevant data. We therefore expect the efficiency of financial discouragement as a self-constraining mechanism to be weaker for small and young firms and posit that:

HYPOTHESIS 3:

The relationship between a firm's self-assessed performance and the likelihood of being discouraged is moderated by its size and age, such that the relationship is weaker for small and young firms.

Finally, we incorporate the purpose of credit needs differentiating between credit for investment and working capital. To the best of our knowledge, no other studies incorporate the purpose of the credit.⁸ We argue as follows for the existence of a relationship between realized and planned investments, and financial discouragement:

Positive short term changes in economic profitability have positive effects on increasing confidence and credibility among firms. It is likely that these will spill-over to long-term prospects and expectations indicated by an ambition of firms to not only apply for working capital but also for capital for capacity expansion. Thus, if an increase of short-term profitability and other economic variables lead to expectations of long-term increases in capacity then the need for external capital is likely to increase. Because of this increased confidence we would expect the confidence to spillover to increased belief in successfully convincing financiers to meet the demand for credit. In other words we see need of investment capital as an indicator of positive long-term prospects.

HYPOTHESIS 4:

Firms are less likely to be discouraged from borrowing if they have needs for financing investment purposes in the firm compared to need for working capital.

⁷ Related, Chakravarty and Xiang (2013) incorporate an 'AUDIT' variable measuring if firms had their financial statements verified by an external auditor. In the majority of the countries studied they find significant differences between discouraged and non-discouraged borrowers on this variable, indicating that external auditing reduces discouragement.

⁸ Xiang et al. (2014) incorporate both debt and equity but has nevertheless little on the purpose of finance.

3.2 The extent of the Discouraged Borrower phenomenon in Denmark

Finally, since we provide the first analysis on the phenomenon in Denmark, our additional aim is to analyse if the general level of discouragement is on par with countries formerly studied. Direct comparisons with other studies are difficult due to differences in methodologies, sampling, time period, country specific factors (e.g. effects from macroeconomic fluctuations) etc., however, orders of magnitude could be referred to. It could be questioned if we should expect any differences between the levels of discouraged borrowers in Denmark compared to most other European countries, especially those with similar institutional set-up⁹. There are hardly convincing reasons to expect marked differences. We therefore expect that the share of discouraged borrowers in the Danish economy is on par with what has been found in international studies. Specifically, our literature survey in section 2 indicated that the degree of discouraged borrowers is in the 4-10% range with a mean at around 7% across European countries.

4 Analyses of Credit Demand and discouragement

4.1 Data Sources

The data are based on surveys among the management teams in a representative panel of private firms with at least 5 employees (FTEs) in North Jutland, Denmark. This specific collection of data on financial constraints and discouragement is an ad hoc addition to a regular, regional business cycle monitoring, where respondents are interviewed quarterly about their view of the past and future development of firm level variables like production, employment, profits, exports, investments, prices, and orders. The additional questions on discouraged borrowers were posed in the years 2012 and 2013 (asking about calendar years 2011 and 2012) and the data contains 692 observa-

⁹ According to an often-used taxonomy developed by Zysman (1983) financial systems may be grouped into capital market based systems, state-led credit based systems, and bank-based credit oriented financial systems. Examples of the capital market based systems are often the US and the UK. Although there have been many changes in financial systems, generally towards a convergence of the types of systems, France is often said to be a state-led credit based financial system, while Germany, Denmark and Sweden have bank-based financial systems. Relationship banking, which in previous studies (cf. section 2) was found to influence discouragement, is most prominent in the credit-based financial systems.

tions of 358 unique firms. For facilitating more nuanced analyses, we also deploy variables on innovation activities, drawn from additional annual surveys on a subset of the firms.

Our case region is located in the north of Denmark, which is in the Danish context characterized as a peripheral region. This is illustrated by the fact that it has been an Objective 2 area for years. There is one urban center, Aalborg, and industry structure is somewhat different within the region with the majority of R&D-based firms being in the Aalborg area. For further information on the survey methodology, population and the regional dynamics of external finance in North Jutland consider Christensen (2007) and Hain & Christensen (2013).

4.2 Variable description

4.2.1 Dependent variable

The dependent variable represents the firms' discouragement to seek external finance, in spite of unfulfilled financial needs, which is dichotomous in nature. To identify such discouraged borrowers, we utilize the data at hand in the following way.

Additional to the regular questions of the quarterly business cycle indicator survey, a set of questions were posed in two rounds, April 2012 and April 2013 on access to financial capital (either/or daily working capital or capital for investment projects) and potential discouragement. The questions were:

1. Did your firm during the past year experience problems in obtaining external finance for development activities? Yes/No/Did not apply/DKNA
2. Did your firm during the past year experience problems in obtaining external finance for working capital? Yes/No/Did not apply/DKNA
3. Did expectations of rejection make you abstain from applying for external finance for either development activities or working capital during the past year? Yes/No/DKNA

These questions also give us indicators for the firms' demand for external finance. When cross-tabulating the firms' possibilities to answer the questions on discouragement and financial constraints, we obtain the following combinations of possible responses.

Table 1: Cross-Tabulation of possible combination of answers on financial constraints and discouragement

		Discouraged?	
		No	Yes
Problems obtaining external finance?	Did not seek	1:1 No need for external finance at all	1:2 Hidden need, classical DB
	No	2:1 Need for external finance met, no DB	2:2 Lesser form of DB
	Yes	3:1 Classical Constraints, Tried out applying, no DB	3:2 - Constraints, but did not try full range of finance options, DB

Despite the fact that a number of studies have appeared over the last decade, it yet remains an open question how to delimit the relevant proportion of discouraged borrowers. The definitions such as in Kon and Storey (2003) and subsequent studies suggest that the discouraged borrower should have a credit need to be within the relevant definition (box 1:1). However, when assuming the characteristics of firms just using internal finance to differ from the rest of the sample (which we do), simply excluding them obviously leads to biased results.¹⁰

For the remaining combination of answering the survey questions regarding financial constraint and discouragement, the classification is not always obvious. To start with, it could be questioned if in fact also firms who claim they had no problems of obtaining finance but also claimed they were discouraged to apply (Table 1, box 2:2) should be excluded from the relevant sample: the fact that they had no financing problem could indicate no un-fulfilled demand. On the other hand, they could have listed ‘no problems’ exactly because they did not enter the application process due to fear of rejection (thus mistakenly did not mark ‘did not apply’) or, maybe more plausible, they are in the less strong category of discouraged borrowers, e.g. they were discouraged to apply for the full amount needed due to expectations that it would be unrealistic, and then met no problems obtaining the actually demanded amount. Furthermore, firms that reported to experience financial constraints can, according to our interpretation, be discouraged applying for additional credits, thus not using the whole set of options to obtain external

¹⁰ Therefore we apply the model estimating procedure for selection bias suggested by Van de Ven & Van Praag (1981), which takes into account endogenous selection, here based on firm characteristics influencing the need for external sources of finance.

finance. In sum, among the firms expressing a general need for external finance, we categorize firms in the boxes 2.1 and 3.1 of Table 1 as not discouraged, and in the boxes 1.2, 2.2 and 3.2 as discouraged.

4.2.2 Independent variables

Perceptions, actual development, and expectations

In the survey, firms were further asked about their *realized profit* development in the last period, and their *expected profit* development in the following one. A *realized profit increase* in the current period as well as an *expected profit increase* in the next period obviously represent a positive signal for, but also strengthen the firms confidence that it is worthwhile applying, thus should decrease the likelihood of being financially constrained and discouraged (Cavalluzzo et al., 2002). Since the changes and expected changes in profit are self-reported, they cover the firms' self-perception, and not external metrics which could be used by banks and other financiers. We operationalized this information as follows. If the firm reported increasing profits in the current quarter as well as further increases in the future, we assume a persistent positive trend and healthy economic circumstances, which classifies them as *optimistic firms*, whereas decreasing current and expected profits leads to a classification as *pessimistic firm*. We furthermore include information on the firm's investment activity realized in the current period (realized investment) and expected in the following period (expect invest) where we expect firms with positive investment activities to be less discouraged.

Innovation and knowledge intensity

For a subset of firms that also participates in an annual survey on innovation activities we are able to additionally utilize firm level data on internal innovation activities and knowledge intensity of the firms operations. Here, the firms were asked how many products/services/processes they introduced in the current year, which are new to the firm (which we label as *incremental innovation*) or new to the market (which we label as *radical innovation*). We in general expect innovation activities to be a source of asymmetric information (cf. Hain & Christensen, 2013), thus a potential source of financial discouragement, increasing with the extent of novelty of innovations. Thus, the more innovative the firms activity, the more effort will be needed to properly communicate them to banks and other financiers. However, while *incremental innovations* are in contrast to *radical innovations* already to some extent known by the market, we associate them with less uncertainty and a better ability of the financier to understand them. Thus,

firms frequently engaged in incremental innovation should be less financially discouraged than their radically innovating counterparts. We also expect this effect to soften down with increasing intensity. Firms frequently engaging in a high number of innovation projects are likely to develop routines to manage this process in a more structured way, which can be associated with increasing documentation and therefore higher transparency, but also a higher confidence when dealing with external financiers. Therefore, both innovation measures enter the regressions in their logarithmic transformation.

We furthermore utilized the answers of additional questions of general opinions and impressions of the firm that might give insights regarding the type of innovation likely to be produced by them. *Imp. tech* represents a dummy variable taking the value of one if the firm believes that technological knowledge is of high or highest importance for their business, indicating the firm to operate technology based.

Other characteristics

From the Danish business register “Navne & Numre Erhverv” (NNE) we obtain information on the *age* and *size* (in terms of employees) of the firms. We expect both variables to be negatively correlated with the likelihood of being discouraged to apply for finance.

4.2.3 Control variables

First, the firms environment is supposed to influence its' access to external finance, why we also control for its' location (*region*). A number of earlier studies indicate that an urban core provides a facilitating environment regarding attracting financial capital (Powell et al., 2002). Since the assessment of small, young and innovative firms can be facilitated by tacit knowledge exchange and social proximity, we expect firms in regions outside the Aalborg region, North Jutland's' urban core, to be more likely to face financial constraints. In turn this impact on who will enter the loan markets and who will self-ration their demand. It could be argued that in a relatively small, homogeneous regional context like in our case there are hardly any differences in the availability in this type of information. On the other hand, it cannot be ruled out that the fact that there is one dominant urban center in the region means a difference also in the information flows in the region (Hain and Christensen, 2013).

Firms in manufacturing usually embody a higher share of tangible assets suitable to serve as collateral, thus are favored by asset based creditability evaluation techniques.

Furthermore, production processes and their output might be better understood and valued than the somewhat intangible work of *service* firms. Therefore we suggest firms in the *manufacturing* industry to be less discouraged to seek external finance.

We also expect the firms' ownership structure to matter. If it is a *subsidiary*, it might be nurtured by its' parent company, thus in less need for external finance. It furthermore might draw from the reputation and creditability of the mother company, which makes them more confident when applying for external finance.

4.3 Data Analysis and Descriptive Statistics

Table 2 provides some first descriptive statistics on a firm level. Around ten percent are discouraged applying for external finance, which is a little higher, but broadly in line with the results of former studies (e.g. Freel et. al., 2012; Chakravarty & Xiang, 2013; Han et. al., 2009, ECB, 2013, Sanchez-Vidal, 2012, Holten and McCann, 2012).

Table 2: Descriptive statistics

<i>Variable</i>	<i>Obs</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Std. Dev.</i>
discouraged	619	0	1	0.102	0.303
constraints inno.	692	0	1	0.123	0.328
constraints working	691	0	1	0.113	0.317
need finance	692	0	1	0.688	0.464
metropolitan area	943	0	1	0.401	0.490
subsidiary	842	0	1	0.259	0.438
export	943	0	1	0.556	0.497
employees	699	7	750	33.645	55.415
age	842	3	97	18.452	11.559
realized invest.	646	0	1	0.149	0.356
expected invest	643	0	1	0.146	0.354
optimistic firm	689	0	1	0.142	0.350
pessimistic firm	689	0	1	0.093	0.290
inc. Innovation	497	0	10	1.115	1.250
rad. Innovation	496	0	5	0.250	0.665
per. tech	306	0	1	0.092	0.289

We are able to further distinguish between firms that are constrained in financing their daily business (mainly wages and production inputs) and their innovation projects. In most cases the responses correspond to each other; if a firm experiences financial constraints, then it is likely to be in daily business as well as innovation finance.

Table 3 provides a first simple frequency analysis of the phenomenon. In addition to the overall share of discouraged firms we list the shares of firms in demand of credit, the constrained firms, and the share of discouraged firms by groups according to the two survey rounds and according to the characteristics small/large, legal form, sector, region, and manufacturing/other firms as an 'introduction' to the second analysis.

Table 3: Frequency distribution

	discouragement		need finance		constraints	
	mean	freq.	mean	freq.	mean	freq.
<i>by year</i>						
2011	0.11	314	0.66	355	0.16	355
2012	0.10	305	0.71	337	0.15	337
<i>by region</i>						
Aalborg	0.09	256	0.67	295	0.15	295
Vendsyssel	0.15	165	0.72	178	0.20	178
Himmerland	0.09	198	0.68	219	0.13	219
<i>by industry</i>						
Finance,	0.08	147	0.66	170	0.14	170
Industry	0.10	185	0.74	195	0.17	195
Construct	0.16	90	0.73	101	0.18	101
Trade	0.09	197	0.65	226	0.14	226
<i>by legal form</i>						
others	0.16	76	0.68	84	0.19	84
public trade	0.08	340	0.69	386	0.14	386
limited liab.	0.10	99	0.73	110	0.19	110
<i>by size</i>						
small	0.12	138	0.65	156	0.21	156
medium	0.11	395	0.69	446	0.15	446
large	0.03	86	0.73	90	0.09	90

Table 5 provides a correlation matrix of all used dependent and independent variables. It reveals that firms suffering from financial constraints also tend to be discouraged. This indicates that discouragement often does manifest partially. Firms get discouraged after experiencing rejection from financial markets and stop trying further opportunities, rather than being discouraged to apply for credit in the first place. Besides that, the remaining independent variables all show only very weak correlation with financial discouragement.

Table 4: Correlation Matrix

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) discouraged	1.000									
(2) constraints	0.348	1.000								
(3) Ln(size)	0.046	-0.203	1.000							
(4) Ln(age)	0.008	-0.125	0.238	1.000						
(5) subsidiary	-0.010	-0.167	0.049	0.163	1.000					
(6) Firm opt.	0.003	-0.029	0.038	-0.090	0.053	1.000				
(7) Firm pess.	0.063	0.045	-0.036	0.104	-0.003	-0.125	1.000			
(8) Ln(inno inc)	-0.036	-0.007	0.164	0.015	0.136	-0.015	0.083	1.000		
(9) Ln(inno rad)	-0.013	-0.015	0.030	0.023	0.160	0.039	0.178	0.525	1.000	
(10) Perc. tech	-0.006	-0.008	0.067	0.103	0.002	0.026	0.112	-0.005	0.028	1.000

4.4 Model Setup and empirical strategy

The dichotomous scale of our dependent variable and the nature of our survey data suggest the use of a probit model. As discussed earlier, we only consider firms expressing a need for external finance as potential candidates. To address the potential endogenous selection, we apply a technique equivalent to the well-established two-stage Heckman correction in linear models (Heckman, 1979), applied for bivariate probit models (van de Ven and van Praag, 1981) and estimating a firm's likelihood to report discouragement by full maximum likelihood, conditional to the demand for external finance in general. In the first stage we deploy an over-identification strategy and control over a large battery of available variables. The purpose here is not to provide insights in the determinants¹¹ of the demand for external finance per se, but rather to provide a model with high explanatory power that facilitates the fitting of the second stage.

Our dataset represents an unbalanced panel, since not all firms participate in both waves. Since the methods available for unbalanced panel data regressions with selection and dichotomous dependent variables are very limited, we instead choose to use pooled data and include year dummies to capture random effects. To nevertheless address the issue of serial correlation among two observations of the same firm, we relax the assumption that standard errors are independently and identically distributed by clustering them on firm level, which allows for within-firm correlation. This leaves the

¹¹ Which has been done elsewhere (c.f. Hain & Christensen, 2013).

variables coefficients unchanged but leads to more conservative standard errors. Since the innovation activity variables introduced in model 4 and 5 are not available for all firms, the number of observation drops. To ensure that the results are not driven only by the new sampling, we rerun all models with bootstrapped standard errors, which leads to unchanged significance levels of all important coefficients.

Since our dependent variable as well as some independent variables originate from questions asked in the same survey and answered by the same person, we might face the problem of common method variance, where self-report data can create false correlations if the respondents have a propensity to provide consistent answers to survey questions that are otherwise not related. To address this issue, we replaced self-reported data on firm characteristics such as its size, and took e.g. age and industry affiliation by the corresponding values from the “Navne & Numre – Erhverv” (NNE) firm database. Furthermore, we constructed a part of our hypotheses as non-linear interaction terms, which is likely to minimize common method variance because such a complex relationship is not part of the respondents' theory-in-use (Chang et. al., 2010). Finally, we conducted a post hoc Harman one-factor analysis to check whether variance in the data can be largely attributed to a single factor, which does not appear to be the case.

4.5 Results

In Table 5 we report the results of a probit model with endogenous selection, where on the first stage the selection criterion is again the demand for external finance, but the dependent variable in the second stage the discouragement to apply for a credit.¹²

Against initial expectations, most firm level characteristics prominent in the literature show no effect on financial discouragement. We do not see any statistically significant effect of a firm's age, and its size only shows weak significance on ten percent level in model 1 and 2. As expected, while *radical innovation* shows no significant effect, *incremental innovation* intensity appears to reduce the probability of being discouraged. This may reflect that it is potentially easier to explain to financiers the incremental innovations as opposed to radical innovation, which is often rendering sceptic attitudes among financiers. The result is in line with Hain and Christensen (2013) that shows that

¹² Since our primary interest lies in the determinants of financial discouragement, we do not report the results of the first stage here, but they are available on request.

incremental innovation alleviates financial constraints compared to non-innovative firms, but that radical innovation enhances financing constraints (see also Freel, 2007). After all, we are not able to provide solid support for hypothesis 1.

We find, as posited in hypothesis 2, *pessimistic firms* in most models to have a significantly higher likelihood of being discouraged. *Optimistic firms*, however, seem not to be less discouraged than the mediocre control group. This finding indicates in line with Han et al. (2009) discouragement to be a partially efficient self-constraining mechanism.

In model 2 to 5, we introduce interaction terms between different variables of interest and the dichotomous *optimistic firm* and *pessimistic firm* indicator, where we obtain mixed results. Whereas the interaction with *size* seems to have no effect at all, the firms' age seems to be a (modestly) moderating mechanism between its perceived performance and financial discouragement, such that only when firms grow older their positive performance projection encourages them to use all means to fulfill its financial needs. There are some indications that the self-perception of the development of the firms is a stronger predictor of discouragement than firm characteristics. Thus, in addition to finding that size interaction terms are not significant, we find that radical innovative firms that are optimistic are less discouraged as depicted in model 4. Moreover, good performers who emphasize the importance of technological knowledge show the same tendency. In line with hypothesis 4 the investment variable has strong negative effect on discouragement. However, this only holds for investments made during the observation period, while we cannot observe a significant effect for investments planned in the future. We posit that investments have considerable time lags before being realized and before resulting in production and economic results. Therefore decisions on investments a quarter back is probably a better predictor of performance in the time period banks typically consider compared to the projections on future capacity building.

In model 4 and 5, we introduce measures for the firm's innovation activities. In general, we find weak evidence that firms exercising incremental innovation tend to be less, and firms exercising radical innovation activities tend to be more discouraged. This suggests that firms consider (modest) innovation activity *per se* as a positive signal for investors increasing the likelihood and/or conditions of external finance. However, too radical innovation activity might be hard to understand for potential financiers, and thus requires extra communication effort and the disclosure of private information on innova-

tion projects. However, this effect appears to be moderated by the firm's perceptions. Optimistic firms with high radical innovation activity seem to be willing to go the extra mile to secure the funding of their innovation projects, and are less discouraged than their optimistic but not radically innovative counterparts.

Compared to initial expectations we found no support for hypothesis 1 and 3, whereas results lend some support for hypothesis 2 and hypothesis 4. We did, though, for the first time, include the purpose of external finance and found that there is strong support for the assumption that this is important to the level of discouragement. Firms in need of investment capital were less discouraged compared to firms who needed working capital.

Table 5: Probit model with endogenous selection. Stage 2: Financial discouragement

	(1)	(2)	(3)	(4)	(5)
manufacturing	-0.286 (0.242)	-0.263 (0.237)	-0.270 (0.242)	0.0115 (0.430)	0.00755 (0.413)
metropolitan area	0.004 (0.194)	-0.003 (0.190)	0.001 (0.192)	0.294 (0.327)	0.305 (0.323)
subsidiary	-0.682* (0.339)	-0.731* (0.354)	-0.687 (0.351)	-0.189 (0.609)	-0.240 (0.642)
ln(age)	-0.154 (0.165)	-0.325 (0.192)	-0.176 (0.167)	-0.376 (0.324)	-0.291 (0.313)
ln(size)	-0.253* (0.114)	-0.249* (0.114)	-0.176 (0.126)	-0.0516 (0.165)	-0.0892 (0.163)
realized investment	-0.470** (0.147)	-0.450** (0.148)	-0.481** (0.146)	-0.685** (0.237)	-0.625** (0.241)
expected investment	-0.0713 (0.152)	-0.128 (0.151)	-0.0802 (0.154)	-0.379 (0.240)	-0.418 (0.244)
opt. firm	0.269 (0.219)	-1.658 (0.962)	0.863 (0.668)	0.327 (0.400)	0.196 (0.387)
pess. firm	0.542* (0.268)	0.448 (1.484)	1.369 (0.944)	1.417** (0.539)	0.960* (0.436)
ln(inc. innovation)				-0.564* (0.237)	-0.410 (0.235)
ln(rad. innovation)				0.888* (0.422)	0.486 (0.388)
imp. tech.				-0.310 (0.567)	-0.145 (0.535)
pess. firm # ln(age)		0.0361 (0.519)			
opt. firm # ln(age)		0.737* (0.359)			
pess. firm # ln(size)			-0.294 (0.321)		
opt. firm # ln(size)			-0.211 (0.219)		
pess. firm # ln(rad. innovation)				-1.212 (0.925)	
opt. firm # ln(rad. innovation)				-1.553*** (0.027)	
pess. firm # imp. tech.					0.684 (0.539)
opt. firm # imp. tech.					-3.010** (0.965)
N	482	482	482	297	297
Mc Faddens Pseudo R ²	0.12	0.16	0.19	0.28	0.22

Standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001

5 Discussion and Conclusion

This first analysis of discouraged borrowers in Denmark showed that the overall share of discouraged borrowers is roughly on the same level as in other European countries, although in the higher end of the scale of levels of discouraged borrowers. We could

speculate that reasons for this difference perhaps relate to the fact that our data is confined to a small share of the total Danish population of firms, the North Jutland region, and that firms in this relatively peripheral region would tend to have higher propensities to be discouraged from borrowing. Another possible explanation is that the financial system in Denmark is dominated by strong banks and mortgage institutions, a typical bank-oriented financial system in the Zysman (1983) typology. It is likely that firms in these systems are relatively more affected by the financial crisis because banks have been said to be more affected than equity financing sources.

5.1 Perceptions or characteristics

We found indications that the self-perception of firms is a stronger predictor of discouragement than firm characteristics. At the end of the day the discouraged borrower phenomenon comes down to decisions on a micro-level of aggregation, and our results indicate that self-confident and discouraged managers are distributed randomly on firms with the characteristics investigated. This is probably the most important finding from the analyses, and we believe it calls for further research in the direction of incorporating theory on individual firm decision making to understand deeper the issues in this paper.

Up to now very few studies incorporate these behavioural aspects. Freel et al. (2012) took in business strategy as an explanatory factor. Business strategy could mean that the business has a certain profile relevant for the perception of the financial institution as well as the firms' decision to apply. However, we rather see the individual perception of current and future performance as a driver for being discouraged or not. Business strategy is often long-termed and linked to the existing competitive edge of firms. We argue that discouraged borrowers is closer linked to the short-termed projected and actual performance as financial institutions would rather value a good execution of any strategy than a strategy type *per se*.

5.2 Institutional factors

Earlier literature pointed to that both firm-level, structural reasons for discouragement of borrowers as well as, on a higher level of aggregation, also regulatory and financial system features have a bearing on the level of discouraged borrowers in the economy.

In addition to characteristics of the (potential) applicant firm also institutional factors may impact the likelihood for discouragement. We pointed to relationship banking, corporate governance traditions, the level of competition and concentration in the financial sector. For example, Han, Fraser and Storrey (2009) argue that concentrated bank markets are more likely to lead to discouraged borrowers. It can also be argued (Freel et al., 2012, Sanches-Vidal et al., 2012) that traditions for relationship banking are likely to reduce the amount of discouraged borrowers. The transparency and information flows in the financial systems likewise influence the share of discouraged borrowers.

Due to data availability we did not include these variables. It can be questioned if these variables affect old/new or small/large firms disproportionately or if they would leave the relative importance of respectively firm characteristics and performance expectations unchanged. If the above-mentioned factors e.g. affect large firms more than other firms (which could be a plausible hypothesis) they are more relevant to include in future analysis. On the other hand, it could be argued that they are less relevant when we focus on a small, relatively homogeneous geographical area compared to if we were doing cross-country comparisons. This is partly supported by the fact that we did not find substantial intra-regional differences in the propensity to be discouraged.

5.3 The effect of the financial crisis

The recent financial crisis is likely to influence results. Banks and other financial investors have responded to the financial crisis by shifting towards more risk averse and restrictive credit policies (Huang et al., 2011 Cowling et al., 2012, Vermoesen et al., 2013). It can plausible be assumed that the financial crisis also amplifies demand contractions, especially for small firms (Carb-Valverde et al., 2009).

Even if credit rationing is likely to have increased as a result of the financial crisis it is likely that potential applicants are well aware of this change, which in turn causes discouragement to increase as well, maybe even disproportionately more. It is, though, not clear at all if such a change affects 'appropriately' discouraged borrowers relatively more.

Additionally, the effects of financial crisis on supply and demand is not likely to occur similarly in different economies (Chakravarty and Xiang, 2013). Previously accumulated debt and generally contractions of overall macroeconomic demand is likely to affect demand for credit as well but in different degrees in different economic settings. Addi-

tional reasons for differences in discouraged borrowers relate to the degree of transparency of the market, screening abilities of financial institutions, capital market traditions regarding corporate governance and short-sightedness, strategic decisions by banks and the visibility of these decisions.

Therefore, the question if and how demand and discouragement is affected is not at all straightforward. Moreover, an additional question is if certain firms are affected disproportionately. The literature has established (section 2.2.) that certain types of firms are more likely to be discouraged. However, are these firms relatively more affected by contextual changes such as economic fluctuations? The Chakravarty and Xiang (2013) study indicated that this is the case. Moreover, Cowling et al. (2012) find that large, old firms were more successful in obtaining external finance throughout the recession, whereas a large proportion of small firms were denied credit. Cosh et al. (2009) find that SMEs felt constrained by the general deterioration of demand, and the growth-oriented and innovative firms were particularly affected. It remains, though, an open question if the crisis affected some firms more than others.

5.4 Implications

We claimed that even if there apparently is only a small fraction of firms who are discouraged from attempting to apply for finance it is potentially an important problem that has implications in different dimensions. The implications may be both policy implications, implications for banks, and implications for management. Regarding the former it is clear that deriving policy initiatives aimed at this phenomenon is very difficult. The discouraged borrower phenomenon is intrinsically on the level of individual firm decision, which is, if not outside the domain of direct policy initiatives, then it is a difficult area to design initiatives that incentivizes ‘inappropriate discouraged borrowers’ to change decision and enter the loan market, while maintaining the ‘appropriately’ discouraged borrowers out of the market. On a general level, policy implications would be that the current paradigm of supply side initiatives should be supplemented with new types of demand side initiatives other than those that are currently in the capital market policy toolbox

One measure to enhance the efficiency of the market is to stimulate more transparency in the market for capital. There is, though, a limit to the efficiency in e.g. providing more clear and accessible lending criteria of banks as the screening of applicants is done using generic credit scoring tools but only to a limited extent, whereas a large part of

the assessments are undertaken on an individual firm level. Moreover, even more publicly available lending criteria cannot inform how human factors are weighted in the lending decisions. The main capabilities of the management team are often decisive in these decisions but difficult to explain in documents. It would, though, probably decrease discouragement if more information on bank lending decisions is more transparent and available.

. Implications for financial institutions of discouraged borrowers and inefficient and non-transparent capital markets are that they will not only miss out on business opportunities (the share of inappropriately discouraged borrowers) they also will have difficulties in fine-tuning their credit assessment tools when all demand is not surfaced.

Finally, the debate on credit rationing due to asymmetric information has centered around the inability of banks to reveal all the relevant information about entrepreneurs. Rarely the debate has addressed that in fact there are similar asymmetries in information regarding entrepreneurs' possibilities to evaluate if banks are different and in what sense. Management implications are therefore that an effort should be done by firms to orient themselves on lending requirements and procedures before the application and articulation of demands.

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