Going online? The motive of firms to borrow from the crowd

Jieying Li[a]

[a]*Stockholm School of Economics and Swedish House of Finance, Sweden*

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Abstract

Using a novel dataset combining firms' borrowing through a leading crowdlending platform and other limited liability firms in Sweden, this paper investigates what motivates firms to seek online crowdfunding. Firms that borrow from "the crowd" are usually small private businesses that are dependent on bank financing. I analyze the determinants of firms to borrow from the crowdlending market by comparing the ex ante characteristics of those firms with other private limited liability firms that borrow from banks. The results show that firms borrowing from the crowd have higher growth rates, but lack both internal funds and sufficient pledgeable assets as collateral to receive external credit, compared with firms that borrow from banks. Therefore, crowdlending provides an alternative financing source for credit constrained small businesses, especially those that require small-sized loans. Also, the local bankruptcy rate and local criminal activity affect the probability that a firm will turn to the new online credit market. I further investigate the determinants of commercial loan costs in the crowdlending market and find that interest rates are primarily determined by credit and financial information of firms, while non-standard information, such as campaign representative profile, has little impact on pricing determination.

Keywords: Crowdfunding, Crowdlending, Peer-to-Business lending, Small business, Debt choice, Loan rates

1. Introduction

Small businesses are viewed as important for new job creation, particularly since the recent global financial crisis.[1] Although the formation and growth of small businesses are dependent on access to credit, surveys conducted by the National Federation of Independent Businesses (NFIB) and Federal Reserve report that credit conditions remain very difficult as banks focus on more profitable market segments.[2] High search costs and high transaction costs have reduced the profitability of small loans, which has created a gap in the supply of small business loans under US$250,000 (Mills and McCarthy, 2014). However, the recent innovation of online marketplace – "crowdlending"[3] – has disrupted the traditional credit market and changed the way small firms access capital. Crowdlending links firms directly to the individual lenders and provides easy-to-use online applications, rapid loan decisions, and a strong emphasis on customer service.

Recent literature has emphasized the role of crowdfunding in facilitating entrepreneurship based on studies of reward- or equity-based platforms (e.g., Belleflamme et al., 2013; Gerber et al., 2012; Mollick and Kuppuswamy, 2014; Xu, 2016); however, there is little evidence about the lending-based format. For example, what type of firms borrow from the crowd? Why do they go to crowdlending platforms for credit? How are loans priced in the crowdlending market? The present study directly links the new financial market of crowdfunding, particularly lending-based crowdfunding, to the traditional financial intermediaries and investigates the motive of firms to borrow from the crowd. I address this issue by examining both ex ante firm characteristics and regional factors that might determine firms' decisions to borrow in the crowdlending market.

One major obstacle of examining the determinants of the decision to borrow from the crowd is data availability, since firms borrowing through crowdlending platforms are typically small private firms. I overcome this challenge by constructing a comprehensive dataset containing private firms that borrow from the crowd and firms that borrow only from credit institutions in Sweden. Besides the fact that Sweden is a country with a high-ranking business environment for small and young enterprises,[4] it also provides ac-

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[1]In the United States, for example, small firms employ half of the private sector workforce and have contributed to 65 percent of total net job creation since 1995 (Mills and McCarthy, 2014).

[2]See details in Dennis Jr (2012), Dunkelberg and Wade (2013), Federal Reserve (2012), Federal Reserve Bank of Atlanta (2013), Federal Reserve Bank of New York (2013). As strengthened in Mills and McCarthy (2014), those surveys show that small businesses lending was in steady decline prior to the crisis, was hit harder during the crisis, and continued to decline in the recovery period due to high search costs and high transaction costs associated with small business lending.

[3]Crowdlending is also known as lending-based crowdfunding, debt-based crowdfunding, loan-based crowdfunding. These terms are used interchangeably in the present paper. Peer-to-peer (P2P) lending is referred to as lending to individuals; when individuals lend to businesses, many refer to it as peer-to-business (P2B) lending.

[4]http://www.doingbusiness.org/rankings

cessibility to high-quality private firm data. I have used the Serrano database (produced by a commercial data provider, PAR), which includes information about firm registration and financial statements of all Swedish corporations. I hand-collected the campaign projects information from Toborrow.se, the largest crowdlending (to business) platform, and merged the information with the Serrano database. Since all firms on Toborrow are private firms that do not have bond market accessibility and rely mainly on bank financing, I used private firms that borrow from banks as the benchmark group. Thus, I excluded public firms and private firms with bond issuance during the period 2010-2016 in the merged dataset. To eliminate the chance of firms borrowing from neither credit institutions nor the crowd because those firms did not need new financing, I followed Becker and Ivashina (2014)'s approach and restricted the sample to the firms that have a positive demand for debt. Thus, I obtained a firm-level panel dataset with firms borrowing from the crowd (the treatment group) and firms borrowing from traditional credit institutions (the control group).

I first used a probit model to examine which ex ante firm characteristics determine the probability of a firm to borrow from the crowdlending market. Compared with firms borrowing from banks, firms that borrow from the crowd have higher sales growth rates but lower cash holdings, and lack sufficient tangible assets to pledge as collateral. This indicates that firms resorting to the crowdlending market are more credit-constrained and are searching for alternative sources of financing. Apart from firm characteristics, I also investigated potential geographic frictions that could drive firms to borrow from the crowd. Literature has shown that small businesses rely on relationship lending and could be subject to credit rationing when seeking financing across longer distances (Degryse et al., 2009; Petersen and Rajan, 2002; Saunders and Allen, 2010). Crowdlending has established an internet presence and e-commerce features and has the potential to overcome the geographic constraints in the traditional off-line private debt market. To examine whether firms borrow through crowdlending sites due to geographic friction, I used the number of bank branches per capita at the municipal level as the geographic measure of bank accessibility. I found no evidence that the motivation of firms to borrow from the crowd is due to spatial credit rationing to small firms. In addition, I investigated whether firms choose to borrow from the crowd because they are operating in a region with a "stigma", such as a high bankruptcy rate or criminal rate. I find that firms that use crowdlending as a source of funding tend to be located in municipalities with a higher bankruptcy rate or criminal rate.

To rule out potential unobservable factors that drive the debt choice and key firm characteristics, I constructed a matched sample using exact matching on year, industry, employee size category and propensity score matching on logarithm of sales, logarithm of assets and firm age for robustness check. For each that has borrowed via the crowdlend-

ing platform Toborrow, I used nearest-neighborhood matching method in the whole sample to find five matched firms to form the control group. The results are consistent with those in the whole sample.

I found that firms that go to the new online credit market have higher demand for external funds to invest and expand their businesses than those that borrow from banks; however, they lack sufficient pledgeable assets as collateral to obtain bank credit.[5] Mills and McCarthy (2014) identified several structural barriers that impede bank lending to small businesses, including consolidation of the banking industry, high search costs and higher transaction costs associated with small business lending. Small business loans, especially in the smaller size range, are considerably very risky and less profitable than large business loans. Therefore, many smaller business loan seekers, especially those under $100,000 in the U.S., get rejected by banks.[6] Credit conditions are similar for small firms in Sweden. The percentage of surveyed SMEs with difficulty to access credit increased from 8.9 percent in 2008 to 12.2 percent in 2014.[7] Since the recent global financial crisis, policy makers have tightened regulations in the banking sector, with stricter capital requirements and calculations on risk exposures. This might further discourage bank lending to small businesses. Furthermore, considering the booming housing market in Sweden between 2012 and 2016, banks might be more willing to allocate their credit supply to the real estate market. However, an alternative explanation is that firms choose to borrow from the crowd because crowdlending platforms provide cheaper credit than banks. It can be challenging to disentangle those two mechanisms since information on bank loan applications of those firms and bank loan interest rates offered to those firms is not available. However, the average cost of crowdlending loans is 11-13 percent for firms, which is considered high in the current low interest rate environment.[8] Therefore, it might be less likely for firms to opt for crowdlending because the crowd offers cheap credit. However, since lending to small businesses, especially in the small size range, is costly and risky, banks might charge very high interest rates, which might be even higher than that which firms can obtain in the crowdlending market. Either way, crowdlending serves as an important alternative financing source for small businesses.

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[5]I cannot show direct evidence that firms borrowing from the crowd are less creditworthy than firms borrowing from banks due to limited data availability. However, since no firms have defaulted on Toborrow so far, it could be plausibly assumed that those firms going to the crowdlending market are not subject to being less creditworthy.

[6]According to Mills and McCarthy (2014), some banks in the U.S., particularly larger ones, have significantly reduced or eliminated loans below a certain threshold, typically $100,000 or $250,000.

[7]See the 2014 survey of Swedish SMEs by Swedish Agency of Economic and Regional Growth for details. `http://www.tillvaxtverket.se/huvudmeny/faktaochstatistik/foretagande/hinderfortillvaxt.4.2fb8c83014597db7ce977ea6.html?chartCollection=4`

[8]The repo rate in Sweden from July 2014 to May 2016 decreased from 0.26 percent to -0.50 percent. The average interest rate of bank loans to non-financial firms was approximately 2-3 percent from July 2014 to May 2016.

Next, I examine how the commercial loans are priced in the crowdlending market. Previous studies on the determinants of interest rates for peer-to-peer (P2P) lending have shown that financial information such as credit scores and debt-to-income ratios have the highest prediction power (Iyer et al., 2015; Klafft, 2008), while demographic characteristics and social network of borrowers also matter (e.g., Duarte et al., 2012; Herzenstein et al., 2008; Hildebrand et al., 2016; Lin et al., 2013; Pope and Sydnor, 2011; Ravina, 2012). Therefore, I investigate the impact of standard financial information (including firm characteristics, credit score and loan terms) and non-standard information (such as campaign representative profile) on the loan costs. Since Toborrow employs an auction process and lets investors decide the price, a more popular campaign might benefit from the competition of a large number of participants and thus obtain a lower interest rate. Hence, I examine how exposed financial and non-financial information impacts campaign popularity, and then investigate how the exposed information determines the interest rates. I find that firms that have lower credit risk and higher current assets ratio that are campaigning for loans with smaller size, shorter maturity, or amortization option are the most popular. This suggests that lenders prefer to invest in firms with lower credit risk and higher liquidity. Consistently, those determinants of campaign popularity have similar impact on the interest rates. Firms with higher risk score, lower current asset ratio, demanding larger size, and longer maturity loans are charged higher interest rates. However, the campaign representative profile has no impact on campaign popularity or interest rates. This indicates that, on the commercial crowdlending market, firms are the borrowing entities, which means that the fundamental information of firms determines the borrowing costs. Therefore, in contrast to the evidence from the P2P lending market (e.g., Duarte et al., 2012; Herzenstein et al., 2008; Lin et al., 2013; Pope and Sydnor, 2011; Ravina, 2012), campaign representative profile has little explanatory power in campaign popularity and loan price.

This paper contributes to several strands of literature. First, it contributes to the literature on small business financing. Previous literature has emphasized the importance of bank credit on small business financing (e.g., Petersen and Rajan, 1994; Robb and Robinson, 2014). Since small firms are risky and opaque, the long-term lending relationships between firms and creditors could help to overcome information asymmetries in the lending market (e.g., Cole, 1998; Berger and Udell, 1995, 2002; Hoshi et al., 1990; Petersen and Rajan, 1994; Uchida et al., 2012). Also, institutional factors such as the quality of credit rights protection, the enforcement of laws, and the degree of financial development could affect small business financing (Giannetti et al., 2003). The present paper contributes to the literature on small business financing by focusing on the role that a new online market – crowdlending – plays in filling the gap in access to bank credit for small businesses.

Second, I contribute to the literature on debt structure and lender choice. Previous

literature on lender choice has mainly focused on the comparison between private (bank) and public (bond) debt (e.g., Becker and Ivashina, 2014; Cantillo and Wright, 2000; Faulkender and Petersen, 2006; Hale and Santos, 2008; Leary, 2009). However, the corporate bond market mainly caters to large firms with comparatively large size of loans. Small businesses rely on bank financing and face challenges to access the bond market. The newly emerged crowdlending market can be viewed as an alternative public debt market for small businesses. Thus, the results of this paper could complement our understanding of lender choice between private and public debts by small businesses.

This paper also contributes to the growing literature on the importance of crowdfunding as an alternative financing channel by providing evidence regarding debt-based crowdfunding. Previous literature has emphasized the role of crowdfunding in nurturing entrepreneurship by offering small and young businesses, which often face financing challenges, the ability to obtain funding from an alternative source: the "crowd" (e.g., Agrawal et al., 2013; Belleflamme et al., 2013; Gerber et al., 2012; Schwienbacher and Larralde, 2012). Entrepreneurs choose this funding source for the speed and flexibility of funding, the lack of formal obligations, and the use of the "wisdom of crowd" for various company tasks (Hienerth and Riar, 2013; Macht and Weatherston, 2014; Surowiecki, 2005). Beside obtaining funds, other motives for entrepreneurs to choose crowdfunding including attracting the public's attention, receiving feedback for their products or services (Belleflamme et al., 2010; Xu, 2016) and facilitating better access to customers and greater interest from potential employees and outside funders (Mollick and Kuppuswamy, 2014). The present paper investigates the role that crowdlending plays in financing small businesses by linking the newly emerged online credit market directly to the traditional credit market, and it also provides evidence that crowdlending is an important alternative funding source for small credit-constrained businesses.

This paper could also shed light on the rapidly growing literature on crowdfunding in general. Most studies of crowdfunding to businesses have focused on reward-based and equity-based platforms (e.g., Agrawal et al., 2013, 2015; Ahlers et al., 2015; Belleflamme et al., 2013; Cumming et al., 2014; Gerber et al., 2012; Kuppuswamy and Bayus, 2015; Li and Duan, 2014; Mohammadi and Shafizadeh, 2016; Mollick, 2013, 2014, 2015; Mollick and Nanda, 2015; Schwienbacher and Larralde, 2012). Studies related to lending-based format are limited to consumer loans, and evidence about crowdlending to businesses is scarce. Even though the reward-based platform is the main model in crowdfunding in almost every country, evidence based on this model has some limitations. First, projects on reward-based platforms are clustered in the art, music, and publishing industries and are usually driven by the funders' hobbies, which means they are not representative as a growth force of the economy. Second, the crowds for reward-based crowdfunding are essentially pre-buying the goods or service being produced by the funders, while an in-

vestor provides funds to an entrepreneur with the purpose of obtaining returns other than products. According to my knowledge, only Mach et al. (2014) have studied crowdlending to businesses. They examined the characteristics of business loan applications that determine the funding success, interest rate, and loan performance. The present paper is the first to study the role of debt-based format crowdfunding in entrepreneurial financing by exploring access to crowdlending vs. bank loans.

This paper also provides a reference point for policy makers considering the ongoing debates on regulating the crowdlending market. Although crowdlending is in its infancy, there is already disagreement over the appropriate level of regulation. As pointed out by Mills and McCarthy (2014), one side of the debate is concerned about risks associated with this newly emerged market and worried that crowdlending could become the sub-prime lending crisis if left unregulated,[9] while the other side argues that regulating too early could cut off innovation that could provide valuable products to small businesses and fill the missing market. Also, traditional players such as banks claim that stronger regulations on the banking sector since the recent crisis have made them less competitive relative to the new online credit players that operate in largely unregulated markets. This paper shows that firms borrowing in the crowdlending market are those with credit constraints, which indicates the importance of crowdlending in completing the missing credit market of small-sized business lending. Therefore, policy makers should take this into account and provide guidance and supervision through a proportionate regulatory approach, in order to both promote the development of crowdlending as an alternative source of financing and to ensure market confidence while protecting the participants (as already recommended by the European Banking Authority, or EBA).[10]

The remainder of this paper is structured as follows. Section 2 provides an overview of the crowdlending market. Section 3 describes the theoretical framework and related literature. Section 4 presents the data used, and Section 5 describes the empirical strategy and results. Section 6 examines the determinants of the commercial loan costs on the crowdlending market. Section 7 concludes.

2. Overview of crowdlending and Toborrow platform

Crowdfunding is a financial innovation that links borrowers directly to the general public and has grown rapidly in recent years. As of 2014, there were 1250 active crowd-

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[9]Recent events related to P2P lending fraud, such as the Trustbuddy AB event in Sweden in 2015 and the Ezubao event in China in 2016, have increased concerns about risks in the crowdlending market.
http://www.crowdfundinsider.com/2015/10/75945-trustbuddy-files-for-bankruptcy-as-situation-is-deemed-increasingly-complex/
http://www.nytimes.com/2016/02/02/business/dealbook/ezubao-china-fraud.html?_r=1
[10]https://www.eba.europa.eu/documents/10180/983359/EBA-Op-2015-03+(EBA+Opinion+on+lending+based+Crowdfunding).pdf

funding platforms (CFPs) across the world. The total capitalization of crowdfunding reached US$16.2 billion in 2014 and was expected to expand to $34.4 billion in 2015.[11] In particular, lending-based crowdfunding (crowdlending) contributed 68 percent of the total volume in 2014. The main principle of crowdlending is that an individual or a firm can raise many small amounts of money from a large number of people via the internet and social media.[12] As shown in Figure 1, consumers and firms can be both borrowers and lenders in the crowdlending market. Some crowdlending platforms specialize by focusing on only one type of borrower, while others mix personal and business loans. Early sites, such as Prosper.com and LendingClub.com, are mainly consumer loan markets, with a small proportion of loans for business purpose (for example, 3.5 percent on LendingClub.com, the largest P2P site in the U.S.). Crowdlending sites with firms as the sole borrower entities are generally younger, having been founded in the last two or three years. Due to the purpose of financing businesses, some reward-based and equity-based crowdfunding platforms also introduced a debt-based funding format. Although crowdlending is still smaller than the other two formats of crowdfunding in business financing, it is growing rapidly and has great potential in the future.

In Sweden, there are three crowdlending platforms with commercial loans: Toborrow, Kameo and FundedByMe.[13] Toborrow and Kameo are solely debt-based crowdfunding platforms, while FundedByMe is mainly a reward- and equity- based crowdfunding platform (see Appendix I for more information on crowdlending platforms in Sweden). Toborrow, which was incorporated in September 2013, is the leading crowdlending platform in Sweden. By May 1, 2016, 68 campaigns had been launched by 63 firms on the platform; the total capital raised was 34.2 million Swedish Kronor[14] (SEK) (Figure 4) within 22 months. There are currently around 3000 users, 1000 of which are active investors.[15] The majority of investors are individuals, with only around 30 institutional investors.[16]

Toborrow targets comparatively mature SMEs across all industry sectors with a loan demand between 100,000 and 2 million SEK. The maturity of the loans launched on Tobor-

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[11]For more information on crowdfunding development, see the 2015 CF industry report by Massolution.com

[12]The definition and description of crowdfunding has developed over time in the literature. Before the term "crowdfunding" appeared in literature, scientific articles on lending-based crowdfunding used the terms "social lending" (e.g., Hulme and Wright, 2006) and P2P lending (e.g., Freedman and Jin, 2011; Herzenstein et al., 2008; Klafft, 2008). See the most recent literature review paper on crowdfunding by Moritz and Block (2016).

[13]More details about Swedish crowdlending market can be found in the report on crowdfunding in Sweden by Sweden's financial supervisory authority.
`http://www.fi.se/upload/43_Utredningar/20_Rapporter/2015/grasrotsfinansiering_151215.pdf`

[14]1 SEK ≈ 0.126 USD on May 2nd, 2016. Source: Bloomberg.com

[15]The numbers of investors are based on the interview with Toborrow.

[16]Many of the institutional investors are individual investors who register through their own firms' account to invest on Toborrow for tax purposes.

row can vary from three to 36 months. A firm can also decide whether to amortize or not and, if it does, whether the corresponding amortization rate is 50 percent or 100 percent. Before launching a campaign on the website, a firm must satisfy basic criteria regarding size and credit rating, and also pass the qualitative assessment and credit checks on the owners.[17] Toborrow uses credit information from different credit bureaus and combines it with their own assessment tools for screening the applications. Approved firms will show up on Toborrow site with their project pitches and basic background information, which includes firm registration and the last three years' financials. A risk category is assigned by Toborrow based on its assessment (see Figure 2 for an example campaign project). The interest rates are decided by investors through an online discriminatory-price auction (see Appendix A.3 for a brief description of Toborrow's online auction process). Investors bid price-quantity pairs and the winners receive repayments according to the interest rates they require. Lenders receive repayment including interest and amortized principle quarterly from the firms through Toborrow.

3. Theoretical framework

This paper investigates the motivation for firms to borrow from the crowd. Since firms that borrow in the crowdlending market are generally small businesses that rely mainly on bank financing, I focus my discussion of theories on the role of financial intermediaries and comparison between crowdlending debt and bank debt.

3.1. The role of banks in small businesses financing

According to the pecking order theory, internal funds are a better funding source than outside financing (Myers, 1984). If entrepreneurs need outside money, debt financing will be used and equity is used only as a last resort. This is due to asymmetric information: equity has serious adverse selection, debt has only minor adverse selection, and internal funds avoid the problem. Since small businesses are generally more risky and opaque and associated with larger information asymmetry than larger ones, equity financing generates high dilution costs and is an inferior funding source for firms if the debt market is accessible (Bolton and Freixas, 2000; Myers and Majluf, 1984). Petersen and Rajan (1994, 1995) found that bank financing is the only source of funding for start-up firms and risky ventures. Robb and Robinson (2014) also produced empirical evidence that debts are the main funding sources for financing small and young businesses.

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[17]A firm must be a limited liability corporation in order to borrow through Toborrow.

3.1.1. Screening and Monitoring

In the ideal world of frictionless and complete financial markets, investors and borrowers would both be able to diversify perfectly and obtain optimal risk sharing. Information asymmetries – whether ex ante (adverse selection), interim (moral hazard), or ex post (costly state verification) – generate market imperfections that can be seen as specific forms of transaction costs. In the context of asymmetric information, monitoring could be one way to improve efficiency. The monitoring activities include screening projects in a context of adverse selection (Broecker, 1990), preventing the moral hazard problem of a borrower during the realization of a project (Holmstrom and Tirole, 1997), punishing (Diamond, 1984) or auditing (Townsend, 1979; Gale and Hellwig, 1985; Krasa and Villamil, 1992) a borrower who fails to meet contractual obligations in the context of costly state verification.

Crowdlending is a new online financial channel that directly links borrowers to lenders. Lenders in the crowdlending market are individual investors who are relatively unsophisticated and lack screening and monitoring skills. Banks are better monitors than individual lenders. First of all, monitoring typically involves increasing returns to scale, which means it is more efficiently performed by financial intermediaries. Second, banks invest in the technologies that allow them to screen loan applicants and monitor their projects using complicated contract terms. The platforms are operated by internet-based companies that generate revenue through service fees from both borrowers and lenders (Klafft, 2008).[18] Since the revenue of crowdlending platforms relies on the volumes of transactions, the platforms prefer a faster application process with less screening. Also, the platforms generally have few incentives for monitoring after the issuance of the loans since they receive their commissions when the loans are issued and their revenue is not dependent on loan performance. In practice, however, platforms such as Toborrow do screen and monitor firms for reputation concern.[19] The reason for this is that a platform with many non-performing loans is not competitive to attract clients, including both firms and investors, especially during their starting stages. Also, investors might be unwilling to participate in the platform if any fraud is revealed, even when the platform has a large enough client base (Giannetti and Wang, 2016). On the other hand, monitors might need incentives to do the job properly due to agency problems; for example, according

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[18]For example, Toborrow charges campaign firms 2-4 percent commission of the total loan size depending on the maturity (See more details in Appendix A.2). From January 2016, the platform also started charging lenders 1 percent of their total investment amounts.

[19]The argument is based on the interview with Toborrow. For example, Toborrow adopts a two-step screening approach. First, Toborrow checks whether a firm satisfies the following basic criteria: (1) Sales of at least 1 million SEK (for firms with good credit records, Toborrow can relax this requirement); (2) at least one annual report; (3) an approved credit rating according to credit bureaus. If a firm fulfills the basic criteria, Toborrow will verify the information provided by the firm and implement a credit check on the individuals behind the firm before approving the firm to start a campaign.

to Holmstrom and Tirole (1997), outside investors require that the monitor participates in the financing. Also, Calomiris and Kahn (1991) claimed that demand deposits provide an adequate instrument for disciplining bank managers. If anything goes wrong, investors withdraw their deposits, which provides incentives for the monitor to perform. Hence, crowdlending platforms with only reputation concerns might not have incentives for monitoring that are as strong as banks, which participate in the financing.

3.2. The choice between crowdlending and bank debt

Market debt is referred to in the literature as corporate bonds. Since direct debts on the bond market are, in practice, less expensive than bank loans, it is usually considered that loan applicants are only those agents that cannot issue direct debt in financial markets. Small firms generally have no access to the bond market. The crowdlending market, which provides direct access by firms to individual lenders, can be viewed as an alternative public debt market for small businesses. I start this section by reviewing the literature regarding choice between market debt and bank debt, and then develop hypotheses on the motivation of borrowing from the crowdlending market.

3.2.1. Market debt vs. bank debt

Theoretical literature on firms' lender choice has focused on the role of intermediaries in frictional markets. First, banks are good reorganizers, as emphasized by Rajan (1992), Bolton and Scharfstein (1996) and Gilson et al. (1990). Since intermediaries reorganize firms more efficiently than arm's length investors, a firm with relatively poor prospects is more likely to need to use the intermediary's reorganization skills and borrow from banks. Second, banks are good project screeners, as analyzed by Diamond (1991), Besanko and Kanatas (1993), Holmstrom and Tirole (1997). Due to the existence of ex ante incentive problems, a firm with serious agency problems tends to borrow from banks, since the banks' screening services could mitigate informational asymmetries and raise corporate value significantly. However, if a firm has minor incentive problems in choosing projects, it will try to avoid intermediaries since the screening cost might outweigh the benefits.

Empirically, Cantillo and Wright (2000) investigated how firm characteristics determine the lender choice between intermediaries and arm's length investors. They found that large and profitable firms with abundant collateral borrow from credit markets directly; these markets cater to safe and profitable industries and are most active when riskless rates or intermediary earnings are low. Faulkender and Petersen (2006) linked the firms' choice on lender and capital structure by taking into account both supply and demand of credit. They found that firms with access to the public bond markets, measured

by having a debt rating, have significantly higher leverage than other firms. Denis and Mihov (2003) found that the primary determinant of the debt choice is the credit quality of the issuer. Firms with highest credit quality borrow from public sources, while firms with medium credit quality borrow from banks, and firms with the lowest credit quality borrow from non-bank private lenders. Hale and Santos (2008) studied the timing of a firm's decision to issue for the first time in the public bond market. They found that firms that are more creditworthy and have higher demand for external funds issue their first bond earlier than other firms.

Previous empirical studies are based on public companies in the U.S., which are typically larger in size, more transparent, and have more funding sources than firms searching for funds in the crowdlending market. Although the crowdlending market has features of public debt markets, like the bond market, the determinants of firms' lender choice between crowdlending debt and bank debt might be different from those between bond and bank loans.

3.2.2. Credit rationing and accessibility to bank loans

Since small businesses are highly dependent on bank financing, one possible motive for those firms to borrow in the alternative debt (crowdlending) market is that they cannot get access to bank credit.

Importance of collateral on debt capacity. In the presence of moral hazard and adverse selection, collateral can be used as a device for lenders for screening heterogeneous borrowers (Bester, 1985). Providing lenders with the option to seize pledged assets is a way to increase the debt capacity of firms (Aghion and Bolton, 1992; Hart and Moore, 1994, 1998; Hart, 1995). Tangible assets are more desirable from the perspective of creditors because they are easier to repossess in bankruptcy states. Previous studies have documented a positive relationship between asset tangibility and firm borrowing (e.g., Almeida and Campello, 2007; Campello and Giambona, 2013; Frank and Goyal, 2009; Rampini and Viswanathan, 2013), especially for financial constrained firms (Almeida and Campello, 2007) and firms located in countries with poor protection of creditor rights (Giannetti et al., 2003). Thus, small businesses with fewer tangible assets to pledge might suffer from difficulties of obtaining bank credit.

Spatial rationing. Recent literature has also highlighted the importance of distance between the borrower and the bank for the availability of credit (Degryse et al., 2009). A lot of small business lending is still "character" lending. To perform screening successfully, loan officers must interact with the borrower, establish trust, and be present in the local community (Berger and Udell, 2002; Uchida et al., 2012). As a result, small (opaque) firms may be subject to credit rationing when seeking financing across larger distances, which means they rely on credit from local banks.

Credit supply frictions. Capital market supply frictions may also put constraints on some firms' ability to borrow. For example, Leary (2009) used two exogenous shocks to the bank-credit supply (the 1961 emergence of the market for certificates of deposit and the 1966 credit crunch) and found that the leverage ratios of firms without bond market accessibility are more sensitive to capital market supply frictions. Moreover, Becker and Ivashina (2014) also found strong evidence of the substitution effect between bank credit and public debt at times of tight lending standards, depressed aggregate lending, poor bank performance, and tight monetary policy. Small firms, which typically have no access to public debt markets, will need to find alternative sources of capital to avoid capital constraints if bank credit is not accessible.

3.2.3. Alternative credit market with cheaper credit

Another possible motive of small businesses to borrow from the crowd is that the crowdlending market offers lower price of debts than credit institutions. The argument in favor of crowdlending is that it could provide cheaper loans for borrowers since crowdlending connect borrowers and lenders directly by skipping the financial intermediaries. However, based on the argument in section 3.1.1, it could be very costly for the less sophisticated crowd to screen and monitor risky and opaque small businesses. Also, expecting that platforms have few incentives to screen and monitor campaign firms, individual lenders in the crowdlending market might request higher interest rates to mitigate their risks.

Assume that there is no asymmetric information after the bank's screening and no moral hazard problem if the bank monitors the firm after loan issuance, and r_0 denotes the interest rate without those frictions. The screening and monitoring costs for the bank are denoted as c_B. The interest rate the bank is going to charge the firm is[20]

$$r_B = r_0 + c_B \tag{1}$$

Let r_{IA} be the risk premium that individual lenders request in addition to r_0 due to asymmetric information and moral hazard, and c_C be the service fees charged by the platform on the firm. The cost for the firm to borrow from the crowdlending market is

$$r_C = r_0 + r_{IA} + c_C \tag{2}$$

Thus, whether crowdlending loans are cheaper than bank loans or not depends on the trade-off between the bank screening and monitoring costs c_B and the total of risk pre-

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[20]Here I assume perfect competition among banks for simplicity. In practice, some banks might have monopoly market power in certain regions, which means that the interest rate charged by the bank could be higher than $r_0 + c_B$.

mium by individual lenders and the commission charged by the platform on the firm $r_{IA} + c_C$.

4. Data and Variables

This paper combines a variety of data sources. Information about project campaigns and the loan characteristics of firms borrowing via Toborrow is manually collected from Toborrow's website. Firm characteristics, including financial information, are obtained from Serrano database. I also gathered information on regional factors from Statistics Sweden and other Swedish government agencies.

4.1. Toborrow campaign data

Toborrow provides publicly accessible information on the webpages of each project launched on the site (see Figure 2 for an example of a campaign project on Toborrow). The project webpages provide a general description of the purpose of the project and loan details, such as target amount, maturity, amortization, guarantee, etc. The project webpages also provide basic firm information, including legal name and form, registration date, location and industry, a brief description of the firm's history and business area, credit category, as well as a simplified version of the most recent three years' financial statements. The credit and financial information of all firms is obtained from Upplysningscentralen (UC), a Swedish credit bureau. Based on the credit score from UC and other external credit information providers such as Soliditet and Business Check, Toborrow categorizes all firms on its site into five different risk classes: (A) Very good; (B) Good; (C) Creditworthy; (D) Weak credit; (E) Not creditworthy.[21] On the project webpages of an ongoing campaign, Toborrow also provides information about the status, such as the starting and end dates, the percentage of subscription, total bids on the project so far, as well as the average and highest interest rate among the accepted bids. I manually collected information from all project pages on Toborrow.com, including both funded and suspended ones. As of May 1, 2016 there were 63 firms with campaigns on Toborrow. Five firms have raised money twice on Toborrow and four firms have suspended their campaigns. In total, there are 68 campaigns, of which 61 have been successful, three are ongoing, and four have been suspended.

I also obtained bid history data of 65 closed campaigns from Toborrow. This data contains detailed information for each bid, including the anonymous identity o f the investor, bid amount, bid interest, bid time, and outcome (accepted or not). Toborrow uses a dynamic bid-excluding mechanism to optimize the interest rate during the auction process.

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[21] See the link `https://toborrow.se/sv/hjalp/` for details of the risk category set up by Toborrow. For empirical analysis convenience, I constructed a risk score variable based on the risk category. See table 1 for the definition of risk score.

I can use this to observe the evolution of each bid about the proportion of the bid amount and time it has been excluded if a new bid with lower interest rate enters. Since four campaigns were suspended during the auction process, I excluded the bidding history of those campaigns in the empirical analysis. In total, my sample contains 25,523 bids for 61 campaigns.

4.2. Firm level data

I constructed a dataset from the Serrano database with firm characteristics covering both firms borrowing through Toborrow and other Swedish limited liability corporations during the same period. The Serrano database, produced by a commercial data provider PAR, is a comprehensive dataset on firm registration and financial history based on financial statement data and bankruptcy information from the Swedish Companies Registration Office (Bolagsverket), general firm history data from Statistics Sweden (SCB), and group data from Bisnodes group register. The Serrano Database covers most legal forms in the Swedish business community from 2000 to 2015.

I first collected the registration numbers of all 63 firms with campaigns on Toborrow from the website of the Swedish Companies Registration Office,[22] based on the legal name of the firms. The 10-digit registration number is a unique ID for a firm in Sweden. Using the registration number, I am able to identify the firms in the Serrano database and whether or not they have borrowed via Toborrow. The registration number also enables me to merge the hand-collected Toborrow campaign data with the Serrano database. Among the 63 firms with campaigns on Toborrow, 61 firms' registration information and financial statements can be found in the Serrano database.[23] All 61 firms are private limited liability corporations. I use the consolidated financial statements for firms in my sample. All the financial ratios are winsorized at the 1 percent level.

To construct the final sample, I first excluded those firms in the Serrano dataset that are not limited liability corporations. Next, I excluded public firms and private firms with bond market accessibility, which is measured by whether a firm has corporate bond issuance from 2010 to 2016. Since all of the firms borrowing through Toborrow are private limited liability corporations without bond market accessibility, their funding choices are bank loans and crowdlending loans. In order to understand the motivation of those small businesses to borrow from the crowd, it is necessary to restrict the control group to similar firms without access to public equity and bond markets. Another concern is that firms did not borrow from either credit institutions or the crowd because those firms did not need new financing or because they were not able to raise new financing. To mitigate the

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[22]https://www.verksamt.se/sok-foretagsnamn

[23]Two firms' registration information and finanical statements could not be found in the Serrano database due to the reason that they both newly started in 2015.

potential endeneity, I followed Becker and Ivashina (2014)'s approach and restricted the sample to those firms that have a positive demand for debt. I computed the yearly change of debts to credit institutions for each firm in the sample, and for each year only kept firms with increasing debts to credit institutions in the control group. Conditional on firms raising new debt financing, I obtained a sample with 90,123 firm-year observations, including firms that borrowed from the crowd (the treatment group) and firms that borrowed from traditional credit institutions (the control group).

4.3. Regional level data

The most detailed regional level data I could obtain in Sweden is at the municipal level. To construct the variable of bank branches per capita at the municipal level, I first manually collected bank branches' information from the websites of Swedish banks and other Internet resources, and then aggregated the number of bank branches at the municipal level. To compute the bank branches per capita, I divided the number of bank branches by the population for each municipality.[24]

The bankruptcy rate and startup rate at municipal level is calculated using firm registration information in the Serrano database. I started by aggregating the number of firms that filed for bankruptcy (registered as a startup) and the total number of firms at the municipal level for each year. I then computed the municipal level bankruptcy (startup) rate by dividing the number of firms that filed for bankruptcy (registered as a startup) by the total number of firms. The regional-level criminal events data were obtained from the website of the Swedish National Council for Crime Prevention, which provides statistics on criminal events by criminal type at the municipal level until 2015. In this paper I use three measures: total criminal events, total economic criminal events, and total crimes against creditors. I normalized the criminal events statistics by the population at municipal level to obtain municipality criminal events per capita for each year. Then I took a logarithm for each of the three normalized measures of criminal rates.

Since Statistics Sweden only provides municipal level GDP data until 2013, I use retail sales per capita and retail sales growth at the municipal level as proxies for regional economic growth. These data are provided by HUI Research institution. Retail sales per capita are normalized by the population at the municipality. Retail sales growth is the annual growth rate at the municipal level. The measure of retail sales contains both fast-moving consumer goods and durable goods. The municipal house price growth is measured as the accumulative house price growth back to three years.

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[24]I use the population at municipal level in 2013 for the bank branches per capita calculation. I also tried to use the GDP by municipality as the denominator, with similar results.

4.4. Summary statistics

Table 2 and 4 summarize the statistics of campaigns on Toborrow. Firms borrow on average 605,000 SEK with 19 months maturity through the crowdlending platform. The main purpose of borrowing is to invest and expand the businesses. The average interest rate for the crowdlending loans is 8.8 percent, and the interest spread between the highest and lowest accepted interest rates averages 4 percent. These comparatively high interest costs might not be surprising given that only 12 percent of the campaigns use collateral and 88 percent of the campaigns only have guarantees, mainly from the personal level, which can be considered riskier than loans with collateral. Eighty-four percent of the loans are amortized, which suggests that the high interest rates of crowdlending loans incentivize firms to reduce the principle.

Table 3 provides a summary statistics of the profile of campaign firms on Toborrow. Firms borrowing through Toborrow are mainly small in size. Eighty-four percent of campaign firms have fewer than five employees and 18 percent of firms are single-person firms. Half of the firms are between four and 10 years old and 33 percent are more than 10 years old.[25] This suggests that firms raising money from debt-based crowdfunding are generally mature, which is in contrast to the start-up profile of firms on reward-based and equity-based crowdfunding platforms.[26] Another difference between firms on Toborrow and other reward-based and equity-based crowdfunding sites is the industry categories. According to Table 3, firms borrowing via the crowdlending platform are spread among different traditional industry sectors, such as corporate services, shopping goods, etc., while literature has shown that reward-based crowdfunding is mainly used to finance artists, musicians, film-makers, journalists, and entrepreneurs in other artistic and creative areas (e.g., Agrawal et al., 2013; Mollick, 2014; Xu, 2016). Geographically, more than half of the firms on Toborrow are located in cities, which might be due to the fact that the newly emerged financing channel has better penetration in cities.

5. Empirical strategy and results

In this section, I investigate the determinants of a firm's decision to borrow from the crowd. Since firms on Toborrow are all small private firms, they do not have access to public equity market. Moreover, those firms are comparatively mature and in traditional

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[25]The average age of firms in the sample consisting of both campaign firms on Toborrow and benchmark firms is 10 years old (see Table 4).

[26]For example, according to Mohammadi and Shafizadeh (2016), the average age of a firm raising capital through equity-based crowdfunding on FundedByMe is 2.64 years. Also, scholars have found that crowdfunding is seen as a way to reduce the funding gap in the early stages of new ventures (Röthler and Wenzlaff, 2011), while funding from venture capitalists and banks is usually available only in the later stage of startups (Berger and Udell, 1998; Robb and Robinson, 2014).

sectors, which means they might not be primary targets for venture capitalists (see Table 3 for the summary statistics on the profile of campaign firms on Toborrow). I further checked the bond market accessibility of those firms and found that none of them have issued any corporate bonds since 2010.[27] Hence, those firms rely heavily on bank financing if they do not have adequate internal funds for investment. Thus, to understand a firm's motivation to borrow from the crowdlending market is to investigate the determinants of a firm's funding choice between bank loans and crowdlending loans. Since I could not observe whether a firm has applied for bank loans before going to the crowdlending market, I examined the ex ante firm characteristics that could determine the probability that a firm will borrow from the crowd, using private limited liability firms obtaining bank loans but without bond market accessibility as the benchmark group. I also investigated regional factors that could affect the likelihood of borrowing from the crowd.

5.1. Firm characteristics

I used a probit model to examine which ex ante firm characteristics determine the probability that a firm will borrow from the crowdlending market. The estimated equation is in the following form:

$$Pr(Crowdlending_{it+1} = 1) = F(\textbf{\textit{FirmCharacteristics}}_{\textbf{\textit{it}}}\boldsymbol{\beta}_f + \gamma Year_t + \delta Industry_i) \tag{3}$$

where $Crowdlending_{it+1}$ is a variable that equals 1 if firm i borrows through the crowdlending platform Toborrow in year t and equals 0 otherwise, $F(.)$ is the cumulative distribution function of a standard normal variable, $Industry_i$ is industry dummy and $Year_t$ is a calendar year dummy. $FirmCharacteristics_{it}$ stands for firm characteristics that could affect the likelihood of borrowing from the crowd, including a logarithm of sales, firm age, profitability (measured by ROA), debt ratio, cash holdings, tangibility (measured by the ratio between tangible and fixed assets), and pledged ratio (measured by the ratio between pledged and tangible assets), investment, and sales growth. Since I do not have the industry sales growth measures, I control for it by adding industry-year fixed effect.

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[27]There are two marketplaces for SMEs to issue corporate bonds: the Nasdaq OMX First North Bond Market, which was launched in 2012, and RänteTorget, which was launched by AktieTorget in 2013. No firms that campaigned on Toborrow have issued any corporate bonds on those two markets. I also checked the main board of Nasdaq OMX Bond Market and overseas markets and no firms have issued corporate bonds since 2010. The minimum requirement on the market value of a corporate bond issuance is 2 million SEK on Nasdaq OMX First North Bond Market and 400,000 SEK on RänteTorget. Small firms that want to borrow from the public for an amount below 400,000 SEK can only go to crowdlending platforms such as Toborrow, where firms could campaign for a loan between 100,000 and 2 million SEK. Moreover, the issuing cost on RänteTorget is much higher than that on crowdlending platforms such as Toborrow. For example, an issue with 1 million SEK bond with a one-year maturity costs 185,000 SEK on RänteTorget but 20,000 on Toborrow; an issue with 2 million SEK bond with a three-year maturity costs 506,000 SEK on RänteTorget but 80,000 on Toborrow.

Table 5 reports the maximum likelihood estimates of this probit model, as well as their standard errors. It can be seen that a company's size has a significantly positive impact on the probability of borrowing from the crowd. The coefficient of the logarithm of sales is statistically significant in all regression specifications except column (8). This might be because crowdlending platforms generally require small businesses to reach certain economic scale in order to campaign on their platforms (for example, Toborrow generally requires campaign firms to have sales of at least 1 million SEK, although this requirement could be relaxed for some firms with good credit records). Thus, those firms might be larger in sales than the ones in the benchmark group. To rule out the concern that firms with too-small sales might have difficulty to get access to crowdlending market, I restricted the sample by excluding firms with less than 0.5 million SEK sales in the benchmark group and repeated the analysis. As shown in Table A5, the coefficient of the logarithm of sales becomes insignificant, while the estimates on the coefficients of other firm characteristics remain stable after excluding firms with less than 0.5 million SEK sales in the benchmark group.

Firm age has a negative impact on the likelihood of going to the crowdlending market for credit, but the effect is statistically significant in only two specifications. This suggests that younger firms are more likely to borrow through the new financial channel, although most firms on Toborrow are relatively mature. Profitability has no explanatory power on the probability of borrowing from the crowd. The coefficient of ROA is not statistically significant in seven out of the eight specifications. The only significant case is merely at 10 percent level, which is shown in column (3).

Debt ratio has a negative impact on the likelihood of borrowing from the crowd, although the coefficient is statistically significant in two out of five specifications. This suggests that firms borrowing in the crowdlending market have lower ex ante leverage than firms borrowing from the banks. Also, the tangible fixed assets ratio is negatively correlated with the probability of borrowing from the crowd. The coefficient is statistically significant at 1 percent across all regression specifications. The negative correlation indicates that firms going to the crowdlending market for funding have fewer tangible assets to pledge as collateral than firms obtaining bank loans, and therefore face challenges accessing bank credit and search for alternative funding sources. Moreover, it can be seen from column (6) that firms borrowing from the crowd have a higher proportion of their tangible assets that have already been pledged as collateral compared with firms borrowing from banks. Since more highly leveraged firms might have pledged more tangible assets, I added an interaction term of debt ratio and pledged tangible assets ratio together with debt ratio in the regression. The results are reported in column (7). It can be seen that the interaction term is positively significant, which indicates that firms borrowing from the crowd have higher pledged tangible assets ratios, especially among those

firms with higher leverage ratios. This implies that the motivation for those firms to go to the crowdlending market might be the search for alternative funding source after having exhausted their debt capacity.

It is worth pointing out that the cash holdings have a negative impact on the likelihood of borrowing from the crowd, although the coefficient is not significant after controlling for investment. This indicates that firms raising money from the crowdlending market have a greater shortage of internal funds than firms borrowing from banks. Also, sales growth has a positive impact on the probability of borrowing from the crowd, which is statistically significant even after controlling for the industry-year fixed effects. This implies that firms borrowing through crowdlending platforms might have higher demands for external funding to expend their businesses than firms borrowing from banks, given that they are short of internal funds.

Column (8) shows the results of the regression specification, including all firms' characteristics. Tangible/fixed assets ratio and sales growth appear to be the most significant determinants of the probability of borrowing from the crowd.

To summarize, firms going to the crowdlending market for funding have higher growth rate and fewer internal funds than firms borrowing from banks, and therefore might have higher demand on external funds. However, with lower tangibility and fewer available assets to pledge as collateral, they might suffer from credit rationing by banks or need to pay a very high cost of bank credit if granted, and are therefore more likely to rely on alternative financing sources.

5.2. Regional factors

I used a probit model to examine regional factors that might predict the probability of a firm to borrow from the crowdlending market. The estimated equation is in the following form:

$$Pr(Crowdlending_{it+1} = 1) = F(\textbf{\textit{RegionCharacteristics}}_{ct}\boldsymbol{\beta_r} + \gamma Year_t) \tag{4}$$

where $Crowdlending_{it+1}$ is a variable that equals 1 if firm i borrows through the crowdlending platform Toborrow in year t and equals 0 otherwise, $F(.)$ is the cumulative distribution function of a standard normal variable, $Year_t$ is a calendar year dummy. $RegionCharacteristics_{ct}$ stands for regional factors at municipal level that might affect the likelihood of borrowing from the crowd, including the number of bank branches per capita; the bankruptcy rate measured by the ratio of the number of bankrupt firms to total firms; and the logarithm of total criminal events per capita, total economic criminal events per capita, and total crimes against creditors per capita.

The results are reported in the odd-numbered columns in Table 6. It can be seen that

the number of bank branches per capita has no prediction power on the probability of borrowing from the crowd, which suggests that spatial rationing is not the reason why firms go to the crowdlending market for funding in Sweden. This is consistent with the finding in Carling and Lundberg (2005) that used data on corporate loans granted between 1994 and 2000 by a leading Swedish bank and found no evidence of geographical credit rationing. Column (3) shows the results of local bankruptcy rate on the probability of borrowing from the crowd. Firms located in municipalities with higher bankruptcy rates are more likely to use crowdlending sites to raise money. This effect is robust after controlling for local start-up rate and local economic condition, measured by retail sales level and growth, which could rule out the explanation that high entrepreneurial entry may be associated with a higher bankruptcy rate as well as more applications for crowdlending loans. A possible explanation could be that firms located in regions with higher bankruptcy rates might have less accessibility to bank credit since those firms might be evaluated with comparatively high bankruptcy risks.

I also examine the effect of regional criminal level on the probability of borrowing from the crowd. Parsons et al. (2014) showed that regional patterns of financial misconducts are not related to economic or demographic characteristics, but are instead explained by peer effects. The peer effects mean that one person's misbehavior can change perceptions of acceptable behavior and therefore cause spillovers that create "waves" of local misbehavior. As a result, firms located in regions with higher financial misconduct might find it more difficult to obtain bank credit since banks might expect that firms in those regions are more likely to become involved in criminal events. On the other hand, Giannetti and Wang (2016) showed that corporate scandals reduce household stock market participation for both fraudulent and non-fraudulent firms since households lose trust in the stock market after the revelation of fraud. Hence, firms located in regions with higher fraud exposure might find it more difficult to raise capital on crowdlending platforms. Therefore, the effect of regional criminal level on the probability of borrowing from the crowd is an empirical matter.

In this paper, I used three measures of local criminal rates to examine the impact of regional criminal level on the probability of borrowing from the crowdlending market. The results are reported in columns (6)-(12) in Table 6. It can be seen that only the total criminal rates have prediction power, while the other two measures – economic criminal rates and against creditors' criminal rates – do not have much explanatory power on the probability of borrowing from the crowd. In addition, I added firm characteristics that could affect the likelihood of firms borrowing from the crowdlending market, then the regression specification becomes

$$Pr(Crowdlending_{it+1} = 1) = F(\textbf{\textit{RegionCharacteristics}}_{ct}\boldsymbol{\beta_r} + \textbf{\textit{X}}_{it}\boldsymbol{\beta_f} + \gamma Year_t + \delta Industry_i) \quad (5)$$

where X_{it} stands for the firm characteristics, which include logarithm of sales, cash holdings, tangibility (measured by the ratio between tangible and fixed assets), and sales growth. I also included an industry dummy in the probit model to control for industry fixed effect. The industry sales growth is controlled by the industry-year fixed effects. The results are shown in the even-numbered columns in Table 6, which are consistent with those in the odd-numbered columns without firm characteristics controls.

Another regional factor that could influence the likelihood of firms to borrow from the crowd is local house price growth. House price appreciation could increase the collateral value for firms owning properties and relax their financial constraints. Recent studies have shown the importance of home equity on small business and entrepreneurial financing (e.g., Adelino et al., 2015; Corradin and Popov, 2015; Jensen et al., 2015; Kerr et al., 2015; Schmalz et al., 2013). Also, some firms might borrow from banks through their owners or shareholders' personal loans. As shown in Hosseini (2016), owners and their families' personal real estate is used to finance their companies in Sweden. Therefore, firms located in municipalities with relatively high house price growth might be more likely to borrow from banks using housing collateral. I computed the accumulative house price growth back to three years at municipal level and added into the regression analysis. As shown in Table 6, the municipal house price growth is negatively correlated with the probability of a firm borrowing from the crowd, although the coefficient is not statistically significant.

5.3. Robustness checks

To further rule out potential unobservable factors that could drive the probability of going to the crowdlending market and key firm characteristics, I constructed a matched sample using exact matching on year, industry, employee category, and propensity score matching on logarithm of sales, logarithm of assets, and firm age for robustness check. For simplicity, I referred to the firms that have borrowed through the crowdlending platform Toborrow as the treatment group. For each firm in the treatment group, I use nearest-neighborhood matching method in the whole sample to find five matched firms to form the control group. There are 354 observations in the matched sample. Table A2 shows a comparison of firm characteristics between the treatment and control groups. The last column in the table shows the t-test of the difference between the means of the characteristics of firms in the treatment and control groups. It can be seen that firms borrowing in the crowdlending market have, on average, higher growth rates, lower tan-

gibility, and less cash than firms that get bank credit in the control group.

Table A3 shows the results for the same regressions as in Table 5 but using the matched sample. Table A4 shows the results for the same regressions as in Table 6 but using the matched sample. It can be seen that regressions on the matched sample generate results similar to the whole sample.

5.4. Discussion

The results so far suggest that firms that have higher growing rates and external funding demands, but lack sufficient pledgeable assets, are more likely to borrow from the crowd, which indicates that crowdlending is an important alternative financing source for small businesses.[28] There are two possible mechanisms. The first is that those financially constrained small businesses become rationed by banks and the emergence of crowdlending completes the missing credit market. The second is that those small firms could access credit from banks, albeit at a very high cost, and crowdlending provides an alternative source with more favorable credit terms and help those firms to diversify their funding source. However, it is challenging to disentangle those two mechanisms due to a lack of data about whether those firms have applied for bank loans before going to the crowdlending market and about the costs of bank loans those firms are offered. Instead of formal empirical tests, in this section, I focus on a qualitative discussion of those two mechanisms.

Does the crowdlending market provide cheaper credit than banks? Figure 6 presents a comparison of the average interest rates between Toborrow and new bank loans to all non-financial firms from July 2014 to February 2016. The average borrowing rate on Toborrow's site is 9 percent across this period, which results in a total cost of 11-13 percent after taking into account the commission fees, while the average bank loan rates to non-financial firms are around 2-3 percent. Even though the benchmark bank loan rates for small businesses are usually much higher than the average bank loan rates to all non-financial firms, the 11-13 percent average cost of crowdlending loans could still be considered a very high cost, especially under the current low interest rate environment. As a result, it might be less likely for firms borrowing from the crowd to be driven by more favorable credit in the crowdlending market.

If firms are not motivated by cheap credit when they go to the crowdlending market, then it should be that those firms with external funding demands get rationed by banks. According to the 2014 survey of Swedish SMEs by the Swedish Agency for Economic and Regional Growth, the percentage of SMEs that reported that access to loans and credit is a major obstacle for business growth increased from 8.9 percent in 2008 to 12.2 percent

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[28]This is consistent with the findings in Giannetti et al. (2003) that firms with higher ratio of tangible assets to total assets have higher leverage, especially in countries with poor creditor rights protection.

in 2014.[29] This might attribute to the tightened regulation on the banking sector after the financial crisis. For example, under the Basel III framework, the Common Equity Tier 1 capital requirement of risk-weighted assets increased from 3.5 percent in 2013 to 4.5 percent in 2015; the minimum Tier 1 capital requirement increased from 4.5 percent in 2013 to 6.0 percent in 2015.[30] The Basel Committee has also revised the standardized approach for credit risk calculations to ensure that capital requirements reflect the inherent riskiness of exposures. Since higher risk assets require a bank to hold more capital for risk management purposes, banks might limit their lending to SMEs in order to reduce their risk exposure. In May 2016, the Swedish Financial Supervisory Authority (Finansinspektionen) decided to implement a new assessment method to evaluate the banks' calculations of risk weights for exposures to corporates.[31] The new method requires that banks using the internal ratings-based (IRB) approach calculate the risk weights under more restricted assumptions: (i) the calculations of probability of default should assume that at least every fifth year is a downturn year; and (ii) the assumed default frequencies during a downturn year may need to be raised. As a result, the risk weights for exposures to corporates will increase, which might further impact the credit supply to SMEs.

Also, according to the interviews with crowdlending platforms (Toborrow.se, Kameo.se, etc.), banks are less interested in lending to small businesses since it is less profitable due to the high risks and high screening and monitoring costs associated with small business lending, especially for small-sized loans. Considering the current booming housing market in Sweden, banks are more willing to allocate their credit supply to mortgagors for comparatively easier screening process and high valuation of the underlining collateral. Therefore, small businesses, especially those lacking collateral, might face challenges to access external financing. The newly emerged crowdlending market fills the capital needs of those SMEs and completes the missing financial market.

6. The determinants of loan costs

The results in this paper so far have shown that firms with high demands on external credit, but face challenges to access bank loans go to the crowdlending market for funds. A natural following question is how the commercial loans in the crowdlending market are priced. Does the price depend on firms' financial information or loan terms in a different way than bank loan prices?

Previous studies on the determinants of funding success and loan costs in the crowdlend-

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[29] http://www.tillvaxtverket.se/huvudmeny/faktaochstatistik/foretagande/hinderfortillvaxt.4.2fb8c83014597db7ce977ea6.html?chartCollection=4

[30] http://www.bis.org/bcbs/basel3/basel3_phase_in_arrangements.pdf

[31] http://www.fi.se/upload/90_English/20_Publications/20_Miscellanous/2016/pm-riskvikter-2016-05-24eng.pdf

ing market are mainly based on consumer loans. Similar to the traditional banking system, financial information such as credit score and debt-to-income ratio have the most impact on the interest rate of the loan (Iyer et al., 2015; Klafft, 2008). However, due to a substantial information asymmetry problem, P2P platforms typically demand borrowers to provide demographic information and encourage borrowers to provide additional social information, such as friends, networks, and photos. Many studies have shown that those demographic characteristics also have prediction power on funding success and impact on the interest rate charged (Duarte et al., 2012; Herzenstein et al., 2008; Michels, 2012; Pope and Sydnor, 2011; Ravina, 2012). In addition, social network matters for the interest rate determination (Berger and Gleisner, 2009; Freedman and Jin, 2011; Hildebrand et al., 2016; Lin et al., 2013).

Mach et al. (2014) was the first study to examine the determinants of funding success and interest rate in the crowdlending to businesses market, using data on individual loans and applications from LendingClub.com. Those authors pooled small business loans together with consumer loans and compared the probability of being funded and interest rate between loans for small business and other purposes, controlling for loan terms and borrowers' credit and financial information.[32] They found that, controlling for quality of the application, loans are more likely to be funded when they are designated for small businesses, while the interest rate is charged nearly a full percentage point higher than loans for other purposes.

In this section, I examine the determinants of loan costs for firms borrowing in the crowdlending market by investigating both firms' financial and non-financial information exposed to lenders. Since Toborrow lets investors decide interest rates via an auction process, a more popular campaign might benefit from the competition of a larger number of participants that could drive the price down (see Figure 5). Thus, I examined how those exposed information impact campaign popularity first, and then investigated how this exposed information determines loan costs.

6.1. Determinants of campaign popularity

I used an OLS regression to examine the determinants of campaign popularity. The estimated equation is as follows:

$$BidAcceptanceRate_i = \alpha + X_i\beta + \epsilon_i \qquad (6)$$

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[32]Since LendingClub.com is a P2P lending platform of personal loans for business and non-businesses purposes, Mach et al. (2014) focused on the financial information of the business owner rather than the company itself.

where $BidAcceptanceRate_i$ measures campaign popularity (more popular campaigns have lower bid acceptance rates); X_i contains standard financial information, including firm characteristics, credit score, and loan terms, as well as non-standard information regarding campaign representative profile. Firm characteristics are those key firm financial variables of the most recent year exposed on the websites of the platform, which include sales (in logarithm), profitability (ROA), debt ratio, current/total assets, firm age and quick ratio.[33] Loan terms variables include loan size (target amount), maturity, whether the loan is amortized, whether the loan is secured by collateral. The campaign representative profile includes the number of campaign representatives, whether the owner or CEO of the firm is among the representatives, whether the representatives contains females, and whether the representatives have photos on the website.

Table 7 reports the results of this regression. Column (1) shows the regression specification of the bid acceptance rate on standard financial information. The coefficient of risk score is positively significant at 1 percent, which indicates that investors prefer lower risk firms. It can also be seen that small-sized, short maturity, or amortized loans have lower bid acceptance rates and are therefore more popular. This consistently suggests that lenders prefer to invest in safer loans. If a firm suffers from liquidity problem, they might find it easier to repay smaller loans than larger loans given similar seniority. Also, loans with shorter maturity and amortization schedules enable lenders to have the principal paid back earlier and reduce the risk bearing compared with longer maturity or non-amortized loans. The coefficient of current/total assets ratio is negatively significant at the 1 percent level, which suggests that lenders favor campaign firms with a higher proportion of current assets. Also, quick ratio has a negative impact on the bid acceptance rate, although this is not significant. Both findings imply that campaign firms with higher liquidity are more popular among investors. Since the interest of loans on Toborrow should be paid to lenders quarterly and 84 percent of loans have amortization schedules, a firm's ability to settle those payments is determined by the firm's liquidity. As a result, it is not surprising that investors in the crowdlending market prefer to lend to firms with higher liquidity on the platform.

Column (2) in Table 7 reports the results of the effects of non-standard information (campaign representative profile) on campaign popularity. The coefficients on all the four measures of campaign representative profile are not statistically significant, which is contrary to the findings in previous studies on P2P lending. This indicates that, in the commercial crowdlending market, firms are the borrowing entities and thus the fundamental

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[33]Information on firm characteristics exposed on the websites of Toborrow contains only key financial variables such as sales, total assets, ROA, debt ratio, and quick ratio, which are only part of the firm's financial statements. Information on tangible assets and pledged assets is not disclosed to investors on Toborrow's websites. Therefore, I have only included financial variables that are available on the websites of Toborrow for the analysis of the determinants of campaign popularity.

information of firms play a vital role in determining the popularity of loan campaigns. The campaign representatives in the commercial crowdlending market are not as important as those in the consumer crowdlending market, and therefore have little explanatory power in campaign popularity.

Since there are five firms that raised money twice through the platform, the evaluation on the second campaign of those firms by the lenders might be influenced by the fact that they have not defaulted their first borrowed loans. Thus, I added a dummy that equals one if the campaign is the firm's first time borrowing via the platform and zero otherwise. I also controlled for the length of the campaign (measured by the number of campaign days) since longer campaigns might have longer times in order to attract more investors. Another factor to consider is the campaign time since later campaigns could benefit from a larger base of investors compared with earlier campaigns. Hence I added an additional variable – the campaign order – in the regression, which measures the rank of campaign time. Column (4) in Table 7 shows the regression results after taking into account those three campaign-related factors. Consistent with my expectations, campaign order has a significant negative effect on the bid acceptance rate, which suggests that later campaigns are more popular due to a larger base of investors on the platform. However, neither the length of a campaign nor whether the campaign is the firm's first has explanatory power on campaign popularity.

For robustness check, I used an alternative measure of campaign popularity –subscription rate. Subscription rate is a value-weighted measure and is defined as the total amount of money of all bids divided by the target loan size, which is negatively correlated with the bid acceptance rate. The results are shown in Table A7, which are consistent with the findings in table 7. Firms with lower risk score, higher current asset, ratio and quick ratio, and issuing loans with smaller size or amortization schedules are more popular among investors in the crowdlending market.

6.2. Determinants of Interest rate

In this section, I examine the determinants of the crowdlending loan prices for firms. Since the interest rates are determined directly by the lenders through a discriminatory price auction process, I use the value (bid size) weighted average interest rate of all accepted bids in equilibrium when the auction ends. The equation below shows the regression specifications:

$$InterestRate_i = \alpha + X_i\beta + \epsilon_i \tag{7}$$

where $InterestRate_i$ is defined as the value (bid size) weighted average interest rate of all accepted bids; X_i contains standard financial information including firm characteristics,

credit score and loan terms, as well as non-standard information regarding campaign representative profile. Firm characteristics are those key firm financial variables of the most recent year exposed on the websites of Toborrow, which include sales (in logarithm), profitability (ROA), debt ratio, current/total assets, firm age, and quick ratio.[34] Loan terms variables include loan size (target amount), maturity, whether the loan is amortized, and whether the loan is secured by collateral. Campaign representative profile includes the number of campaign representatives, whether the owner or CEO of the firm is among the representatives, whether the representatives contains females, and whether the representatives post photos on the website.

Table 8 reports the results of this regression. Column (1) shows the regression specification of loan price on standard financial information. The coefficient of the risk score is positively significant at 1 percent, which is not surprising given that firms with higher risks are offered loans with higher interest rates. Also, loans with larger size and longer maturity are charged higher interest rates on average. This is consistent with the prediction of risk score that larger-sized or longer maturity loans are associated with higher risks and are therefore the most costly. Moreover, the current/total assets ratio has a significant negative impact on the value-weighted average interest rate, which could be due to the fact that firms with higher current assets ratio are more likely to fulfill the repayment obligations.

Column (2) shows the effect of campaign representative profile on the interest rate and column (3) reports the results on the regression specification combining both standard financial information and non-standard information. It can be seen that none of the four campaign representative profile measures is statistically significant, which indicates that non-standard information has no explanatory power on the interest rate. Although previous studies on consumer P2P lending (e.g., Duarte et al., 2012; Herzenstein et al., 2008; Hildebrand et al., 2016; Lin et al., 2013; Pope and Sydnor, 2011; Ravina, 2012) have emphasized the role of non-standard financial information such as borrowers' demographic characteristics and social networks in determining the loan prices, the impact of owner or management personal characteristics on the interest rate is quite limited in P2B lending.[35]

Similar to when I examined the determinants of campaign popularity, I also added in the campaign specific factors that could affect the loan price. These are: whether the campaign is launched by the firms for the first time on the platform, the length of the campaign, and the campaign order in the regression equation (7). Column (4) in Table

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[34]Information on firm characteristics exposed on the websites of Toborrow contains only key financial variables such as sales, total assets, ROA, debt ratio, and quick ratio, which are only part of the firm's financial statements. Information on tangible assets and pledged assets is not disclosed to investors on Toborrow's websites. Therefore, I have only included financial variables that are available on the websites of Toborrow for the analysis of the determinants of interest rate.

[35]On Toborrow, campaign representatives are owners or members of the firm's top management.

8 reports the results. It can be seen that the campaign order has a significant negative impact on the interest rate, which could be attributed to the higher competition among lenders in later campaigns as the platform attracts more investors across time. The coefficients of the other two factors are not statistically significant.

7. Concluding remarks

This paper has investigated the motive of firms borrowing in the newly emerged crowdlending market by examining which ex ante firm characteristics and regional factors determine the probability of borrowing from the crowd, compared with borrowing from banks. I have shown that firms with higher growth rate, lower internal funds, and less available pledgeable assets as collateral are more likely to go to the crowdlending market. Also, firms located in municipalities with higher bankruptcy rates and criminal rates are more likely to borrow from the crowd.

I also investigated the determinants of campaign popularity and borrowing cost of commercial loans in the crowdlending market. Similar to traditional credit markets, the price of crowdlending loans to corporates are determined by firms' standard fundamental information. Non-standard information such as campaign representative profiles, which have been emphasized in previous P2P lending literature, has no explanatory power in P2B lending.

My findings indicate that crowdlending is an important alternative financing source for small businesses. Although it is still small in terms of market size in Sweden, the role of crowdlending in businesses financing might become more important considering the new regulation on banks' calculations of risk weights, which could incentivize banks to limit credit supply to SMEs in order to reduce their exposure to high-risk investments.

Policy makers, both in Sweden and internationally, are currently working on regulating the crowdfunding market, especially the lending-based format. For example, EBA proposed a supervision framework across the EU in 2015.[36] The present paper supports EBA's policy recommendation that, considering the vital role of crowdlending in funding SMEs and that some platforms themselves are SMEs, policy makers should provide guidance and supervision through a proportionate regulatory approach to both promote the development of crowdlending as an alternative source of financing and provide safeguards for market participants.

Although crowdlending is an important alternative funding source that provides access to capital for small businesses that face challenges obtaining financing from traditional credit institutions, an evaluation on the investment efficiency through crowdlending is very important. Considering the debate in the literature about the impact of small

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[36]https://www.eba.europa.eu/documents/10180/983359/EBA-Op-2015-03+(EBA+Opinion+on+lending+based+Crowdfunding).pdf

firms on employment growth,[37] it is crucial to understand how the new financing channel could affect the real economy through small business lending. For example, to what extent could those firms contribute to the local job creation after obtaining financing from crowdlending? Since I cannot currently observe the ex post performance of firms that have borrowed from the crowd, I leave the efficiency evaluation for future research.

Reference

Adelino, Manuel, Antoinette Schoar, and Felipe Severino, 2015, House prices, collateral, and self-employment, *Journal of Financial Economics* 117, 288–306.

Aghion, Philippe, and Patrick Bolton, 1992, An incomplete contracts approach to financial contracting, *The review of economic Studies* 59, 473–494.

Agrawal, Ajay, Christian Catalini, and Avi Goldfarb, 2013, Some simple economics of crowdfunding, Working paper.

Agrawal, Ajay, Christian Catalini, and Avi Goldfarb, 2015, Crowdfunding: Geography, social networks, and the timing of investment decisions, *Journal of Economics & Management Strategy* 24, 253–274.

Ahlers, Gerrit KC, Douglas Cumming, Christina Günther, and Denis Schweizer, 2015, Signaling in equity crowdfunding, *Entrepreneurship Theory and Practice* 39, 955–980.

Almeida, Heitor, and Murillo Campello, 2007, Financial constraints, asset tangibility, and corporate investment, *Review of Financial Studies* 20, 1429–1460.

Becker, Bo, and Victoria Ivashina, 2014, Cyclicality of credit supply: Firm level evidence, *Journal of Monetary Economics* 62, 76–93.

Belleflamme, Paul, Thomas Lambert, and Armin Schwienbacher, 2010, Crowdfunding: An industrial organization perspective, Working paper.

Belleflamme, Paul, Thomas Lambert, and Armin Schwienbacher, 2013, Individual crowdfunding practices, *Venture Capital* 15, 313–333.

Berger, Allen N, and Gregory F Udell, 1995, Relationship lending and lines of credit in small firm finance, *Journal of business* 351–381.

Berger, Allen N, and Gregory F Udell, 1998, The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle, *Journal of banking & finance* 22, 613–673.

Berger, Allen N, and Gregory F Udell, 2002, Small business credit availability and relationship lending: The importance of bank organisational structure, *The economic journal* 112, F32–F53.

Berger, Sven C, and Fabian Gleisner, 2009, Emergence of financial intermediaries in electronic markets: The case of online p2p lending, *BuR-Business Research* 2, 39–65.

Besanko, David, and George Kanatas, 1993, Credit market equilibrium with bank monitoring and moral hazard, *Review of Financial studies* 6, 213–232.

Bester, Helmut, 1985, Screening vs. rationing in credit markets with imperfect information, *The American Economic Review* 75, 850–855.

Bolton, Patrick, and Xavier Freixas, 2000, Equity, bonds, and bank debt: Capital structure and financial market equilibrium under asymmetric information, *Journal of Political Economy* 108, 324–351.

Bolton, Patrick, and David S Scharfstein, 1996, Optimal debt structure and the number of creditors, *Journal of Political Economy* 1–25.

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[37]For example, both Neumark et al. (2011) and Haltiwanger et al. (2013) found evidence supporting a negative relationship between firm size and net growth rates, but the latter study noted that it is the new businesses, rather than small ones, that contribute disproportionately to net job creation

Broecker, Thorsten, 1990, Credit-worthiness tests and interbank competition, *Econometrica: Journal of the Econometric Society* 429–452.

Calomiris, Charles W, and Charles M Kahn, 1991, The role of demandable debt in structuring optimal banking arrangements, *The American Economic Review* 497–513.

Campello, Murillo, and Erasmo Giambona, 2013, Real assets and capital structure, *Journal of Financial and Quantitative Analysis* 48, 1333–1370.

Cantillo, Miguel, and Julian Wright, 2000, How do firms choose their lenders? an empirical investigation, *Review of Financial studies* 13, 155–189.

Carling, Kenneth, and Sofia Lundberg, 2005, Asymmetric information and distance: an empirical assessment of geographical credit rationing, *Journal of Economics and Business* 57, 39–59.

Cole, Rebel A, 1998, The importance of relationships to the availability of credit, *Journal of Banking & Finance* 22, 959–977.

Corradin, Stefano, and Alexander Popov, 2015, House prices, home equity borrowing, and entrepreneurship, *Review of Financial Studies* 28, 2239–2428.

Cumming, Douglas J, Gaël Leboeuf, and Armin Schwienbacher, 2014, Crowdfunding models: Keep-it-all vs. all-or-nothing, Working paper.

Degryse, Hans, Moshe Kim, and Steven Ongena, 2009, *Microeconometrics of banking: methods, applications, and results* (Oxford University Press, USA).

Denis, David J, and Vassil T Mihov, 2003, The choice among bank debt, non-bank private debt, and public debt: evidence from new corporate borrowings, *Journal of financial Economics* 70, 3–28.

Dennis Jr, William J, 2012, Small business, credit access and a lingering recession, *NFIB Research* .

Diamond, Douglas W, 1984, Financial intermediation and delegated monitoring, *The Review of Economic Studies* 51, 393–414.

Diamond, Douglas W, 1991, Monitoring and reputation: The choice between bank loans and directly placed debt, *Journal of political Economy* 689–721.

Duarte, Jefferson, Stephan Siegel, and Lance Young, 2012, Trust and credit: the role of appearance in peer-to-peer lending, *Review of Financial Studies* 25, 2455–2484.

Dunkelberg, William, and Holly Wade, 2013, NFIB small business economic trends, NFIB report.

Faulkender, Michael, and Mitchell A Petersen, 2006, Does the source of capital affect capital structure?, *Review of financial studies* 19, 45–79.

Federal Reserve, 2012, Report to congress on the availability of credit to small businesses .

Federal Reserve Bank of Atlanta, 2013, Small business credit survey .

Federal Reserve Bank of New York, 2013, Small business credit survey .

Frank, Murray Z, and Vidhan K Goyal, 2009, Capital structure decisions: which factors are reliably important?, *Financial management* 38, 1–37.

Freedman, Seth M, and Ginger Zhe Jin, 2011, Learning by doing with asymmetric information: evidence from prosper. com, Working paper.

Gale, Douglas, and Martin Hellwig, 1985, Incentive-compatible debt contracts: The one-period problem, *The Review of Economic Studies* 52, 647–663.

Gerber, Elizabeth M, Julie S Hui, and Pei-Yi Kuo, 2012, Crowdfunding: Why people are motivated to post and fund projects on crowdfunding platforms, Working paper.

Giannetti, Mariassunta, et al., 2003, Do better institutions mitigate agency problems? evidence from corporate finance choices, *Journal of Financial and Quantitative Analysis* 38, 185–212.

Giannetti, Mariassunta, and Tracy Yue Wang, 2016, Corporate scandals and household stock market participation, *The Journal of Finance* forthcoming.

Gilson, Stuart C, Kose John, and Larry HP Lang, 1990, Troubled debt restructurings: An empirical study of

private reorganization of firms in default, *Journal of financial economics* 27, 315–353.

Hale, Galina, and João AC Santos, 2008, The decision to first enter the public bond market: The role of firm reputation, funding choices, and bank relationships, *Journal of Banking & Finance* 32, 1928–1940.

Haltiwanger, John, Ron S Jarmin, and Javier Miranda, 2013, Who creates jobs? small versus large versus young, *Review of Economics and Statistics* 95, 347–361.

Hart, Oliver, 1995, *Firms, contracts, and financial structure* (Clarendon Press).

Hart, Oliver, and John Moore, 1994, A theory of debt based on the inalienability of human capital, *Quarterly Journal of Economics* 109, 841–879.

Hart, Oliver, and John Moore, 1998, Default and renegotiation: A dynamic model of debt, *Quarterly Journal of Economics* 113, 1–41.

Herzenstein, Michal, Rick L Andrews, Utpal M Dholakia, and Evgeny Lyandres, 2008, The democratization of personal consumer loans? Determinants of success in online peer-to-peer lending communities, Working paper.

Hienerth, Christoph, and Frederik Riar, 2013, The wisdom of the crowd vs. expert evaluation: A conceptualization of evaluation validity, Working paper.

Hildebrand, Thomas, Manju Puri, and Jörg Rocholl, 2016, Adverse incentives in crowdfunding, *Management Science* forthcoming.

Holmstrom, Bengt, and Jean Tirole, 1997, Financial intermediation, loanable funds, and the real sector, *the Quarterly Journal of economics* 663–691.

Hoshi, Takeo, Anil Kashyap, and David Scharfstein, 1990, The role of banks in reducing the costs of financial distress in japan, *Journal of financial economics* 27, 67–88.

Hosseini, Fatemeh, 2016, Family wealth and entrepreneurship, Mimeo.

Hulme, Michael K, and Collette Wright, 2006, Internet based social lending: Past, present and future, *Social Futures Observatory* 115.

Iyer, Rajkamal, Asim Ijaz Khwaja, Erzo FP Luttmer, and Kelly Shue, 2015, Screening peers softly: Inferring the quality of small borrowers, *Management Science* 62, 1554–1577.

Jensen, Thais Laerkholm, Søren Leth-Petersen, and Ramana Nanda, 2015, Home equity finance and entrepreneurial performance-evidence from a mortgage reform, Working paper.

Kerr, Sari, William R Kerr, and Ramana Nanda, 2015, House money and entrepreneurship, Working paper.

Klafft, Michael, 2008, Online peer-to-peer lending: A lenders' perspective, Working paper.

Krasa, Stefan, and Anne P Villamil, 1992, Monitoring the monitor: an incentive structure for a financial intermediary, *Journal of Economic Theory* 57, 197–221.

Kuppuswamy, Venkat, and Barry L Bayus, 2015, Crowdfunding creative ideas: The dynamics of project backers in kickstarter, Working paper.

Leary, Mark T, 2009, Bank loan supply, lender choice, and corporate capital structure, *The Journal of Finance* 64, 1143–1185.

Li, Zhuoxin, and Jason A Duan, 2014, Dynamic strategies for successful online crowdfunding, Working paper.

Lin, Mingfeng, Nagpurnanand R Prabhala, and Siva Viswanathan, 2013, Judging borrowers by the company they keep: Friendship networks and information asymmetry in online peer-to-peer lending, *Management Science* 59, 17–35.

Mach, Traci, Courtney Carter, and Cailin R Slattery, 2014, Peer-to-peer lending to small businesses, Working paper.

Macht, Stephanie A, and Jamie Weatherston, 2014, The benefits of online crowdfunding for fund-seeking business ventures, *Strategic Change* 23, 1–14.

Michels, Jeremy, 2012, Do unverifiable disclosures matter? evidence from peer-to-peer lending, *The Ac-*

counting Review 87, 1385–1413.

Mills, Karen, and Brayden McCarthy, 2014, The state of small business lending: Credit access during the recovery and how technology may change the game, Working paper.

Mohammadi, Ali, and Kourosh Shafizadeh, 2016, Gender differences in the contribution patterns of equity-crowdfunding investors, Working paper.

Mollick, Ethan R, 2013, Swept away by the crowd? crowdfunding, venture capital, and the selection of entrepreneurs, Working paper.

Mollick, Ethan R, 2014, The dynamics of crowdfunding: An exploratory study, *Journal of business venturing* 29, 1–16.

Mollick, Ethan R, 2015, Delivery rates on kickstarter, Working paper.

Mollick, Ethan R, and Venkat Kuppuswamy, 2014, After the campaign: Outcomes of crowdfunding, Working paper.

Mollick, Ethan R, and Ramana Nanda, 2015, Wisdom or madness? comparing crowds with expert evaluation in funding the arts, *Management Science* 62, 1533–1553.

Moritz, Alexandra, and Joern H Block, 2016, Crowdfunding: A literature review and research directions, in Dennis Brüntje, and Oliver Gajda, eds., *Crowdfunding in Europe*, 25–53 (Springer International Publishing).

Myers, Stewart C, 1984, The capital structure puzzle, *The journal of finance* 39, 574–592.

Myers, Stewart C, and Nicholas S Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of financial economics* 13, 187–221.

Neumark, David, Brandon Wall, and Junfu Zhang, 2011, Do small businesses create more jobs? new evidence for the united states from the national establishment time series, *The Review of Economics and Statistics* 93, 16–29.

Parsons, Christopher A, Johan Sulaeman, and Sheridan Titman, 2014, The geography of financial misconduct, Technical report, National Bureau of Economic Research.

Petersen, Mitchell A, and Raghuram G Rajan, 1994, The benefits of lending relationships: Evidence from small business data, *The journal of finance* 49, 3–37.

Petersen, Mitchell A, and Raghuram G Rajan, 1995, The effect of credit market competition on lending relationships, *The Quarterly Journal of Economics* 407–443.

Petersen, Mitchell A, and Raghuram G Rajan, 2002, Does distance still matter? the information revolution in small business lending, *The Journal of Finance* 57, 2533–2570.

Pope, Devin G, and Justin R Sydnor, 2011, What's in a picture? evidence of discrimination from prosper.com, *Journal of Human Resources* 46, 53–92.

Rajan, Raghuram G, 1992, Insiders and outsiders: The choice between informed and arm's-length debt, *The Journal of Finance* 47, 1367–1400.

Rampini, Adriano A, and S Viswanathan, 2013, Collateral and capital structure, *Journal of Financial Economics* 109, 466–492.

Ravina, Enrichetta, 2012, Love & loans: The effect of beauty and personal characteristics in credit markets, Working paper.

Robb, Alicia M, and David T Robinson, 2014, The capital structure decisions of new firms, *Review of Financial Studies* 27, 153–179.

Röthler, David, and Karsten Wenzlaff, 2011, Crowdfunding schemes in europe, *EENC Report* 9, 2011.

Saunders, Anthony, and Linda Allen, 2010, *Credit risk management in and out of the financial crisis: new approaches to value at risk and other paradigms* (John Wiley & Sons).

Schmalz, Martin C, David A Sraer, and David Thesmar, 2013, Housing collateral and entrepreneurship, *The Journal of Finance* .

Schwienbacher, Armin, and Benjamin Larralde, 2012, Crowdfunding of entrepreneurial ventures, in Douglas Cumming, ed., *Handbook of entrepreneurial finance*, 369–391 (Oxford University Press).

Surowiecki, James, 2005, *The wisdom of crowds* (Anchor).

Townsend, Robert M, 1979, Optimal contracts and competitive markets with costly state verification, *Journal of Economic theory* 21, 265–293.

Uchida, Hirofumi, Gregory F Udell, and Nobuyoshi Yamori, 2012, Loan officers and relationship lending to smes, *Journal of Financial Intermediation* 21, 97–122.

Xu, Ting, 2016, The informational role of crowdfunding, Working paper.

Table 1: Definition and data source of variables

Variable	Definition	Data Source
Campaign-related measures		
Target amount	The target amount of funds (or loan size) a firm wants to raise through Toborrow, in million SEK (MSEK).	
Maturity	The maturity of loan, in months.	
Amortize	A dummy variable that equals 1 if the loan will be amortized and 0 if the loan will not be amortized	
Collateral	A dummy variable that equals 1 if the loan uses collateral and 0 otherwise	
First time	A dummy variable that equals 1 if the campaign is the first time	
Risk score	A dummy variable that equals 1 if the Risk category is A; 2 if the Risk category is B; 3 if the Risk category is C	
# bids	Total number of bids for a campaign.	
Subscription rate	Total amount of money from all bids (SEK)/Target amount of loan (SEK), in percentages	Toborrow
Bid acceptance rate	# accepted bids/# bids, in percentages	
Average interest rate	Average interest rate of all accepted bids for a campaign, in percentages	
Interest spread	Difference between highest and lowest interest rate among all accepted bids, in percentages	
# campaign persons	Number of representatives of the firm showing up in the campaign	
Owner/CEO	A dummy variable that equals 1 if at least one campaign representative is the owner or the CEO of the firm	
Female	A dummy variable that equals 1 if at least one campaign representative is female	
Campaign order	The time ranking of a campaign based on the campaign's starting date	
# Campaign days	The length of a campaign or the number of days a campaign lasts. It is predetermined when the campaign is launched.	
Bid order	The time ranking of a bid based on the bidding time in a campaign	
Bid interest	The interest rate a bid requests, in percentages	
Bid size	The amount of money a bid offers, in thousand SEK (TSEK)	
Measures of Firm characteristics		
cf	A dummy variable that equals 1 if firm i borrows on Toborrow in year $t+1$	
Firm age	Firm age in year t	

Table 1: Definition and data source of variables

Variable	Definition	Data Source
ln(sales)	Logarithm of sales in year t, in ln(SEK)	
ln(asset)	Logarithm of total assets in year t, in ln(SEK)	
ROA	Return on total assets in year t	
Sales growth	Sales$_t$/Sales$_{t-1}$ − 1	Serrano
Investment	CAPEX/Assets in year t	
Debt ratio	Total Liability/Total assets in year t	
Cash	Cash/Assets in year t	
Tangible/Fixed assets	Tangible assets/Fixed assets in year t	
Pledged/Tangible assets	Pledged assets/Tangible assets in year t	
Municipal level variables		
LargeCity	A dummy variable that equals 1 if municipality c is located in a large city	Statistics Sweden
City	A dummy variable that equals 1 if municipality c is located in a city	Statistics Sweden
Retail sales pc	Retail sales per capita (Retail Sales/Population) in municipality c in year t, in MSEK per person	HUI Research
Retail sales growth	Retail sales growth rate (Retail Sales$_t$/Retail Sales$_{t-1}$ − 1) in municipality c in year t	HUI Research
HPgrowth	Accumulative house price growth in the previous three years (House Price$_t$/House Price$_{t-3}$ − 1) in municipality c in year t	Statistics Sweden
Bank Branches pc	Number of bank branches per capita (per 1,000 residents) in municipality c	Hand-collected from websites of Swedish banks and Google Maps
Bankruptcy rate	Bankruptcy rate (#Bankrupt firms/Total firms) in municipality c in year t	Serrano
Startup rate	Startup rate (#Startups/Total firms) in municipality c in year t	Serrano
ln(criminal pc)	Logarithm of total number of criminal events per capita (per 100,000 residents) in municipality c in year t	
ln(ecocriminal pc)	Logarithm of total number of economic criminal events per capita (per 100,000 residents) in municipality c in year t	The Swedish National Council for Crime
ln(crdcriminal pc)	Logarithm of total number of crimes against creditors per capita (per 100,000 residents) in municipality c in year t	Prevention

Table 2: Summary statistics of campaigns on Toborrow

		# campaigns	%
Risk category	A	2	2.94
	B	21	30.88
	C	45	66.18
Status	Funded	61	89.71
	Ongoing	3	4.41
	Suspended	4	5.88
Guarantee	Personal guarantee	58	85.29
	Parent firm guarantee	2	2.94
	Personal guarantee and Firm collateral	2	2.94
	Firm collateral	6	8.82
Borrowing purpose[a]	Investment	52	81.25
	Working capital	12	18.75

NOTES: This table presents a summary of all 68 campaigns on Toborrow by 1st May, 2016. It includes risk category, campaign status, guarantee format and borrowing purpose. Summary statistics for campaign information on loan terms and interest rates are shown in Table 4.
[a]The information on borrowing purpose is not available for suspended campaigns.

Table 3: Profile of campaign firms on Toborrow

Category	# Companies	% of firms on Toborrow	% of firms in the category
Industry category			
Construction industry	3	4.8%	0.007%
Corporate services	12	19.0%	0.011%
Covenience goods	5	7.9%	0.039%
Finance&Real Estate	4	6.4%	0.009%
Health&Education	2	3.2%	0.008%
Industrial goods	9	14.3%	0.036%
IT&Electronics	1	1.6%	0.005%
Shopping goods	24	38.1%	0.033%
Telecom&Media	3	4.8%	0.042%
Total	63	100.0%	0.015%
Geographic category[a]			
Large City municipality	20	31.7%	0.017%
Suburban municipality to large city	6	9.7%	0.008%
City municipality	17	27.0%	0.015%
Suburban municipality to city	1	1.60%	0.010%
Commuter municipality	6	9.5%	0.025%
Manufacturing municipality	7	11.1%	0.030%
Municipality in densely populated region	4	6.3%	0.014%
Turism and visiting municipalities	1	1.6%	0.007%
Municipality in sparsely populated region	1	1.6%	0.010%
Total	63	100%	0.015%

Table 3: Profile of campaign firms on Toborrow

Category	# Companies	% of firms on Toborrow	% of firms in the category
Employee category			
0-4	51	83.60%	0.030%
5-9	4	6.56%	0.014%
10-19	3	4.92%	0.022%
20-49	1	1.64%	0.014%
50-99	1	1.64%	0.051%
200-499	1	1.64%	0.131%
Total	61	100%	0.015%
Firm age category			
1-3	8	12.7%	0.014%
4-10	34	54.0%	0.020%
11+	21	33.3%	0.011%
Total	63	100%	0.015%

NOTES: This table shows the summary statistics for the profile of campaign firms on Toborrow based on the categories by the number of employees, firm age, industry and geographical location. There are 63 firms that have launched campaigns on Toborrow by 1st May, 2016.

[a]The geographic category at municipal level is based on the definition on the website of The Swedish Association of Local Authorities and Regions.

`http://skl.se/tjanster/kommunerlandsting/faktakommunerochlandsting/kommungruppsindelning.2051.html`

Table 4: Summary statistics of variables

	count	mean	sd	p25	p50	p75
Firm characteristics						
cf	90123	0.001	0.026	0.000	0.000	0.000
ln(asset)	89011	14.113	2.194	12.777	13.951	15.300
Firm age	90123	10.794	12.674	2.345	5.071	15.255
Employee	80882	19.205	366.318	1.000	2.000	4.000
ln(sales)	85677	12.669	5.239	12.625	14.225	15.448
ROA	84320	0.025	0.429	-0.032	0.039	0.167
Investment	50034	0.055	0.064	0.007	0.032	0.082
Sales growth	52652	0.019	0.025	0.003	0.017	0.033
Debt ratio	88879	0.726	0.963	0.393	0.659	0.857
Tangible/Fixed assets	66050	0.750	0.387	0.563	1.000	1.000
Pledged/Tangible assets	55971	0.632	0.437	0.000	0.928	1.000
Cash	88879	0.263	0.321	0.012	0.110	0.422
Municipality characteristics[a]						
LargeCity	290	0.010	0.101	0.000	0.000	0.000
City	290	0.107	0.310	0.000	0.000	0.000
Bank Branches pc	261	0.168	0.112	0.094	0.133	0.199
Retail sales pc	870	0.053	0.042	0.036	0.046	0.059
Retailgrowth	870	0.023	0.039	0.003	0.023	0.042
HPgrowth	870	0.137	0.105	0.075	0.131	0.198
Bankruptcy rate	870	0.009	0.005	0.005	0.008	0.012
Startup rate	870	0.062	0.023	0.051	0.060	0.070
ln(criminal pc)	867	9.115	0.299	8.915	9.127	9.307
ln(ecocriminal pc)	867	3.243	1.622	2.485	3.332	4.431
ln(crdcriminal pc)	867	1.339	1.600	0.000	0.000	2.890

Table 4: Summary statistics of variables

	count	mean	sd	p25	p50	p75
Campaign information						
Target amount (MSEK)	68	0.605	0.501	0.300	0.500	0.775
Maturity	68	19.412	9.437	12.000	18.000	24.000
Amortization	68	0.838	0.704	0.000	1.000	1.000
#Bids	61	691.541	477.579	280.000	647.000	975.000
Bid acceptance rate%	61	26.441	22.812	9.649	17.219	37.500
Subscription rate%	61	385.426	249.888	179.000	303.000	550.000
Average interest rate%	61	8.838	2.121	7.300	8.600	10.500
Interest spread%	61	3.954	2.508	1.800	3.300	6.000
Risk Score	68	2.632	0.544	2.000	3.000	3.000
Collateral	68	0.118	0.325	0.000	0.000	0.000
First time	68	0.926	0.263	1.000	1.000	1.000
Campaign order	68	34.485	19.771	17.500	34.500	51.500
#Campaign days	68	28.206	15.232	21.000	25.500	31.000
# Campaign representatives	65	1.215	0.450	1.000	1.000	1.000
Owner/CEO	65	0.862	0.348	1.000	1.000	1.000
Female	65	0.308	0.465	0.000	0.000	1.000
Bid order	25523	292.878	223.256	109.000	248.000	431.000
Bid Interest%	25523	10.315	2.566	8.500	10.000	12.000
Bid size (TSEK)	25523	4.615	10.927	0.500	1.313	5.000

NOTES: This table shows the summary statistics in the final sample for financial variables of firms borrowing from the crowdlending platform Toborrow and in the control group, municipality characteristics, as well as information on 68 campaigns on Toborrow. The benchmark firms are private limited liability firms that borrowed from credit institutions without bond issuance.

[a]There are 290 municipalities in Sweden.

Table 5: Determinants of firms borrowing on crowdlending: Firm characteristics

	Dummy=1 if firm borrow on crowdlending in year t+1							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ln(sales)	0.0609***	0.0719**	0.0554***	0.0792**	0.0780***	0.0677	0.0914**	0.111***
	(0.0215)	(0.0310)	(0.0203)	(0.0335)	(0.0277)	(0.0419)	(0.0448)	(0.0355)
Firm age	-0.000504	0.000940	-0.00210	-0.000334	-0.00616***	0.00114	0.000370	-0.00353
	(0.00193)	(0.00193)	(0.00193)	(0.00172)	(0.00181)	(0.00222)	(0.00192)	(0.00217)
ROA	-0.0120	0.0440	0.165**	0.0684	0.187	0.0620	0.0192	0.100
	(0.0711)	(0.0615)	(0.0752)	(0.112)	(0.144)	(0.0649)	(0.120)	(0.144)
Debt ratio	-0.0677			-0.123*	-0.0810		-0.259***	-0.156
	(0.0569)			(0.0633)	(0.0542)		(0.0868)	(0.105)
Tangible/Fixed assets		-0.441***		-0.445***	-0.512***		-0.556***	-0.567***
		(0.125)		(0.131)	(0.120)		(0.138)	(0.147)
Cash			-0.811***	-0.636***	-0.201		-0.503*	-0.156
			(0.195)	(0.222)	(0.198)		(0.262)	(0.272)
Investment					-0.0964			-0.233
					(1.228)			(1.454)
Sales growth					3.533**			3.308*
					(1.657)			(1.897)
Pledged/Tangible assets						0.00184**	-0.000568	-0.000557
						(0.000873)	(0.00116)	(0.00142)
Debt ratio*Pledged/Tangible assets							0.00122**	0.000563
							(0.000608)	(0.000603)
Year FE	YES	YES	YES	YES	NO	YES	YES	NO
Industry FE	YES	YES	YES	YES	NO	YES	YES	NO
Industry-Year FE	NO	NO	NO	NO	YES	NO	NO	YES
Observations	78,124	53,985	78,124	53,985	33,088	46,197	46,197	26,107
Pseudo R-squared	0.0510	0.0651	0.0659	0.0722	0.0762	0.0545	0.0828	0.0653

NOTES: This table reports results from probit regressions looking at the probability that a firm borrowed from the crowdlending market. The estimation method is maximum likelihood. The dependent variable takes a value of one if the firm borrowed from the crowd in year t+1 and zero otherwise. The definition of independent variables can be found in Table 1. Standard errors are clustered by industry. *,** and *** refer to significance at 10%, 5% and 1% respectively.

Table 6: Determinants of firms borrowing on crowdlending: Regional factors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
						Dummy=1 if firm borrow on crowdlending in year t+1						
Bank Branches pc	0.303	0.323										
	(0.434)	(0.466)										
Bankruptcy rate			18.46**	17.88*	16.04*							
			(8.151)	(9.213)	(9.700)							
ln(criminal pc)						0.490**	0.487***	0.507***				
						(0.195)	(0.183)	(0.193)				
ln(ecocriminal pc)									0.0300	0.00772		
									(0.0401)	(0.0339)		
ln(crdcriminal pc)											0.0170	0.00584
											(0.0318)	(0.0307)
Startup rate			-2.062	-1.586	-1.515							
			(1.389)	(1.665)	(1.749)							
LargeCity	0.164*	0.156*	0.108	0.0990	0.149	-0.207	-0.205	-0.178	0.101	0.136	0.120	0.139
	(0.0845)	(0.0809)	(0.0853)	(0.0872)	(0.0928)	(0.159)	(0.155)	(0.161)	(0.114)	(0.108)	(0.112)	(0.107)
City	0.114	0.121	0.0495	0.0419	0.0240	-0.00916	-0.0118	-0.0417	0.0865	0.0881	0.0866	0.0884
	(0.120)	(0.123)	(0.0972)	(0.103)	(0.110)	(0.100)	(0.0982)	(0.103)	(0.107)	(0.112)	(0.108)	(0.113)
Retail sales pc	1.207***	1.247***	1.099***	1.092**	1.203**	0.912**	0.886	0.964	1.209***	1.170**	1.212***	1.176***
	(0.287)	(0.337)	(0.401)	(0.526)	(0.579)	(0.444)	(0.570)	(0.644)	(0.347)	(0.458)	(0.336)	(0.456)
Retail sales growth	1.736	2.579*	1.280	2.046*	1.531	1.341	2.202*	2.092	1.645	2.473**	1.680	2.472**
	(1.756)	(1.321)	(1.466)	(1.094)	(2.328)	(1.766)	(1.218)	(2.715)	(1.641)	(1.192)	(1.598)	(1.190)
HPgrowth	-0.645	-0.692	-0.344	-0.373	-0.424	-0.490	-0.475	-0.505	-0.597	-0.618	-0.592	-0.616
	(0.513)	(0.524)	(0.461)	(0.450)	(0.448)	(0.512)	(0.497)	(0.490)	(0.489)	(0.495)	(0.487)	(0.497)
ln(sales)		0.0761***		0.0787***	0.0782***		0.0772***	0.0748***		0.0779***		0.0780***
		(0.0243)		(0.0245)	(0.0248)		(0.0242)	(0.0244)		(0.0244)		(0.0244)
Tangible/Fixed assets		-0.439***		-0.417***	-0.479***		-0.395***	-0.458***		-0.412***		-0.413***
		(0.106)		(0.105)	(0.112)		(0.103)	(0.111)		(0.103)		(0.103)
Cash		-0.706*		-0.647*	-0.217		-0.673*	-0.246		-0.648*		-0.647*
		(0.370)		(0.348)	(0.342)		(0.345)	(0.338)		(0.345)		(0.346)
Sales growth					1.346			0.886				
					(3.345)			(3.676)				
Year FE	YES	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES	YES
Industry FE	NO	YES	NO	YES	NO	NO	YES	NO	NO	YES	NO	YES
Industry-Year FE	NO	NO	NO	NO	YES	NO	NO	YES	NO	NO	NO	NO
Observations	87,693	52,340	90,122	53,985	40,229	90,095	53,968	40,214	90,095	53,968	90,095	53,968
Pseudo R-squared	0.0143	0.0857	0.0186	0.0851	0.103	0.0197	0.0868	0.106	0.0134	0.0807	0.0130	0.0807

NOTES: This table reports results from probit regressions looking at the probability that a firm borrowed from the crowdlending market. The estimation method is maximum likelihood. The dependent variable takes a value of one if the firm borrowed from the crowd in year t+1 and zero otherwise. The definition of independent variables can be found in Table 1. Standard errors are clustered by industry. *,** and *** refer to significance at 10%, 5% and 1% respectively.

Table 7: Determinant of campaign popularity

	Bid acceptance rate			
	(1)	(2)	(3)	(4)
Target amount	0.159**		0.139*	0.236**
	(0.067)		(0.075)	(0.093)
Maturity	0.005*		0.005*	0.005*
	(0.003)		(0.003)	(0.003)
Collateral	-0.050		-0.028	0.021
	(0.096)		(0.109)	(0.103)
Amortize	-0.215***		-0.211***	-0.215***
	(0.066)		(0.067)	(0.062)
Risk Score	0.122***		0.127***	0.156***
	(0.041)		(0.042)	(0.050)
ln(sales)	-0.011		-0.004	-0.021
	(0.028)		(0.030)	(0.032)
ROA	-0.102		-0.119	-0.096
	(0.108)		(0.124)	(0.120)
Debt ratio	0.002		-0.038	0.005
	(0.159)		(0.172)	(0.157)
Current/Total Assets	-0.323***		-0.339***	-0.241**
	(0.089)		(0.093)	(0.100)
Age	0.049		-0.037	0.185
	(0.249)		(0.258)	(0.256)
Quick ratio	-0.003		-0.004	-0.003
	(0.007)		(0.007)	(0.007)
# Campaign persons		-0.026	-0.050	-0.069
		(0.063)	(0.054)	(0.049)
Owner/CEO		-0.017	-0.033	-0.017
		(0.102)	(0.071)	(0.075)
Female		0.021	-0.019	0.028
		(0.078)	(0.056)	(0.056)
Photo		-0.055	0.016	0.010
		(0.137)	(0.101)	(0.132)
First time				-0.194
				(0.119)
#Campaign days				-0.002
				(0.002)
Campaign order				-0.005**
				(0.002)
Observations	58	60	58	58
R-squared	0.466	0.010	0.480	0.557

NOTES: This table reports results from OLS regressions on the determinants of campaign popularity using the bid acceptance rate as the popularity measure. The bid acceptance rate is defined as the ratio between the number of accepted bids and the number of all bids. A high bid acceptance rate means low campaign popularity. Heteroskedasticity robust standard errors are reported in parentheses. *,** and *** refer to significance at 10%, 5% and 1% respectively.

Table 8: Determinant of interest rate

	Value weighted average interest rate%				
	(1)	(2)	(3)	(4)	(5)
Target amount	3.473***		3.106***	3.754***	2.754***
	(0.558)		(0.645)	(0.695)	(0.618)
Maturity	0.056**		0.068***	0.075***	0.052**
	(0.023)		(0.022)	(0.023)	(0.022)
Collateral	-0.469		-0.424	-0.228	-0.317
	(0.551)		(0.589)	(0.737)	(0.640)
Amortize	-0.614		-0.602	-0.788	0.123
	(0.521)		(0.541)	(0.641)	(0.721)
Risk Score	1.052***		1.041***	1.100**	0.438
	(0.342)		(0.343)	(0.431)	(0.414)
ln(sales)	-0.467*		-0.334	-0.425	-0.335
	(0.240)		(0.276)	(0.270)	(0.231)
ROA	1.028		0.767	0.954	1.359
	(0.922)		(1.080)	(1.294)	(1.225)
Debt ratio	1.051		0.031	0.540	0.520
	(1.298)		(1.528)	(1.466)	(1.411)
Current/Total Assets	-1.552**		-1.869**	-1.317**	-0.298
	(0.748)		(0.740)	(0.649)	(0.807)
Age	0.248		-1.255	-0.566	-1.350
	(1.870)		(2.026)	(2.177)	(2.038)
Quick ratio	0.020		-0.018	-0.012	-0.001
	(0.046)		(0.052)	(0.049)	(0.045)
# Campaign persons		-0.040	-0.591	-0.624	-0.330
		(0.605)	(0.528)	(0.569)	(0.592)
Owner/CEO		-0.341	-0.101	-0.064	0.008
		(0.897)	(0.609)	(0.560)	(0.503)
Female		-0.571	-0.672	-0.350	-0.471
		(0.629)	(0.508)	(0.526)	(0.537)
Photo		-0.544	0.429	0.565	0.523
		(0.757)	(0.549)	(0.778)	(0.510)
First time				0.091	0.912
				(1.199)	(0.861)
#Campaign days				-0.024	-0.015
				(0.022)	(0.020)
Campaign order				-0.033*	-0.012
				(0.017)	(0.016)
Bid acceptance rate					4.232**
					(1.739)
Observations	58	60	58	58	58
R-squared	0.524	0.028	0.557	0.614	0.702

NOTES: This table reports results from OLS regressions on the determinants of interest rate. Interest rate is defined as the value (bid size) weighted average interest rate of all accepted bids. Heteroskedasticity robust standard errors are reported in parentheses. *,** and *** refer to significance at 10%, 5% and 1% respectively.
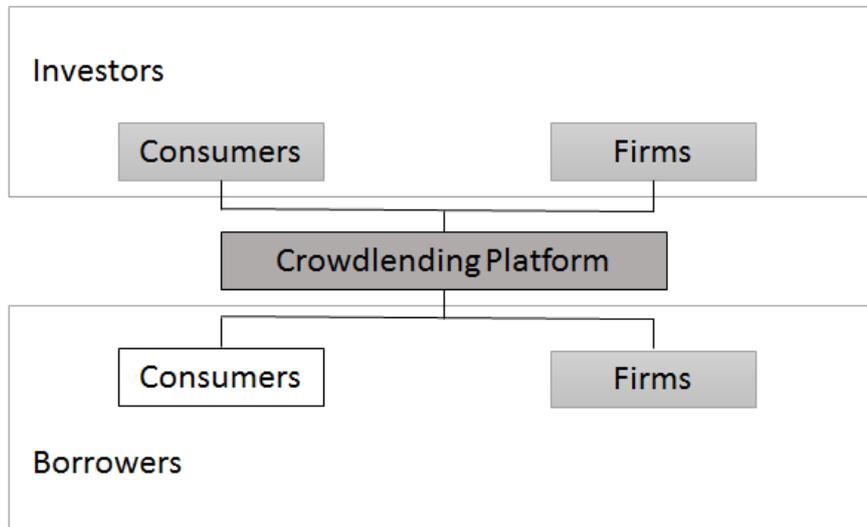
Figure 1: Structure of crowdlending market

Figure 2: A sample Toborrow project

primax
business provider

22	9	27
Dagar	Tim	Min

29 mars 2016 22:00

150 000 SEK
Lånebelopp
160% tecknat

Kreditvärdig

A B (C) D E

Riskbetyg (?)

12 månader
Löptid

124
Antal bud i detta projekt

12,4% **15,0%**
Snittränta Högsta ränta

Du behöver vara medlem
för att kunna buda

Bli medlem

VILKA ÄR VI?

Primax Nordic AB

Primax är ett bolag som i huvudsak sysslar med uppdrags sourcing till våra kunder. Vi har kunder inom de flesta handelssegment, restauranggrossister, lågprishandel, reklamföretag mm. Kunder berättar om sitt behov för oss och ett target pris. Vi sätter då igång och letar upp produkten. Vi och vår personal på vårt representationskontor i Kina har mångårig erfarenhet av upphandling och kvalitetssäkring i Asien och levererar alltid ett produktprov tillsammanse med vår offert innan fullskalig leverans. Vi vet att det inte bara är priset som är viktigt - att hitta en tillförlitlig leverantör som erbjuder kort produktionstid, hög kvalitet och goda tillverkningsförhållanden är minst lika viktigt.

Primax är dryga 7 år gammalt och, innan dess har företagets ägare, Morgan Palenryd, mångårig erfarenhet av inköp och resor på Asien. Vi är baserade i Helsingborg, med representationskontor i Hangzhou.

Lånedetaljer		Företagsinformation	
Lånebelopp:	150 000 SEK	Legalt bolagsnamn:	Primax Nordic AB
Löptid:	12 månader	Företagsform:	AB
Amortering:	0%	Registreringsår:	1 juli 2008
Säkerhet:	Borgen (100%)	Verksamhet:	Teknisk konsultverksamhet i...
Syfte:	Rörelsekapital	Säte:	Skåne län

VARFÖR VILL VI LÅNA?

Primax Nordic AB

"Verksamheten växer"

Verksamheten växer, och vi levererar produkter direkt till svenska kunder - mer import och inte enbart sourcing. På redan lagda order från kund behöver vi tillfällig bryggfinansiering för att få igång produktion.

Morgan Palenryd
Ägare

VARFÖR ÄR VI SÄKRA ATT LÅNA UT TILL?

Verksamheten växer - med lönsamhet
Lånet skall användas för att finansiera redan bekräftade order från kund. Kunder som är välkända med god betalningsförmåga.

FINANSIELL INFORMATION

Vi har under de senaste åren växt - och det finansiella behovet har ökat. Det mesta av de långfristiga skulderna i bolaget är ägarens egna inlånade medel.

	Innevarande bokslutsår - oreviderat	Bokslut	Bokslut
	2015-12-31	2014-12-31	2013-12-31
Resultaträkning (TSEK)			
Nettoomsättning	4 114	4 209	2 017
Avskrivningar	1	7	1
Rörelseresultat (EBIT)	100	118	29
Finansiella intäkter	0	0	1
Finansiella kostnader	46	20	20
Resultat efter finansnetto	54	97	8
Årets resultat	40	80	4
Balansräkning (TSEK)			

Figure 3: A sample project bid history
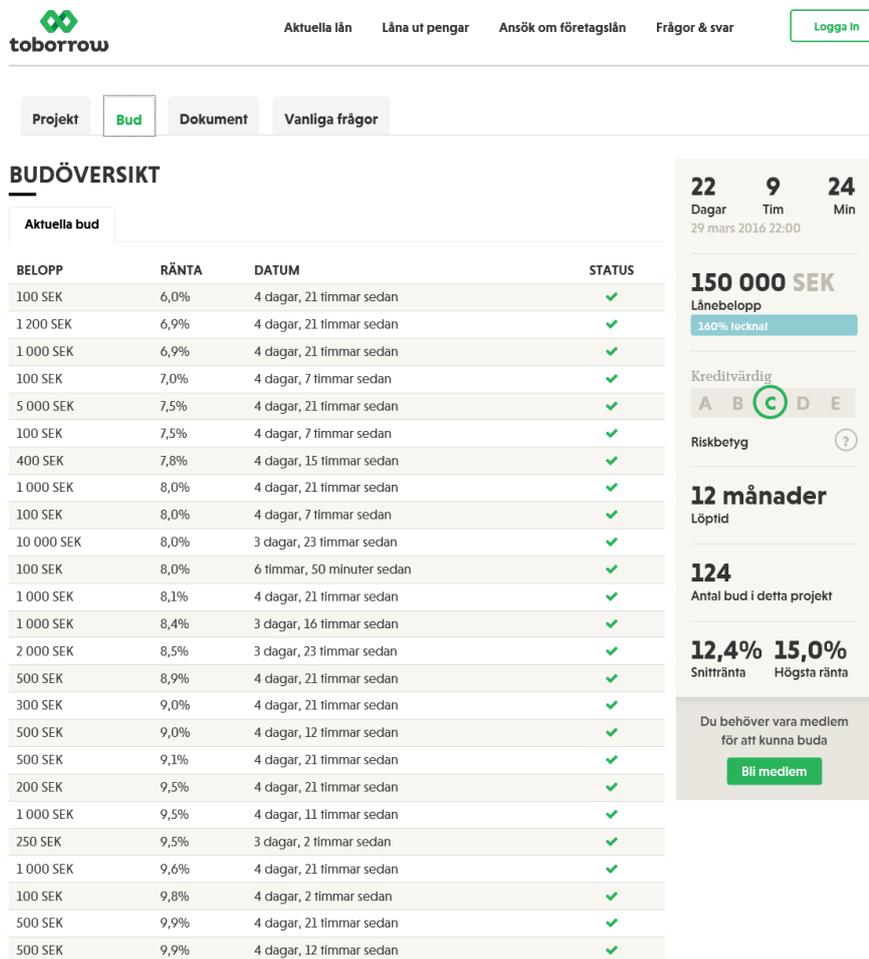
Figure 4: Toborrow Growth
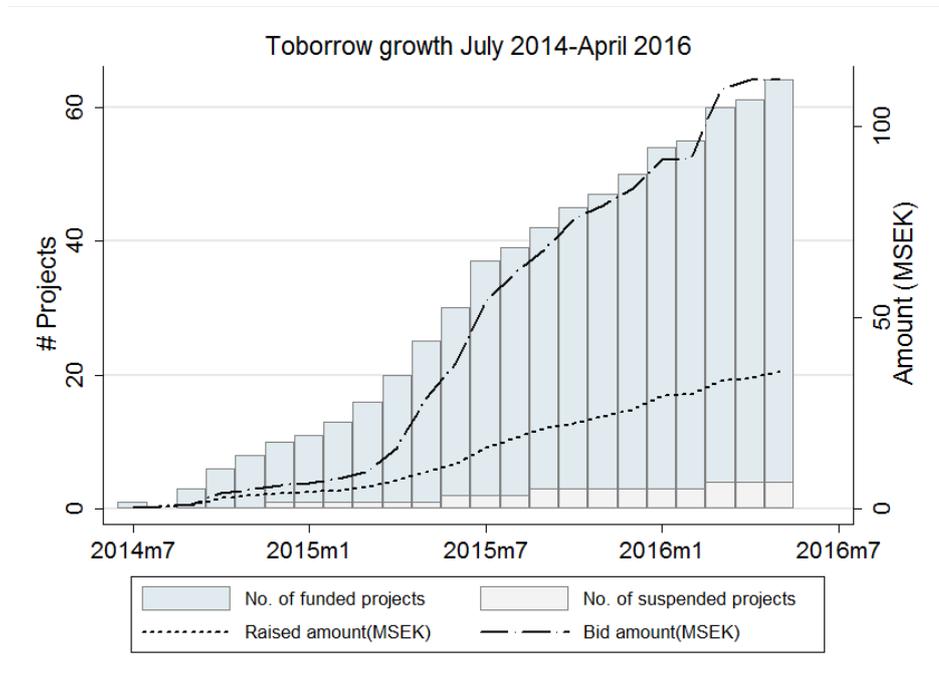
NOTES: This graph shows the accumulative number of projects (both funded and suspended) and the accumulative amounts of bid and raised funds over time between July 2014 and April 2016.

Figure 5: Interest rate and Campaign popularity
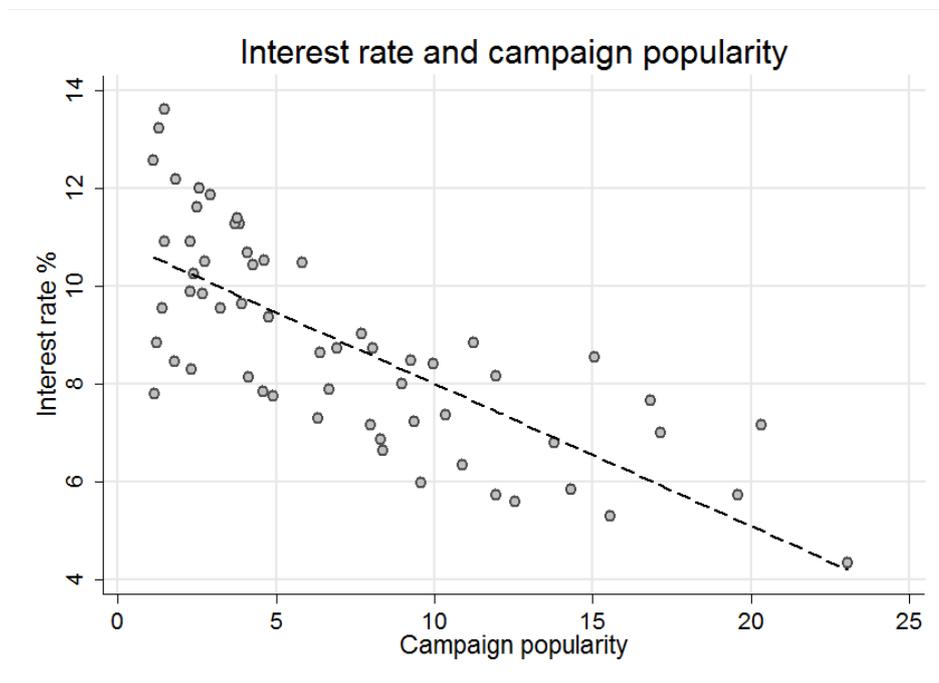
NOTES: This figure shows the correlation between the interest rate of commercial loans and campaign popularity on Toborrow. The interest rate is the average interest rate weighted by the bid size of all accepted bids and the campaign popularity is defined by the reciprocal of the bid acceptance rate, which is the ratio between total bids and total accepted bids.

Figure 6: A comparison of interest rate between Toborrow and Bank loans
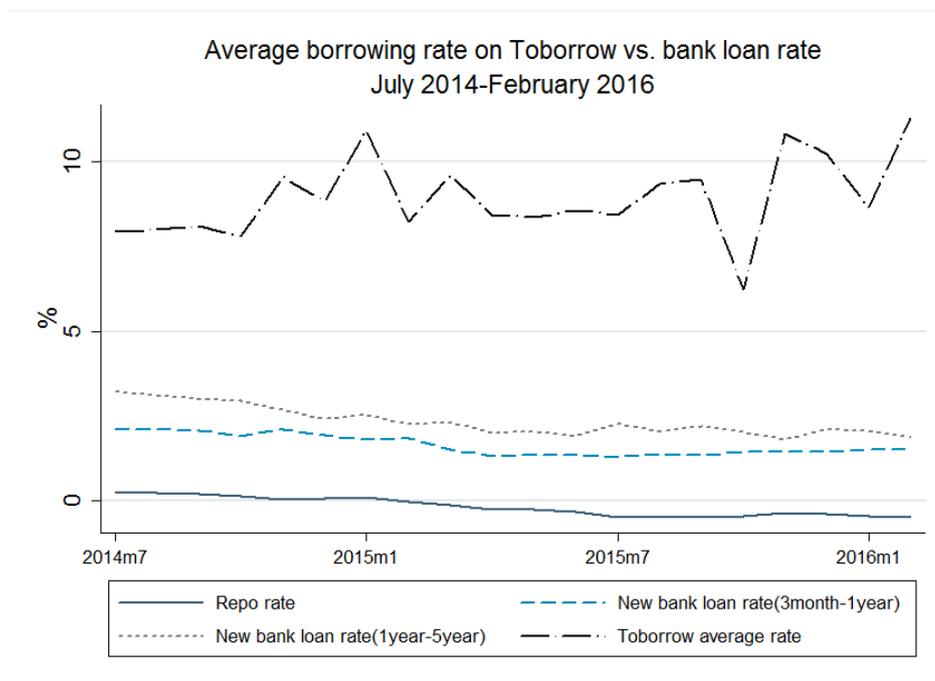
NOTES: This graph shows a comparison between the average borrowing rate on Toborrow and the average new bank loan rates over time from July 2014 to February 2016. The new bank loan rates are the average lending rates to all non-financial firms. Source: Toborrow.se and Financial market statistics Feb 2016 produced by Statistics Sweden on behalf of Riksbanken.

Appendix

A.1. Overview of crowdlending platforms in Sweden

Although crowdlending is still a small part of the whole financial market in Sweden, it has grown very quickly in recent years. Similar to the United States and other countries, many crowdlending platforms in Sweden are used to raise consumer loans. In this paper, I have focused on crowdlending, which is used for business financing. There are currently three crowdlending platforms in Sweden: Toborrow, FundedByMe and Kameo.[38] Table I shows a comparison of the three platforms. FundedByMe is the largest crowdfunding platform in Sweden, but its business model is mainly reward- and equity-based crowdfunding. Toborrow and Kameo are solely crowdlending platforms and currently only cover the Swedish market. Toborrow is the market leader in crowdlending and has helped more than 50 small and medium-sized firms to raise 33.5 million SEK over the past two years. Kameo is the newest entry into the crowdlending market in Sweden; it started operating in February of 2016 and aims to have 40 campaigns by the end of 2016.[39] The three market players have different strategy regarding setting the interest rate of loans. Toborrow uses a discriminatory-price auction process and lets investors decide the interest rate, while FundedByMe and Kameo both employ a platform-mandated posted price mechanism, which means that the platform sets up a fixed interest rate for each loan through its own credit assessment of the firms.

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[38] According to the report entitled "Crowdfunding in Sweden" by the Financial Services Authority in December 2015, `http://www.fi.se/upload/43_Utredningar/20_Rapporter/2015/grasrotsfinansiering_151215.pdf`, there are only two platforms: Toborrow and FundedByMe. Kameo started in Feburary 2016.

[39] The target number of campaigns by Kameo in 2016 is based on the interview with management team of Kameo.

Table A1: A comparison of Three main crowdlending platforms in Sweden

	Toborrow	FundedByMe	Kameo
Business model	Debt-based only	Mainly Reward- and equity-based, also debt-based deals	Debt-based only
Investors (Individuals) location	Sweden	International	Sweden, would like to expand to Nordic
Borrowers (Firms) location	Sweden	Sweden, Germany	Sweden, would like to expand to Nordic
Platform registration date	17/09/2013	08/11/2011	02/10/2014
Interest rate setup model	Discriminatory-price auction	Platform mandated posted price	Platform mandated posted price
NO of campaigns	68 (4 suspended)	3 (successful)	3[a]

[a] The platform started operating in Feb. 2016, and Kameo targets for 40 campaigns by the end of 2016.

A.2. A brief description of how to launch a campaign on Toborrow

A firm that would like to borrow from individual investors could send an application to Toborrow to launch a campaign. Toborrow will check whether the firm fulfills the following basic criteria:

- Sales of at least 1 million SEK

- At least one annual report

- An approved credit rating according to credit bureaus (Bisnode, Creditsafe and UC)

If the firm meets these criteria, Toborrow will implement an assessment of the firm and a credit check on the individuals behind the firm before approving the firm's application to start a campaign. The terms of the loan are decided by the firm based on the following loan variation restrictions:

- Loan size:100,000 to 2,000,000 SEK

- Maturity: 3-36 months

- Amortization: 0 percent , 50 percent or 100 percent

- Guarantee: guarantee (personal or parent firm) or collateral

Interest rates are decided by investors through a discriminatory-price auction process. The length of the auction is decided by the firm, which generally lasts 3-80 days. When the deal is closed, the firm can decide whether to accept the deal or not within two days.If the loan is not fully subscribed, the project cannot be funded.[40] If the firm decides to take the loan, the contract will be signed. The firm can suspend the loan during or after the auction. Investors will receive the repayment quarterly from Toborrow, including the interest and amortized principle. Firms can prepay without penalties, just paying back the principal and interest expenses up to the prepayment date. In case of repayment problems, Toborrow will hand over to Inkasso, a third-party credit collection agency.

The campaign is free of charge. Toborrow takes 2-4 percent commission of the total loan size depending on the maturity when the deal is closed.

- 2 percent up to 12 months maturity

- 3 percent between 12-24 months

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[40]Toborrow removed the unfunded projects from the platform. However, according to the interview with Toborrow, there were quite a few unfunded projects during the starting phase of the platform under operation.

- 4 percent between 24-36 months

Investors were free from charges until the end of 2015. From January 2016, Toborrow introduced a charge of 1 percent of the amount investors lend out.

A.3. A brief description of Toborrow's online auction process

Crowdlending sites are essentially online markets that match the supply and demand of loans. Two of the most common used mechanisms in crowdlending market are posted prices and online auctions. Posted prices are pre-determined by the platforms through a due diligence analysis on the campaign firm (e.g., Prosper.com,[41] LendingClub.com, FundedByMe.com, Kameo.se, Lendino.dk). Prices through auctions are determined by the investors directly through an online auction process. Two kinds of auctions are used in the crowdlending market: (1) uniform-price auction and (2) discriminatory-price auction (e.g. Toborrow.se, LendingCrowd.com). Toborrow uses the latter approach. Below, I briefly describe briefly how the online auction process works on Toborrow.

An investor must have Swedish social registration number (personnummer) and BankID to register an account on Toborrow. After registration, investors transfer money to the client account at Toborrow and start the bidding process. Investors send out bids with the amount of money they want to lend and the interest rate they require. The minimum bid is 100 SEK. Once they have started bidding, investors cannot withdraw the bids. The interest rate of a bid should be between 1 percent and 15 percent.

The auction process optimizes the interest rate by a dynamic bids-excluding mechanism. If the target amount is reached before the campaign ends, the bids with the highest interest rates will be excluded by the new bids with lower interest rates. For example, there are two bids – (a) 1000 SEK at 9 percent and (b) 1000 SEK at 9 percent – with the highest bidding interest rate, and (a) is bidden earlier than (b). If a new bid (c) 500 SEK at 8.5 percent comes in, bid (c) will exclude part of bid (b) by 500 SEK. There is still part of bid (b) 500 SEK at 9 percent remaining in the bidding system.

During the bidding process, when the target has not been reached, one investor can see all the bids; when the target has been reached, one investor can see all the accepted bids, which means that the excluded bids are no longer visible. Lenders are anonymous throughout the bidding process, which means that only the amount (SEK) and the interest of bids can be seen. Figure 3 provides an example of all the bids accepted by the campaigning firm.

Toborrow also provides an autobid function for investors. Investors can send bids automatically if a new project is launched on the platform. The autobid function allows investors to pre-set the interest rate based on the project's risk category. For example, an

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[41]Prosper.com switched from auctions to posted-price in December of 2010.

investor could send the following bids: (1) Risk category A, 2000 SEK, 6 percent; (2) Risk category B, 1000 SEK, 10 percent; (3) Risk category C, 1000 SEK, 15 percent. If the newly launched project has risk category A, bid (1) will be triggered. If the newly launched project has risk category B, bid (2) will be triggered. If the newly launched project has risk category C, bid (3) will be triggered. This autobid function is designed for investors who do not want to have frequent login to check the bidding process.

A.4. Additional empirical results

Table A2: Summary statistics of firm characteristics in matched sample

	Treatment			Control			Diff
	count	mean	p50	count	mean	p50	
ln(asset)	59	14.528	14.365	295	14.402	14.211	0.126
Firm age	59	12.203	9.000	295	12.410	8.000	-0.207
Employee	53	15.849	3.000	284	21.391	2.500	-5.542
ln(sales)	59	14.866	15.017	295	14.823	14.895	0.0434
ROA	59	0.053	0.046	290	0.049	0.042	0.00434
Investment	56	0.047	0.018	211	0.051	0.031	-0.00344
Sales growth	56	0.027	0.026	215	0.016	0.018	0.0111***
Debt ratio	59	0.305	0.281	295	0.335	0.239	-0.0302
Tangible/Fixed assets	51	0.563	0.600	245	0.785	1.000	-0.221***
Pledged/Tangible assets	49	0.572	1.000	244	0.551	0.695	0.0214
Cash	59	0.105	0.036	295	0.196	0.074	-0.0914**

NOTES: This table presents the summary statistics for different characteristics of the firms in treatment and control groups. Firms in the treatment group are those that have borrowed on the crowdlending platform Toborrow. The control group is constructed using exact matching on year, industry, employee category and propensity score matching on logarithm of sales, logarithm of assets and firm age. The first three columns refer to the treatment group, while columns 4-6 refer to the control group. The last column shows the t-test of the difference between the means of the characteristics of firms in treatment and control groups. *,** and *** refer to significance at 10%, 5% and 1% respectively.

Table A3: Determinants of firms borrowing on crowdlending: Firm characteristics (Matched sample)

	Dummy=1 if firm borrow on crowdlending in year t+1							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ROA	-0.155	0.0813	0.239	0.0109	0.320	0.130	-0.124	0.206
	(0.287)	(0.195)	(0.262)	(0.342)	(0.482)	(0.186)	(0.251)	(0.461)
Debt ratio	-0.323			-0.369	-0.294		-0.622**	-0.533**
	(0.204)			(0.273)	(0.301)		(0.276)	(0.269)
Tangible/Fixed assets		-0.903***		-0.891***	-1.096***			-1.079**
		(0.307)		(0.298)	(0.306)			(0.424)
Cash			-1.267***	-1.161***	-0.753			-0.429
			(0.283)	(0.421)	(0.496)			(0.729)
Investment					-0.169			-0.442
					(2.627)			(2.724)
Sales growth					13.39***			12.38**
					(5.141)			(6.069)
Pledged/Tangible assets						0.00255	-0.00115	-0.00670***
						(0.00180)	(0.00287)	(0.00230)
Debt ratio*Pledged/Tangible assets							0.00504**	0.00511***
							(0.00222)	(0.00132)
Year FE	YES	YES	YES	YES	NO	YES	YES	NO
Industry FE	YES	YES	YES	YES	NO	YES	YES	NO
Industry-Year FE	NO	NO	NO	NO	YES	NO	NO	YES
Observations	349	287	349	287	241	260	260	218
Pseudo R-squared	0.00769	0.0592	0.0309	0.0795	0.134	0.0107	0.0243	0.113

NOTES: This table reports results from probit regressions looking at the probability that a firm borrowed from the crowdlending market using matched sample. The estimation method is maximum likelihood. The dependent variable takes a value of one if the firm borrowed from the crowd in year t+1 and zero otherwise. The definition of independent variables can be found in Table 1. Standard errors are clustered by industry. *,** and *** refer to significance at 10%, 5% and 1% respectively.

Table A4: Determinants of firms borrowing on crowdlending: Regional factors (Matched sample)

	Dummy=1 if firm borrow on crowdlending in year t+1											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Bank Branches pc	1.447 (1.301)	1.958 (1.369)										
Bankruptcy rate			0.440** (0.199)	0.490** (0.208)	0.511** (0.242)							
ln(criminal pc)						0.966** (0.461)	0.965* (0.501)	0.851 (0.527)				
ln(ecocriminal pc)									0.0494 (0.0860)	-0.0187 (0.0746)		
ln(crdcriminal pc)											0.00280 (0.0734)	-0.0450 (0.0709)
Startup rate			-0.0475* (0.0250)	-0.0735** (0.0330)	-0.0774 (0.0474)							
LargeCity	0.425** (0.169)	0.257 (0.189)	0.333* (0.178)	0.170 (0.207)	0.366 (0.307)	-0.254 (0.387)	-0.391 (0.424)	-0.109 (0.469)	0.365 (0.251)	0.320 (0.253)	0.448* (0.244)	0.371 (0.250)
City	0.213 (0.244)	0.223 (0.269)	0.112 (0.210)	0.110 (0.237)	0.0697 (0.250)	0.00438 (0.223)	-0.0454 (0.237)	-0.0301 (0.252)	0.171 (0.228)	0.135 (0.247)	0.173 (0.229)	0.128 (0.246)
Retail sales pc	2.192 (1.904)	2.016 (1.945)	1.854 (2.068)	1.638 (2.212)	1.047 (2.347)	1.056 (2.372)	0.894 (2.472)	0.412 (2.621)	1.909 (2.104)	1.693 (2.162)	1.902 (2.048)	1.588 (2.167)
Retail sales growth	8.509* (5.149)	9.783** (4.782)	8.611** (4.278)	10.52*** (3.735)	318.2*** (50.33)	8.360* (4.699)	9.932** (4.235)	330.2*** (49.24)	9.052* (4.757)	10.63** (4.328)	9.230* (4.733)	10.69** (4.314)
HPgrowth	-1.733 (1.197)	-1.375 (1.311)	-0.952 (1.031)	-0.686 (1.037)	-1.234 (1.173)	-1.079 (1.124)	-0.642 (1.192)	-1.368 (1.285)	-1.360 (1.105)	-1.103 (1.176)	-1.374 (1.092)	-1.153 (1.178)
Tangible/Fixed assets		-0.724*** (0.278)		-0.736*** (0.274)	-0.860*** (0.289)		-0.648** (0.274)	-0.842*** (0.299)		-0.711*** (0.272)		-0.712*** (0.272)
Cash		-1.443** (0.642)		-1.360** (0.578)	-0.957* (0.558)		-1.235** (0.584)	-0.940* (0.562)		-1.240** (0.578)		-1.243** (0.570)
Sales growth					3.061*** (0.536)			3.190*** (0.532)				
Year FE	YES	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES	YES
Industry FE	NO	YES	NO	YES	NO	NO	YES	NO	NO	YES	NO	YES
Industry-Year FE	NO	NO	NO	NO	YES	NO	NO	YES	NO	NO	NO	NO
Observations	336	271	354	287	241	354	287	241	354	287	354	287
Pseudo R-squared	0.0453	0.120	0.0678	0.142	0.199	0.0634	0.124	0.182	0.0473	0.110	0.0457	0.111

NOTES: This table reports results from probit regressions looking at the probability that a firm borrowed from the crowdlending market using matched sample. The estimation method is maximum likelihood. The dependent variable takes a value of one if the firm borrowed from the crowd in year t+1 and zero otherwise. The definition of independent variables can be found in Table 1. Standard errors are clustered by industry. *,** and *** refer to significance at 10%, 5% and 1% respectively.

58

Table A5: Determinants of firms borrowing on crowdlending: Firm characteristics (Restricted sample)

	Dummy=1 if firm borrow on crowdlending in year t+1							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ln(sales)	0.00613	-0.0172	0.00534	-0.00525	-0.0156	0.0235	0.0498	0.0530
	(0.0518)	(0.0469)	(0.0522)	(0.0479)	(0.0466)	(0.0511)	(0.0489)	(0.0477)
Firm age	-0.000846	0.00100	-0.00205	-0.000427	-0.00594***	0.00107	6.35e-05	-0.00348
	(0.00201)	(0.00203)	(0.00203)	(0.00182)	(0.00181)	(0.00229)	(0.00197)	(0.00216)
ROA	-0.130*	-0.0147	0.102	-0.00877	0.156	0.0149	-0.0492	0.0763
	(0.0775)	(0.0556)	(0.0712)	(0.115)	(0.152)	(0.0596)	(0.124)	(0.152)
Debt ratio	-0.160			-0.155*	-0.0564		-0.296***	-0.143
	(0.100)			(0.0841)	(0.0671)		(0.103)	(0.114)
Tangible/Fixed assets		-0.467***		-0.470***	-0.537***		-0.558***	-0.576***
		(0.125)		(0.131)	(0.120)		(0.141)	(0.147)
Cash			-0.784***	-0.632***	-0.206		-0.510**	-0.159
			(0.205)	(0.221)	(0.206)		(0.259)	(0.275)
Investment					-0.103			-0.225
					(1.271)			(1.480)
Sales growth					3.595**			3.292*
					(1.669)			(1.905)
Pledged/Tangible assets						0.00184**	-0.000714	-0.000481
						(0.000884)	(0.00118)	(0.00140)
Debt ratio*Pledged/Tangible assets							0.00143**	0.000529
							(0.000723)	(0.000636)
Year FE	YES	YES	YES	YES	NO	YES	YES	NO
Industry FE	YES	YES	YES	YES	NO	YES	YES	NO
Industry-Year FE	NO	NO	NO	NO	YES	NO	NO	YES
Observations	53,893	44,398	53,893	44,398	29,490	39,981	39,981	23,869
Pseudo R-squared	0.0394	0.0638	0.0504	0.0707	0.0772	0.0526	0.0814	0.0629

NOTES: This table reports results from probit regressions looking at the probability that a firm borrowed from the crowdlending market using the sample which has excluded firms with sales smaller than 0.5 million SEK. The estimation method is maximum likelihood. The dependent variable takes a value of one if the firm borrowed from the crowd in year t+1 and zero otherwise. The definition of independent variables can be found in Table 1. Standard errors are clustered by industry. *,** and *** refer to significance at 10%, 5% and 1% respectively.

Table A6: Determinants of firms borrowing on crowdlending: Regional factors (Restricted sample)

	Dummy=1 if firm borrow on crowdlending in year t+1											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Bank Branches pc	0.264	0.297										
	(0.447)	(0.473)										
Bankruptcy rate			18.24**	17.89*	16.35*							
			(8.397)	(9.211)	(9.657)							
ln(criminal pc)						0.529***	0.494***	0.514***				
						(0.202)	(0.184)	(0.193)				
ln(ecocriminal pc)									0.0373	0.00890		
									(0.0415)	(0.0340)		
ln(crdcriminal pc)											0.0232	0.00733
											(0.0327)	(0.0310)
Startup rate			-1.729	-1.581	-1.455							
			(1.385)	(1.707)	(1.782)							
LargeCity	0.215**	0.161*	0.157*	0.104	0.148	-0.186	-0.204	-0.182	0.137	0.140	0.158	0.141
	(0.0897)	(0.0836)	(0.0904)	(0.0895)	(0.0943)	(0.165)	(0.157)	(0.161)	(0.120)	(0.110)	(0.118)	(0.110)
City	0.129	0.122	0.0623	0.0452	0.0274	-0.00114	-0.0103	-0.0381	0.101	0.0912	0.101	0.0914
	(0.124)	(0.124)	(0.101)	(0.105)	(0.111)	(0.103)	(0.0998)	(0.104)	(0.110)	(0.113)	(0.112)	(0.114)
Retail sales pc	1.255***	1.257***	1.125***	1.106**	1.201**	0.910**	0.896	0.956	1.238***	1.186***	1.249***	1.194***
	(0.287)	(0.338)	(0.405)	(0.509)	(0.571)	(0.456)	(0.557)	(0.639)	(0.354)	(0.445)	(0.339)	(0.442)
Retail sales growth	1.883	2.649**	1.446	2.148**	1.426	1.483	2.302*	2.000	1.763	2.554**	1.793	2.550**
	(1.751)	(1.325)	(1.460)	(1.093)	(2.461)	(1.742)	(1.215)	(2.866)	(1.631)	(1.200)	(1.593)	(1.199)
HPgrowth	-0.582	-0.675	-0.288	-0.361	-0.392	-0.392	-0.455	-0.462	-0.520	-0.600	-0.515	-0.598
	(0.512)	(0.525)	(0.459)	(0.452)	(0.449)	(0.509)	(0.497)	(0.488)	(0.488)	(0.496)	(0.487)	(0.499)
Tangible/Fixed assets		-0.462***		-0.440***	-0.502***		-0.416***	-0.481***		-0.435***		-0.435***
		(0.109)		(0.107)	(0.113)		(0.105)	(0.112)		(0.105)		(0.106)
Cash		-0.704*		-0.646*	-0.227		-0.672*	-0.253		-0.646*		-0.646*
		(0.373)		(0.351)	(0.345)		(0.348)	(0.341)		(0.349)		(0.350)
Sales growth					1.552			1.073				
					(3.443)			(3.793)				
Year FE	YES	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES	YES
Industry FE	NO	YES	NO	YES	NO	NO	YES	NO	NO	YES	NO	YES
Industry-Year FE	NO	NO	NO	NO	YES	NO	NO	YES	NO	NO	NO	NO
Observations	62,391	42,978	64,312	44,398	35,593	64,293	44,383	35,579	64,293	44,383	64,293	44,383
Pseudo R-squared	0.0219	0.0839	0.0251	0.0840	0.104	0.0277	0.0859	0.107	0.0209	0.0797	0.0203	0.0797

NOTES: This table reports results from probit regressions looking at the probability that a firm borrowed from the crowdlending market using the sample which has excluded firms with sales smaller than 0.5 million SEK. The estimation method is maximum likelihood. The dependent variable takes a value of one if the firm borrowed from the crowd in year t+1 and zero otherwise. The definition of independent variables can be found in Table 1. Standard errors are clustered by industry. *,** and *** refer to significance at 10%, 5% and 1% respectively.

Table A7: Determinant of campaign popularity: Alternative measure

	Subscription rate			
	(1)	(2)	(3)	(4)
Target amount	-1.615*		-1.192	-2.281**
	(0.915)		(0.973)	(1.111)
Maturity	-0.019		-0.031	-0.037
	(0.032)		(0.037)	(0.037)
Collateral	0.030		0.222	-0.057
	(0.664)		(0.778)	(0.842)
Amortize	1.418*		1.390*	1.220
	(0.730)		(0.753)	(0.751)
Risk Score	-0.834*		-0.786*	-0.757
	(0.438)		(0.434)	(0.491)
ln(sales)	-0.019		-0.145	0.066
	(0.334)		(0.377)	(0.378)
ROA	-1.150		-0.898	-1.728
	(1.198)		(1.353)	(1.489)
Debt ratio	-1.193		0.062	-0.599
	(1.811)		(1.984)	(1.691)
Current/Total Assets	2.772**		3.170***	2.418**
	(1.065)		(1.011)	(1.141)
Age	1.029		2.778	2.326
	(2.398)		(2.525)	(2.841)
Quick ratio	0.153*		0.200**	0.195***
	(0.083)		(0.088)	(0.069)
# Campaign persons		0.090	0.568	0.600
		(0.683)	(0.676)	(0.712)
Owner/CEO		-0.099	-0.197	-0.349
		(0.763)	(0.680)	(0.612)
Female		0.554	0.962	0.645
		(0.751)	(0.738)	(0.666)
Photo		0.988	0.095	0.004
		(0.804)	(0.699)	(0.902)
First time				0.059
				(1.764)
#Campaign days				0.010
				(0.022)
Campaign order				0.055**
				(0.026)
Observations	58	60	58	58
R-squared	0.380	0.022	0.415	0.539

NOTES: This table reports results from OLS regressions on the determinants of campaign popularity using the subscription rate as the popularity measure. The subscription rate is defined as the ratio between the total value of all bids and the target amount of loan. A high subscription rate means high campaign popularity. Heteroskedasticity robust standard errors are reported in parentheses. *,** and *** refer to significance at 10%, 5% and 1% respectively.