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Financial constraints of private firms and bank lending behavior

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ABSTRACT

We investigate whether and how financial constraints of private firms depend on bank lending behavior. Bank lending behavior, especially its scale, scope and timing, is largely driven by bank business models which differ between privately owned and state-owned banks. Using a unique dataset on private small and medium-sized enterprises (SMEs) we find that an increase in relative borrowings from local state-owned banks significantly reduces firms' financial constraints, while there is no such effect for privately owned banks. Improved credit availability and private information production are the main channels that explain our result. We also show that the lending behavior of local state-owned banks can be sustainable because it is less cyclical and neither leads to more risk taking nor underperformance.

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1. Introduction

The availability of external funding, especially access to credit and cost of credit, influences firms' investments when there are frictions in the economy. Cash flow problems, limited access to credit, and high costs of credit are major determinants of financial constraints that prevent firms from funding all desired investments (e.g., Fazzari et al., 1988; Kaplan and Zingales, 1997; Lamont et al., 2001; Love, 2003; Almeida et al., 2004; Whited and Wu, 2006; Almeida and Campello, 2007; Hadlock and Pierce, 2010). Next to the impact on individual firms *"financial constraints have a clear macroeconomic dimension ..., their behavior may help explain aggregate movements of investment."* (Fazzari et al., 1988). The survey study by Campello et al. (2010) supports this view with evidence on corporate financial constraints during the recent financial crisis. However, most of the existing theoretical and empirical literature on financial constraints deals with public firms that can access equity and debt markets (e.g., Sufi, 2009; Gopalan et al., 2011), while there is little evidence on a particularly relevant case: financial constraints of private firms.

To help fill this void, this paper investigates whether and how financial constraints of private firms depend on bank lending behavior. We focus on private firms, especially small and medium-sized enterprises (SMEs), because they are subject to stronger informational asymmetries, more likely to be affected by financial and legal constraints to investments, and more bank-dependent than public firms (e.g., Beck et al., 2005). At the same time, SMEs are of key importance for economic activity, employment and innovation in many countries.

Given that banks are the main providers of credit to SMEs we examine whether and how differences in bank lending behavior affect firms' financial constraints. Bank lending generally contributes to financial deepening of an economy, which has a positive impact on aggregate output and economic activity (e.g., King and Levine, 1993). However, bank lending behavior is neither uniform in the cross-section nor over time. Instead, it is largely driven by the business model chosen by bank owners. Privately owned banks typically follow business models that aim at profit maximization, while state-owned banks tend to follow social welfare-oriented objectives and deviate from strict profit maximization. The differentiation of bank lending behavior by ownership is interesting

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for several reasons. First, government ownership of banks is pervasive and large (e.g., La Porta et al., 2002), and it has increased in many countries in response to the recent financial crisis. Note that government involvement can take different forms, such as direct state-ownership in banks, government sponsoring via guarantees, or state-led lending or savings programs. Second, evidence on the role of state-owned banks is rather mixed. On the one hand, there are studies that emphasize the positive aspects of state-owned banks, the so-called social view, for economic development and social welfare (e.g., Stiglitz, 1993; Burgess and Pande, 2005; Ostergaard et al., 2009). Such government involvement in retail or commercial banking, for example, to fight poverty, to promote homeownership through mortgage lending, or to ensure the credit supply to SMEs, has often resulted from a market failure, i.e., financial markets and/or privately owned banks failed to provide these financial services to households and the corporate sector. On the other hand, research documents negative aspects of government ownership in banks, such as underperformance and inefficient credit allocation because of agency problems, political influence, fraud and corruption (e.g., La Porta et al., 2002; Sapienza, 2004; Illueca et al., 2012). Third, there is evidence that suggests that the outcomes of government involvement in the banking industry depend on the legal and political institutions of a country (e.g., Dinç, 2005; Körner and Schnabel, 2011).

Because of significant differences between privately and state-owned banks' business models we expect a different lending behavior and therefore a different impact on firms' financial constraints. Our main hypothesis is that state-owned banks with a local focus reduce financial constraints of SMEs. The first motivation for this hypothesis comes from the literature that hints at differences in the lending behavior between large and small banks vis-à-vis large and small firms (e.g., Petersen and Rajan, 1994; Cole et al., 2004; Berger et al., 2005; Bharath et al., 2011; Gopalan et al., 2011). Berger and Udell (2006) stress the importance of lending technologies, especially arm's length lending (also transaction lending) versus relationship lending. While arm's length lending is based on hard public information, collateral and covenants, relationship lending is based on the production of hard and soft private information over time and across financial products. Mester et al. (2007) and Norden and Weber (2010) provide comprehensive evidence on the types and sources of private borrower information for banks. These studies show that the benefits of banks' private information production are particular important for SMEs and retail borrowers. Evidence on the German banking system indicates that relationship lending is a key lending technology in SME finance (e.g., Elsas and Krahnen, 1998; Machauer and Weber, 1998; Elsas, 2005). We expect small state-owned banks with a local focus to rely more on private information production than large privately owned banks with a broader focus. In other words, the objectives of local state-owned banks require a particular lending technology (relationship lending) and regulation that these banks do not grow beyond their local focus to make their business model self-sustaining.

The second motivation for our hypothesis is borne by studies that document that bank lending, deposit taking and liquidity creation of state-owned banks is less cyclical than the behavior of privately owned profit-maximizing banks (e.g., Berger et al., 2010; Foos, 2010; Micco and Panizza, 2006). This evidence implies that a heterogeneous financial system that comprises banks with different business models exhibits lower cyclicality because aggregate lending and liquidity creation is higher in recessionary periods and lower in expansive periods. This argument could also help to differentiate between the lending behavior of small local banks with different business models (i.e., local state-owned banks such as savings banks vs. local privately owned banks, such as credit cooperatives). Using information on bank relationships from a firm survey Engel and Middendorf (2009) analyze differences in the investment and financing behavior of firms that are clients of either savings banks or credit cooperatives, respectively. They find that German SMEs on average are financially constrained but they do not find a link between financing constraints and the type of bank relationships of the firms in their sample. We expect that differences in the cyclicality of bank lending behavior should be taken into account in this context and may explain why local state-owned banks reduce financial constraints of SMEs.

We base our analysis on a unique dataset comprising financial statement and credit rating information of SMEs from Germany. It spans the period from 1995 to 2007 and includes 166,300 firm-year observations. The data are representative for the German economy, where 96% of all firms are SMEs. To identify the link between financial constraints and bank lending behavior we exploit detailed information about the composition of firms' borrowings by bank type. Specifically, we consider the percentage share of firms' borrowings from local state-owned banks (relative to their total bank debt) and its change over time to analyze the impact on firms' financial constraints.

Germany provides a useful setting for our study (see Allen and Gale (2000) and Krahnen and Schmidt (2004), for an overview of the German financial system). Savings banks have a self-sustaining business model that they have successfully followed for more than 200 years. Today, the savings banks sector has the largest market share in bank lending in Germany. Savings banks are controlled by local governments, and their by-laws include a set of mandatory business objectives, such as supporting local firms with credit, promoting household savings behavior, and striving for profits but not strictly maximizing profits. These objectives summarize the motivation why savings banks were established. The banking activities of savings banks (mainly lending and deposit taking) are geographically constrained to their municipality (city or county), which puts a limit on their size. They are also subject to the same banking regulations and deposit insurance as privately owned banks. Furthermore, we take advantage of the fact that the decentralized geographic business structure in Germany, reflected by the dominance of SMEs, is exogenous to its banking system. The regional business structure has emerged in the Middle Ages, while savings banks were not established before the late 18th and early 19th century. Hence, we study a setting in which the structure of the real economy shaped the structure of the banking system. Although we use data from a single country we believe that the results on Germany have implications for other countries in which banks follow similar business models.

In our analysis we estimate standard investment-cash flow regression models in which we interact the percentage share of each firm's borrowings from savings banks with the firm's cash flow (for a similar approach in a different context see, e.g., Love, 2003). We find that a 10% point increase of relative borrowings from savings banks reduces financial constraints of SMEs by approximately 2.9%. This result is statistically and economically significant and robust to different model specifications, including specifications that account for potential endogeneity of the share of firms' borrowings from savings banks. We use the share of savings bank branches relative to the total number of banks in a region, which is exogenous to an individual firm, as an instrument for a firm's percentage share of borrowings from savings banks and obtain similar results. To distinguish between firms that are more or less likely to be constrained we split the sample in subgroups based on firm size, asset tangibility and the Whited and Wu (2006) index. We find that the beneficial effect of borrowing from savings banks becomes larger for firms that are more likely to be constrained. We also examine financial constraints of firms before and after they increased their borrowings from savings banks and find a reduction of financial constraints by 9.6% for an

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