

RESEARCH PROPOSAL: THE IMPACT OF BANKING REGULATION ON THE REAL ECONOMY

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The impact of bank shocks to credit conditions and the real economy has garnered much attention in the literature over the past decade for at least two reasons. First, the financial crisis of 2007-2008 was followed by the deepest recession since the 1930s, with most advanced economies experiencing a particularly dramatic drop in investment. Second, while bank regulators have long sought to determine the appropriate minimum levels of capital that banks should hold, the banking regulation introduced as a response to the financial crisis generated many papers on the costs and benefits of measures aimed at improving the resilience of the banking sector. For example, while higher capital requirements lower leverage and the risk of bank failure, they also increase banks' marginal cost of loans and can, in turn, have implications for credit conditions and the real economy.

This paper also studies the impact of bank shocks on the real economy and focuses on the impact of bank regulation as opposed to exogenous shocks generated via the collapse of Lehmans. This paper departs from the existing literature in a number of ways. First, as opposed to the literature focusing on the impact of regulatory capital requirements, the exogenous variation exploited here is generated from an inherent feature of regulation, Basel II's model-based approach to calculating capital charges, that leads to changes in capital requirements and corresponding adjustments in the real economy. Second, the challenge of disentangling the effects of supply shocks from the demand for credit is addressed by including data from a survey of credit conditions, which directly identifies the demand for credit via firms' self-reported applications for it.

Many of the papers that study the impact of banking regulation on the real economy use dynamic stochastic general equilibrium models (see e.g. BIS 2011 for a review) – regulators in most countries have imposed a uniform capital requirement for all banks in the past and hence variation among banks in terms of the level of capital held as a result of exogenous factors is a fairly recent phenomenon; a lack of historical data means that empirical studies are scarce. Some exceptions include the regulatory frameworks used in the UK and in Spain, where bank capital requirements have varied across banks and/or over time (see e.g. DeMarco and Wieladek 2015 and Jimenez et al 2015). An earlier revision to international banking regulatory guidelines (Basel II) also led to variation in the absolute level of capital held by different banks, however, at least in the jurisdictions that adopted the model-based approach to calculating capital charges. While the principle of banks being required to hold 8% in capital-to-risk-weighted assets was maintained as part of Basel II, a new method for calculating risk-weighted assets (and hence capital requirements) was introduced and adopted by banks in a staggered way, allowing for the identification of some lenders and hence their borrowers affected by higher capital requirements from those less affected. Studying the impact of bank credit supply shocks in the Basel II model-based approach context necessitates the identification of the regulatory approach used by individual banks and linking up these banks with their borrowers.

A key challenge in this literature is distinguishing between the effects of the demand for credit and the supply of bank credit since different factors, such as downturns, will affect both. Many papers use credit registry data on loans (Puri et al. 2011, Iyer et al. 2014, Behn

et al. 2016, Fraisse et al. 2017) and, by relying on firm-time fixed effects to control for demand, only study firms with multiple banking relationships. The methodology used in these papers and those focused on large firms e.g. Campello et al 2010, Chodorow-Reich 2014 is limited in its applicability given that large firms with multiple relationships tend to represent a small minority of firms in many countries. Other research strategies have been i) to exploit natural experiments (e.g. Peek and Rosengren 1997, Khwaja and Mian 2008, Chava and Purnanandam 2011, Lin and Paravisini 2013); ii) to estimate demand and supply equations using data that includes firm-level characteristics in a disequilibrium model (e.g. Kremp and Sevestre 2013, Carbo-Valverde et al. 2016); and iii) to examine substitution between bank loans and capital market instruments such as commercial paper (Kashyap et al. 1993) or corporate bonds (Becker and Ivashina 2014).

This paper utilises data from a survey of credit conditions to control for demand based on firms' self-reported demand for finance. While this approach is unique in the study of the impact of bank regulation on the real economy, some recent papers also use surveys of firms' credit conditions to control for demand in this way. For example, Ferrando, Popov and Udell (2017, 2018) use the ECB's Survey on Access to Enterprises to study the impact of sovereign stress and the ECB's unconventional monetary policy measures on some Euro area SMEs and Popov and Udell (2012) use the EBRD's BEEPS survey to study the impact of average banking conditions on SME credit supply in 16 emerging European countries. There are a number of important differences between this paper and these existing studies. First, the existing literature focuses on credit outcomes such as a firm being granted a loan whereas the focus here is on real economy outcomes such as employment, investment and productivity. Second, identifying a firms' main relationship with a bank or non-bank source of external finance is straightforward using the dataset used in this study given that firms' self report their most important source of finance to the level of detail of naming the particular bank, funding organisation or other funding source. Only one of the existing papers that utilise firm-level survey data are able to identify firm-bank relationships but rely on Bureau an Dijk's Amadeus data, which is mute on the relative importance of individual banking relationships where there are more than one. Third, the dataset used here includes SMEs and large firms, whereas the existing firm survey-based data cover only SMEs. Fourth, the firms included in the surveys employed in the existing studies tend to be different from one survey to the next, unlike the dataset used here, which includes the same firms in the pre- and post-reform periods. Finally, the dataset used in this paper spans 10 waves of surveys, whereas these existing studies utilise two to six. In particular, the BEEPS survey covers pre-crisis data, whereas the ECB survey covers only post-crisis data.

This paper employs a differences-in-differences approach using an unbalanced panel dataset of Finnish firms created from the merger of firms' balance sheet data from Statistics Finland and an annual credit conditions survey conducted on behalf of the Bank of Finland and other organisations. The key outcome variables are employment, productivity, gross value added and tangible and intangible investment, whereas the explanatory variables are a dummy variable for whether a firm's main banking relationship was with a model-based approach adopting bank or not, a dummy variable for the timing of the approach being taken into use and the interaction of the two.

This paper builds on my first paper on the impact of Basel II model-based regulation on firms' credit conditions (attached). While endogeneity is a key issue for all studies on banking regulation, and in this context the opting-in to use the model-based approach among banks, the approach of Basel II was, while gradually phased in across the Finnish banking sector, eventually was adopted by most of the Finnish banking sector, which is concentrated and made up of a small number of banks or amalgamations of savings banks. The reform is endogenous at least from the perspective of the firm, however, with the 2006 survey finding that firms were generally unaware of the reform and the small minority that were aware, did not anticipate any changes to their access to finance as a result. Indeed, banking relationships matter according to the survey, as documented in numerous other studies (see e.g. Degryse et al 2009).

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