Bank funding shocks and firm performance: New evidence from the sovereign debt crisis*

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Abstract

Using a rich source of high-quality firm-bank matched data over the period 2006-14, this paper examines the impact of bank shocks on firms' performance in Portugal. We present evidence that a negative bank funding shock is likely to increase the probability of firm failure and reduce employment and productivity. When we distinguish between financially constrained and unconstrained firms, we find that the former group of firms exhibits a higher sensitivity of firm performance to bank shocks.

Key words: Firm survival, Productivity, Employment, Bank shocks, Sovereign debt crisis
JEL: F32, F34, G15, G21; E44

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1 Extended abstract

The European (sovereign) debt crisis has created significant loan disruptions in the Eurozone. The financial sector was affected by the crisis and lending to the private sector dropped substantially (see Acharya et al (2015)). This reduction in loan supply had direct and important consequences to firms' real decisions. There is now evidence which suggests that disruptions to loan supply can have an impact on real activities such as investment and asset growth (see De Jonghe et al (2016)). In addition, this effect is more potent for firms that borrowed from banks that experienced a large funding shock (outflow), while it is less important for large firms and for those that are borrowing from banks with a high sector presence.

The idea that bank lending supply shocks can have real effects is relatively new to the literature. Focusing on the 2007-09 crisis, Chodorow-Reich (2014) shows that following the Lehman bankruptcy, small and medium firms that had pre-crisis relationships with less healthy lenders experienced a lower likelihood of obtaining a loan as well as lower employment. Iyer et al (2013) and Bentolila et al (2013) provide similar evidence for Portugal and Spain, respectively. Specifically, the findings of Iyer et al (2013) suggest that the reduction in credit supply was stronger for smaller firms, with weaker banking relationships. These firms were unable to perfectly substitute credit from crisis-affected banks with other sources of finance, such as loans from less affected banks or trade credit. Bentolila et al (2013) find that firms attached to weaker banks, that were eventually bailed out by the Spanish government, suffered a larger fall in employment. However, these studies remain silent about the potential effect of loan disruptions on other dimensions of firms' performance such as survival, employment and productivity. This is likely to be of great importance given that the number of failing firms increased significantly during the sovereign debt crisis period and their productivity and employment suffered quite substantially.

The purpose of the present paper is to fill this gap by providing for the first time a systematic empirical analysis of the impact of bank funding shocks on several aspects of firm behaviour. The motivation to do so stems from the fact that the European sovereign debt crisis has a large negative impact on firms' survival prospects. In Figure 1 we can observe the evolution of the number of exiting firms over the sample period. In year 2009, which denotes the pre-crisis period, we record 20,609 firms exits. However, in year 2011 (post-crisis period) the number of failing firms has increased to 31,541 which corresponds to an increase of 53%. Therefore, it appears that firm failure responded very strongly during the crisis period. Similar consequences of deteriorating credit conditions were observed for other firm outcomes such as employment and productivity. Further, observing Figure 2 there is evidence that bank funding (measured by interbank liabilities + deposit funding) was approximately 2200 bn in year 2009 and dropped to its lowest point in the sample period in year 2011 (1600 bn). Therefore, taking the year 2010 as the shock period, which corresponds to the beginning of the sovereign debt crisis, we can see that the gap before and after the shock is substantial. This figure provides crucial information about the trend of outflows in the Portuguese banking sector.

Against this background, out paper makes four important contributions to the literature. First, we investigate whether bank funding shocks can have an impact on various firm-level outcomes, encompassing firm survival, productivity and employment. While each of the aspects of corporate behaviour we consider is of interest in its own right, the ability to compare sensitivities across each is of special interest.

Second, we explore whether the link between bank funding shocks and firm performance is heterogeneous among different types of firms. In particular, we do not expect all firms to be affected in a proportional manner, that is more financially constrained firms are more likely to be affected the most from a loan supply shock in the sovereign debt crisis. In this respect, we partition our firms to financially constrained and unconstrained categories using their size and age as sorting devices.

Third, we employ a rich, but relatively unexploited, source of high-quality firm-bank matched data for Portugal. This consists of annual balance-sheet information on registered companies over the period 2006-14 and their lenders' detailed monthly bank-firm level data from a comprehensive credit register which records all commercial and industrial loans by all banks operating in Portugal. An appealing characteristic of the data-set is that it covers mainly micro and small firms (92%) which are more likely to suffer from loan disruptions.

Finally, the case of Portugal is of special interest in the context of firm outcomes and bank funding shocks since contractions of credit were evident during the sovereign debt crisis. Acharya et al (2015) document a drop in the lending volume of new loans in Portugal by 45% over the period 2008–2013. As a result of the bank funding shock, firms face strong real outcomes.

To preview our findings, we document a robust relationship between funding shocks and the chances of firm failure. Firms borrowing from banks that experience a funding shock are more likely to face a higher probability of failure. The relationship between funding outflow and firm survival is not only statistically, but also economically important. It indicates that the average firm in our sample which borrowed from a bank that experienced an outflow of 4.2%, faced an increase in the probability of failure by 1.32 percentage points. The results on productivity and employment are less clear cut.

In addition, we find that firms which are characterised by financial constraints exhibit a higher sensitivity of failure to bank shocks. This is true for other firm outcomes such as employment and labour productivity. This is a novel finding which highlights that bank shock has a differentiated effect in determining firm outcomes in firms which are associated with the higher degree of information asymmetry. To sum up, we show that firms which are more likely to be financially constrained will experience a higher sensitivity of firm outcomes to bank shocks.

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Figure 1: Number of failing firms by year

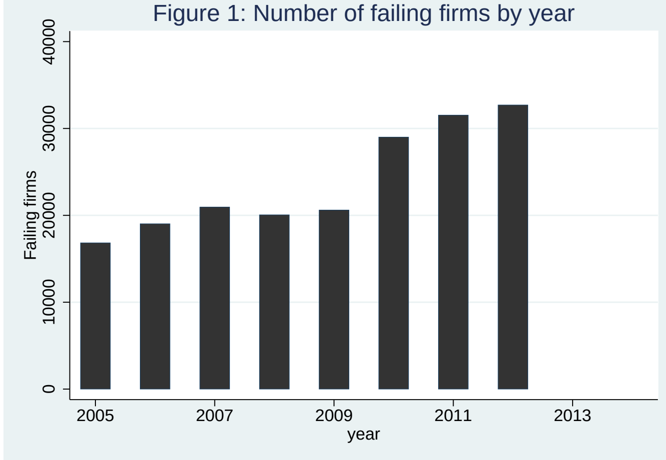

Figure 2: Evolution of bank funding