

Discussion

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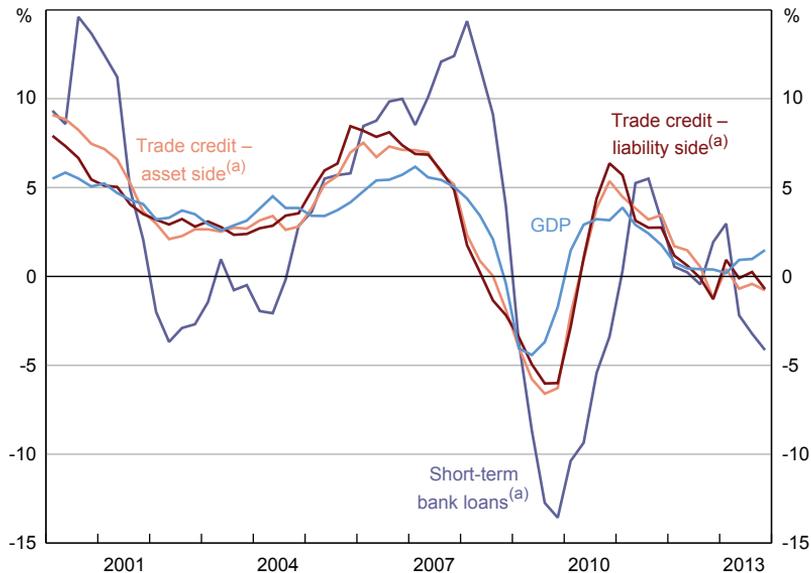
Trade credit is an important source of finance for firms, especially when firms find it difficult to obtain external funding via credit institutions. This channel is especially relevant in Europe because capital markets are less developed than in the United States. In this context, a long debated issue is whether trade credit and bank debt are external funding sources that are substitutes or complements for one another. The two possibilities have different implications for the business cycle. In the former case, economic activity will display higher volatility over time; in the latter case, trade credit might be an important mechanism for mitigating the effects of an adverse change in the availability of bank credit.

The main result of the paper is that, over the full sample period, substitution and complementarity between bank debt and trade credit are almost equally likely. During the crisis period, however, the probability of a negative complementary relationship more than doubled. Moreover, only firms with high credit quality and intermediate financial constraints were able to substitute between trade credit and bank loans.

Empirical evidence for the euro area is not clear cut (Ferrando and Mulier 2013). Figure 1 shows the growth of trade credit and short-term debt to non-financial corporations in the euro area. Over recent years, trade credit has moved broadly in line with the business cycle. This procyclical pattern of accounts payable is unsurprising, because accounts payable are closely linked to the exchange of goods and services and, hence, to economic activity. In general, trade credit has remained a stable source of finance for euro area companies but it tended to decline from 2005 to 2007, when bank credit was becoming easily accessible. During the recent financial crisis, there was an increase in the use of trade credit which likely compensated for the strong decline in short-term bank loans. Interestingly, the fact that the increase in the annual growth of accounts payable between non-financial firms has been more pronounced than the increase in nominal GDP growth may indicate that trade credit between companies has played a buffer role in the recent crisis. However, Figure 1 shows that in the first stages of the crisis the decline in trade credit was similar to the decline in bank debt – that is, these two sources of finance displayed a (negative) complementary relationship.

* The views expressed are those of the author and not necessarily those of the European Central Bank.

Figure 1: Euro Area – Short-term Loans, Trade Credit and GDP Growth
Annual percentage change



Notes: Annual percentage changes are calculated as the four-quarter sum of transactions over the amounts outstanding four quarters earlier; trade credit is estimated by the European Central Bank on the basis of partial information; euro area GDP year-on-year percentage change is expressed in seasonally adjusted current prices
(a) For non-financial corporations
Sources: European Central Bank; Eurostat

Against this background, the paper sheds some light on the relationship between trade credit and bank debt. It does so using firm-level information. My first three remarks focus on some methodological aspects of the paper and my fourth on the conclusions of the paper.

First, the main aim of the paper is to investigate what happened during the financial crisis to small to medium-sized enterprises (SMEs) in a select group of European Union countries. Further, the authors narrowed their analysis by considering only SMEs that: had non-zero trade credit and non-zero bank debt; were in need of external finance; and experienced a negative shock to their bank debt.

The resulting analysis is therefore confined to this specific, restricted sample and no information is given on the effect of these restrictions on the characteristics of the sample. It would be expected, for instance, that the use of trade credit:

- is more common in sectors where there is a physical good involved and less common in sectors providing services
- is higher for manufacturers of differentiated goods than for manufacturers of standardised goods
- is geographically differentiated – trade credit is more commonly used by firms located in southern euro area countries and less common in countries in the north.

DISCUSSION

Hence, the sample analysed by the authors could differ from these characteristics and this could have implications for inferences about the overall economy.

Second, the paper finds that SMEs with lower credit quality have more difficulties in offsetting a shock to their short-term bank debt via trade credit. I would question whether the credit quality of firms is really so important for trade credit, or whether it is the ability of firms to produce goods or provide services that is more relevant. In contrast with the paper's results, there is evidence that trade credit is used as an instrument of price discrimination and it is often extended to buyers on the same basis, regardless of the buyer's credit quality. Hence, financially weaker firms typically pay lower effective prices than financially stronger borrowers (Fitzpatrick and Lien 2013). Furthermore, trade credit is also related to soft information/mutual trust (Berger and Udell 2006; Atradius 2014).

Third, the paper finds that there is a non-linear relationship between credit quality and financial constraints affecting the probability of substitution between trade credit and bank debt. My doubts are related to the robustness of these findings and, in particular, the variable used to define financial constraints. The paper uses the Kaplan-Zingales index (KZ index), which is one of most popular measures of financial constraints. The actual KZ index is the result of the work of Lamont, Polk and Saá-Requejo (2001), who estimated an ordered logit model relating the degree of financial constraints (based on the way firms were classified in Kaplan and Zingales (1997)) to five readily available accounting variables – cash flow, market value, debt, dividends and cash holdings – each scaled by total assets. The model is estimated on 49 firms that were categorised by their degree of financial constraints on the basis of other characteristics. The estimated regression coefficients can then be used to construct a KZ index score for any firm, using the coefficients from the original regression and the relevant accounting variables for the firm. A higher index value suggests that a firm is more constrained. The index loads positively on market-to-book ratio and leverage and negatively on cash flow, dividends and cash holdings. To summarise: it is an index based on estimations from the early 2000s on a sample of a very few US companies. Many papers have found weaknesses with this indicator in detecting financial constraints (Farre-Mensa and Ljungqvist 2013). My additional concern with the KZ index is the application of this indicator to European firms, which have different capital structures, cash management and institutional frameworks compared with the US firms on which the index was originally based.

I have suggested that the authors run some robustness checks using alternative measures of financial constraints. Such measures could be based on different *a priori* classifications or on business surveys, although there are limited data available. The European Central Bank has run a survey about access to finance and has used the replies of interviewed firms to construct an index of bank-constrained firms. These firms are defined as firms that applied for loans and were rejected or firms that did not apply for fear of rejection. This index could easily be used by the authors (ECB 2014).

My fourth, and final, comment is about the main result of the paper concerning the use of trade credit during the financial crisis. The paper claims that trade credit had limited scope to replace bank debt, particularly for firms that were facing financial constraints. I would question this strong conclusion on the basis of my previous remarks and also because other analysis that I and colleagues have carried out using survey data points to a different direction. In particular, we found that bank-constrained firms used trade credit as an alternative source of finance during the

crisis (ECB 2015). However, bank-constrained firms in euro area stressed countries (countries that suffered from the combination of the financial crisis and the sovereign debt crisis) found it more difficult to substitute towards trade credit than firms in non-stressed countries.

To conclude, trade credit has played an important role during the financial crisis in Europe, but the interplay of bank debt and trade credit is complex. It depends on a variety of factors that go beyond the characteristics of firms and includes the overall economic conditions of the countries in which firms operate. A point for policy reflection is related to the different purposes attached to bank loans and trade credit. The purpose of an SME loan typically falls into one of three categories: working capital financing, fixed asset financing and acquisition financing. By contrast, trade credit is typically associated only with working capital financing (Udell this volume). Firms that receive credit or equity experience a cash inflow that can be used in a flexible way; firms that receive trade credit do not experience a cash inflow. This difference is important when considering the effect of trade credit and other finance on investment and growth decisions of firms.

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2. General Discussion

Discussion initially focused on the relationship between the use of trade credit and the size of the firm. One participant noted that the finding was intuitive: a big firm uses trade credit because it can, not because it needs to, as it has ready access to bank credit. On the other hand, a small firm may not have access to bank credit at all, so might have to rely on trade credit as its only source of finance.

DISCUSSION

Participants then discussed the policy implications of the paper's findings. A participant commented on the stark variation in the use of trade credit across countries, and asked to what extent encouraging the use of trade credit could alleviate current bank lending constraints in the European Union. They also noted that policymakers care about encouraging the financing of SMEs; having diverse sources of credit available to SMEs, not just bank credit, is therefore a positive.

In response, Lars Norden noted that these were complex questions, but that the results of the paper could help policymakers and were robust. He explained that the paper finds that trade credit may help in a credit crisis but it cannot fully fill the gap left by a fall in bank credit provision. Accordingly, policymakers could not expect trade credit to be a full substitute. A participant noted that – from a monetary policy perspective – whether firms get a cash inflow or not makes a big difference for investment. Thus, trade credit and bank debt have different effects on firms' investment; the latter provides cash, while the former does not. Professor Norden added that this is a very important point that is also made in the paper. Furthermore, the participant pointed out that the crisis was so severe in the European Union and the reduction in bank credit so sharp that any funding firms could get was welcomed by policymakers.

Turning to other aspects of the paper, a participant noted that it would be interesting to look at how credit days – not just the volume of trade credit – moved during the financial crisis, and whether these displayed the same inverse U-shaped relationship. The participant commented that the strongest firms in the crisis could still get bank credit, it was just more expensive. The participant noted that, if there had been an increase in credit days, bigger firms might have been stretching out terms on their trade credit (which would likely have been cheaper than bank debt) and putting some of this cost burden on their suppliers, which were often smaller firms. If this were true, it would reinforce the findings of the paper. Another participant clarified that the credit days data in the paper are constructed mechanically from data on trade credit volume and days in a year. This means it is impossible to distinguish increases in the number of days due to changes in duration from changes due to trade credit volumes. The participant suggested that this would be better addressed using survey data.

Another participant noted that work done using Australian firm-level data for the unlisted business sector showed that the number of trade credit days expanded in Australia during the financial crisis. Regression analysis looking at bank debt and trade credit suggested that, in Australia, this increase was mostly firms substituting bank debt for trade credit. At the margin this substitution might have helped the SMEs through the crisis. Nonetheless, the participant cautioned that the experience in Australia may have been different to that in the European Union, because Australia largely escaped the credit crisis.

Discussion then moved to the paper's methodology. One participant sought clarification about whether the paper used net flows or gross flows of trade credit. The participant explained that there are two ways to adjust to a negative bank debt shock – the first is to request an extension on accounts payable and the second is to call in accounts receivable. Both are interesting and important aspects of small business financing. Professor Norden responded that the paper looked only at accounts payable rather than accounts receivable or net trade credit. He explained that considering both sides of the balance sheet simultaneously raises endogeneity problems. Since the paper focused on SMEs, the paper did not consider bigger firms that might both borrow and

lend trade credit. Accordingly, it made sense to focus only on accounts payable because smaller firms tend to be borrowing constrained.

A participant queried why the direction of credit flows was used as the dependent variable, rather than both the size and the direction of the flows. Professor Norden responded that he had run the main regression model using the logarithm of credit flows rather than focusing on the direction. However, that specification was very noisy and there are identification problems when the flow is zero. Using the direction indicator simplified identification and it made the regressions more robust.

In response to comments by the discussant, Professor Norden noted that, of the four different cases presented in the substitution indicator constructed in the paper, the paper only considered the two cases where bank credit was falling because its focus was the financial crisis. Professor Norden explained that he plans to do follow-up work looking at increases in bank credit as well, and how the relationship with trade credit operates in an upswing. Professor Norden also touched on the KZ index as a measure of financial constraints. He noted that it is well established in the literature for big firms and has applications for small firms. However, he agreed that the suggestion of alternative indices based on size and age were interesting alternatives to consider in further work.

