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# Trade credit and the joint effects of supplier and customer financial characteristics <sup>☆</sup>

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## ABSTRACT

We examine how access to bank credit affects trade credit in the supplier–customer relationships of U.S. public firms. For identification, we use exogenous liquidity shocks to supplier firms in the form of staggered changes to interstate bank branching laws. Using a variety of tests, we show that supplier firms with greater access to banking liquidity offer more trade credit to their customers. We also show that when bank branching restrictions are relaxed in the supplier's state, the supplier–customer relationship is more likely to survive.

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## 1. Introduction

Trade credit is an important component of short-term financing for public companies. The median value of accounts receivables to total assets is 16% for non-financial U.S. public firms during 1980–2008. In addition, researchers argue that trade credit relationships can transmit credit contagion in industrial firms (e.g., [Jorian and Zhang, 2009](#)). Despite their importance, relatively little is known about the trade credit decisions of large public companies. In this paper, we use a sample

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of key supplier–customer relationships among public corporations to study how the availability of bank lines of credit for supplier and customer firms affects outstanding trade credit. The core of our analysis uses an identification strategy based on exogenous liquidity shocks for supplier firms arising from changes in interstate bank branching laws (e.g., Rice and Strahan, 2010). We also study how changes to these interstate bank branching laws affect the likelihood of survival of key supplier–customer relationships. Finally, we explore how supplier and customer financial strength affects trade credit outstanding.

Theory suggests that the availability of short-term bank financing for supplier and customer firms impacts the supplier firm's trade credit outstanding. Cunat (2007) argues that trade credit appears to be more expensive than bank credit as it includes a premium to provide insurance to the customer for a future lack of liquidity and due to the inherent riskiness of trade credit compared to bank credit. Ng et al. (1999) and Klapper et al. (2012) analyze the contract terms of trade credit and show that the interest rates on trade credit are typically much higher than what a bank might charge for comparable loans. We posit that suppliers with access to bank credit offer more trade credit to their customers at plausibly higher interest rates compared to what they would pay on their bank debt.<sup>1</sup> Accordingly, suppliers with access to a bank line of credit or those that borrow on their credit lines more aggressively would have more trade credit outstanding. On the other hand, customers with access to bank lines of credit are more likely to substitute short-term liquidity needs with plausibly cheaper bank credit instead of relying on trade credit. Therefore, we expect suppliers to have less trade credit outstanding when their customers have greater access to short-term bank financing.

One concern with the above empirical setup is that an omitted variable could spuriously drive the relation between supplier bank lines of credit and trade credit. To better identify a causal link between bank lines of credit and trade credit, we follow the approach in Johnson and Rice (2008) and Rice and Strahan (2010) and employ exogenous shocks to banking liquidity due to the implementation of the Interstate Banking and Branching Efficiency Act (IBBEA) in 1994. Specifically, we explore how the relaxation of interstate bank branching restrictions helps supplier firms headquartered in deregulating states to obtain bank financing. Subsequently, we investigate whether this increased likelihood of obtaining bank credit affects trade credit offered to key customers. We expect that supplier firms with headquarters in states that relax bank branching laws are more likely to obtain a bank line of credit. Furthermore, these supplier firms extend more trade credit to their principal customers because they expect better access to bank credit.

It is plausible that better access to credit markets due to a relaxation of interstate branching laws impacts the survival of the supplier–customer relationship itself. Previous literature shows that a relaxation of bank branching laws improves macroeconomic conditions in the deregulating states (e.g., Jayaratne and Strahan, 1996; Black and Strahan, 2002; Cetorelli and Strahan, 2006). In addition, suppliers whose liquidity positions improve due to better state-level credit market conditions are better positioned to help customers by providing trade credit (e.g., Petersen and Rajan, 1997). This is likely to enhance the probability of survival of supplier–customer relationships. Based on these arguments, we posit that the relaxation of bank branching laws in the state where the supplier firm is headquartered increases the probability of survival of supplier–customer relationships in the state.

In our empirical tests, we first study the relation between supplier and customer bank lines of credit and trade credit for a sample of non-financial firms on Compustat. Consistent with theory, we find that supplier firms with access to bank lines of credit or those that draw more aggressively on their bank lines of credit have higher outstanding trade credit. Furthermore, we find that supplier firms whose key customers have less access to bank lines of credit have higher amounts of outstanding trade credit. It therefore appears that supplier and customer banking liquidity affect trade credit.

We next examine how differences in state-level bank branching restrictions affect a supplier's access to bank credit and its trade credit outstanding. We document a negative relation between branching restrictions and the likelihood of obtaining a bank line of credit for firms with no prior access to bank financing. This finding indicates that when a state reduces barriers to interstate branch-

<sup>1</sup> In our empirical analyses, we cannot explicitly compare the costs of trade credit and bank credit for a firm due to the non-availability of data on the cost of trade credit.

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