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Trade credit behavior of Korean small and medium sized enterprises during the 1997 financial crisis

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ABSTRACT

This paper investigates the effect of the 1997 Korean financial crisis on the trade credit behavior of Korean small and medium sized enterprises (SMEs) using a unique panel dataset for the period 1994 to 1999. I uncover new evidence supporting the substitution and redistribution hypotheses, which contradicts earlier studies. Specifically, the results show that liquid SMEs provided more trade credit to their client firms during the credit contraction, while financially constrained SMEs received more trade credit from their suppliers. Further, I find evidence that SMEs in financially distressed regions relied more on trade credit than their counterparts in financially healthier regions.

1. Introduction

Small and medium sized enterprises (SMEs) are likely to have less access to external financing sources and to be more vulnerable to adverse shocks, such as monetary tightening and financial crisis, as the literature on SMEs indicates (Beck, Demirgüç-Kunt, & Maksimovic, 2008; Gertler & Gilchrist, 1994; OECD, 2012). Gertler and Gilchrist (1994) show that small manufacturing firms experience significant decline in their short-term bank credit in response to adverse monetary policy shocks. Similarly, Artola and Genre (2011) and Mach and Wolken (2012) show that due to more uncertainty and stricter lending standards, SMEs suffered greater financial frictions than large firms did and thus that SMEs with high leverage ratios were subject to tighter credit rationing by banks. Therefore, during a bank credit contraction trade credit can be a crucial source of external financing to which financially constrained SMEs resort. Indeed, earlier studies on trade credit show that during a credit contraction, financially constrained firms tend to increase their reliance on trade credit versus other forms of credit, which is referred to as the substitution hypothesis, and that suppliers act to extend credit to client firms that come under duress because the survival of these clients is beneficial to them, which is referred to as the redistribution hypothesis (Cu nat, 2007; Petersen & Rajan, 1994, 1997).

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This substitutional role of trade credit is crucial for SMEs during a credit crunch because SMEs are more likely to encounter rationing by banks due to financial frictions and because they have limited access to capital markets (e.g., Beck et al., 2008; Ogawa, Sterken, & Tokutsu, 2013; Petersen & Rajan, 1994, 1997). Nonetheless, more recent empirical studies find counterintuitive evidence that neither redistributional nor substitutional principles hold for SMEs during a credit crunch, while in normal times SMEs receive more trade credit from their suppliers than in straitened times (e.g., Love & Zaidi, 2010; Ogawa et al., 2013; Tsuruta, 2013).[1]. For instance, Love and Zaidi (2010) study the effect of the 1997 Asian financial crisis on trade credit using cross-sectional survey data from small firms in four Asian economies (Indonesia, Korea, Philippines, and Thailand) and find similar results that contradict the substitution hypothesis. Tsuruta (2013) finds evidence that highly leveraged SMEs likely received less financial support from their suppliers during the 1997–1998 recession in Japan. Ono and Uesugi (2014) show that trade credit played a marginal role in mitigating credit availability of Japanese SMEs in the recent global financial crisis.

To further explore the effect of a financial crisis on SMEs' use of trade credit, this paper examines SMEs in Korea during the 1997 financial crisis. SMEs account for a major part of economic activity in Korea, as in other countries. They were responsible for 69.2% of manufacturing employment and 46.8% of production in 1996, and for 39.6% of exports in 1995 (Nugent & Yhee, 2002). This paper exploits a panel dataset covering 5518 Korean SMEs for the period 1994 to 1999 (25,101 firm-year observations). These original accounting data allow us to avoid the potential measurement errors and sample composition problems that can beset survey data, as Bertrand and Mullainathan (2001) and Wooldridge, 2010, pages 78–82) point out. Consequently, the results of this paper yield particularly convincing and concrete evidence.

Korean SMEs are suited for this research purpose because bank loans and trade credit are major sources of their external debt financing. During the sample period, bank loans accounted for 59% and trade credit 14% of total SME debt. This allows us to investigate how the substitutional relationship between loans and trade credit differs depending on firms' financial positions. Furthermore, the 1997 financial crisis, because it was driven by the supply side of the financial sector, provides an ideal opportunity to examine how the trade credit response to a negative credit supply shock depends on SME financial positions.

To control for a potential endogeneity problem, I employ a difference-in-differences (DiD) method to test whether the redistribution and substitution hypotheses hold for Korean SMEs. Specifically, following the identification strategy adopted by Love et al. (2007) and Garcia-Appendini and Montoriol-Garriga (2013), I create: (1) financial position indicators, which reflect firm internal liquidity or financial vulnerability; (2) dummies for the crisis year (1997) and each post-crisis year (1998 and 1999); and (3) interaction terms between these two variables. The signs and magnitude of the year dummies and the interaction terms are the key elements of interest.

Remarkably, I uncover new evidence that supports the substitution and redistribution hypotheses: financially constrained SMEs rely more on trade credit extended by their suppliers and provide less trade credit, while SMEs with large cash reserves increase their provision of trade credit. I then investigate why this research finds results different from prior studies, such as Love and Zaidi (2010). I hypothesize that since bond financing has a substitutional relationship with bank financing, some financially constrained SMEs with profitable investment opportunities raise funds in the capital market and therefore reduce the amount of trade credit drawn from their suppliers. The results confirm this hypothesis. Specifically, SMEs that increase bond issuance during the credit crunch reduce their dependence on trade credit, whereas other SMEs increase their reliance on trade credit as they are more financially constrained. Another interesting finding emerges when I examine how SME use of trade credit differs depending on the liquidity conditions of the local loan market. I uncover evidence that SMEs located in more financially distressed regions are more likely to increase their reliance on trade credit.

The main contributions of this research are twofold. First, the paper finds new evidence that trade credit played a crucial role as a substitute source of credit for Korean SMEs during the financial crisis, consistent with the substitution hypothesis. Previous studies (e.g., Love & Zaidi, 2010; Ogawa et al., 2013; Ono & Uesugi, 2014; Petersen & Rajan, 1994, 1997; Tsuruta, 2013) find, somewhat confusingly, that the substitution and redistribution hypotheses apply to SMEs in ordinary times, but not during credit contractions. They argue that because adverse liquidity shocks propagate through the supply chain, financially constrained SMEs cannot receive financial support from their suppliers during a credit crunch (Love & Zaidi, 2010). However, the results of this paper imply that this argument is not valid, at least for Korean SMEs. Second, this paper not only complements the literature on the effects of the Asian financial crisis on the corporate capital structures of SMEs in Asian emerging market economies but also provides a valuable addition in extending the work to Korean SME financing behavior.

The nonconforming results of this paper hold important implications for policy during a credit crunch. Many countries implement policy measures designed to support SME financing during a financial crisis, for example, credit guarantee programs financial crisis (Liu, 2009; OECD, 2012; Yamori, 2014). But if, as this paper demonstrates, trade credit is a potential alternative source of SME finance during a credit contraction, then measures that encourage this financing channel may be more advantageous. For instance, a government could establish a formal institution allowing trade creditors to borrow short-term from banks, using unpaid invoices as collateral. Such an approach may significantly lessen the financial burden of trade creditors and facilitate redistribution of liquidity from cash-rich suppliers to financially constrained client firms. Another

[1] By contrast, these two hypotheses have been confirmed for large firms in Asia (Love, Preve, & Sarria-Allende, 2007) and Korea in particular (Hyun, 2015) during the Asian financial crisis and in the U.S. during the 2007–2008 financial crisis (Garcia-Appendini & Montoriol-Garriga, 2013).