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Zhang, Yanlei

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Conditional Conservatism and Trade Credit during the Global Financial Crisis*

Yanlei Zhang†

Department of Accounting,
Copenhagen Business School

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† Department of Accounting, Copenhagen Business School, Solbjerg Plads 3, C.4., 2000, Frederiksberg, Denmark. E-mail: yz.acc@cbs.dk. Tel.: +45 3815 2352.

Conditional Conservatism and Trade Credit during the Global Financial Crisis

Abstract

We investigate conditional conservatism and firms' access to trade credit during the 2007-2008 global financial crisis. Previous studies argue that suppliers prefer conservative customers because of information asymmetry in production networks; we extend this line of research by focusing on trade credit during the 2007-2008 global financial crisis, a period that was characterized by a credit supply shock. We first document a positive association between conditional conservatism and firms' access to trade credit both before and after the onset of the crisis, which indicates suppliers' demand for conditional conservatism. Meanwhile, the association between conditional conservatism and trade credit experienced a significant decline following the onset of the crisis, and this only held when suppliers and customers had frequent transactions or were in close proximity, when transacted goods were standardized rather than differentiated, when customers were financially constrained and had high bargaining power, and when suppliers had sufficient liquidity. It implies that, when information asymmetry along the supply chain was low and customers had strong bargaining power, liquid suppliers increased their tolerance to less conservative customers, and they were even willing to grant trade credit to the less conservative customers that were financially constrained. Overall, this study adds to previous literature by demonstrating suppliers' multifaceted demand for conditional conservatism.

Keywords: Conditional conservatism, trade credit, supply chain, financial crisis

JEL Classifications: M41, D82, G01

1. Introduction

Conditional conservatism is an important attribute of financial reporting, and it represents a timelier recognition of economic losses than of economic gains (Basu, 1997; Watts, 2003a, 2003b).¹ Previous studies show that conditional conservatism reduces information asymmetry and facilitates efficient debt contracting (e.g., Ahmed et al., 2002; Zhang, 2008; Tan, 2013; Aier et al., 2014; Haw et al., 2014; García Lara et al., 2016; Gong and Luo, 2018). One stream of literature extends the contracting role of conditional conservatism to the supplier-customer relationship (e.g., Hui et al., 2012), and studies find that suppliers prefer customers that report conservatively.² Following this line of research, we explore suppliers' demand for conditional conservatism by examining the association between conditional conservatism and firms' access to trade credit before and after the onset of the 2007-2008 global financial crisis. We are particularly interested in how the conservatism-trade credit association was affected by the credit supply shock during the financial crisis.

Suppliers' demand for conditional conservatism is complicated and not well explored in the literature. On the one hand, significant information asymmetry exists between suppliers and customers (Coase, 1937; Williamson, 1979; Allee and Yohn, 2009; Costello, 2013; Radhakrishnan et al., 2014; Hope et al., 2017; Files and Gurun, 2018), and suppliers rely on conservative financial reporting to evaluate customers' capabilities to fulfill trading obligations and implicit claims (Hui et al., 2012). On the other hand, suppliers can acquire information through business transactions (Smith, 1987; Biais and Gollier, 1997; Petersen

¹ Another type of conservatism is called *unconditional* conservatism, which means persistent understatement of book value of assets. Unconditional conservatism is independent of economic gains and losses, and it does not play a clear role in reducing information asymmetry and facilitating contracting (Beaver and Ryan, 2005). Therefore, in this study we focus on *conditional* conservatism, and we also denote conditional conservatism as conservatism for brevity.

² Hui et al. (2012) also discuss customers' demand for conditional conservatism. However, this is beyond the scope of our discussion. We focus on exploring suppliers' demand for conservatism by investigating trade credit, which is in line with several recent studies that examine the role of suppliers as stakeholders and the importance of customers' financial reporting quality (e.g., Allee and Yohn, 2009; Costello, 2013; García Teruel et al., 2014; Radhakrishnan et al., 2014; Chen et al., 2017; Hope et al., 2017; Hope and Vyas, 2017).

and Rajan, 1997; Ng et al., 1999; Burkart and Ellingsen, 2004; Aktas et al., 2012; Chen et al., 2017), and the literature on information complementarities along the supply chain is also in line with this argument (e.g., Dass et al., 2014; Guan et al., 2015; Luo and Nagarajan, 2015; Cen et al., 2017; Gong and Luo, 2018); thus, this would reduce suppliers' reliance on conditional conservatism. However, given that business transactions only reflect parts of corporate operations, suppliers might lack a broad view on customers. It is unclear whether suppliers' information acquisition along the supply chain would enable them to rely less on conditional conservatism.

We examine suppliers' demand for conditional conservatism through the lens of trade credit. Trade credit occurs when customers purchase intermediate inputs from suppliers on open account, and it is an important financing source for customers (Rajan and Zingales, 1995; Fisman and Love, 2003; Klapper et al., 2012). Information asymmetry and lack of trust are great concerns when suppliers provide trade credit to customers (Mian and Smith, 1992; Ng et al., 1999; Costello, 2013; García Teruel et al., 2014). We believe that suppliers' demand for conditional conservatism would ultimately reflect on trade credit. Since conditional conservatism comes with timely downside information, by providing trade credit to conservative customers, it would be easier for suppliers to avoid counterparty credit risk. Furthermore, trade credit strengthens the connection between trade partners (Kiyotaki and Moore, 1997; Jacobson and von Schedvin, 2015); thus, providing trade credit to conservative customers also reduces suppliers' exposure to risk contagion along the supply chain. However, considering suppliers' advantage in acquiring information through business transactions, it is unclear to what extent suppliers consider conditional conservatism when granting trade credit.

We investigate the relation between conditional conservatism and firms' access to trade credit based on the 2007-2008 global financial crisis. The global financial crisis was

characterized by a credit supply shock (Campello et al., 2010; Duchin et al., 2010; Iyer et al., 2013), and it provides an interesting setting to examine our research question. Previous studies find that banks strongly relied on conservative financial reporting to monitor borrowers, and less conservative firms experienced more difficulties to obtain bank loans during the crisis (Balakrishnan et al., 2016). As important liquidity providers during the crisis, suppliers also suffered from reduced bank loans and liquidity constraints (Garcia-Appendini and Montoriol-Garriga, 2013; Carbó Valverde et al., 2016). By investigating the association between conservatism and trade credit around the crisis, our results would shed light on suppliers' relative reliance on conservatism compared to banks.³ Furthermore, trade credit extensions essentially are activities on the product market, while the financial crisis resulted in a shock to the capital market. If suppliers' trade credit extensions were affected by the financial crisis, it would indicate a spillover effect from a shock on the capital market to the trade credit decisions on the product market.

Our sample consists of quarterly observations of U.S. incorporated non-financial public firms in Compustat with fiscal quarters ending between July 2006 and June 2008, following Duchin et al. (2010), Garcia-Appendini and Montoriol-Garriga (2013), and Balakrishnan et al. (2016). Our sample period includes both a pre-crisis period and a crisis period. The U.S. subprime mortgage market began to collapse in July 2007, and we set it as the start of the global financial crisis. One year following the onset of the crisis (i.e., July 2007-June 2008) was characterized by a credit supply shock, and we define it as the crisis period. One year before the onset of the crisis (i.e., July 2006-June 2007) is defined as the pre-crisis period.

We first examine the association between conditional conservatism and firms' access to trade credit in the pre-crisis and crisis periods separately. The *ex-ante* conditional conservatism prior to the crisis was positively associated with firms' access to trade credit in

³ It is worth noting that our research design is in line with the suggestions of Hope and Vyas (2017), who propose to “infer the degree of information asymmetry (between suppliers and customers) based on the extent to which supplier credit is used compared to other financing sources such as bank loans”.

both the pre-crisis period and the crisis period, indicating that conservative firms were more likely to receive trade credit from suppliers both before and after the crisis. This is consistent with Hui et al.'s (2012) arguments on the contracting role of conditional conservatism in the supplier-customer relationship, and it is also in line with the role of conditional conservatism in mitigating information asymmetry between firm insiders and outsiders as suggested by previous literature (e.g., Watts, 2003a; LaFond and Watts, 2008; Aier et al., 2014; Smith, 2014; Cheng et al., 2015).

We then explore how the association between conditional conservatism and firms' access to trade credit changed with the global financial crisis. The association between conservatism and trade credit decreased by 46.42% after the onset of the financial crisis, which is economically significant. This finding indicates that suppliers showed certain tolerance to less conservative customers under the credit supply shock. To compare the relative reliance of suppliers and debt holders on conditional conservatism, we further examine the association between conditional conservatism and firms' access to bank loans around the crisis, following Balakrishnan et al. (2016). We find that conservative firms were more likely to obtain the access to bank loans both before and after the crisis. However, in contrast to the reduced association for trade credit, the association between conservatism and bank loans increased after the onset of the crisis. This is consistent with Balakrishnan et al. (2016) and indicates debt holders' increased demand for borrowers' conservatism, which is also in line with the prudent lending behavior of banks during the crisis (Iyer et al., 2013). Collectively, these results suggest that suppliers increased their tolerance to less conservative customers under the credit supply shock, and they seemed to demonstrate less demand for conditional conservatism during the crisis.

We also conduct a battery of robustness tests. First, we repeat our analysis for a placebo (i.e., non-existent) crisis starting in July 2006 and for the negative market demand shock

caused by the 9/11 terrorism attack, and we do not find a similar phenomenon, which implies that suppliers' reduced demand for conditional conservatism was stimulated by the credit supply shock. Second, we adopt a propensity score matching approach to address the possible model misspecification. The average treatment effects based on the propensity score matched sample are consistent with our regression results. Finally, we further control for suppliers' exposure to the liquidity shock during the crisis, and the results are qualitatively similar.

Despite the documented phenomenon, the underlying rationale is not fully answered; thus, we perform a series of subsample analyses to explore the cross-sectional variations, which would help uncover the potential mechanisms. First, we find that the association between conservatism and trade credit significantly decreased only when suppliers and customers had frequent business transactions or were in close proximity. It indicates that, when information asymmetry along the supply chain was high, the crisis did not significantly affect suppliers' demand for conditional conservatism. Only when suppliers had a superior information advantage through business transactions, they were willing to grant trade credit even to less conservative firms during the crisis. Second, the association between conservatism and trade credit significantly decreased only when the transacted goods were standardized rather than differentiated, when customers were financially constrained and had high bargaining power, and when suppliers had sufficient liquidity. This result suggests that suppliers' trade credit extensions were also influenced by the intermediate inputs characteristics, bargaining power, and liquidity constraints of suppliers and customers.

This study contributes to the literature in several ways. First, it advances our understanding on suppliers' demand for conditional conservatism through the lens of trade credit. On the one hand, we find that conservative firms were more likely to receive trade credit from suppliers, which indicates suppliers' demand for conditional conservatism, and it is also in line with the role of conditional conservatism in facilitating supplier-customer

contracting as suggested by Hui et al. (2012). On the other hand, we show that the association between conditional conservatism and trade credit declined following the onset of the global financial crisis, which contrasts with the increased association between conditional conservatism and bank credit as documented by Balakrishnan et al. (2016). This suggests that, unlike debt holders, suppliers show tolerance to less conservative customers under certain circumstances. This result is also aligned with Gong and Luo (2018), who find that, when a bank has private information on a borrower's major customers, the bank shows less demand for the borrower's conditional conservatism.

Second, this study broadly contributes to a growing stream of literature on accounting choices in supplier-customer relationships. Various accounting choices are examined in previous studies, such as income smoothing (Dou et al., 2013; García Teruel et al., 2014), accruals quality (Raman and Shahrur, 2008; Radhakrishnan et al., 2014; Chen et al., 2017; Hope et al., 2017), earning announcements (Pandit et al., 2011; Files and Gurun, 2018), tax avoidance (Cen et al., 2017), auditing (Allee and Yohn, 2009; Johnstone et al., 2014), and analyst forecasting (Guan et al., 2015; Luo and Nagarajan, 2015). We contribute to these studies by demonstrating suppliers' multifaceted demand for conditional conservatism, which highlights the role of timely downside information in supplier-customer relationships.

Third, our study adds to the literature on the global financial crisis. Previous accounting-related literature on the global financial crisis mainly focuses on the accounting choices of financial institutions (e.g., Huizinga and Laeven, 2012; Bowen and Khan, 2014; Lim et al., 2014), whereas financial reporting in non-financial firms is not well explored. Balakrishnan et al. (2016) investigate how conditional conservatism affected non-financial firms' access to bank loans and investment activities during the global financial crisis. Our study complements Balakrishnan et al. (2016) by showing the influence of conditional conservatism on non-financial firms' access to trade credit, which is an important financing

source during the crisis (Garcia-Appendini and Montoriol-Garriga, 2013; Carbó Valverde et al., 2016). Given that trade credit extensions occur on the product market, our study essentially documents a spillover effect from the capital market to the product market, and it was driven by the interaction of multiple stakeholders' demand for conservatism. Therefore, our study provides insights on the role of financial reporting in the product market during the financial crisis.

The remainder of this paper proceeds as follows. Section 2 develops the hypotheses. Section 3 describes the sample and research design. Section 4 shows the main results. Section 5 reports the robustness tests. Section 6 presents subsample analyses, and we conclude in Section 7.

2. Hypotheses development

2.1 Suppliers' demand for conditional conservatism

Previous studies examine conditional conservatism from the perspective of debt holders, and they find that debt holders strongly rely on conditional conservatism to monitor borrowers. Information asymmetry between debt holders and borrowers results in adverse selection and moral hazard problems, which obstruct efficient debt contracting (LaFond and Watts, 2008; Armstrong et al., 2010; Smith, 2014). Because conservative financial reporting improves the disclosure of downside information, it reduces the information asymmetry between firm insiders and outsiders (Watts, 2003a; LaFond and Watts, 2008; Cheng et al., 2015). A firm with conservative financial reporting usually obtains more access to debt financing and with better conditions (Ahmed et al., 2002; Zhang, 2008; Haw et al., 2014; Balakrishnan et al., 2016; García Lara et al., 2016). Conditional conservatism is also employed as a strategic tool in debt contracting to facilitate monitoring borrowers (Armstrong et al., 2010; Tan, 2013; Aier et al., 2014; Smith, 2014; Gong and Luo, 2018).

In addition to debt holders, conditional conservatism is also valued by non-financial stakeholders, such as suppliers. Due to information asymmetry in production networks, customers could behave opportunistically such that they cannot meet short-term trading obligations or long-term implicit claims (Coase, 1937; Williamson, 1979; Bowen et al., 1995; Costello, 2013; Dou et al., 2013; Hope et al., 2017). Moreover, suppliers have asymmetric payoffs with respect to customers' performance. Suppliers suffer significant losses if a customer experiences a loss or goes bankrupt, whereas they do not necessarily benefit from a customer's growth (Pandit et al., 2011; Hui et al., 2012). In their seminal work, Hui et al. (2012) extend the contracting role of conditional conservatism to the supplier-customer relationship. Hui et al. (2012) argue that conservative financial reporting provides timely downside information and reduces suppliers' risk exposure in the supplier-customer relationship. Consistent with these arguments, they find that suppliers with high bargaining power enforce conservative financial reporting among customers.

2.2 Suppliers' information acquisition through business transactions

Despite their asymmetrically uninformed position, suppliers can acquire information through business transactions (Biais and Gollier, 1997; Petersen and Rajan, 1997; Burkart and Ellingsen, 2004). Suppliers can directly track customers' purchase orders and observe their creditworthiness through business transactions without incurring additional costs (Biais and Gollier, 1997; Burkart and Ellingsen, 2004; Chen et al., 2017; Gong and Luo, 2018), which partially reduces suppliers' reliance on conditional conservatism. However, business transactions only reflect parts of corporate operations, and purchase orders could also contain biases (Lee et al., 1997), thus the information collected from business transactions cannot totally substitute for conditional conservatism.⁴ Meanwhile, it is unclear whether suppliers

⁴ Lee et al. (1997) analyze the possible information distortion along the supply chain (i.e., the bullwhip effect). Suppose each company in a supply chain orders inputs from its immediate upstream companies, the information transferred through purchase orders could be distorted such that the variance of purchase orders would be much greater than that of sales. Consequently, the inventory and production decisions of upstream companies would be misguided.

can acquire more information than debt holders through business transactions, given that debt holders might have a long-term relationship with firms and they might have a broader view on firms than suppliers. The relative reliance of suppliers and debt holders on conditional conservatism is an empirical question to be tested.

The repayment of trade credit also delivers information to suppliers. Firms' interest payment is usually viewed by banks as a signal of firms' financial situation. Like firms' interest payment to banks, the repayment of trade credit is also an important information source for suppliers. The signal of a customer's prospective default risk can be directly observed by suppliers once the customer cannot repay trade credit on time (Smith, 1987; Aktas et al., 2012). Given that trade credit usually has short maturity, the repayment of trade credit can provide timely information (Ng et al., 1999; Klapper et al., 2012). Aktas et al. (2012) even argue that trade credit not only reveals information to suppliers but also demonstrates information spillover to outside investors.

The literature on information complementarities along the supply chain also implies suppliers' information acquisition through business transactions. A recent study by Gong and Luo (2018) finds that a bank reduces its demand for a borrower's conditional conservatism when the bank has a lending relationship with that borrower's major customers, which indicates that private information on customers substitutes for the demand for conditional conservatism. Likewise, financial analysts tend to follow supplier-customer pairs with strong economic ties, and these analysts usually release more accurate earnings forecasts (Guan et al., 2015; Luo and Nagarajan, 2015). Board directors from related industries also contribute to firm performance due to their advantage in reducing information gaps (Dass et al., 2014). In close supply chain relationships, suppliers and customers even collude and implement common organizational behaviors, such as tax avoidance (Cen et al., 2017).

2.3 Credit supply shock during the global financial crisis

The 2007-2008 global financial crisis was characterized by a significant credit supply shock (Campello et al., 2010; Ivashina and Scharfstein, 2010; Iyer et al., 2013). Bank loans fell by 47% in the U.S. (Ivashina and Scharfstein, 2010), and many firms were forced to abandon attractive investment projects (Campello et al., 2010). Banks became prudent in issuing loans, and they cared more about borrowers' creditworthiness (Iyer et al., 2013). Accordingly, less conservative firms experienced a sharper decline in their access to bank loans and investment activities following the onset of the crisis (Balakrishnan et al., 2016), which implies that banks increased their demand for conditional conservatism.

Suppliers were important liquidity providers during the global financial crisis. Previous theoretical studies argue that suppliers provide liquidity insurance for customer firms (Wilner, 2000; Cuñat, 2007). Under the credit supply shock, trade credit served as an alternative financing source for financially constrained firms (Carbó Valverde et al., 2016). Similar phenomenon is also documented in other financial crises, such as the Asian financial crisis and the Mexican financial crisis in the 1990s (Love et al., 2007). However, given that total bank credit declined, suppliers were also exposed to a liquidity shock during the crisis, which limited their ability to provide liquidity to customer firms. For instance, Garcia-Appendini and Montoriol-Garriga (2013) find that, when a supplier was exposed to a stronger liquidity shock, it was less willing to grant trade credit to customers during the crisis.

2.4 Hypotheses

In line with the contracting role of conditional conservatism in the supplier-customer relationship proposed by Hui et al. (2012), we expect that conservative firms were more likely to receive trade credit from suppliers both before and after the onset of the global financial crisis. This prediction can be derived from suppliers' incentives to reduce credit risk and avoid risk contagion in production networks. First, information asymmetry is a substantial challenge when a supplier provides trade credit to customers (Mian and Smith,

1992; Ng et al., 1999), and firms with more predictable earnings are usually rewarded with more access to trade credit (García Teruel et al., 2014). Because conservative customers quickly recognize bad news, downside information can be delivered to suppliers in a timely way. Therefore, by providing more trade credit to conservative customers, suppliers can reduce the counterparty credit risk. Second, customers' idiosyncratic risk can be diffused to suppliers along the supply chain (Hertzel et al., 2008; Raddatz, 2010; Pandit et al., 2011; Jacobson and von Schedvin, 2015; Barrot and Sauvagnat, 2016). Trade credit further strengthens the connections in production networks and amplifies the diffusion of risk (Kiyotaki and Moore, 1997; Jacobson and von Schedvin, 2015). By providing more trade credit to conservative customers, suppliers can mitigate risk contagion along the supply chain. In sum, we expect a positive association between conditional conservatism and trade credit, and we propose the following hypothesis:

***H1.** Conditional conservatism was positively associated with trade credit both before and after the onset of the global financial crisis.*

We then discuss how the association between conditional conservatism and trade credit changed with the global financial crisis, and we suspect two possibilities. The first possibility is that suppliers reduced their reliance on conservatism to monitor customers after the onset of the crisis. On the one hand, due to lack of transparency, less conservative firms faced significant financing frictions under the credit supply shock (Balakrishnan et al., 2016), and they had high incentives to seek alternative financing sources. In contrast, conservative firms still had access to bank loans; their liquidity and investment activities were not significantly affected. Therefore, suppliers would face increased demand for liquidity mainly from less conservative customers. On the other hand, suppliers' information advantage makes the provision of trade credit to less conservative customers possible. Although suppliers cannot obtain timely downside information from less conservative customers, they can monitor these

customers based on business transactions (Biais and Gollier, 1997; Burkart and Ellingsen, 2004; Gong and Luo, 2018), and the repayment of trade credit further provides additional information (Smith, 1987; Petersen and Rajan, 1997; Ng et al., 1999; Aktas et al., 2012). Suppliers' use of these information sources is also implied by the studies on information complementarities along the supply chain (Dass et al., 2014; Guan et al., 2015; Luo and Nagarajan, 2015; Cen et al., 2017; Gong and Luo, 2018). Therefore, we expect that suppliers reduced their reliance on conservatism under the credit supply shock, and the association between conditional conservatism and trade credit would decrease during the crisis. We propose the following hypothesis:

***H2a.** The association between conditional conservatism and trade credit **decreased** following the onset of the global financial crisis.*

Another possibility is that suppliers behaved as prudently as banks and increased their demand for conditional conservatism following the onset of the global financial crisis. As argued by Hui et al. (2012), suppliers have asymmetric payoffs with respect to customers' performance. To avoid uncertainty during the crisis, suppliers probably relied more on conditional conservatism to reduce their risk exposure in production networks. Meanwhile, although suppliers can collect customers' information through business transactions, it is only based on parts of their operations, thus the information is incomplete and could be biased (Lee et al., 1997). In that case, suppliers would behave prudently like banks, and they would increase their demand for conservatism; consequently, the association between conservatism and trade credit would increase following the onset of the crisis. We propose the following alternative hypothesis:

***H2b.** The association between conditional conservatism and trade credit **increased** following the onset of the global financial crisis.*

3 Research design

3.1 Data

Our sample consists of firm-quarter observations of U.S. incorporated public firms in Compustat with fiscal quarters ending between July 2006 and June 2008. Following Balakrishnan et al. (2016), our sample period includes a pre-crisis period, July 2006-June 2007, and a crisis period, July 2007-June 2008. The start of the global financial crisis is set as July 2007, which was the month when the U.S. subprime mortgage market began to collapse. Because we focus on the period in which the credit supply experienced a significantly negative shock, the crisis period is defined as one year following the onset of the crisis (i.e., July 2007–June 2008). After the bankruptcy of Lehman Brothers in 2008, the credit supply shock was combined with market demand decline (Garcia-Appendini and Montoriol-Garriga, 2013; Balakrishnan et al., 2016); thus, we exclude the period after June 2008 from our analysis.⁵ We further define one year before the onset of the crisis (i.e., July 2006-June 2007) as the pre-crisis period. The same sample period has been used by other studies, such as Duchin et al. (2010), Garcia-Appendini and Montoriol-Garriga (2013), and Balakrishnan et al. (2016).

We exclude financial firms (SIC 6000-6999) and utilities (SIC 4900-4999) and firms with a negative value for sales, assets, or equity. We also exclude firms with market capitalization of less than \$50 million and those with book value of assets of less than \$10 million, following Garcia-Appendini and Montoriol-Garriga (2013). The final sample includes 13,281 firm-quarter observations.

3.2 Measure of trade credit

⁵ It would be interesting to explore the investment decisions and corporate operations with market demand declining after the bankruptcy of Lehman Brothers in 2008. However, since this paper examines financing issues, the market demand decline might introduce biases into the research design. Therefore, we only focus on one year following the onset of the crisis. The period after June 2008 could be used for another study.

We measure a firm's access to trade credit as quarterly accounts payable scaled by purchases, where purchases is calculated as cost of goods sold plus the change in inventory.⁶ Because trade credit usually has a short duration of between one month and four months (Ng et al., 1999; Klapper et al., 2012), quarterly observations better capture the evolution of trade credit. Similar measures are used in previous literature, such as Petersen and Rajan (1997), Garcia-Appendini and Montoriol-Garriga (2013), and Murfin and Njoroge (2015).

3.3 Measure of conditional conservatism

Conditional conservatism is proxied by the firm-specific asymmetric timeliness measure developed by Khan and Watts (2009). Based on the cross-sectional regression specification of Basu (1997), Khan and Watts (2009) define the timeliness of earnings to economic gains (i.e., G_Score) and the incremental timeliness of earnings to economic losses (i.e., C_Score) as linear functions of firm size, leverage, and market-to-book ratio.⁷ We use C_Score as the firm-specific measure of conditional conservatism, wherein a greater value of C_Score represents a higher level of conditional conservatism. This measure has been widely used in recent studies, such as Kim et al. (2013), Tan (2013), Kim and Zhang (2015), Balakrishnan et al. (2016), and García Lara et al. (2016). When calculating C_Score, we follow Khan and Watts (2009) to drop firms in the top and bottom 1% of earnings, returns, size, leverage, and market-to-book ratio, and we also eliminate firm-years with a price per share less than 1\$. Following Balakrishnan et al. (2016) and García Lara et al. (2016), we use the three-year

⁶ Another possibility is to explore the terms (or financing cost) of trade credit. However, this information is usually not available in most databases. Furthermore, the terms of trade credit could vary with transactions, even for the same trade partners (Klapper et al., 2012), which makes data collection more difficult. To the best of our knowledge, the only studies investigating the terms of trade credit are Ng et al., (1999) and Klapper et al. (2012). Ng et al., (1999) conduct a survey on 950 listed firms in the US; Klapper et al. (2012) analyze 30,000 trade credit contracts from 56 large global buyers. Both Ng et al., (1999) and Klapper et al. (2012) explore the early payment discount in trade credit, and Klapper et al. (2012) further examine the maturities of trade credit.

⁷ The cross-sectional regression of Basu (1997) is $X_i = \beta_0 + \beta_1 D_i + \beta_2 R_i + \beta_3 D_i R_i$, where X_i is earnings, R_i is stock returns, and D_i is the indicator for negative returns. Khan and Watts (2009) extend Basu's (1997) model by specifying the timeliness of earnings to economic gains β_2 and the incremental timeliness of earnings to economic losses β_3 as linear functions of firm size, leverage (Lev), and market-to-book ratio (MB), that is, $\beta_2 = \delta_0 + \delta_1 Size_i + \delta_2 Lev_i + \delta_3 MB_i$ and $\beta_3 = \theta_0 + \theta_1 Size_i + \theta_2 Lev_i + \theta_3 MB_i$. After introducing the linear functions of β_2 and β_3 into Basu's (1997) model and performing a cross-sectional regression for each year, we obtain the firm-specific asymmetric timeliness measure C_Score (i.e., β_3). The C_Score varies across firms due to variations in firm size, leverage, and market-to-book ratio, and it also varies across years because δ and θ change over time.

average C_Score in 2003-2005 as a firm's *ex-ante* conditional conservatism prior to the financial crisis, which is an aggregate measure that represents a firm's long-term commitment of accounting treatments.

3.4 Regression specification

We first examine the association between conditional conservatism and firms' access to trade credit in the pre-crisis period and the crisis period separately. The regression specification is as follows:

$$TradeCredit_{it} = \beta_0 + \beta_1 Conservatism_i + Controls_{it} + \alpha_j + \alpha_t + \varepsilon_{it}, \quad (1)$$

where $TradeCredit_{it}$ represents firm i 's access to trade credit at year-quarter t , $Conservatism_i$ refers to firm i 's three-year average conditional conservatism prior to the financial crisis. Given that $Conservatism_i$ captures firms' long-term commitment, it reduces the reverse causality and endogeneity concern to some extent. $Control_{it}$ represents control variables that could influence firms' access to trade credit, including cash holdings (Cuñat, 2007), market share (Giannetti et al., 2011; Klapper et al., 2012), sales growth (Petersen and Rajan, 1997), and profit margin (Petersen and Rajan, 1997). Given that C_Score is constructed as the linear function of size, leverage, and market-to-book ratio, we include these three variables as additional controls. α_j and α_t represent industry fixed effects and year-quarter fixed effects, respectively. Detailed variable definitions are listed in Appendix A1. All continuous variables are winsorized at the 1% and 99% levels. Standard errors are clustered at both firm and year-quarter levels, following Petersen (2009).

To compare the association between conditional conservatism and trade credit before and after the onset of the global financial crisis, we add the interaction of $Conservatism_i$ and $Crisis_t$ in the pooled sample including both the pre-crisis period and the crisis period. The regression specification is as follows:

$$TradeCredit_{it} = \beta_0 + \beta_1 Conservatism_i + \beta_2 Conservatism_i \times Crisis_t + \beta_3 Crisis_t + Controls_{it} + \alpha_j + \alpha_t + \varepsilon_{it}. \quad (2)$$

$Crisis_t$ is the indicator for the crisis period, which equals one for the crisis period July 2007–June 2008 and zero for the pre-crisis period July 2006–June 2007. β_1 reflects the association between conservatism and trade credit in the pre-crisis period, and β_2 captures how the association between conservatism and trade credit changed with the credit supply shock during the financial crisis.

The above regression specification could be subject to endogeneity due to possible omitted variables that may drive trade credit. To alleviate this concern, we follow Duchin et al. (2010) and Balakrishnan et al. (2016) to employ a firm fixed effects model. The regression specification is as follows:

$$TradeCredit_{it} = \beta_1 Conservatism_i \times Crisis_t + \beta_2 Crisis_t + Controls_{it} + \alpha_i + \varepsilon_{it}, \quad (3)$$

where the firm fixed effects α_i captures the unobservable time-invariant factors. Because $Conservatism_i$ is measured as three-year average value prior to the financial crisis, the level effect of $Conservatism_i$ is subsumed by firm fixed effects, thus we cannot observe the coefficient estimate of $Conservatism_i$ in this regression. Like equation (2), the coefficient of interaction term in equation (3) captures how the association between conservatism and trade credit changed with the crisis. Given that the firm fixed effects model considers the omitted time-invariant factors, the estimates based on equation (3) are more reliable than those based on equation (2).

3.5 Summary statistics

Panel A of Table 1 reports the summary statistics for the main variables. Accounts payable represents 58.5% of purchases, suggesting that trade credit is an important financing source, especially for firms lacking short-term liquidity. The mean value of *Conservatism* is

0.095, the median value is 0.090, and the standard deviation is 0.082, which are comparable to the statistics in Khan and Watts (2009). The three variables that are used to construct the conservatism measure (i.e., size, leverage, and market-to-book ratio) are also similar to those in Khan and Watts (2009). For other controls, cash and short-term investments account for 18.4% of total assets, the average market share is 8.4%, the average sales growth rate is 14.4%, and the average profit margin is 3.0%. Panel B compares the statistics before and after the onset of the financial crisis. Accounts payable represents 59.0% and 58.0% of purchases in the pre-crisis period and the crisis period, respectively, and the difference is not statistically significant, with a p-value of 0.418. It indicates that trade credit was relatively stable around the crisis despite the bank credit supply shock. In contrast, most controls significantly changed following the onset of the financial crisis.

[Insert Table 1 about here]

4 Main results

To examine the association between conditional conservatism and firms' access to trade credit, we first estimate equation (1) based on the pre-crisis period and the crisis period separately. The results are reported in columns 1 and 2 of Table 2. In the pre-crisis period (column 1), the coefficient estimate of *Conservatism* is 0.795, and it is statistically significant at the 1% level. One standard deviation increase in *Conservatism* raises *Trade Credit* by 11% ($=0.795 \times 0.082 / 0.590$), and on annual basis, it raises trade credit by 44% ($=11\% \times 4$), which is economically significant. Likewise, in the crisis period (column 2), *Conservatism* is also positively associated with *Trade Credit*, with a coefficient estimate of 0.315. One standard deviation increase in *Conservatism* is associated with 4% ($=0.315 \times 0.082 / 0.580$) increase in quarterly trade credit and 16% ($=4\% \times 4$) increase in annual trade credit after the onset of the crisis. These results are consistent with hypothesis H1 and suggest that conservative firms

were more likely to receive trade credit in both the pre-crisis period and the crisis period.

We further analyze how the association between *Conservatism* and *Trade Credit* changed around the crisis. Although columns 1 and 2 illustrate positive association in both the pre-crisis period and the crisis period, note that the coefficient estimates of *Conservatism* decrease from 0.795 in the pre-crisis period to 0.315 in the crisis period, which could be a signal of the weaker association between conditional conservatism and trade credit following the onset of the crisis. To test it more strictly, we estimate equation (2) with the interaction of *Conservatism* and the *Crisis* indicator. As shown in column 3 of Table 2, the coefficient of *Conservatism*, 0.741, represents the association between conservatism and trade credit before the crisis. Like the one in column 1, it is significantly positive at the 1% level. The coefficient of *Crisis*, 0.013, represents the dynamic of trade credit around the crisis, and it is not statistically significant; this implies that trade credit remained stable under the credit supply shock. The coefficient of *Conservatism* \times *Crisis* captures how the association between *Conservatism* and *Trade Credit* changed around the crisis. Consistent with the results in columns 1-2, the coefficient of *Conservatism* \times *Crisis*, -0.344, is statistically significant at the 5% level. It indicates that the association between *Conservatism* and *Trade Credit* decreased by 46.42% ($=0.344/0.741$) after the onset of the crisis, which is economically significant. This result is in line with the prediction of hypothesis H2a, and it suggests the association between conditional conservatism and trade credit significantly declined during the crisis.

To address the potential endogeneity concern, we adopt a firm fixed effects model as in equation (3), following Duchin et al. (2010) and Balakrishnan et al. (2016). The firm fixed effects capture time-invariant characteristics and alleviate the endogeneity from possibly omitted variables. Given that *Conservatism* is measured as three-year average value prior to the crisis, the level effect of *Conservatism* is subsumed by firm fixed effects, and we cannot observe its coefficient in this regression. As shown in column 4 of Table 2, the coefficient of

Conservatism × *Crisis* is -0.255, and it is statistically significant at the 5% level. This is similar to the results in column 3, and it indicates that the association between *Conservatism* and *Trade Credit* demonstrated a significant decline following the onset of the crisis, even if we include firm fixed effects. In sum, these results are in line with hypothesis H2a and suggest that suppliers reduced their reliance on conservatism under the credit supply shock.

[Insert Table 2 about here]

To compare suppliers' relative reliance on conservatism compared to debt holders, we investigate the association between conditional conservatism and firms' access to bank loans before and after the onset of the crisis, by replicating Balakrishnan et al. (2016). Based on an interaction regression with firm fixed effects, Balakrishnan et al. (2016) find that the association between conditional conservatism and the access to bank loans significantly increased after onset of the crisis. Apart from following Balakrishnan et al.'s (2016) regression specification, we examine the conservatism-bank loan association in the pre-crisis period and the crisis period separately, which would better illustrate how the association changed around the crisis. We also employ the interaction regression with industry fixed effects, like equation (2). Given that trade credit is mainly used for short-term financing for liquidity, to be parallel with trade credit, we proxy firms' access to bank loans by quarterly current debt scaled by total assets.

The results are reported in Appendix A3. First, columns 1 and 2 show significantly positive association between *Conservatism* and *Bank Loans* in both the pre-crisis and crisis periods. It indicates that debt holders, like suppliers, demand conditional conservatism to reduce information asymmetry. Second, the coefficient estimates of *Conservatism* increase from 0.072 in the pre-crisis period (column 1) to 0.090 in the crisis period (column 2); the coefficients of interaction *Conservatism* × *Crisis* are significantly positive in the regression with industry fixed effects in column 3 and the one with firm fixed effects in column 4. This

is similar to the results documented by Balakrishnan et al.'s (2016), and it indicates that the association between *Conservatism* and *Bank Loans* significantly increased after the onset of the crisis.

The above results suggest that, compared to debt holders, suppliers demonstrated different reliance on conditional conservatism during the crisis. Debt holders increased their reliance on conditional conservatism to monitor borrowers after the onset of the crisis, which is in line with the prudent lending behavior of banks (Iyer et al., 2013). In contrast, the association between conditional conservatism and trade credit demonstrated a significant decline following the onset of the crisis. Suppliers seemed to reduce their reliance on conservatism and became tolerant to less conservative customers under the credit supply shock.

An alternative interpretation to our results is that the reduced association between conservatism and trade credit only reflects customers' financing demand. Since less conservative firms had less access to bank loans during the crisis, suppliers increasing their trade credit extensions to less conservative customers could be just meeting these customers' financing demand, regardless of whether these customers were conservative or not.⁸ To verify this conjecture, we partition the sample based on the median value of *Conservatism*. If this conjecture holds, the reduced conservatism-trade credit association should be more likely to appear in the subsample with a low level of conservatism, since these firms had a stronger financing demand. However, as reported in Appendix A4, the conservatism-trade credit association significantly reduced (i.e., negative coefficient of *Conservatism* \times *Crisis*) only in the subsample with a high level of conservatism (column 2).⁹ This suggests that our results are not purely driven by customers' financing demand. Given that the underlying rationale is

⁸ We thank one reviewer for proposing this alternative interpretation and the test.

⁹ In the subsample with a low level of conservatism (column 1), the coefficient of *Conservatism* \times *Crisis* is positive, which indicates that suppliers, like debt holders, also behaved prudently when extending trade credit to firms with a rather low level of conservatism. In the untabulated results, we also tried to partition the sample based on tertiles, quartiles, and quintiles of *Conservatism*, and we did not find evidence that the reduced association was purely driven by customers' financing demand.

not fully answered in the current regression, we will perform subsample analyses in section 6 to further explore the potential mechanisms.

5 Robustness tests

5.1 Placebo tests

To verify our regression specification, we repeat the analysis for a placebo (i.e., non-existent) crisis starting in July 2006 and for the market demand shock caused by the 9/11 terrorism attack. We suspect that suppliers' reduced reliance on conservatism was triggered by the credit supply shock. Given that no credit supply shock existed around the placebo crisis or the 9/11 event, the association between conservatism and trade credit is not expected to demonstrate significant changes before and after the onset of these two events.

We define the start of the placebo crisis as July 2006, which is one year before the global financial crisis. The regression period includes a placebo crisis period, July 2006-June 2007, and a pre-crisis period, July 2005-June 2006. The terrorism attack on September 11, 2001 caused a negative market demand shock, but credit supply did not change significantly (Tong and Wei, 2008; Duchin et al., 2010; Balakrishnan et al., 2016). We define one year following the 9/11 event, October 2001–September 2002, as the crisis period, and one year before the 9/11 event, October 2000–September 2001, as the pre-crisis period.

The results are reported in Table 3. The coefficient estimates of *Conservatism* are significantly positive in columns 1 and 3, indicating that suppliers demand conservative financial reporting from customers. However, the coefficient estimates of *Conservatism* × *Crisis* are not statistically significant. This suggests that suppliers' demand for conservatism did not change around the placebo crisis or the market demand shock following the 9/11 event. Overall, the above results indicate the role of the credit supply shock in triggering suppliers' increased tolerance to less conservative customers during the crisis.

[Insert Table 3 about here]

5.2 Propensity score matching

Our linear regression model might be subject to functional form misspecification, which could make the regression estimates biased. To address this concern, we adopt a propensity score matching approach. We first partition the sample into less conservative group and more conservative group based on the sample median of *Conservatism*, wherein value zero denotes the less conservative group and value one denotes the more conservative group. We then use a Logit model to estimate the likelihood of a firm being in the less conservative group or in the more conservative group. All the controls in the main regression equation (1) are included in this Logit estimation, following the suggestion of Shipman et al. (2017). The propensity score matched sample is constructed based on one-to-one matching with replacement, with the caliper value of 0.01.

Panels A and B of Table 4 present the average treatment effect in the pre-crisis period and the crisis period, respectively. First, the more conservative group obtained more access to trade credit than the less conservative group in both pre-crisis and crisis periods (i.e., 51.2% vs. 64.3% in the pre-crisis period; 53.4% vs. 61.6% in the crisis period), and the differences are statistically significant, which is consistent with hypothesis H1 and suggests suppliers' demand for conservatism. Second, the less conservative group obtained increased access to trade credit around the crisis, improving from 51.2% in the pre-crisis period to 53.4% in the crisis period. In contrast, trade credit of the more conservative group decreased from 64.3% in the pre-crisis period to 61.6% in the crisis period. Accordingly, the difference between these two groups decreased from 13.1% to 8.2%. This is consistent with hypothesis H2a and suggests suppliers' reduced reliance on conservatism after the onset of the crisis.¹⁰ Overall, the results based on propensity score matching are in line with the main regression results.

¹⁰ Given that total trade credit did not significantly change around the financial crisis, our finding also suggests that suppliers transferred trade credit from the more conservative group to the less conservative group during the crisis.

[Insert Table 4 about here]

5.3 Controlling for suppliers' liquidity

To better understand the impact of the crisis on suppliers' capability to extend trade credit, we add control to capture suppliers' exposure to the liquidity shock during the crisis. Previous literature finds that firms reserving less cash before the crisis were more exposed to the liquidity shock during the crisis (Duchin et al., 2010; Garcia-Appendini and Montoriol-Garriga, 2013). Following Garcia-Appendini and Montoriol-Garriga (2013), we proxy suppliers' exposure to the liquidity shock by the cash reserves of a firm's upstream industries prior to the crisis. We first calculate the firm-level proportion of cash reserves in total assets, then *Suppliers Liquidity* is measured as the weighted average proportion of cash reserves in upstream industries. The data of upstream industries and inputs composition are collected from the U.S. Bureau of Economic Analysis (BEA) 2002 Input-Output *Use* Table.

Table 5 presents the regression results. Given that *Suppliers Liquidity* is an industry-level variable, we do not include industry fixed effects in columns 1-3, and the level effect of *Suppliers Liquidity* is subsumed by firm fixed effects in column 4. The coefficient estimates of *Supplier Liquidity* are positive and statistically significant, which indicates that customers obtained more access to trade credit when their suppliers were less exposed to the liquidity shock (i.e., higher *Suppliers Liquidity*) during the crisis. After controlling for suppliers' exposure to the liquidity shock, the coefficient estimates of *Conservatism* and the interaction *Conservatism* \times *Crisis* are similar to the main regression results, suggesting the robustness of our findings.

[Insert Table 5 about here]

6 Subsample analyses

In this section, we conduct subsample analyses to explore the scenarios in which the

association between conservatism and trade credit more likely decreased during the crisis. These analyses would shed light on the rationale for why some suppliers reduced their reliance on conservatism under the credit supply shock.

6.1 Supplier-customer transaction frequency and geographical distance

We first examine the influence of supplier-customer transaction frequency and geographical distance. In contrast to debt holders, suppliers can acquire customers' information through business transactions (Biais and Gollier, 1997; Petersen and Rajan, 1997; Burkart and Ellingsen, 2004; Chen et al., 2017), which could be one reason that suppliers reduced their reliance on conservatism during the crisis. When suppliers and customers have more frequent business transactions, more information can be acquired through those transactions (Guan et al., 2015; Gong and Luo, 2018), and suppliers' demand for conservatism is more likely to temporarily decline following the onset of the crisis.

We measure supplier-customer transaction frequency as the industrial proportion of intermediate material inputs in total outputs. If a downstream industry needs more intermediate material inputs, more frequent transactions would exist between suppliers and customers (Biais and Gollier, 1997; Burkart and Ellingsen, 2004). The data on industrial outputs are collected from the BEA 2002 *Make* Table, while the information of upstream industries and intermediate material inputs are collected from the BEA 2002 *Input-Output Use* Table.¹¹ As shown in Table 1, the average proportion of intermediate material inputs is 48.2%, with a standard deviation of 13.8%, and the first quartile and the third quartile are 36.6% and 59.3%, respectively. Appendix A2 lists several examples of intermediate material inputs proportions across industries. The wet corn milling industry has the highest value for inputs proportion (87%), and the real estate industry has the lowest value (15%).

Another factor influencing suppliers' information acquisition is the geographical

¹¹ The BEA 2002 *Make* and *Use* Tables are based on the BEA industry code. We use the cross-walk table between the BEA industry code and the North American Industry Classification System (NAICS) code to merge industrial inputs and outputs with firm information from Compustat.

distance between suppliers and customers. When a supplier is geographically closer to its customers, it would have more private information about those customers without necessarily relying on customers' financial reporting (Costello, 2013; Dass et al., 2015; Gong and Luo, 2018). Following Dass et al. (2015), we measure supplier-customer geographical distance as the ratio of inputs transportation costs to inputs value. Higher transportation costs imply a higher geographical distance. The information on industrial transportation costs and inputs value are collected from the BEA Input-Output *Use* Table. As shown in Table 1, transportation costs represent 1.3% of total inputs, with a standard deviation of 1.6%.

We partition the sample into two subsamples based on the median values of transaction frequency and geographical distance, respectively. The results are reported in columns 1-4 of Table 6. When the information asymmetry between suppliers and customers was high (i.e., low transaction frequency in columns 1 and high geographical distance in column 3), the crisis did not affect the association between conservatism and trade credit. The coefficient estimates of *Conservatism* \times *Crisis* are significantly negative only when suppliers and customers have frequent business transactions (column 2) or are in close proximity (column 4).¹² This suggests that, only when information asymmetry was low, suppliers reduced their reliance on conservatism during the crisis, and they even granted trade credit to less conservative customers.

[Insert Table 6 about here]

6.2 Standardized vs. differentiated inputs

Trade credit during the crisis could be moderated by the nature of transacted goods. Compared to differentiated goods, standardized goods can be easily resold on open markets

¹² We test the difference in coefficients on *Conservatism* \times *Crisis* between subsamples based on one-tailed tests. The coefficient of *Conservatism* \times *Crisis* in the low transaction frequency subsample (column 1) is significantly lower than that of high transaction frequency subsample (column 2), and the difference is statistically significant at the 5% level. However, the difference in coefficients between the subsamples with high/low geographical distance (columns 3-4) is not statistically significant. The reason could be that the coefficient estimates in columns 3-4 are close in term of magnitude, although the coefficient estimate of *Conservatism* \times *Crisis* in column 3 is not statistically significant.

(Rauch, 1999; Nunn, 2007; Fabbri and Menichini, 2010; Giannetti et al., 2011). Accordingly, a supplier producing standardized goods can easily liquidate the collateralized inputs of its customer if the customer defaults on trade credit. In contrast, differentiated inputs are specialized for customers, and they usually have lower recovery rates and are difficult to liquidate (Hui et al., 2012; Costello, 2013; Dou et al., 2013; Dass et al., 2015). Moreover, idiosyncratic risk of customers can be easily transferred to suppliers if inputs are differentiated and specialized for customers (Barrot and Sauvagnat, 2016). Therefore, we expect that the association between conservatism and trade credit would be more likely to decrease following the onset of the crisis if customers use more standardized inputs rather than differentiated inputs.

We define standardized goods as those sold on organized exchanges or reference priced in trade publications, following Rauch (1999). Based on the BEA Input-Output *Use Table*, we calculate the proportion of standardized inputs of each industry. This measure has been widely used in the literature, such as Nunn (2007), Costello (2013), Dou et al. (2013), and Barrot and Sauvagnat (2016). As shown in Table 1, the average proportion of standardized inputs is 37.9%, with a standard deviation of 23.5% and a first quartile and third quartile of 19.2% and 50.0%, respectively.

The subsample regression results are shown in columns 5 and 6 of Table 6. When a firm uses more standardized inputs (column 6), the coefficient of *Conservatism* \times *Crisis* is -0.615, which is statistically significant at the 5% level. In contrast, the coefficient is not significant when a firm uses more differentiated inputs (column 5). These results suggest that the nature of transacted goods influenced whether the association between conservatism and trade credit changed during the crisis.

6.3 Customers' financial constraints and bargaining power

A customer's access to trade credit during the crisis could be influenced by its financial

constraints and bargaining power. Under the credit supply shock, financially constrained firms demonstrated a greater demand for external financing (Duchin et al., 2010; Balakrishnan et al., 2016), and they were more likely to resort to trade credit as an alternative financing source (Fisman and Love, 2003; Garcia-Appendini and Montoriol-Garriga, 2013; Carbó Valverde et al., 2016). Accordingly, suppliers were expected to be tolerant to the less conservative customers that were financially constrained to ensure their survival during the crisis. We measure a firm's financial constraints using the Kaplan-Zingales index (Kaplan and Zingales, 1997), which is measured at the end of fiscal year 2005;¹³ the coefficients are collected from Lamont et al. (2001). A higher value of the Kaplan-Zingales index represents a greater level of financial constraints.

A customer's access to trade credit during the crisis could also be affected by its bargaining power. When a customer has higher bargaining power, it usually has a higher chance to be granted trade credit by its suppliers (Klapper et al., 2012; Dass et al., 2015; Murfin and Njoroge, 2015). Following Ali et al. (2009), we measure a firm's bargaining power as the Herfindahl-Hirschman Index (HHI) calculated based on the 2002 U.S. *Census of Manufactures*. This measure has been widely used by previous studies, such as Hui et al. (2012) and Dass et al. (2015).¹⁴ If a company has a higher HHI, it indicates that the company operates in a less competitive industry and has a higher bargaining power.

The subsample estimates are shown in columns 1-4 of Table 7. Consistent with our arguments, the coefficient estimates of *Conservatism* \times *Crisis* are significantly negative when a firm is financially constrained (column 2) or has high bargaining power (column 4).¹⁵ To

¹³ Given that the window of our analysis is July 2006-June 2008, following Balakrishnan et al. (2016), we measure the Kaplan-Zingales index at the end of fiscal year 2005, which is the last fiscal year ending before July 2006. This helps capture how the *ex-ante* financial constraints moderate the conservatism-trade credit association in the window of analysis.

¹⁴ As argued by Ali et al. (2009), the census-based HHI is more accurate than the Compustat-based HHI, because the Census includes both public firms and private firms. However, given that the Census only covers manufacturing firms, the number of observations is substantially reduced.

¹⁵ It is worth noting that the differences in coefficients on *Conservatism* \times *Crisis* between subsamples with low/high financial constraints or bargaining power are also statistically significant, with chi-square statistics of 2.13 and 2.56 in columns 1-2 and 3-4, respectively.

ensure robustness, we follow Sufi (2009) to use a firm's access to bank line of credit as an alternative measure of financial constraints, and we use the Compustat-based HHI and the fitted HHI developed by Hoberg and Phillips (2010) as alternative measures of bargaining power. The results are qualitatively similar. Overall, these results suggest the influence of financial constraints and bargaining power on the association between conservatism and trade credit around the crisis.

[Insert Table 7 about here]

6.4 Suppliers' liquidity

A necessary condition for suppliers to extend trade credit is that they have enough liquidity. Garcia-Appendini and Montoriol-Garriga (2013) find that suppliers reserving more cash before the crisis were less exposed to the liquidity shock and more willing to grant trade credit to customers during the global financial crisis. When suppliers had enough liquidity, they were also expected to tolerate those customers that report less conservatively. Accordingly, the association between conservatism and trade credit would be more likely to decline following the onset of the crisis. Following Garcia-Appendini and Montoriol-Garriga (2013), we measure *Suppliers Liquidity* as cash reserves of a firm's upstream industries in the last fiscal quarter ending before July 2006. A higher proportion of cash reserves indicates a greater level of liquidity and less exposure to the liquidity shock during the crisis. As shown in Table 1, suppliers' cash reserves represent 11.0% of total assets, with a standard deviation of 3.4%.

Columns 5 and 6 of Table 7 report the subsample estimates based on suppliers' liquidity. When a firm's suppliers have high liquidity (column 6), the coefficient estimate of *Conservatism* \times *Crisis* is -0.261, which is statistically significant at the 1% level. In contrast, the coefficient of interaction is not significant when suppliers do not have enough liquidity (column 5). These results suggest that having sufficient liquidity and being less exposed to

the liquidity shock were necessary conditions for suppliers to increase the tolerance to less conservative customers during the crisis.

7 Conclusion

Previous literature documents that conditional conservatism is valued by debt holders and that it is used to facilitate efficient debt contracting. However, it is unclear to what extent suppliers, as an important non-financial stakeholder, rely on conditional conservatism to monitor customers. We investigate suppliers' demand for conditional conservatism by examining the association between conditional conservatism and firms' access to trade credit before and after the onset of the global financial crisis. We find that conditional conservatism was positively associated with firms' access to trade credit both before and after the crisis, indicating suppliers' demand for conditional conservatism. Meanwhile, the association between conservatism and trade credit decreased by 46.42% following the onset of the crisis, implying that suppliers reduced their reliance on customers' conditional conservatism under the credit supply shock. This relation was influenced by suppliers' information acquisition capability, the nature of transacted goods, customers' financial constraints and bargaining power, and suppliers' liquidity.

This study adds to previous literature by demonstrating suppliers' multifaceted demand for conditional conservatism. First, it indicates that suppliers, like debt holders, also demand conditional conservatism. It provides further evidence to support the contracting role of conditional conservatism in the supplier-customer relationship as proposed by Hui et al. (2012), and it also implies the information asymmetry between trade partners as suggested by previous literature (e.g., Coase, 1937; Williamson, 1979; Hui et al., 2012; Costello, 2013; Hope et al., 2017; Files and Gurun, 2018). Second, in contrast to the increased association between conservatism and the access to bank loans documented by Balakrishnan et al. (2016),

we show that the association between conservatism and the access to trade credit demonstrated a significant decline following the onset of the crisis. This suggests that, despite their demand for conditional conservatism, suppliers increased the tolerance to less conservative customers under the credit supply shock. This finding is consistent with the literature on suppliers' information acquisition through business transactions (e.g., Biais and Gollier, 1997; Petersen and Rajan, 1997; Ng et al., 1999; Burkart and Ellingsen, 2004; Aktas et al., 2012; Chen et al., 2017; Gong and Luo, 2018), and it is also aligned with the studies on information complementarities in production networks (e.g., Dass et al., 2014; Guan et al., 2015; Luo and Nagarajan, 2015; Cen et al., 2017).

Our findings provide valuable implications for policy makers and accounting standard setters. First, previous accounting standards were designed mainly to fulfill the demand from shareholders and debt holders. Our study suggests that it is also necessary to take into consideration the demand from non-financial stakeholders, such as suppliers. Second, our results suggest that a credit supply shock to the capital market could influence trade credit extensions on the product market. This finding would help policy makers more comprehensively assess the real economic consequences of a financial crisis. Finally, our study could inspire new policies to confront the credit crunch during a financial crisis. Given that trade credit is an important alternative financing source during a crisis period, and suppliers tolerate less conservative firms under certain circumstances, thus one possible approach to increasing credit supply during a financial crisis is by improving the liquidity of firms in upstream industries and also encouraging information sharing along the supply chain.

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Appendix A1 Variable definitions

Variable	Definition
<i>Trade Credit</i>	Quarterly accounts payable scaled by purchases, where purchases is calculated as cost of goods sold plus the change of inventory.
<i>Conservatism</i>	The <i>ex-ante</i> conditional conservatism prior to the financial crisis, which is measured as the three-year average C_Score in 2003-2005, following Balakrishnan et al. (2016) and García Lara et al. (2016).
<i>Crisis</i>	Indicator for the financial crisis period, which equals one for the crisis period July 2007-June 2008 and zero for the pre-crisis period July 2006-June 2007, following Duchin et al. (2010) and Balakrishnan et al. (2016).
<i>Size</i>	Natural logarithm of market value of equity.
<i>Leverage</i>	(Long-term debt + current debt) / Market value of equity.
<i>Market to Book</i>	Market value of equity / Book value of equity.
<i>Cash Holdings</i>	Cash and short-term investments / Total assets.
<i>Market Share</i>	Market share calculated based on sales revenue.
<i>Sales Growth</i>	Sales growth compared to the same quarter of last year.
<i>Profit Margin</i>	Income before extraordinary items / Sales revenue.
<i>Transaction Frequency</i>	Transaction frequency between an industry and its upstream industries, measured as the proportion of an industry's intermediate material inputs in total outputs. A higher proportion of intermediate inputs represents more frequent transactions. Outputs and inputs data are collected from the BEA 2002 <i>Make</i> and <i>Use</i> Tables, respectively.
<i>Geographical Distance</i>	Geographic distance between an industry and its upstream industrial partners, proxied by the ratio of inputs transportation costs to inputs value, following Dass et al. (2015). Higher transportation costs represent a higher geographical distance. Inputs and transportation costs data are collected from the BEA 2002 Input-Output <i>Use</i> Table.
<i>Standardized Inputs</i>	The proportion of standardized inputs that are traded on organized exchanges or reference priced in trade publications, following Rauch (1999) and Nunn (2007). Inputs composition data are collected from the BEA 2002 Input-Output <i>Use</i> Table.
<i>Financial Constraints</i>	Kaplan-Zingales index prior to the financial crisis. A higher value of the Kaplan-Zingales index represents a greater level of financial constraints. The coefficients of the Kaplan-Zingales index are from Lamont et al. (2001).
<i>Bargaining Power</i>	The Herfindahl-Hirschman Index (HHI) calculated based on the 2002 <i>Census of Manufactures</i> , as proposed by Ali et al. (2009). A higher value of HHI represents a higher level of industry concentration and a higher level of bargaining power.
<i>Suppliers Liquidity</i>	Upstream industries' liquidity prior to the financial crisis. Liquidity is measured as the proportion of cash reserves in total assets, following Duchin et al. (2010) and Garcia-Appendini and Montoriol-Garriga (2013). The information of upstream industries and inputs proportion is collected from the BEA 2002 Input-Output <i>Use</i> Table.

Appendix A2 Proportion of intermediate material inputs across industries

BEA Industry	Proportion
311221 Wet corn milling	0.87
336120 Heavy duty truck manufacturing	0.86
312110 Soft drink and ice manufacturing	0.85
324110 Petroleum refineries	0.84
336112 Light truck and utility vehicle manufacturing	0.79
325220 Artificial and synthetic fibers and filaments manufacturing	0.78
...	...
312140 Distilleries	0.23
812300 Dry-cleaning and laundry services	0.21
3122A0 Tobacco product manufacturing	0.20
533000 Lessors of nonfinancial intangible assets	0.19
561300 Employment services	0.17
531000 Real estate	0.15

Appendix A3 Conditional conservatism and bank loans before and after the onset of the financial crisis

	Pre-crisis	Crisis	Pooled	
	(1)	(2)	(3)	(4)
<i>Conservatism</i>	0.072*** (5.27)	0.090*** (6.26)	0.069*** (6.10)	
<i>Conservatism</i> × <i>Crisis</i>			0.028** (2.44)	0.015** (2.26)
<i>Crisis</i>			-0.005** (-2.44)	-0.005*** (-5.96)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	No
Year-quarter FE	Yes	Yes	Yes	No
Firm FE	No	No	No	Yes
Observations	7231	6279	13510	13510
Adjusted R-squared	0.137	0.158	0.148	0.687

This table reports the relation between conditional conservatism and firms' access to bank loans before and after the onset of the global financial crisis, following Balakrishnan et al. (2016). The dependent variable is firms' access to bank loans, which is measured as quarterly current debt scaled by total assets. Columns 1 and 2 correspond to the estimates for the pre-crisis period and the crisis period, respectively. Columns 3 and 4 are based on the pooled sample including both the pre-crisis period and the crisis period. *Conservatism* is measured as the three-year average C_Score prior to the crisis. Industry fixed effects and year-quarter fixed effects are used in columns 1-3. Firm fixed effects are used in column 4, and *Conservatism* is subsumed by firm fixed effects. Standard errors are clustered at the firm and year-quarter levels, following Petersen (2009). T-statistics are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix A4 Subsample analysis based on the level of conditional conservatism

	Conditional Conservatism	
	Low (1)	High (2)
<i>Conservatism</i> × <i>Crisis</i>	0.379* (1.84)	-0.315* (-1.81)
<i>Crisis</i>	-0.004 (-0.41)	0.014 (0.51)
Difference in coefficients on <i>Conservatism</i> × <i>Crisis</i>		0.694** (4.66)
Controls	Yes	Yes
Firm FE	Yes	Yes
Observations	6675	6606
Adjusted R-squared	0.779	0.761

This table reports the subsample estimations based on the level of conditional conservatism. The dependent variable is firms' access to trade credit, which is measured as quarterly accounts payable scaled by purchases. The subsamples of low/high level of conditional conservatism are partitioned based on the sample median of *Conservatism*, which is measured as the three-year average C_Score prior to the crisis. Columns 1 and 2 correspond to the subsamples with low and high level of conditional conservatism, respectively. The differences in coefficients on *Conservatism* × *Crisis* across subsamples are tested based on one-tailed tests, and chi-square statistics are reported in brackets. All regressions include firm fixed effects, following Duchin et al. (2010) and Balakrishnan et al. (2016), and the level effect of *Conservatism* is subsumed by firm fixed effects. Standard errors are clustered at the firm and year-quarter levels, following Petersen (2009). T-statistics are reported in brackets below coefficient estimates. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 1 Summary statistics

Panel A: Total Sample						
	N	Mean	SD	P25	Median	P75
<i>Trade Credit</i>	13281	0.585	0.709	0.271	0.420	0.624
<i>Conservatism</i>	13281	0.095	0.082	0.045	0.090	0.139
<i>Crisis</i>	13281	0.465	0.499	0.000	0.000	1.000
<i>Size</i>	13281	6.880	1.565	5.675	6.740	7.913
<i>Leverage</i>	13281	0.244	0.384	0.005	0.110	0.301
<i>Market to Book</i>	13281	3.101	2.424	1.634	2.425	3.696
<i>Cash Holdings</i>	13281	0.184	0.203	0.028	0.099	0.276
<i>Market Share</i>	13281	0.084	0.161	0.002	0.014	0.080
<i>Sales Growth</i>	13281	0.144	0.297	0.007	0.098	0.211
<i>Profit Margin</i>	13281	0.030	0.135	0.011	0.050	0.096
<i>Transaction Frequency</i>	12894	0.482	0.138	0.366	0.474	0.593
<i>Geographical Distance</i>	12899	0.013	0.016	0.005	0.009	0.017
<i>Standardized Inputs</i>	8557	0.379	0.235	0.192	0.314	0.500
<i>Financial Constraints</i>	12061	-3.445	6.298	-4.736	-1.108	0.550
<i>Bargaining Power</i>	6483	0.086	0.068	0.039	0.058	0.108
<i>Suppliers Liquidity</i>	12879	0.110	0.034	0.086	0.103	0.121

Panel B: Pre-crisis vs. Crisis				
	Pre-crisis	Crisis	Difference	(p-value)
<i>Trade Credit</i>	0.590	0.580	-0.010	(0.418)
<i>Size</i>	6.792	6.981	0.189	(0.000)
<i>Leverage</i>	0.230	0.260	0.030	(0.000)
<i>Market to Book</i>	3.112	3.089	-0.024	(0.572)
<i>Cash Holdings</i>	0.190	0.176	-0.014	(0.000)
<i>Market Share</i>	0.079	0.089	0.010	(0.000)
<i>Sales Growth</i>	0.149	0.138	-0.011	(0.027)
<i>Profit Margin</i>	0.027	0.033	0.006	(0.030)

This table reports summary statistics for main variables. Panel A presents statistics for the total sample, and Panel B presents statistics for the pre-crisis period and the crisis period separately. The dependent variable *Trade Credit* and the control variables are based on firm-quarter observations in the sample period July 2006-June 2008, following Duchin et al. (2010), Garcia-Appendini and Montoriol-Garriga (2013), and Balakrishnan et al. (2016). July 2007-June 2008 is defined as the crisis period, and July 2006-June 2007 is defined as the pre-crisis period. *Trade Credit* is measured as quarterly accounts payable scaled by purchases. *Conservatism* is measured as the three-year average C_Score of Khan and Watts (2009) in 2003-2005, following Balakrishnan et al. (2016) and García Lara et al. (2016). Given that *Conservatism* and the variables for subsample analyses (including *Transaction Frequency*, *Geographical Distance*, *Standardized Inputs*, *Financial Constraints*, *Bargaining Power*, and *Suppliers Liquidity*) are measured as prior to the crisis, they are not reported in Panel B. All continuous variables are winsorized at the 1% and 99% levels. Detailed variable descriptions are listed in Appendix A1.

Table 2 Conditional conservatism and trade credit before and after the onset of the financial crisis

	Pre-crisis	Crisis	Pooled	
	(1)	(2)	(3)	(4)
<i>Conservatism</i>	0.795*** (3.90)	0.315** (1.98)	0.741*** (4.64)	
<i>Conservatism</i> × <i>Crisis</i>			-0.344** (-2.29)	-0.255** (-2.09)
<i>Crisis</i>			0.013 (0.46)	0.012 (0.61)
<i>Size</i>	0.032*** (2.75)	0.025*** (2.62)	0.029*** (3.81)	-0.022 (-0.68)
<i>Leverage</i>	0.026 (1.45)	0.015* (1.74)	0.020** (2.15)	-0.033 (-0.99)
<i>Market to Book</i>	-0.001 (-0.23)	-0.004 (-1.00)	-0.002 (-0.78)	0.001 (0.43)
<i>Cash Holdings</i>	0.310*** (4.17)	0.287*** (3.54)	0.300*** (5.48)	0.104 (1.11)
<i>Market Share</i>	-0.042 (-0.82)	-0.100** (-2.05)	-0.068* (-1.93)	-0.017 (-0.24)
<i>Sales Growth</i>	0.025 (0.59)	0.109** (2.15)	0.061* (1.87)	-0.036 (-0.97)
<i>Profit Margin</i>	-0.004 (-0.51)	0.003 (0.50)	-0.001 (-0.26)	0.012 (1.48)
<i>Constant</i>	0.258 (1.00)	0.142 (1.42)	0.189 (1.32)	
Industry FE	Yes	Yes	Yes	No
Year-quarter FE	Yes	Yes	Yes	No
Firm FE	No	No	No	Yes
Observations	7130	6189	13319	13281
Adjusted R-squared	0.168	0.197	0.183	0.767

This table reports the relation between conditional conservatism and firms' access to trade credit before and after the onset of the global financial crisis. The sample consists of firm-quarter observations in the sample period July 2006-June 2008, following Duchin et al. (2010), Garcia-Appendini and Montoriol-Garriga (2013), and Balakrishnan et al. (2016). July 2007-June 2008 is defined as the crisis period, and July 2006-June 2007 is defined as the pre-crisis period. The dependent variable *Trade Credit* is measured as quarterly accounts payable scaled by purchases. *Conservatism* is measured as the three-year average C_Score of Khan and Watts (2009) in 2003-2005, following Balakrishnan et al. (2016) and García Lara et al. (2016). Columns 1 and 2 correspond to the estimates for the pre-crisis period and the crisis period, respectively, and the variable of interest is *Conservatism*. Columns 3 and 4 are based on the pooled sample including both the pre-crisis period and the crisis period, and the variable of interest is the interaction *Conservatism* × *Crisis*. *Crisis* is the indicator for the crisis period, and it equals one for the crisis period and zero for the pre-crisis period. Industry fixed effects and year-quarter fixed effects are used in columns 1-3. Firm fixed effects are used in column 4, following Duchin et al. (2010) and Balakrishnan et al. (2016), and *Conservatism* is subsumed by firm fixed effects because it is measured once prior to the crisis. Standard errors are clustered at the firm and year-quarter levels, following Petersen (2009). T-statistics are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 3 Placebo tests

	Placebo 2006		9/11 Terrorism Attack	
	(1)	(2)	(3)	(4)
<i>Conservatism</i>	0.464*** (2.87)		0.795*** (3.66)	
<i>Conservatism</i> × <i>Crisis</i>	0.166 (0.97)	0.099 (0.84)	-0.151 (-0.54)	-0.108 (-0.61)
<i>Crisis</i>	-0.034 (-1.15)	0.004 (0.27)	0.050 (1.56)	-0.002 (-0.16)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	No
Year-quarter FE	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes
Observations	14008	13972	12437	12308
Adjusted R-squared	0.148	0.768	0.149	0.731

This table reports the results of placebo tests. In columns 1 and 2, the placebo crisis period is defined as July 2006-June 2007. Columns 3 and 4 are based on the negative market demand shock caused by the terrorism attack on September 11, 2001, and the crisis period is defined as October 2001-September 2002. The regression period includes the crises period and one year before the onset of the crises. The dependent variable *Trade Credit* is measured as quarterly accounts payable scaled by purchases. *Conservatism* is measured as the three-year average value prior to the crises, and *Crisis* is the indicator for the crises period. Industry fixed effects and year-quarter fixed effects are used in columns 1 and 3, and firm fixed effects are used in columns 2 and 4. Standard errors are clustered at the firm and year-quarter levels, following Petersen (2009). T-statistics are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4 Propensity score matching

Panel A: Pre-crisis		
	Trade Credit	Difference (T-statistic)
<i>Less Conservative</i>	0.512	0.131*** (2.71)
<i>More Conservative</i>	0.643	
Panel B: Crisis		
	Trade Credit	Difference (T-statistic)
<i>Less Conservative</i>	0.534	0.082* (1.77)
<i>More Conservative</i>	0.616	

This table presents the average treatment effect based on the propensity score matched sample. We first classify sample firms into the less conservative group and the more conservative group based on the sample median of *Conservatism*. The propensity score matched sample is constructed using one-to-one matching with replacement, with the caliper value of 0.01. Following Shipman et al. (2017), we use all the control variables in the main regression equation (1) to estimate the likelihood of a firm being in the less conservative group or the more conservative group. The outcome of interest *Trade Credit* is measured as quarterly accounts payable scaled by purchases. T-statistics are reported in brackets. *** and * indicate statistical significance at the 1% and 10% levels, respectively.

Table 5 Controlling for suppliers' liquidity

	Pre-crisis	Crisis	Pooled	
	(1)	(2)	(3)	(4)
<i>Conservatism</i>	1.076*** (4.80)	0.673*** (3.89)	1.073*** (6.21)	
<i>Conservatism</i> × <i>Crisis</i>			-0.371** (-2.33)	-0.257*** (-2.73)
<i>Crisis</i>			0.000 (0.01)	0.012 (1.28)
<i>Supplier Liquidity</i>	7.427*** (13.45)	7.657*** (13.39)	7.557*** (19.09)	
Controls	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No
Year-quarter FE	Yes	Yes	Yes	No
Firm FE	No	No	No	Yes
Observations	6939	6005	12944	12944
Adjusted R-squared	0.102	0.137	0.116	0.766

This table presents the estimates after controlling for suppliers' liquidity. The dependent variable is *Trade Credit*, which is measured as quarterly accounts payable scaled by purchases. *Suppliers Liquidity* is proxied by the weighted average proportion of cash reserves of upstream industries in the last fiscal quarter ending before July 2006, following Duchin et al. (2010) and Garcia-Appendini and Montoriol-Garriga (2013). The data of upstream industries and inputs composition are collected from the BEA Input-Output *Use* Table. Given that *Suppliers Liquidity* is measured at industry level, industry fixed effects are not included in columns 1-3. Firm fixed effects are used in column 4, and the level effect of *Conservatism* is subsumed by firm fixed effects. Standard errors are clustered at the firm and year-quarter levels, following Petersen (2009). T-statistics are reported in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6 Subsample analyses based on transaction frequency, geographical distance, and the proportion of standardized inputs

	Transaction Frequency		Geographical Distance		Standardized Inputs	
	Low (1)	High (2)	High (3)	Low (4)	Low (5)	High (6)
<i>Conservatism</i> × <i>Crisis</i>	-0.014 (-0.09)	-0.554** (-2.40)	-0.307 (-1.46)	-0.206* (-1.88)	-0.015 (-0.16)	-0.615** (-2.03)
<i>Crisis</i>	-0.009 (-0.32)	0.033* (1.77)	-0.000 (-0.00)	0.023 (0.97)	-0.023 (-1.14)	0.048** (2.01)
Difference in coefficients on <i>Conservatism</i> × <i>Crisis</i>		0.540** (3.35)		-0.101 (-0.06)		0.600** (3.46)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6434	6460	6458	6441	4273	4284
Adjusted R-squared	0.720	0.822	0.582	0.804	0.599	0.805

This table reports subsample estimates based on supplier-customer *Transaction Frequency* (columns 1 and 2), *Geographical Distance* (columns 3 and 4), and the proportion of *Standardized Inputs* (columns 5 and 6). The dependent variable is firms' access to trade credit, which is measured as quarterly accounts payable scaled by purchases. The supplier-customer *Transaction Frequency* is proxied by the proportion of intermediate material inputs in total outputs. Several examples of industrial material inputs proportions are shown in Appendix A2. *Geographical Distance* is proxied by the ratio of inputs transportation costs to inputs value, following Dass et al. (2015). *Standardized Inputs* are defined as those traded on organized exchanges or reference priced in trade publications, following Rauch (1999) and Nunn (2007). Industrial outputs data are collected from the BEA *Make* Table, and the data of inputs composition and transportation costs are collected from the BEA *Input-Output Use* Table. The differences in coefficients on *Conservatism* × *Crisis* across subsamples are tested based on one-tailed tests, and chi-square statistics are reported in brackets. All regressions include firm fixed effects, following Duchin et al. (2010) and Balakrishnan et al. (2016), and the level effect of *Conservatism* is subsumed by firm fixed effects. Standard errors are clustered at the firm and year-quarter levels, following Petersen (2009). T-statistics are reported in brackets below coefficient estimates. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7 Subsample analyses based on financial constraints, bargaining power, and suppliers' liquidity

	Financial Constraints		Bargaining Power		Suppliers Liquidity	
	Low (1)	High (2)	Low (3)	High (4)	Low (5)	High (6)
<i>Conservatism</i> × <i>Crisis</i>	0.018 (0.14)	-0.169*** (-2.86)	-0.036 (-0.31)	-0.606** (-2.00)	-0.232 (-1.28)	-0.261*** (-2.67)
<i>Crisis</i>	0.012 (0.71)	0.003 (0.14)	0.010 (0.58)	0.019 (1.00)	0.006 (0.29)	0.017 (0.82)
Difference in coefficients on <i>Conservatism</i> × <i>Crisis</i>		0.187* (2.13)		0.570** (2.56)		0.029 (0.05)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6032	6029	3242	3241	6453	6426
Adjusted R-squared	0.701	0.804	0.705	0.571	0.709	0.778

This table presents subsample estimates based on a firm's *Financial Constraints* (columns 1 and 2), *Bargaining Power* (columns 3 and 4), and *Suppliers Liquidity* (columns 5 and 6). The dependent variable is firms' access to trade credit, which is measured as quarterly accounts payable scaled by purchases. *Financial Constraints* are proxied by the Kaplan-Zingales index at the end of fiscal year 2005. *Bargaining Power* is proxied by the Census-based HHI proposed by Ali et al. (2009). *Suppliers Liquidity* is proxied by the weighted average proportion of cash reserves of upstream industries in the last fiscal quarter ending before July 2006, following Duchin et al. (2010) and Garcia-Appendini and Montoriol-Garriga (2013). The data of upstream industries and inputs composition are collected from the BEA Input-Output Use Table. The differences in coefficients on *Conservatism* × *Crisis* across subsamples are tested based on one-tailed tests, and chi-square statistics are reported in brackets. All regressions include firm fixed effects, following Duchin et al. (2010) and Balakrishnan et al. (2016), and the level effect of *Conservatism* is subsumed by firm fixed effects. Standard errors are clustered at both firm and year-quarter levels, following Petersen (2009). T-statistics are reported in brackets below coefficient estimates. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.