Does industry-specific information disclosure improve trade credit financing?

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ABSTRACT

This paper examines the influence of the staggered implementation of the Industry Information Disclosure Guidelines on trade credit financing. Using a sample of China’s A-share listed firms from 2007 to 2019, I show that firms obtain significantly more trade credit from their suppliers when they disclose industry-specific information. The main results are robust to numerous additional checks. The positive association is more pronounced when the firm’s financing constraints are stronger, the concentration of suppliers is lower, and the level of social trust and the degree of marketization are higher. Furthermore, this paper finds that the positive association is more pronounced for firms with weaker information transparency and corporate governance, indicating that the Guidelines play a role through the information effect and governance effect. The study enriches the research on the economic consequences of industry-specific information disclosure and the factors affecting trade credit financing.

KEYWORDS

Industry-specific information disclosure; trade credit financing; information effect; governance effect

1. Introduction

Trade credit is a financing arrangement in which a customer is allowed to acquire goods or services from another business without making immediate payments. Previous research has found that trade credit is an important source of short-term external finance and is widely used among upstream and downstream firms due to financial as well as nonfinancial motivations (Long et al., 1993; Petersen & Rajan, 1997; G. W. Emery, 1987). Many studies have explained the widespread existence of trade credit from different perspectives and suggest that trade credit is an interactive result balancing the demand of downstream firms and the supply of upstream firms in the supply chain (Ge & Qiu, 2007; Lu & Yang, 2011). From the demand perspective, credit rationing leads to some firms being unable to obtain loans from financial institutions; thus, such firms, especially small- and medium-sized firms, tend to rely heavily on trade credit. Trade credit can be an important alternative financing method for firms with limited access to external debt financing from traditional financial institutions (Lu & Yang, 2011; Petersen & Rajan, 1997). From the supply perspective, trade credit can reduce the transaction cost caused by
frequent payments (Ferris, 1981) and enables suppliers to know more about the customer’s ability to pay (Cheng & Pike, 2003). At the same time, when the customers have good credit qualifications or a strong position within the supply chain, the suppliers are more willing to provide trade credit (Fabbri & Menichini, 2010; Giannetti et al., 2011; Zhang et al., 2012). Trade credit plays an important role in resource allocation in the supply chain, which promotes efficient capital utilisation and improves the overall value of the supply chain (Z. Wang & Xia, 2016).

Prior studies have documented many factors influencing trade credit financing, such as macroeconomic policies, financial environment, economic uncertainty, product market, firm characteristics, corporate governance, and information disclosure quality. How much trade credit suppliers are willing to offer depends on the credit qualification and future payment ability of the customers. Previous studies have found that governance factors such as internal control, audit quality, supply chain governance, financial violations and penalties, and the quality of information disclosure affect customers’ access to trade credit (Y. Chen et al., 2014; Chen & Wang, 2010, 2014; Y. Wang et al., 2020; L. Wang & Li, 2022; Xiu et al., 2021; Zhang, 2013). Yang et al. (2020) find that the improvement of information disclosure quality in the capital market has a positive spillover effect on the supply chain, improving the decision-making efficiency of firms in the supply chain. Despite a large body of research on the role of information disclosure in trade credit financing, little is known about the effect of industry-specific information disclosure on trade credit. To fill this gap, this study examines whether and how industry-specific information disclosure facilitates trade credit financing of firms using exogenous shocks resulting from the issuing of the Industry Information Disclosure Guidelines (hereinafter referred to as the Guidelines).

Since the pilot implementation of information disclosure regulation by industry in 2011, the Shenzhen Stock Exchange has made great efforts to summarise the operational characteristics of different industries. In 2014, the China Securities Regulatory Commission proposed a ‘regulatory model transformation’, that is, transforming the information disclosure regulation of listed firms from a ‘jurisdiction-based’ system to an ‘industry-based’ system. Meanwhile, the Shanghai Stock Exchange and Shenzhen Stock Exchange have been exploring how to guide and supervise the information disclosure of listed firms by industry since 2013, and they have successively issued a series of Guidelines of Industry-specific Information Disclosure. Up to the beginning of 2021, the Shanghai Stock Exchange and Shenzhen Stock Exchange have issued 28 and 26 industry-specific information disclosure guidelines, respectively, which have clarified the standards and requirements on industry-specific information disclosure for most of industries and listed firms. The Guidelines require listed firms to disclose industry-specific and operational information (such as industry development trends, corporate business models, key business information, core competitiveness and firm-specific risk) valued by investors. The Guidelines issued by the two exchanges provide a quasi-natural experiment for my research.

Using the data of China A-share listed firms from 2007 to 2019, this paper analyses the impact of the Guidelines issued by the two exchanges on corporate trade credit financing. The primary findings suggest that firms that comply with the Guidelines have obtained significantly more trade credit after the implementation of the Guidelines compared with firms that do not comply with the Guidelines. The main results are robust to numerous
additional checks. Further tests show that the effect of Guidelines on trade credit financing is more pronounced for firms with high information opacity and weak corporate governance, indicating that Guidelines play a role through the information effect and governance effect. Moreover, I also find that the impact of the Guidelines on trade credit financing is more significant when the firm has stronger financing constraints, the firm’s suppliers are less concentrated, and the social environment is of higher trust and higher marketisation, indicating that customer incentives, the status of suppliers as well as trust culture and market-oriented institutions also moderate how industry-specific operational information disclosure affects firms’ trade credit financing.

This research contributes to the literature in four important ways. First, the findings of this paper enrich the relevant literature on the spillover effect of the Guidelines in the supply chain. From the institutional perspective, the Guidelines can effectively alleviate the information asymmetry in the supply chain and strengthen the external governance of the disclosing firms by facilitating suppliers’ assessment on the firm’s management efficiency and potential agency conflicts. Since research on the spillover effect of information disclosure is insufficient (Leuz & Wysocki, 2016), this paper contributes further knowledge about the spillover effect of industry-specific information disclosure on the supply chain by providing new empirical evidence. Second, this paper evaluates the effectiveness of the Guidelines from the perspective of trade credit. Although many listed firms have disclosed descriptive industry information in their prospectuses and annual reports, it is rare for industry-specific information disclosure to be regulated through issuing guidelines. Little is known about the economic consequences of the Guidelines (Chen & Li, 2018; Liu & Liu, 2021); thus, more empirical evidence is needed to answer whether and to what extent quantitative and qualitative industry-specific information, such as outlines of business models and operational risks, has reduced the information asymmetry between firms and their stakeholders. This paper fills this gap by examining the effect of the Guidelines on trade credit financing. Third, the issuing of the Guidelines serves as exogenous shocks and can help mitigate the endogenous problem. The Guidelines are implemented by the two exchanges in a staggered pattern. The Guidelines issued each year were only intended for several industries; thus, most industries become exposed to the regulation at different time points. Information disclosure research has long been plagued by the endogeneity problem. It is a good solution to identify the causal association by constructing exogenous impact variables (Beyer et al., 2010). In addition, to solve endogenous problems, Leuz and Wysocki (2016) suggest that researchers should adopt natural experiments in research design when studying the economic consequences of information disclosure regulation, especially if the regulation is implemented in a staggered fashion (Staggered Implementation). This paper mitigates the endogenous concern by employing the quasi-experimental policy implemented step by step by the two exchanges. Fourth, the China Securities Regulatory Commission attempts to transform the information disclosure regulatory system for listed firms from jurisdiction-based to industry-based, and the Shanghai Stock Exchange and Shenzhen Stock Exchange have issued the Guidelines to improve the regulatory efficiency and the information disclosure quality of listed companies. The findings of this paper show that industry-specific information disclosure can impact corporate trade credit financing through information effects...
and governance effects; thus, this information disclosure regulation innovation with Chinese characteristics can provide valuable implications for securities regulatory reforms in other countries and regions.

2. Institutional background

2.1. The background of the guidelines

The quality of information disclosure of listed firms is one of the foundations for the healthy and sustainable development of the capital market. The Securities Law, which came into effect in March 2020 in China, has set up chapters on ‘Information Disclosure’ and ‘Investor Protection’. The new Securities Law revised the principal provisions on information disclosure, further regulated the information disclosure behaviour of listed firms, and highlighted the important role of information disclosure in protecting investor rights and improving investor protection. On 11 May 2020, Opinions on Accelerating the Improvement of the Socialist Market Economic System in the New Era issued by the CPC Central Committee and the State Council made a strategic plan to ‘improve the quality of listed firms and strengthen investor protection’. On 5 October 2020, the State Council issued Opinions on Further Improving the Quality of Listed Companies (Guo Fa [2020] No. 14), which pointed out that we should ‘follow the needs of investors, improve the information disclosure standards of different industries, optimize the content of disclosure, and enhance the pertinence and effectiveness of information disclosure’. Article 25 of the Guidelines for the Application of The Self-Regulatory Rules for Listed Firms on the Shanghai Stock Exchange No. 3 – Classification and Supervision of Information Disclosure issued by the Shanghai Stock Exchange on 24 November 2020 states that the Guidelines aim to ‘support listed firms improvement of the quality of industry-specific information disclosure’. In summary, regulators have focused on improving the quality of the information disclosure of listed firms and strengthening the enforcement of the Guidelines.

In 2014, the CSRC began to promote regulatory transformation, which attempted to abolish the jurisdiction-based information disclosure regulation system and build an industry-based system for listed firms, considering that investors need industry-specific information to judge the value and risk of listed firms. Up to the beginning of 2021, the Shanghai Stock Exchange and Shenzhen Stock Exchange have promulgated 28 and 26 sets of the Guidelines, respectively (see, Table 1 for details), covering listed firms in most industries and providing a desirable quasi-experiment for this research.

These guidelines mainly focus on the disclosure of industry-specific information. According to Shanghai Stock Exchange’s ‘Listed Firms Industry Information Disclosure Guidelines No. 1 – General Provisions’, industry-specific information refers to industry information and operational information related to the business of listed firms. Article 4 in above Guidelines No.1 stipulates that a listed firm should discuss and analyse the firm’s business model, competitive advantages, operational results, operational risks and other matters that can reflect its investment value, such as macro factors, market environment, development status, business characteristics, and the firm’s industry status, in its annual report. Article 10 stipulates that listed firms should, in combination
| Timeline          | SSE                                                                 | ChiNext Board in SZSE                                                                 | Main Board, the small and medium-enterprise (SME) board in SZSE                                                                 |
|------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| January 7, 2013  | Memorandum on Daily Information Disclosure of Listed Companies No. 12 – Disclosure of Operational Industry Information | Radio film and television, biopharmaceutical, photovoltaic                           |                                                                                                                                       |
| December 26, 2013| Real estate, coal, oil and gas                                      | Photovoltaic, Energy Conservation, Environmental Protection Industries                |                                                                                                                                       |
| July 2, 2015     | Electric, retail, automobile manufacturing                           | Internet games, internet video, electronic commerce                                   |                                                                                                                                       |
| September 2, 2015| Wine, radio and television transmission, environmental protection services, water production and supply, chemical industry, air transport, agriculture, forestry, animal husbandry and fishery | LED Industrial Chain, Medical Device Industries                                       |                                                                                                                                       |
| October 1, 2015  | Integrated circuits, aviation, shipbuilding, railway transportation equipment manufacturing, medical equipment, food manufacturing, gold jewellery, film and television, furniture manufacturing, nonferrous metals | Industrial robot, integrated circuit, lithium battery non-metallic building materials |                                                                                                                                       |
| November 3, 2019 | The above industry Guidelines have been adjusted, and 16 industries have been consolidated and revised, and 11 industries have been deleted | Communications, network security                                                      | Food and liquor making, electric power, automobile manufacturing, textile and apparel, chemical industry                         |
| January 6, 2021  |                                                                 |                                                                                                                                       |                                                                                                                                       |
| January 11, 2021 |                                                                 |                                                                                                                                       |                                                                                                                                       |
with the firm’s business model and key indicators, disclose industry-specific operational information and offer substantive analysis to reveal the firm’s business development trend and warn of industry risk factors. Article 16 stipulates that when listed firms apply for regulatory approval regarding matters such as refinancing and mergers and acquisitions, the firm’s compliance with these guidelines will be taken into consideration. The industry-specific information is disclosed in the sections of the annual report with titles such as ‘Firm Business Summary’, ‘Business Situation Discussion and Analysis’, and ‘Financial Report Appendix’. Therefore, although Industry Information Disclosure Guidelines are named Disclosure Guidelines, they are strongly binding from the perspective of implementation and supervision (Chen & Li, 2018).

The transformation of China’s industry-based securities regulatory system and the Guidelines issued by the two exchanges are important reforms and innovations in securities supervision and information disclosure. In the United States, the Securities Act of 1933 and the Securities Exchange Act of 1934 have established principled provisions for specific industries through the S-X and S-K Regulations. Listed firms in special industries, including banking, insurance, oil and gas, mining, and real estate with limited partnerships are required to disclose industry-specific information by Section 250, Items 801 and 802 (Industry Guides). In Canada and Australia, only firms in the mining industry and oil and gas extraction industry are required to disclose industry-specific information. In EU countries, environmental information disclosure receives more attention. The industry-specific information disclosure regulation in other countries often focuses on traditional industries controlled by the government or a specific disclosure field, while China’s Guidelines cover more industries, including both high-tech industries and traditional industries, and pay attention to a wider range of industry-specific information, such as operating characteristics, business models, and specific risks, resulting in a systematic improvement in regulatory efficiency and information disclosure quality.

2.2. Effectiveness of guidelines

The effectiveness of the Guidelines is the precondition of this research. This paper intends to analyse three questions: (1) Are the Guidelines effectively implemented? (2) Do listed firms disclose the industry-specific information needed by suppliers? (3) Have the industry-specific information disclosed by the listed firms provided incremental value for suppliers?

First, Chen and Li (2018) study the enforcement of 22 sets of Guidelines issued by the Shenzhen Stock Exchange since 2013 and find that ‘the disclosure regulation through Guidelines is effective in general, since the majority of firms have strictly complied with the core provisions of the Guidelines’. I obtain the annual reports of all listed firms through Python software and check whether the firms have complied with the Guidelines in the annual reports to ensure that the sample firms in this study that are subject to the Guidelines indeed disclose industry-specific information in their financial reports.

Second, the provisions of the industry-specific information disclosure guidelines stipulate that listed firms should disclose two aspects of information: (1) Information on the common characteristics and developing trends of the industry, including macroeconomic
situation, industrial standards, industrial policies, state and local tax policies, upstream and downstream industries, and market competition. This information accounts for a relatively small part of the provisions of the Guidelines. (2) Industry-specific and operational information that is unique to the firm. This information accounts for the majority of the provisions of the Guidelines, and are also based on (1). Table 2 provides summaries of some guidelines. As seen from Table 2, the provisions of the Guidelines generally cover the key information that reflects the firm’s industry characteristics and reveals the investment value and industry risks, which can improve the pertinence of information disclosure and effectively help suppliers understand the firm’s business model, core competitiveness, and unique risks.

Third, before signing the sale contract, the suppliers will conduct market investigation, leading the suppliers and the customers to become acquainted with each other relatively well. Therefore, the follow-up question is whether industry-specific information provides incremental value for the suppliers. On the one hand, the information disclosed by the customers to the suppliers might be limited or incomplete, so information asymmetry between the supplier and the customer remains severe. It is often the case that suppliers only know the financial circumstances of customers but know little about the industry-specific and operational information pertinent to customers. The latter will help suppliers comprehensively understand the business models, risk factors, performance drivers, and other industry-specific and operational characteristics of customers. On the other hand, industry-specific information disclosure can also result in strengthened external governance, which will enhance trade credit financing. This will be further analysed in the research hypothesis section.

3. Literature review and hypothesis development

3.1. Literature review

The literature mainly studies trade credit financing from the perspectives of demand and supply. From the perspective of customer demand, when a business is subject to credit rationing, trade credit is an important alternative financing method for firms (Lu & Yang, 2011; Petersen & Rajan, 1997). Rao and Jiang (2013) show that nonstate-owned firms are more constrained by credit allocation during periods of monetary policy tightening, so these firms use trade credit as an alternative to bank credit to make up for the funding gap. Kong et al. (2021) also find that when the availability of loans for small and micro-enterprises increases, the demand for trade credit significantly decreases. From the perspective of suppliers, trade credit can reduce the transaction cost of frequent payments (Ferris, 1981) and reduce information asymmetry between suppliers and customers (Cheng & Pike, 2003). In addition, when the customers’ credit qualification is better or when the customers hold a strong position in the product market, the suppliers are willing to provide more trade credit (Fabbri & Menichini, 2010; Giannetti et al., 2011; Zhang et al., 2012).

The factors influencing trade credit financing can be summarised from the following aspects: (1) Macro monetary policy, financial environment, and economic uncertainty. Lu and Yang (2011) find that trade credit financing is significantly associated with monetary policy. They posit that alternative financing theory and buyer’s market theory can
| No. of Guidelines | Industry | Industry-specific information |
|-------------------|----------|-----------------------------|
| SSE No. 2 Guidelines | Real Estate | Market position, competitive advantage, market share, business model, real estate reserves, investment and financing development plans, sales situation, financial data and accounting policies related to industry characteristics, etc. |
| SSE No. 5 Guidelines | Retail | Market position and competitive advantage, business model, store distribution and changes, store efficiency, warehousing and logistics, online sales, customer characteristics or categories, capital expenditure, investment and financing plans, financial data and accounting policies related to industry characteristics, etc. |
| SSE No. 7 Guidelines | Pharmaceutical manufacturing | Market position, competitive advantages and disadvantages, basic situation of drugs (production), drug list inclusion, research and development, drug batch number progress, product winning bids, business and sales model, sales channels, customer types and distribution, etc. |
| SSE No. 18 Guidelines | Chemical industry | Industry status, business model, R&D innovation, procurement model and cost, production process, process management, capacity and start-up, sales model, pricing strategy, safety production and environmental protection, etc. |
| ChiNext Board in SZSE No. 2 Guidelines | Biopharmaceutical, Photovoltaic | Classification of drug projects in the research and development, production and sales, drug research and development and registration, test approval, new drug certificate, drug production licence approval and other qualification licencing documents, drug basic information and acceptance approval, risks, etc. |
| Main Board and SME Board in SZSE No. 7 Guidelines | Civil engineering construction | Market competitive advantage, qualification and deadline, business model, risk, unfinished projects, settled projects, overseas projects, cost composition quality control, financing, production safety, major projects, etc. |
| Main Board and SME Board in SZSE No. 12 Guidelines | Software & IT services | Segmented by industry operating performance, contract situation, operating seasonality, R&D capitalisation, compensation and equity incentives, customer and renewal rates, business qualifications and certifications, revenue cost composition and taxation in subdivisions, etc. |
| Main Board and SME Board in SZSE No. 16 Guidelines | Automobile manufacturing | Industry position, business model, production capacity, sales model, auto finance, emerging business, risk, new energy business, etc. |

separately and reasonably explain trade credit in the period of tight and easing monetary policies in China. Zhong et al. (2022) find that financial inclusion in the digital age increases the direct financing of small and medium-sized firms and reduces trade credit financing from upstream and downstream firms. S. Chen and Liu (2018) show that an increase in economic policy uncertainty significantly reduces the trade credit provided by firms by influencing the external financing environment and internal business uncertainty. (2) Market position and product market competition. Zhang et al. (2012) suggest that a strong market position can help firms obtain more trade credit. Chen (2017) finds that firms provide more trade credit to customers when customer concentration is higher, indicating pressure from customers as an important driver of trade credit. (3) Financial and nonfinancial characteristics of the firms. These characteristics include firm size, business life cycle (Long et al., 1993), property rights (Yu & Pan, 2010), tangible assets and social networks of executives (Tang et al., 2017), corporate strategy (Chu, 2021), and geographical agglomeration (Wang & Sheng, 2013). (4) Internal and external governance factors. High-quality internal control and market value management enable firms to obtain more
trade credit (Zheng et al., 2013). High audit quality can enhance trade credit (Chen & Wang, 2010), while modified audit opinions negatively impact firms’ access to trade credit (Zhang, 2013). External governance and monitoring are also important factors affecting the supply of trade credit. Wang and Li (2022) find that asset specificity can significantly improve firm’s trade credit financing. In terms of external regulatory penalties, nonpunitive supervision (Wang et al., 2020) and corporate violation penalties (Chen & Wang, 2014; Xiu et al., 2021) have significantly reduced the trade credit of regulated or penalised firms. (5) Quality of information disclosure. Chen et al. (2014) find that a higher information disclosure quality by firms leads to more trade credit, indicating that corporate information disclosure can reduce default risk and credit risk.

The literature has not only analysed factors affecting the trade credit of firms from the perspective of external conditions such as macro monetary policy, financial environment, economic uncertainty, market position, and product market competition, but also considered the firm’s financial and nonfinancial characteristics, internal and external governance factors, and information disclosure quality. However, few studies have examined the impact of industry-specific information disclosure on trade credit financing. This paper attempts to fill this gap by examining the impact of the Industry Information Disclosure Guidelines.

3.2. Research hypothesis

Based on the previous literature, this paper conjectures that industry-specific information disclosure significantly influences trade credit financing through two mechanisms: the information effect and the governance effect.

The industry-specific information disclosed by the customers is very important for the decision-making of the suppliers, and can alleviate the information asymmetry between them through the information effect. The cyclical buy-and-sell transactions give suppliers an information advantage (Petersen & Rajan, 1997). The information disclosed by the customers affects the information environment of the suppliers, thereby resulting in economic consequences. Previous studies have shown that information disclosure by customers affects the stock price synchronisation of the supplier (Li & Wang, 2016), and that the earnings information of customers is also transmitted to their suppliers (Wei et al., 2018). Peng and Wang (2018) find that customers’ stock price crash risk has a contagious effect on suppliers. Chen et al. (2021) find that high-quality earnings information by the customers can help the suppliers make better decisions and improve their investment efficiency. These studies show that information disclosure in the capital market is important for suppliers so that they can obtain information about their customers’ operations, which helps suppliers understand the capability of their customers to pay (Cheng & Pike, 2003). Furthermore, market imperfections push sellers to act as financial intermediaries, and they require high returns for their liquidity reserves when providing trade credit (Emery, 1984). Schwartz (1974) and Ferris (1981) argue that trade credit becomes a financing method rather than only serving trading purposes when the credit period increases, and under such circumstances, suppliers become more concerned about the credit risk of customers. When providing trade credit, the suppliers neither charge interest nor require collateral, so they are exposed to high credit risk and can suffer huge losses once the customers default (Wu et al., 2014). Chen et al. (2014) find that a higher information disclosure quality by firms leads to
more trade credit, indicating that firm information disclosure can help suppliers better evaluate customers’ credit risk. Industry-specific information is useful in credit risk assessment, especially when information asymmetry is severe. Yang et al. (2020) suggest that customers’ information has a spillover effect on the supply chain. More disclosure of business information can reduce the information-searching cost of suppliers, helping them precisely predict market demand and making efficient production decisions. Therefore, industry-specific information disclosure can mitigate the information asymmetry between customers and suppliers, help suppliers better assess customers’ default risk, and reduce the demand uncertainty faced by suppliers (Yang et al., 2020), thereby prompting suppliers to offer more trade credit to customers.

Industry-specific information disclosure can promote external monitoring by analysts, institutional investors and regulators, and this improves the external governance of firms. First, given the important intermediary role of analysts in information interpretation and transmission (Asquith et al., 2005; Ivkovic & Jegadeesh, 2004), more idiosyncratic information disclosed by firms will trigger more analyst reports. Analyst coverage is an indicator of a firm’s information environment, representing investor attention (Lang et al., 2003). Industry-specific information disclosure will encourage more analysts to follow the firm and attract more investor attention, which can impose governance effect on the firm. Second, a large body of literature has found that institutional investors have governance effect on information disclosure. Institutional investors make great efforts to collect information to reduce agency costs and monitor managers (Tan & Lin, 2016). Institutional investors need to comprehensively understand the firm’s financial situation through corporate information disclosure and various other information communication channels to make better investment decisions (Chidambaran & John, 1998). Industry-specific information attracts more investor attention and increases the shareholding of institutional investors, thereby resulting in governance effect. Third, the Guidelines issued by the Shanghai Stock Exchange and the Shenzhen Stock Exchange are important for the improvement of information disclosure quality and corporate governance (Guo Fa [2020] No. 14). Guidelines also improve the regulatory efficiency of the exchanges and enhance the effectiveness and pertinence of the firm’s internal governance. The exchanges will consider the firm’s compliance with the Guidelines when evaluating its refinancing and merger and acquisition. According to the Q&A in the press conference on the Guidelines held by the Shanghai Stock Exchange and the Shenzhen Stock Exchange, industry-specific information disclosure has become an important basis for the two exchanges to enforce industry regulation and improve the effectiveness of supervision.1

Therefore, the Guidelines will reduce the opportunistic behaviours of customers, promote corporate integrity, encourage truthful information disclosure, strengthen external governance, and increase the credit quality of customers, resulting in the willingness of suppliers to provide more trade credit to customers.

The logical framework of the information effect and governance effect discussed above is shown in Figure 1.

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1For details, see Press Conference of the Shanghai Stock Exchange (http://www.sse.com.cn/aboutus/mediacenter/conference/c_c_20160603_4124392.shtml) and Q&A of Shenzhen Stock Exchange (http://www.szse.cn/aboutus/trends/news/t20191027_571575.html).
In sum, based on the discussions about the mechanisms of the information effect and the governance effect, this paper proposes the following hypothesis:

H1: Firms that disclose industry-specific information following the Guidelines will obtain more trade credit from their suppliers.

4. Research design

4.1. Sample selection and data sources

Our sample includes Chinese listed companies from 2007–2019. The financial data are collected from the China Stock Market & Accounting Research Database (CSMAR). I removed firm-year observations with missing data and with abnormal trading status signs such as ST, *ST, and PT. I also removed firms from the financial industries. The final sample includes 30,028 firm-year observations, covering 3,509 unique public firms. To minimise the effect of outliers, I winsorise all the continuous variables at the 1% and 99% levels.

4.2. Model specification and variable definition

Since the industry-specific information disclosure guidelines for different industries are implemented by the two exchanges at different time points, I employ a staggered difference-in-difference model to test my hypothesis, which can effectively mitigate the endogenous problems caused by symbiotic events. At the same time, firm and year fixed effects are controlled in the regression, with standard errors clustered at firm level, to further reduce endogeneity, heterogeneity, autocorrelation and other issues.

To examine the impact of the Guidelines on corporate financing through trade credit while controlling for other firm characteristics, I estimate the following regression model suggested by Lu and Yang (2011), Wu et al. (2014), and Kong et al. (2020):
\[
CREDIT_{i,t} = \beta_0 + \beta_1 \text{Policy}_{i,t} + \beta_2 \text{Size}_{i,t} + \beta_3 \text{Age}_{i,t} + \beta_4 \text{PPE}_{i,t} + \beta_5 \text{ROA}_{i,t} + \\
\beta_6 \text{EBIT}_{i,t} + \beta_7 \text{Cash}_{i,t} + \beta_8 \text{Bankloan}_{i,t} + \beta_9 \text{Lev}_{i,t} + \beta_{10} \text{Growth}_{i,t} + \beta_{11} \text{SOE}_{i,t} + \beta_{12} \text{Top1}_{i,t} + \\
\text{FirmFE} + \text{YearFE} + \epsilon_{i,t}
\]

(1)

In Model (1), the dependent variable is \(CREDIT_{i,t}\), which is measured as the ratio of accounts payable to total assets. The key independent variable is \(\text{Policy}_{i,t}\), which is a dummy variable that takes the value of 1 for the years when and after a firm began to disclose industry-specific information and 0 otherwise. In accordance with the literature (Kong et al., 2020; Tang et al., 2017; Wu et al., 2014; Zhang et al., 2012), I include control variables to capture other determinants of trade credit. Firm and year dummies are included in all regression models to control for firm- and year-specific fixed effects. The definition of each variable is summarised in Table 3.

5. Empirical results and analysis

5.1. Descriptive statistics

Table 4 displays the summary statistics of the sample. It shows that the average trade credit is 0.0912 and the standard deviation is 0.0708, which is similar to those reported in previous literature (Kong et al., 2020; Wu et al., 2014). The mean value of \(\text{Policy}\) is 0.2314. In addition, the average return on total assets for the sample is 4.08%. The average net cash flow from operating activities to total assets is 4.6%. The average leverage ratio is 43.01%. The average sales growth rate is 22.82%, and the average largest shareholding ratio is 35.3%.

5.2. Baseline results

I examine whether industry-specific information disclosure influences trade credit financing from suppliers and report the baseline regression results in Table 5. Column 1 of Table 5 only includes the dependent variable \(CREDIT\) and the key independent variable \(\text{Policy}\), whereas Column 2 adds the control variables. Table 5 shows that the coefficients on \(\text{Policy}\) in Columns 1–2 are positive and statistically significant, at least at the 5% level, which suggests that firms disclosing industry-specific information are granted more trade credit, providing preliminary support for Hypothesis 1.

The coefficients of the control variables are consistent with my expectations. For example, the coefficients of \(\text{PPE}\), \(\text{ROA}\), and \(\text{Growth}\) are significantly positive, indicating that firms with more collateral assets, higher profitability, and higher sales growth rates obtain more trade credit from suppliers. The coefficient of \(\text{Bankloan}\) is significantly negative, indicating the substitutability relationship between bank credit and trade credit, which is in line with the substitution hypothesis proposed by Petersen and Rajan (1997) and the empirical evidence of Chinese enterprises (Kong et al., 2021).
5.3. Robustness test

5.3.1. Endogeneity

First, I construct a PSM sample to reduce potential bias caused by functional form misspecification and unbalanced sample distribution. The PSM+DID approach allows for a more robust test of the hypothesis. The firms that disclose industry-specific information belong to the treat group. The 1:1 nearest neighbour method is used to identify the matched control firms. Rosenbaum and Rubin (1983) argue that the matching effect is better when the proportion of deviations does not exceed 20%. Table 6 shows that the maximum absolute value of the standardised deviation of all the variables after matching is 16.99%, and the t-test results for most variables are not significant. At the same time, the variance ratio (the V(T)/V(C) index) generally falls within the range of [0.82, 1.1]. The B value is less than 25%, and the R value falls within the range of [0.5, 2]. These results generally indicate that the matching procedure has effectively increased the similarity between treat and control firms. Column 1 in Table 7 reports the regression results of the PSM sample. The coefficient of Policy is significantly positive at the 10% level, which indicates that the baseline results in this paper remain robust to the PSM approach.

Second, I further conduct the ‘parallel trends’ assumption test to mitigate the erroneous inference concern of my difference-in-difference estimators (see, Table 7). Specifically, I insert the dummy variables of Policy_{t-2}, Policy_{t-1}, Policy_{t} and Policy_{t+1} into Model (1), where Policy_{t-2} and Policy_{t-1} are dummy variables which separately indicate two years and one year before firms disclosed industry-specific information, while Policy_{t} and Policy_{t+1} separately indicate the year when firms began to disclose industry-specific information and the years when firms disclosed such information for more than one year. Column 2 in Table 7 reveals that the coefficients on Policy_{t-2} and Policy_{t-1} are all insignificant in the regressions, while the coefficients on Policy_{t} and Policy_{t+1} are significantly positive at the 10% level, suggesting that the average trade credit changes of treat and control firms are not significantly different prior to the policy, supporting the parallel trends assumption.

Third, I also conduct a placebo test by replacing the policy indicators for each firm with random ones that are automatically generated by the software, following Cornaggia and Li (2019). Then, I repeat the baseline regression and report the results

| Table 3. Definitions of variables. |
|------------------------------------|
| Variable | Description                                      |
| CREDIT  | Ratio of accounts payable to total assets.       |
| Policy  | Dummy variable that takes the value of 1 for the years when and after a firm began to disclose industry-specific information, and 0 otherwise. |
| Size    | Natural logarithm of total assets                |
| Age     | Natural logarithm of the years since the firm was founded plus one |
| PPE     | Total fixed assets over total assets             |
| ROA     | Net profit over total assets                     |
| EBIT    | Total earnings before tax and interest over total assets |
| Cash    | Total operating cash flows over total assets     |
| Bankloan| Sum of short-term debt and long-term debt over total assets |
| Lev     | Total liabilities over total assets              |
| Growth  | Sales growth rate                                |
| SOE     | Dummy variable that takes the value of 1 if firm is a state-owned enterprise and 0 otherwise |
| Top1    | Shareholding ratio of the largest shareholder    |
of the placebo test in Column 3 of Table 7. The coefficient for placebo Policy is negative, much smaller, and statistically insignificant. The placebo test results mitigate the concern that my findings are driven by omitted variables that coincide with the information disclosure policy.
Finally, the Heckman two-stage method is used to mitigate the self-selection problem. In the first stage, I construct a probit regression model in which the variables that may affect industry-specific information disclosure are controlled, such as size (Size), age of the firm (Age), proportion of fixed assets (PPE), return on total assets (ROA), and industry and year fixed effects. I use industry size as the identifying variable in the first-stage probit model. Industries comprising more listed firms have more significant operational characteristics and more mature business models. Thus, firms from larger industries are more likely to be required to disclose industry-specific information. Based on the results from the first-stage probit regression, I calculate the inverse Mills ratio (IMR) and then include IMR in the second-stage regression. The results of the second-stage regression show that the coefficient of the IMR is significantly negative (Column 4 of Table 7), suggesting that the baseline regression results suffer from selection bias problem. The coefficient of Policy continues to be significantly positive, which indicates that the main results are still robust even after adjusting for potential selection bias.

### Table 6. Results for the PSM procedure test.

| Variable | Mean | t-test | V (T) /V (C) |
|----------|------|--------|--------------|
|          | Treat | Control | %bias | t | p>|t| | |
| Size     | 21.9410 | 21.8010 | 11.5000 | 8.7100 | 0.0000 | 1.02 |
| Age      | 2.7718  | 2.7365  | 9.3000  | 7.0500  | 0.0000  | 0.82* |
| PPE      | 0.2219  | 0.2240  | −1.3000 | −0.9600 | 0.3390  | 1.10* |
| ROA      | 0.0419  | 0.0422  | −0.5000 | −0.4000 | 0.6880  | 0.92* |
| EBIT     | 0.0587  | 0.0588  | −0.1000 | −0.1000 | 0.9200  | 0.91* |
| Cash     | 0.0466  | 0.0466  | −0.1000 | −0.0700 | 0.9440  | 0.98 |
| Bankloan | 0.1403  | 0.1380  | 1.7000  | 1.2500  | 0.2120  | 0.99 |
| Lev      | 0.4161  | 0.3965  | 9.5000  | 7.1400  | 0.0000  | 1.02 |
| Growth   | 0.1922  | 0.2098  | −2.1000 | −1.5500 | 0.1200  | 0.90* |
| SOE      | 0.4213  | 0.3394  | 16.9000 | 12.7700 | 0.0000  | 1.09* |
| Top1     | 0.3506  | 0.3463  | 2.9000  | 2.2200  | 0.0260  | 1.03 |

The numbers between parentheses are t-statistics that are based on standard errors clustered by firm. *, **, and *** indicate that the coefficients are significant at 10%, 5%, and 1%, respectively.

### Table 7. Results for endogeneity tests.

|        | CREDIT | CREDIT | CREDIT | CREDIT |
|--------|--------|--------|--------|--------|
|        | (1)    | (2)    | (3)    | (4)    |
| Policy | 0.0029* | −0.0002 | 0.0040*** |
|        | (1.814) | (−0.3552) | (3.1781) |
| Policy | 0.0014 | 0.0023 | 0.0033* |
| Policy | (0.9890) | (1.3559) | (1.6462) |
| Policy | 0.0033* | 0.0043* |
|        | (1.8014) | (1.8014) |
| IMR    | | | −0.0095*** |
|        | | | (−3.5658) |
| Controls | Yes    | Yes    | Yes    | Yes    |
| Firm and year fixed effects | Yes | Yes | Yes | Yes |
| N      | 22798  | 22798  | 30028  | 21025  |
| Adjusted R2 | 0.7711 | 0.7711 | 0.7688 | 0.7926 |
5.3.2. Alternative measures of dependent variables

In the above analysis, I use ‘accounts payable’ to measure the trade credit provided by suppliers. Four alternative measures of trade credit are also frequently used in the literature. I replace the measurement of the dependent variable with new measurements for the robustness tests, including accounts payable/total liability (L_CREDIT), accounts payable with terms of more than one year/total assets (FIN_CREDIT), (accounts payable – accounts receivable)/total assets (NET_CREDIT), and (accounts payable + notes payable + accounts received in advance – accounts receivable – notes receivable – prepaid accounts)/total assets (CREDIT_TC). The results are shown in Columns 1–4 of Table 8. The coefficients of Policy are between 0.0028 and 0.0126, and are significant at the levels of 1%, 1%, 5%, and 10%, respectively. The results above indicate that the coefficients of Policy are still significant when alternative dependent variables are used, which confirms the robustness of the baseline results.

5.3.3. Alternative measures of independent variables

After the implementation of the Guidelines, firms might choose to disclose different amounts of industry-specific information in financial reports. Therefore, I further examines how the extent to which a firm discloses industry-specific information influences its trade credit. I extract the text content from the ‘Industry-specific information’ section in the annual reports by Python software. Industry-specific information for firms listed on the Shenzhen Stock Exchange is scattered in their annual reports and are very difficult to separately extract, so I only focus on firms listed on the Shanghai Stock Exchange for this examination. I interact Policy in the baseline model with three continuous variables: the natural logarithm of number and word counts in ‘Industry-specific information’ section of the annual reports (Total), the natural logarithm of number counts (Num), and the natural logarithm of word counts (Word).

Table 9 reports the regression results. The coefficients of Policy×Total, Policy×Num, Policy×Word are significantly positive at the level of at least 10%, indicating that more industry-specific information disclosure increases the transparency of customers; thus, suppliers provide more trade credit. At the same time, the coefficient of Policy×Num is greater than the coefficient of Policy×Word, indicating that compared with texts, numbers are more important for suppliers to evaluate the credit risk of their customers.

5.3.4. Control for potential omitted variables

This paper further controls the variables of corporate governance, the firm’s market position, and the concentration of suppliers to examine the robustness of the results. These variables include: (1) Dual, which equals one when the chairman and the CEO are the same person and 0 otherwise; (2) Lndep, which equals the proportion of the independent directors on the board of the firm; (3) Board, which equals the natural logarithm of the number of board members; (4) MarketPower, which equals the proportion of the firm’s annual sales to the sum of the annual sales of all firms in the industry; and (5) Top5supplier, which equals the proportion of the total purchase amount of the top five suppliers disclosed in the annual report to the firm’s total purchase amount. Table 10 reports the regression results with the above control variables included. The coefficients of Policy are still significantly positive at the 5% level, indicating that the results are still robust after controlling for these variables. Among the above control
variables, the coefficient of MarketPower is significantly positive at the 1% level, indicating that firms with more market power in the industry receive more trade credit from suppliers, which is consistent with buyer’s market power theory (Zhang et al., 2012).

5.3.5. Other robustness tests
I also conduct other tests to ensure the robustness of the baseline results. First, I limit the sample period to 2013–2019 to exclude the potential bias caused by significant changes in security regulation since 2013. Second, since the two exchanges issued the Guidelines separately, I also repeat the regressions using samples from each exchange. Third, considering that the accounts payable in balance sheets are greatly affected by historical factors, I use the yearly change in accounts payable to total assets as the dependent variable. The results remain robust to all these tests.

6. Further analysis
6.1. Information transparency
This paper argues that industry-specific information disclosure increases firms’ trade credit through two mechanisms: the information effect and the governance effect. To test the information mechanism, I examine whether the effect of industry-specific information disclosure is more significant for firms with an opaque information environment. Information opacity is measured as cumulative accrued earnings management over the
Table 10. Results for adding more control variables.

|                  | CREDIT  | CREDIT  | CREDIT  |
|------------------|---------|---------|---------|
|                  | (1)     | (2)     | (3)     |
| Policy           | 0.0032**| 0.0032**| 0.0036**|
|                  | (2.4153)| (2.4031)| (2.3278)|
| Dual             | −0.0020 | −0.0019 | 0.0001  |
|                  | (−1.5995)| (−1.5692)| (0.0445)|
| Lndep            | 0.0014  | 0.0007  | 0.0018  |
|                  | (0.3305)| (0.1668)| (0.3269)|
| Board            | −0.0046 | −0.0067 | −0.0116 |
|                   | (−0.3830)| (−0.5562)| (−0.7280)|
| MarketPower      | 0.3728***| 0.4957***| 0.39848 |
|                  | (4.1020)| (3.9848)|        |
| TopSupplier      | −0.0005 |         |        |
|                   | (−0.1275)|        |        |
| Controls         | Yes     | Yes     | Yes     |
| Firm and year fixed effects | Yes | Yes | Yes |
| N                | 29480   | 29480   | 16921   |
| Adj_R2           | 0.7727  | 0.7735  | 0.8273  |

The numbers between parentheses are t-statistics that are based on standard errors clustered by firm. *, **, and *** indicate that the coefficients are significant at 10%, 5%, and 1%, respectively.

past three years. Based on previous literature (Hutton et al., 2009), I divide the sample into a High Opacity group and a Low Opacity group by the median value of information opacity. In Table 11, the coefficient on Policy is positive and significant at the 5% level for the High Opacity group (Column 1), while the coefficient on Policy is positive but insignificant for the Low Opacity group (Column 2) (p-value of Fisher’s permutation test<0.01). These results are consistent with the argument of the information effect that industry-specific information disclosure has a greater impact on trade credit for firms with poor information transparency.

6.2. Corporate governance

Corporate governance is also an important mechanism through which industry-specific information disclosure plays a role. I test the governance mechanism of industry-specific information disclosure by examining whether the effect is more significant for firms with weak corporate governance. I partition the sample by the median value of institutional shareholding, which is defined as the number of shares held by the institutional investors divided by the total number of shares. Columns 3 and 4 of Table 11 show that the coefficients on Policy are significantly positive and larger (p-value of Fisher’s permutation test<0.01) in magnitude for the low institutional shareholding group (Low INST) than for the high institutional shareholding group (High INST). The results are consistent with the conjecture of governance mechanism, which predicts that industry-specific information disclosure has a greater impact on trade credit in the case of weak corporate governance.

6.3. Financing constraints

From the perspective of suppliers, industry-specific information disclosed by customers can mitigate information asymmetry, promote external supervision and improve the external governance of firms. When customers’ information environment is improved
Table 11. Results for cross-sectional tests of information transparency and corporate governance.

|                | CREDIT | CREDIT | CREDIT | CREDIT |
|----------------|--------|--------|--------|--------|
|                | (1)    | (2)    | (3)    | (4)    |
|                | High Opacity | Low Opacity | High INST | Low INST |
| Policy         | 0.0052** | 0.0015 | 0.0000 | 0.0041** |
|                | (2.0892) | (0.8687) | (0.0010) | (2.2996) |
| Controls       | Yes    | Yes    | Yes    | Yes    |
| Firm and year fixed effects | Yes | Yes | Yes | Yes |
| N              | 11066  | 11073  | 14970  | 14977  |
| Adjusted R2    | 0.7442 | 0.8552 | 0.8071 | 0.7752 |
| Empirical p-value (high vs. low) | 0.000*** | 0.000*** |

The numbers between parentheses are t-statistics that are based on standard errors clustered by firm. ***, **, and * indicate that the coefficients are significant at 10%, 5%, and 1%, respectively. Empirical p-values indicate the significance level of the difference in coefficients between the two groups, obtained by 1000 autologous sampling procedures (bootstrap).

and external corporate governance is strengthened, suppliers might be willing to provide customers with more trade credit to promote the sales of goods as much as possible. Previous literature argues that trade credit is the result of the balance between the demand of customers and the supply of suppliers in the supply chain (Ge & Qiu, 2007; Lu & Yang, 2011). From the perspective of customers, this paper analyses the moderating effects of financial constraints and supplier concentration of customers.

When customers face external financial constraints, they will rely more on trade credit since they are unable to raise capital through traditional channels (Lu & Yang, 2011; Petersen & Rajan, 1997), which will prompt them to disclose more industry-specific information.

To test the impact of financial constraints, I utilise the KZ index proposed by Kaplan and Zingales (1997) as a measure of the degree to which a firm is constrained in financing, and its calculation formula is:

\[
KZ = -1.002 \times \text{Cashflow} - 39.368 \times \text{Dividends} - 1.315 \times \text{Cash} + 3.139 \times \text{Leverage} + 0.283 \times \text{Tobin}'q
\]

where Cash flow equals EBIT plus noncash payment, Dividends equals the cash dividend paid to shareholders, and Cash equals the cash holdings. All of the variables above are divided by total assets at the beginning of the year, and Leverage is the ratio of total liabilities to total assets at the beginning of the year. Tobin’q is the market value of a firm divided by the book value of the firm’s assets.

Columns 1 and 2 of Table 12 show that the coefficients on Policy are significantly positive and larger (p-value of Fisher’s permutation test<0.01) in magnitude for the group with higher financing constraints (High KZ) compared to the group with lower financing constraints (Low KZ). The results show that when firms are financially constrained, they have a stronger demand for trade credit and thus have the incentive to disclose more industry-specific information, which results in an increase in trade credit from their suppliers.
Table 12. Results for cross-sectional tests of financing constraints and supplier concentration.

|                  | CREDIT (1) | CREDIT (2) | CREDIT (3) | CREDIT (4) |
|------------------|------------|------------|------------|------------|
| Policy High KZ   | 0.0053**   | 0.00001    | 0.0017     | 0.0042*    |
| Policy Low KZ    | (2.3918)   | (0.6629)   | (0.7892)   | (2.0222)   |
| Controls Yes     | Yes        | Yes        | Yes        | Yes        |
| Firm and year fixed effects Yes | Yes | Yes | Yes |
| N                | 13532      | 13541      | 10741      | 10753      |
| Adjusted R2      | 0.7683     | 0.8209     | 0.7509     | 0.8303     |
| Empirical p-value (high vs. low) | 0.000***   | 0.017**    |            |            |

The numbers between parentheses are t-statistics that are based on standard errors clustered by firm. *, **, and *** indicate that the coefficients are significant at 10%, 5%, and 1%, respectively. Empirical p-values indicate the significance level of the difference in coefficients between the two groups, obtained by 1000 autologous sampling procedures (bootstrap).

6.4. Supplier concentration

Previous literature has found that the supplier-customer relationship will impact the scale and duration of trade credit financing (Ma et al., 2016). When the concentration of suppliers is high, customers can rely more on large suppliers; thus, information asymmetry between customers and large suppliers is low, and the communication of private information between them reduces the motivation of customers to disclose more industry-specific information (Chen & Liu, 2021). When the concentration of suppliers is low, information asymmetry between customers and small- and medium-sized suppliers is high; thus, customers are motivated to disclose more industry-specific information to promote trade credit financing.

So I expect that the effect of industry-specific information disclosure on trade credit will be more pronounced for firms with lower supplier concentration. The supplier concentration (Top5supplier) is defined as the total purchase amount from the top five suppliers disclosed in the annual report over the total purchase amount of the whole year. I divide the sample into two groups by the sample median: high supplier concentration (High Top5supplier) and low supplier concentration (Low Top5supplier). Columns 3 and 4 of Table 12 show that the coefficients on Policy are significantly positive and larger (p-value of Fisher’s permutation test<0.05) in magnitude for the low supplier concentration subsample compared to the high supplier concentration subsample. Therefore, the positive influence of disclosure on trade credit financing is more prominent in firms with weak supplier-customer relationships.

6.5. Institutional environment

Typically, no collateral or guarantee from third parties or financial intermediaries supports the transaction between a customer and a supplier. Therefore, trust between customers and suppliers plays an important role in the development of trade credit financing (Guiso

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2 I also analyse the association between industry-specific information disclosure and the stable relationship with suppliers. This paper refers to the calculation methods of Wang and Peng (2016) to construct the variable of stable relationship. Empirical results show that industry-specific information disclosure will weaken stable relationship with suppliers, indicating that new suppliers become one of the company’s top five suppliers. The finding is consistent with the information effect and governance effect that result in that a larger number of new suppliers are willing to provide more trade credit financing to customers.
et al., 2004; Wu et al., 2014). Formal institutions such as laws offer protection when there is dispute between customers and suppliers due to trade credit default. Therefore, the informal and formal institutional environments of the province where the customer is located might moderate the effect of industry-specific information disclosure on trade credit. I further test whether there is a substitutitional or complementary relationship between social trust, marketisation and industry-specific information disclosure.

The data of social trust come from a survey conducted by the ‘China Entrepreneur Survey System’ in 2001, which is provided by Zhang and Ke (2002). It surveys the trustworthiness of enterprises in China. In the survey, questionnaires were sent to more than 15,000 managers from companies located in 31 provinces, and over 4600 useful responses were received. The Social Trust Indicator is a weighted average of five-point sequential assignments based on respondents’ answers to the question: ‘According to your experience, could you list in order the top five provinces where the enterprises are most trustworthy?’ The degree of marketisation is taken from the marketisation index of Wang et al. (2021).

I separately regress firms in the high-trust group and the low-trust group and display the results in Columns 1 and 2 of Table 13. The coefficient on Policy in the high-trust group is significantly positive. I also divide the sample into two groups based on the median value of the marketisation index. The results in Columns 3 and 4 of Table 13 show that the coefficient of Policy is significantly positive at the level of 1% in the high marketisation group (High MI), while the coefficient of Policy is insignificant for the low marketisation group (low MI) (p-value of Fisher’s permutation test<0.01). These results suggest that the effect of industry-specific information disclosure is complementary to social trust and local marketisation.

### 7. Conclusions and implications

Using industry-specific disclosure regulation implemented by the Shanghai and Shenzhen Exchanges since 2013 as an exogenous shock, this paper examines the impact of industry-specific information disclosure on firms’ trade credit financing. This paper finds that firms that disclose industry-specific information obtain more

**Table 13. Results for cross-sectional tests of institutional environment.**

|                  | CREDIT | CREDIT | CREDIT | CREDIT |
|------------------|--------|--------|--------|--------|
|                  | (1)    | (2)    | (3)    | (4)    |
|                  | High Trust | Low Trust | High MI | Low MI |
| Policy           | 0.0071*** | -0.0001 | 0.0066*** | 0.0000 |
|                  | (3.5698) | (-0.0426) | (3.1616) | (0.0102) |
| Controls         | Yes    | Yes    | Yes    | Yes    |
| Firm and year fixed effects | Yes    | Yes    | Yes    | Yes    |
| N                | 14163 | 15774  | 13974  | 15963  |
| Adjusted R2      | 0.7964 | 0.7495 | 0.7919 | 0.7603 |
| Empirical p-value (high vs. low) | 0.000*** | 0.000*** |

The numbers between parentheses are t-statistics that are based on standard errors clustered by firm. *, **, and *** indicate that the coefficients are significant at 10%, 5%, and 1%, respectively. Empirical p-values indicate the significance level of the difference in coefficients between the two groups, obtained by 1000 autologous sampling procedures (bootstrap).
trade credit than firms that do not disclose industry-specific information. The finding is robust to including additional control variables, using propensity-score-matched samples, sample selection bias and alternative measures of dependent and independent variables. The positive effect of industry-specific information disclosure is more pronounced for firms with high information opacity and weak corporate governance, suggesting that the industry-specific information disclosure regulation issued by the two exchanges plays a role through information and governance mechanisms. Further analysis shows that the impact of industry-specific information disclosure on trade credit financing is more pronounced for firms with more financing constraints and lower concentration of suppliers, indicating that customers’ incentives also moderate the effect of industry-specific information disclosure. This paper also shows that industry-specific information disclosure is complementary to social trust and market-oriented institutions.

This paper contributes to the research on the economic consequences of regulation and determinants of trade credit and helps regulators and corporate stakeholders understand the real effect of industry-specific information disclosure regulation on corporate information disclosure and financing behaviours. The findings of this paper show that industry-specific information disclosure regulation has a positive effect on firm stakeholders by increasing trade credit financing from suppliers.

The findings of this paper potentially have several policy implications. First, the information disclosure reform has positive externalities. The two exchanges aim to improve the quality of information disclosure through industry-specific information disclosure regulation, which enhances the relevance and effectiveness of information disclosure. While shareholders are the main users of industry-specific information, industry-specific information disclosure also has positive spillover effects on the upstream and downstream firms within the supply chain. Second, exchanges should further strengthen the enforcement of industry-specific information disclosure regulation, as it plays an important role through the information effect and governance effect. Third, listed companies should pay attention to the disclosure of industry-specific information, because not only that it increases investors’ understanding of the firm’s characteristics and business model, thereby enhancing the firm’s market value but also helps solve the problem of information asymmetry between the firm and its stakeholders, thereby promoting the high-quality development of the firm.

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References

Asquith, P., Mikhail, M., & Au, A. (2005). Information content of equity analyst reports. Journal of Financial Economics, 75(2), 245–282. https://doi.org/10.1016/j.jfineco.2004.01.002

Beyer, A., Cohen, D.A., Lys, T.Z., & Walther, B.R. (2010). The financial reporting environment: Review of the recent literature. Journal of Accounting and Economics, 52(2–3), 296–343. https://doi.org/10.1016/j.jacceco.2010.10.003

Chen, Y., & Wang, Y. (2010). Audit quality, transaction cost and mode of trade credit. Auditing Research, 158(6), 77–85. (In Chinese). http://www.cnki.com.cn/article/CJFDOTAL-SJYZ201006015.htm

Chen, Y., Deng, T., & Zhang, C. (2014). Information disclosure, external market environment and commercial credit. Accounting and Economics Research, 28(6), 16–26. (In Chinese). https://doi.org/10.16314/j.cnki.31-2074/f.2014.06.003

Chen, Y., & Wang, R. (2014). Product market competition, corporate fraud and trade credit. Accounting and Economics Research, 28(5), 26–40. (In Chinese). https://doi.org/10.3969/j.1009-6701.2014.05.003

Chen, Z. (2017). Customer concentration, industry competition and business credit. Accounting Research, 361(11), 79–85. (In Chinese). https://doi.org/10.3969/j.1003-2886.2017.11.014

Chen, S., & Liu, X. (2018). Economic policy uncertainty and corporate trade credit extension. Journal of Financial Research, 455(5), 172–190. (In Chinese). http://www.jnrjy.org.cn/CN/Y2018/V455/I/172

Chen, W., & Li, G. (2018). Study on the implementation of industry information disclosure guidelines by Shenzhen companies. Securities Market Herald, 316(11), 60–65. (In Chinese). https://doi.org/10.3969/j.1009-6701.2014.06.002

Chen, T., Li, D., & Hong, J. (2021). Customers’ earnings quality and suppliers’ investment efficiency: Evidence from A-share listed companies. Nankai Business Review, 24(3), 193–201. (In Chinese). https://doi.org/10.3969/j.1008-3448.2021.03.019

Chen, X., & Liu, X. (2021). Supplier (customer) concentration and enterprise information disclosure violations. Nankai Business Review, 24 (6), 213–224. (In Chinese). http://www.cnki.com.cn/article/CJFDOTAL-LKGP202106022.htm

Cheng, N.S., & Pike, R. (2003). The trade credit decision: Evidence of UK firms. Managerial and Decision Economics, 24(6–7), 419–438. https://doi.org/10.1002/mde.1049

Chidambaram, N.K., & John, K. 1998. Relationship investing: Large shareholder monitoring with managerial cooperation. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.687462

Chu, Y. (2021). Corporate strategy and trade credit supply decision. Accounting and Economics Research, 35(6), 73–89. (In Chinese). https://doi.org/10.16314/j.cnki.31-2074/f.2021.06.006

Cornaggia, J., & Li, J.Y. (2019). The value of access to finance: Evidence from M&As. Journal of Financial Economics, 131(1), 232–250. https://doi.org/10.1016/j.jfineco.2018.09.003

Emery, G.W. (1984). A pure financial explanation for trade credit. Journal of Financial and Quantitative Analysis, 19(3), 271–285. https://doi.org/10.2307/2331090

Emery, G.W. (1987). An optimal financial response to variable demand. Journal of Financial and Quantitative Analysis, 22(2), 209–225. https://doi.org/10.2307/2330713

Fabbri, D., & Menichini, A.M.C. (2010). Trade credit, collateral liquidation and borrowing constraints. Journal of Financial Economics, 96(3), 413–432. https://doi.org/10.1016/j.jfineco.2010.02.010

Ferris, J.S. (1981). A transactions theory of trade credit use. The Quarterly Journal of Economics, 96(2), 243–270. https://doi.org/10.2307/1882390

Ge, Y., & Qiu, J. (2007). Financial development, bank discrimination and trade credit. Journal of Banking and Finance, 31(2), 513–530. https://doi.org/10.1016/j.jbankfin.2006.07.009

Gianetti, M., Burkart, M., & Ellingsen, T. (2011). What you sell is what you lend? explaining trade credit contracts. Review of Financial Studies, 24(4), 1261–1298. https://doi.org/10.1093/rfs/hhn096

Guiso, L., Sapienza, P., & Zingales, L. (2004). The role of social capital in financial development. American Economic Review, 94(3), 526–556. https://doi.org/10.1257/0002828041464498

Hutton, A.P., Marcus, A.J., & Tehranian, H. (2009). Opaque financial reports, R² and crash risk. Journal of Financial Economics, 94(1), 67–86. https://doi.org/10.1016/j.jfineco.2008.10.003
Ivkovic, Z., & Jegadeesh, N. (2004). The timing and value of forecast and recommendation revisions. *Journal of Financial Economics, 73*(3), 433–463. https://doi.org/10.1016/j.jfineco.2004.03.002

Kaplan, S., & Zingales, L. (1997). Do investment-cash flow sensitivities provide useful measures of financing constraints? *The Quarterly Journal of Economics, 112*(1), 169–215. https://doi.org/10.1162/003355397555163

Kong, D., Pan, Y., Tian, G.G., & Zhang, P. (2020). CEOs’ hometown connections and access to trade credit: Evidence from China. *Journal of Corporate Finance, 62*, 101574. https://doi.org/10.1016/j.jcorpfin.2020.101574

Kong, D., Li, H., & Yang, W. (2021). Targeted RRR cuts, loan availability, and the trade credit of SMEs: Evidence based on regression discontinuity design. *Journal of Financial Research, 48*(3), 77–94. (In Chinese). http://www.jryj.org.cn/CN/abstract/abstract852.shtml

Lang, M., Lins, K., & Miller, D. (2003). ADRs, analysts, and accuracy: Does cross listing in the United States improve a firm’s information environment and increase market value? *Journal of Accounting Research, 41*(2), 317–345. https://doi.org/10.1111/1475-679x.00106

Leuz, C., & Wysocki, P. (2016). The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research. *Journal of Accounting Research, 54*(2), 525–622. https://doi.org/10.1111/1475-679x.12115

Li, D., & Wang, D. (2016). The impact of supply chain customer information on firm’s information environment. *Journal of Financial Research, 48*(12), 191–206. (In Chinese). http://www.jryj.org.cn/CN/abstract/abstract333.shtml

Liu, Z., & Liu, H. (2021). Quarterly operating information disclosure and accounting information quality improvement: A research on the interaction of information in regulatory innovation. *Journal of Finance and Economics, 47*(4), 139–153. (In Chinese). https://doi.org/10.16538/j.cnki.jfe.20210114.101

Long, M.S., Malitz, I.B., & Ravid, S.A. (1993). Trade credit, quality guarantees and product marketability. *Financial Management, 22*(4), 117–127. https://doi.org/10.2307/3665582

Lu, Z., & Yang, D. (2011). Trade credit: Alternative financing, or buyer’s market? *Management World, 209*(4), 6–14. (In Chinese). https://doi.org/10.19744/j.cnki.11-1235/f.2011.04.003

Ma, L., Zhang, M., & Yin, Z. (2016). How does buyer-supplier relationship shape the trade credit: Evidence from China. *Economic Theory and Business Management, 36*(2), 98–112. (In Chinese). http://www.cnki.com.cn/Article/CJFDOTAL-JJLL201602009.htm

Peng, X., & Wang, X. (2018). Does customer stock price crash risk have the contagion effects on their suppliers? *Journal of Finance and Economics, 44*(2), 141–153. (In Chinese). https://doi.org/10.16538/j.cnki.jfe.2018.02.011

Petersen, M., & Rajan, R. (1997). Trade credit, theories and evidence. *Review of Financial Studies, 10*(3), 661–691. https://doi.org/10.1093/rfs/10.3.661

Rao, P., & Jiang, G. (2013). The impact of monetary policy on the relationship between bank loans and business credits. *Economic Research Journal, 48*(1), 68–82. (In Chinese). http://www.cnki.com.cn/Article/CJFDOTAL-JJY201301008.htm

Rosenbaum, P.R., & Rubin, D.B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika, 70*(1), 41–55. https://doi.org/10.1093/biomet/70.1.41

Schwartz, R.A. (1974). An economic model of trade credit. *Journal of Financial and Quantitative Analysis, 9*(4), 643–657. https://doi.org/10.2307/2329765

Tan, J., & Lin, Y. (2016). The governance role of institutional investors in information disclosure: Evidence from institutional investors’ corporate visits. *Nankai Business Review, 19*(5), 115–126. (In Chinese). http://www.cnki.com.cn/Article/CJFDOTAL-LKG201605011.htm

Tang, S., Wang, J., Ma, Y., & Sun, Z. (2017). Collaterals, social networks and trade credits. *Nankai Business Review, 20*(3), 353–364. (In Chinese). https://doi.org/10.3969/j.issn.1008-3448.2017.03.006

Wang, Y., & Sheng, D. (2013). Does the geographical agglomeration increase trade credit? *Management World, 232*(1), 101–114. (In Chinese). https://doi.org/10.19744/j.cnki.11-1235/f.2013.01.010

Wang, X., & Peng, X. (2016). Does stable relationship with customers improve the analyst forecasts about suppliers? *Journal of Financial Research, 43*(5), 156–172. (In Chinese). http://www.jryj.org.cn/CN/Y2016/V431/I5/156
Wang, Z., & Xia, Q. (2016). Supplier’s optimal trade credit policy with asymmetric information. *Journal of Systems & Management, 25*(4), 759–766. (In Chinese). http://www.cnki.com.cn/Article/CJFDTOTAL-XTGL201604022.htm

Wang, Y., He, R., & Liu, C. (2020). Does non-punitive regulation affect trade credit financing? evidence from the annual report inquiry letter. *Finance Research, 34*(4), 28–42. (In Chinese). https://doi.org/10.14115/j.cnki.10-1242/f.2020.04.004

Wang, X., Hu, L., & Fang, G. 2021. *Marketization index of China’s provinces: NERI report 2021*. Social Science Academic Press (China). (In Chinese).

Wang, L., & Li, K. (2022). Supply Chain finance and trade credit financing: From the perspective of asset specificity. *Journal of Finance and Economics, 48*(3), 154–168. (In Chinese). https://doi.org/10.16538/j.cnki.jfe.20211216.102

Wei, M., Yi, Z., & Li, J. (2018). The determinants of suppliers’ stock price reaction to their customers’ earnings announcements along the supply chain in China. *Accounting Research, 368*(6), 19–25. (In Chinese). https://doi.org/10.3969/j.1003-2886.2018.06.003

Wu, W., Firth, M., & Rui, O.M. (2014). Trust and the provision of trade credit. *Journal of Banking & Finance, 39*, 146–159. https://doi.org/10.1016/j.jbankfin.2013.11.019

Xiu, Z., Liu, R., & Yin, J. (2021). Financial fraud, supply chain concentration, and corporate trade credit financing. *Accounting Research, 399*(1), 82–99. (In Chinese). https://doi.org/10.3969/j.1003-2886.2021.01.007

Yang, Z., Tang, S., & Li, Z. (2020). Information disclosure in capital market, relational contract and bullwhip effect in supply chain: empirical research based on information spillover effect. *Management World, 322*(7), 89–105. (In Chinese). https://doi.org/10.19744/j.cnki.11-1235/f.2020.0105

Yu, M., & Pan, H. (2010). Financial development, commercial credit and product market competition. *Management World, 2018*(8), 117–129. (In Chinese). https://doi.org/10.19744/j.cnki.11-1235/f.2010.08.013

Zhang, W., & Ke, R. (2002). Trust in China: A cross-regional analysis. *Economic Research Journal, 37* (10), 59–70. (In Chinese). http://www.cnki.com.cn/Article/CJFDTOTAL-JJYJ200210007.htm

Zhang, X., Wang, J., & Zhu, J. (2012). Market power, trade credit and business financing. *Accounting Research, 298*(8), 58–65. (In Chinese). https://doi.org/10.3969/j.1003-2886.2012.08.008

Zhang, Y. (2013). Trust, Audit opinion and the trade credit financing. *Auditing Research, 175*(5), 72–79. (In Chinese). http://www.cnki.com.cn/Article/CJFDTOTAL-SJYZ201305012.htm

Zheng, J., Lin, Z., & Peng, L. (2013). Can higher quality of internal control increase trade credit financing? evidence from monetary policy changes. *Accounting Research, 308*(6), 62–68. (In Chinese). http://www.cnki.com.cn/Article/CJFDTOTAL-KJYJ201306011.htm

Zhong, K., Liang, P., Dong, X., & Wang, X. (2022). Digital financial inclusion and secondary allocation of commercial credit. *China’s Industrial Economics, (1)*, 170–188. (In Chinese). https://doi.org/10.3969/j.1006-480X.2022.01.010