State Ownership: A Benevolent Kitty or a Menacing Lion?

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December 27, 2024

Abstract

We provide firm-level evidence that a private exporter may lower its financing costs by introducing a small (kitty) share of state ownership. However, if the state acquires a lion share, the exporter becomes inefficient. Therefore, there exists an inverse U-shape relationship between a firm's export performance and its share of state ownership. Specifically, a firm with a small share of state ownership has better export performance than a pure private firm in financially dependent sectors. But this superior performance deteriorates quickly and even turns negative, as the share of state ownership increases. These results are not driven by firm, sector, or time characteristics. This paper reconciles these findings with the following fact: although a firm with state ownership is less liquidity constrained due to its low financing cost, while inefficiency, a frequent concomitant of state ownership, eventually outweighs this credit advantage as the share of state ownership rises.

JEL Classification: F1; G2
Keywords: Credit Constraints; State Ownership; Exports

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†Corresponding author. George Washington University, email:nxzhang@gwu.edu. We thank the conference participants of the Third Annual Conference of Government and Economics & Launch Ceremony for the Journal of Government and Economics at Tsinghua University, 2024 CES North America Conference at Bucknell University, the 13th annual Washington Area International Trade Symposium (Poster) at George Washington University and Midwest International Trade Conference 2024 Meeting at Indiana University-Purdue University Indianapolis for valuable comments. Financial support from China National Social Science Fund (Project #: 21AZD066) is gratefully acknowledged. Any remaining errors are the authors' responsibility.

1 Introduction

In recent years, more and more private enterprises are keen to "marry" state-owned capital in China in order to acquire low-cost financing. For example, among the top 20 Chinese environmental companies, only two remain fully private, highlighting a significant shift towards state partnerships. This growing entanglement with state-owned capital is a crucial aspect of modern corporate finance not only in the context of the Chinese market, necessitating a deeper understanding of its implications. [1]

The scale of state ownership has expanded remarkably, as evidenced by the growth of total assets of state-owned enterprises (SOEs), excluding financial firms, from 183.5 trillion yuan in 2017 to 308.3 trillion yuan in 2022, marking an 85.01% increase.[2] Despite this rapid expansion, the performance of SOEs has not paralleled their growth in asset size. In 2022, the revenue profit margin of SOEs was recorded at 5.2%, marking a significant decrease from previous years and underscoring that larger state involvement does not necessarily translate into better performance.[3] This substantial growth and mediocre performance of state-owned enterprises underline the increasing relevance of studies on state-owned capital. In addition, it is noteworthy that in the SOEs sample used for this study, the proportion of enterprises that have mixed ownership structure averages 67.4%.[4]

[1]There is substantial evidence indicating that the privatization of state-owned enterprises leads to significant improvements in productivity and profitability in Eastern European transition economies (Claessens, Djankov and Pohl, 1997; Earle and Telegdy, 2002; Brown, Earle and Vakhitov, 2006; Brown, Earle and Telegdy, 2006). Additionally, O'Toole, Morgenroth and Ha (2016); Baccini, Impullitti and Malesky (2019) focus on similar impacts in East Asian developing economies, such as Vietnam. Furthermore, Kowalski et al. (2013) shows that the market values and assets of SOEs account for a significant portion of the economy in BRIC countries.

[2]Source: 2017-2022 comprehensive report of the State Council on the management of state-owned assets

[3]Here is an anecdotal example. In February 2012, Beijing Sanju Environmental Protection & New Materials Co., Ltd. started to introduce state investment from Beijing municipal government. From 2013 to 2017, its annual growth rate reached about 104%. However, by August 2018, Beijing municipal government held 34.71% of Sanju Environmental Protection through both indirect and direct shareholding and it became the actual controller of this company. After that, this company went down. Based on its 2019 annual announcement, its operating profit decreased by 88.84% from the same period last year.

[4]The main database used in this paper is Annual Census of Industrial Enterprises (ACIE) of the China's National Bureau of Statistics, covering firms with annual sales above a given

These developments present a compelling case for the necessity of research on state-owned enterprises, particularly those with mixed ownership structures.

It is well documented in the literature that the Chinese government endows state ownership with implicit guarantees for bank borrowing (Song, Storesletten and Zilibotti, 2011). Therefore, firms with certain state ownership enjoy a comparative advantage in obtaining bank loans over pure private firms. As a result, exporting firms with certain state ownership are less credit-constrained and thus, they tend to export more than pure private firms, particularly in financially dependent sectors. Also, exporters with certain state-owned capital might endogenously select into financially dependent industries precisely due to their comparative advantage over pure private ones in those industries. However, conventional wisdom states that state-owned enterprises (SOEs) are less productive than private-owned enterprises (POEs) because of inefficient state intervention. Furthermore, SOEs tap additional resources while providing little economic value in return (Hsieh and Klenow, 2009; Hsieh and Song, 2015). Therefore, if a private exporter sacrifices too much share to the state, the firm may become inefficient in using available resources and require more funds to support its current operation. This makes it even more vulnerable to credit constraints. This paper thus shows a non-linear relationship between a company's exporting performance and its share of state ownership. In this way, we provide a new perspective for understanding state ownership — the perspective of credit constraints.

We use the rich panel dataset of Chinese manufacturing firms from 2000 - 2007, covering the whole universe of firm-level Chinese trade activities, to examine the impact of credit constraints on multiple trade margins. The empirical results show that firms with small (kitty) shares of state ownership are less subject to credit constraints, however, firm performance with high (lion) state-owned shares is even worse than private exporters. The turning point is 33%, consistent with the literature that around 30% is usually enough to be the largest shareholder and

threshold of 5 million yuan from the years 1998 to 2007.

thus have control over the company.[5] Also, we expand it further along other trade margins such as total sales, sales within each sector-destination market, number of products, and destinations. These results indicate that firms tend to introduce certain state-owned capital to take advantage of being less credit-constrained, while too much of state ownership makes them worse.

Specifically, we regress firm exports by year and industry on firms' share of state ownership, its square term, the interaction of firms' state-owned shares with industries' financial vulnerability (dependence) measures and the interaction of the square term with industries' financial vulnerability. Unobserved firm, time and sector characteristics are absorbed with firm fixed effects, sector fixed effects and year fixed effects. In addition, standard errors are clustered at the industry-year level. In this way, we can explore the exogenous difference in financial vulnerability across industries within firms exporting in multiple industries. Therefore, the results implicitly suggest how the ownership structure of firms is allocated across sectors with various financial dependencies.

To mitigate potential concerns related to sample selection and omitted variable biases, we augment the model with a rich set of fixed effects, including firm-year fixed effects and sector fixed effects to account for changes in firm characteristics over time. Besides, four essential controls are incorporated in the baseline regressions: the interaction of firm size with the sector's financial vulnerability, the interaction of companies' foreign capital status with financial vulnerability, the interaction of companies' processing trade indicator with financial vulnerability and the interaction of companies' productivity with financial vulnerability. The rationale to include these four sets of control variables is as follows. We recognize that bigger and more productive firms are less credit-constrained and thus export more in financially vulnerable sectors. In addition,

[5] La Porta, Lopez-de Silanes and Shleifer (1999); Claessens, Djankov and Lang (2000) show that control of East Asian corporations can be achieved with significantly less than an absolute majority share of the stock, as the probability of being a single controlling owner through holding only 20% of the stock is very high. For China, Gul, Kim and Qiu (2010) shows that over 50% of firms have the percentage of shareholdings by the largest shareholders in 20%-50%. In addition, the median of the largest shareholder's holding in China's listed companies is 42.61% (Chen, Firth and Xu, 2009).

since multinational companies (MNC) subsidiaries can tap external funding from their parent company or gain access to foreign capital markets (Manova, Wei and Zhang, 2015), they are less credit-constrained as well. Furthermore, firms engaged in processing trade are less credit-constrained because this trade pattern entails lower upfront costs and thus has less working capital needs (Li, Ouyang and Zhang, 2023; Manova and Yu, 2017).

Moreover, we investigate the impact of credit constraints on firms' exports across multiple dimensions, including country-industry-year and product-year. The number of markets defined on diverse standards also serves as the outcome variable to illuminate this effect in both extensive and intensive margins. To provide additional support for the credit mechanism, we demonstrate that firms with state ownership exhibit superior performance not only in financially more vulnerable sectors but also in scenarios where firms confront elevated export costs by introducing a refined version variable combining both financial vulnerability and trade cost. In addition, a set of robustness regressions is conducted to affirm that our hypothesis remains robust across varying factors such as the pre-existence of state ownership, different measurements of financial vulnerability, and potential variations in power relationships. We then identify two mechanisms through which state ownership affects firms' performance. First, firms with a higher share of state ownership tend to receive more credit than others, owing to implicit government guarantees. Second, these firms also suffer more from inefficiencies in credit utilization compared to their counterparts. To provide additional evidence for the heterogeneity analysis of the baseline results, we further explore whether our baseline results vary with different productivity levels, trade modes, firm sizes, foreign firms, government monopolized industries and provinces' financial conditions.

To motivate our empirical practices, this paper provides a Melitz (2003) type theoretical model to analyze the impact of state ownership on firms' export activities under credit constraints. In the model, firms' external financing demands depend on their sectors and share of state ownership. We incorporate a share

of state ownership and credit constraints into a heterogeneous-agent model and investigate how state ownership affects firms' exports through credit constraints through two mechanisms. The first is the benefit side of state ownership. Since state ownership lowers firms' financing costs, firms with a small share of state ownership are less credit-constrained and thus export more in financially vulnerable sectors. The second is the cost side. As the share of state ownership keeps increasing, the efficiency loss accompanied by the state's intervention in firms' use of external capital eventually outweighs the financing advantage caused by lower cost. Therefore, the results show a non-linear relationship between firms' share of state ownership and export value in financially dependent sectors. Namely, firms with a share of state ownership lower than a cutoff point export systematically greater amounts in financially more dependent sectors, while firms with a share of state ownership higher than the cutoff point show worsening exporting performance in financially more dependent sectors.

This work adds to the related literature in the following ways. First, most of the existing literature, which studies state-owned enterprises versus private-owned enterprises (POEs), tend to focus on POEs having superior performance over SOEs in many aspects such as productivity, value-added, and profits (Shleifer, 1998; Dewenter and Malatesta, 2001; Megginson, Nash and Van Randenborgh, 1994; Megginson and Netter, 2001; Matuszak and Kabaciński, 2021). However, there is a significant fraction of firms that have a mixed ownership structure. We recognize the effect of state ownership on firms' performance as a non-linear pattern: a small share of state ownership could serve as an endowment to acquire low-cost financing in the exporting market, while too many shares sacrificed to the state leads to inefficiency and subsequent poor performance in financially dependent sectors. Second, we extend previous work on the impact of credit constraints on trade (Javorcik and Spatareanu, 2009; Manova, Wei and Zhang, 2015; Brooks and Dovis, 2020; Federico, Hassan and Rappoport, 2023; Kohn, Leibovici and Szkup, 2023; Li, Ouyang and Zhang, 2023). This paper supplements the existing studies focusing on the mechanism through which credit constraints

affect cross-border activities. We provide consistent evidence by identifying a new mechanism - share of state ownership interacting with variations in financial sensitivity across sectors. In addition, the results deepen the understanding of state ownership by revealing its nonlinear aspects.

The remainder of the paper is organized as follows. The next section provides a literature review on state ownership and credit constraints. Section 3 describes the data. Section 4 specifies the empirical model and analyzes the results. Section 5 outlines the theoretical framework while the final section concludes.

2 Literature Review

A growing body of evidence suggests that firms with a certain degree of state ownership often find it considerably easier to secure additional capital through bank borrowing compared to purely private enterprises (Brandt and Li, 2003; Huang et al., 2003; Bai, Lu and Tao, 2006; Li et al., 2008; Cull, Xu and Zhu, 2009; Gordon and Li, 2012; Song, Storesletten and Zilibotti, 2011; Cong et al., 2019*a*; Zhang and Liu, 2020). Notably, the landscape of credit allocation in China exhibits a distinct bias toward state-owned enterprises, wherein the ownership structure of firms becomes a pivotal determinant of their ability to access external loans. In this context, firms with state ownership are often associated with the benefit of soft budget constraints (Allen, Qian and Qian, 2005; Jefferson and Su, 2006; Poncet, Steingress and Vandenbussche, 2010; Chang et al., 2021). This characteristic indicates the notion that the ownership profile of a company plays a vital role in shaping its financial dynamics, overshadowing other factors such as performance metrics when it comes to securing external funding.

Conversely, purely private firms encounter discrimination from the banks in China, particularly from those banks owned by the state. The primary capital source for privately-owned firms, small and medium-sized enterprises, is associated with off-balance sheet lending facilitated by commercial banks or informal entities often referred to as "shadow banks" (Chen, He and Liu, 2020; Lu et al.,

2015). This predicament positions privately-owned enterprises (POEs) as more susceptible to credit constraints compared to state-owned enterprises (SOEs). Therefore, having a certain degree of state ownership can serve as a mechanism for firms to benefit from government guarantees, enabling them to access external loans from banks and mitigating their credit constraints relative to purely private firms (Cull et al., 2015; Lu et al., 2015; Song, Storesletten and Zilibotti, 2011).

Even though firms with a certain degree of state ownership enjoy more accessible credit, their overall performance tends to be worse than purely private firms. Existing research suggests that state-owned enterprises (SOEs) with a significant share of credit often exhibit lower productivity (Elliott and Zhou, 2013; Hsieh and Klenow, 2009; Hsieh and Song, 2015; Jefferson, Rawski and Zheng, 1996; Jefferson et al., 2000; Khandelwal, Schott and Wei, 2013; Song, Storesletten and Zilibotti, 2011; Zhang, Zhang and Zhao, 2001, 2002; Matuszak and Kabaciński, 2021). In addition, it is worth noting that political interference in decision-making is the leading reason why government investors are unattractive to private firms (Colonnelli, Li and Liu, 2024). Therefore, if one firm's state ownership overruns its private capital, the intervention of government would lead to a decline in efficiency in using capital, making the firm more credit-constrained, and potentially overriding the benefits derived from more accessible external capital.

Abundant evidence highlights the substantial impact of credit constraints on global trade dynamics (Chor and Manova, 2012; Iacovone et al., 2019; Manova, Wei and Zhang, 2015; Brooks and Dovis, 2020; Federico, Hassan and Rappoport, 2023; Kohn, Leibovici and Szkup, 2023; Li, Ouyang and Zhang, 2023). To establish the causal relationship between credit conditions and trade, researchers have also exploited exogenous shocks affecting firms' access to external finance (Amiti and Weinstein, 2011; Paravisini et al., 2015). Manova (2013) and Manova, Wei and Zhang (2015) illustrate that credit constraints hinder potentially profitable firms from entering the export market, primarily due to substantial fixed entry costs. The studies by Manova (2013) and Feenstra, Li and Yu (2014) indicate that credit market frictions elevate the productivity thresholds for exporting and di-

minish a firm's global sales. While access to a financial market holds significance across all sectors, distinctions arise in the reliance on external financing inherent in the manufacturing process for different sectors. Various sectors exhibit diverse abilities to secure additional funding by pledging tangible assets used in production as collateral (Claessens and Laeven, 2003; Manova, Wei and Zhang, 2015). This sectoral variation, plausibly exogenous to firms, serves as motivation for our empirical analyses. Specifically, in financially more vulnerable sectors, the impact of credit constraints on trade is exacerbated due to the heightened requirement for external capital. Thus, less credit-constrained firms can gain a comparative advantage in financially vulnerable sectors.

3 Data and Description

The empirical analysis primarily rely on two firm-level databases: trade data encompassing the entire spectrum of Chinese exporters and financial data for major industrial firms in China.

3.1 Firm Level Data

The first database utilized is the Chinese Customs Trade Statistics (CCTS), compiled by China's General Administration of Customs. This dataset encompasses details on each export and import transaction, featuring the eight-digit Harmonized System (HS) code of products, transaction destination, product unit, trade modes, export value, and more, spanning the years 2000 to 2013. We specifically select the on-board trade value, denoted as $TotalExport$. These records delineate the free-on-board value of firm exports categorized by product and destination for 226 countries and 5,155 products under the eight-digit HS code. In the process of data cleaning, we eliminate invalid firm identification numbers and invalid eight-digit HS codes, such as those containing non-numeric characters. Given our focus on evaluating the impact of credit constraints on a firm's export activities rather than import behavior, we exclude import data from the analysis.

Table 1: Descriptive Statistics

	Mean	Median	Std. Dev.	Min.	Max
A: By firm-sector-year					
$logExport_{fit}$	14.32	14.62	2.46	0	23.19
$log\#Destinations_{fit}$	2.28	2.48	1.18	0	5.07
$log\#Products_{fit}$	1.48	1.39	1.01	0	5.59
#Sectors per firm	5.22	4	3.77	1	19
#Firms per sector	35242.61	18852	51408.69	13	166440
B: By firm-sector-country-year					
$logExport_{fidt}$	11.38	11.43	2.73	0	22.80
#Destinations per firm	33.50	28	26.92	1	171
#Firms per sector-country	24494.04	2972	55339.66	1	166440
#Sectors per firm-country	2.82	2	2.53	1	19
#Destinations per firm-sector	28.39	22	25.19	1	170
#Products per firm-sector	13.24	13.24	17.14	1	313
C: Firm variable					
$State-ownedshares_{ft}$	0.026	0.025	0.14	0	1
$LogFirmSize_{ft}$	10.92	10.92	1.66	0	18.86
$Foreignshare_{ft}$	0.29	0.29	0.42	0	1
#Obs			5,791,608		

Notes: Descriptive statistics after matching with firm performance information. Data source: Calculations draw on Chinese Customs Trade Statistics (CCTS) and Annual Census of Industrial Enterprises (ACIE).

The second dataset employed in our analysis is the Annual Census of Industrial Enterprises (ACIE), sourced from China's National Bureau of Statistics, covering the period from 1998 to 2007. This dataset provides annual financial data and other crucial information for all firms engaged in exporting activities. It encompasses three key financial statements: the balance sheet, the income statement, and the cash flow statement. The dataset includes details such as firm name, industry, paid-in capital, state-owned capital, private capital, collectively owned capital, and legal person's capital, facilitating the construction of state-owned shares.

The summary statistics, presented in Table 1, reveal that the average annual log-export per firm stands at approximately 14.32. Each exporter engages in the export of 13.24 types of HS-6 products to an average of 28.39 destination markets spanning 5.22 sectors. In each industry, there are approximately 35,242

exporters. Moreover, within each sector-country pair, around 24,494 companies are in competition. On average, each firm-sector pair caters to 28.39 destinations. The annual state-owned share per firm, on average, is approximately 2.6%.

3.2 Financial Vulnerability Measure

Various dimensions of a firm's sensitivity to the accessibility of external capital are encapsulated through several indicators of an industry's financial vulnerability denoted as $FinVuln_i$. These metrics aim to represent diverse facets of a specific industry's production process that lie beyond the influence of individual firms. These indicators cover 20 US SIC two-digit sectors, which we align with Chinese HS eight-digit products. To mitigate dependence on nation-specific factors such as natural resources, our analysis is confined to manufacturing enterprises (US SIC 20-39) following Rajan and Zingales (1998). Using Compustat data incorporating all publicly traded US companies, we construct the $FinVuln_i$ indicators. To enhance result comparability, the five financial vulnerability metrics undergo standardization.

Four of five indicators serve to quantify a firm's reliance on external capital. Acknowledging the variations in the significance of upfront costs and the time gap between incurring variable costs and revenues across diverse sectors, these indicators offer insights into a firm's dependence on external capital.

First, we employ the total debt to tangible asset ratio ($DExtfin_i$) as a proxy for direct external finance dependence.[6] Another tool we utilize to estimate the duration of the production cycle and the required liquidity for inventory management is the ratio of inventories to sales ($Invent_i$). This ratio is associated with variable costs, signifying manufacturers' short-term working capital needs. The investment intensity, $CExp$, is gauged by the ratio of capital expenditures

[6]We opt for $DExtfin_i$ instead of $Extfin_i$ from Rajan and Zingales (1998) since $ExtFin_i$ does not consider whether the investment is financed through cash reserves or external debt. This limitation prevents it from directly indicating financing constraints and may instead reflect firms' preferences for internal or external financing, which could be linked to operational considerations.

Table 2: Industry Characteristics

Industrial Sectors	sic	# of firms	Dextfin	R&D	CExp	Invent	Tang
Food and kindred products	20	5116	0.86	0.01	0.12	0.11	0.36
Tobacco manufactures	21	10	1.13	0.00	0.16	0.24	0.27
Textile mill products	22	16525	0.87	0.01	0.10	0.18	0.31
Apparel and other textile products	23	3375	1.96	0.01	0.11	0.21	0.15
Lumber and wood products	24	2500	1.02	0.01	0.12	0.13	0.36
Furniture and fixtures	25	2260	0.92	0.01	0.10	0.15	0.29
Paper and allied products	26	4527	0.66	0.01	0.11	0.12	0.51
Printing and publishing	27	418	0.96	0.01	0.15	0.09	0.29
Chemicals and allied products	28	6567	1.00	0.04	0.18	0.15	0.28
Petroleum and coal products	29	481	0.73	0.00	0.15	0.09	0.57
Rubber and miscellaneous plastics	30	7990	0.86	0.01	0.12	0.15	0.34
Leather and leather products	31	1926	1.62	0.01	0.12	0.20	0.16
Stone, clay, glass, and concrete products	32	3025	0.58	0.01	0.11	0.14	0.48
Primary metal industries	33	2927	0.79	0.01	0.11	0.18	0.40
Fabricated metal products	34	6813	0.98	0.01	0.13	0.18	0.29
Industrial machinery and equipment	35	6661	1.52	0.04	0.21	0.22	0.21
Electrical and electronic equipment	36	7169	1.40	0.04	0.19	0.22	0.24
Transportation equipment	37	890	1.20	0.02	0.14	0.18	0.28
Instruments and related products	38	1447	1.54	0.06	0.24	0.23	0.20
Miscellaneous manufacturing industries	39	2140	1.71	0.02	0.14	0.21	0.20
mean			1.12	0.02	0.14	0.17	0.31
median			0.99	0.01	0.13	0.18	0.29
Standard Deviation			0.38	0.02	0.04	0.05	0.11

Notes: This table lists different sector measures of financial vulnerability used in the empirical analysis. All the financial vulnerability measures are constructed with the methodology of Rajan and Zingales (1998), which are averages over the 1980-1989 period for the median U.S. firms in each sector.

to net property, plant, and equipment. Moreover, to assess a firm's investment intensity in different categories of assets, we adopt the approach of Kroszner, Laeven and Klingebiel (2007) to formulate the ratio of R&D expenses over sales ($R\&D_i$), demonstrating whether a sector prioritizes substantial investment in research and development (R&D).

In contrast, the final indicator shows a company's capacity to access external capital. Acknowledging that various industries exhibit unique optimal asset structures for production, the fifth indicator of financial vulnerability is introduced. This metric is quantified by the proportion of tangible assets ($Tang_i$) that companies can leverage as collateral for loans relative to the total book value of assets. In this context, plant, property, and equipment (PPE) are deemed tangible assets.

It is crucial to highlight that the utilization of US data to compute these five measures is grounded in several reasons. First, the American financial system stands among the most advanced and cutting-edge globally. In the absence of credit constraints, American enterprises tend to exhibit behavior relatively close to their ideal asset structure and external capital usage. Second, choosing a comparable country ensures the exogeneity of the financial vulnerability measures, thereby enhancing the identification strategy. Lastly, the identification process does not mandate sectors in the US and China to demonstrate identical financial sensitivity. Instead, it aims to maintain a relatively consistent ranking of sectors across countries. Scholars such as Rajan and Zingales (1998), Claessens and Laeven (2003), and Kroszner, Laeven and Klingebiel (2007) assert that $FinVuln_i$ serves as a fair proxy for industry ranking globally, capturing a significant technological component inherent in a sector. This notion finds support in the observation that the measurements exhibit more substantial differences between sectors than between enterprises within a sector, and the ranking of sectors has remained largely constant over time. Nevertheless, we also calculate them using Chinese data for sensitivity tests.

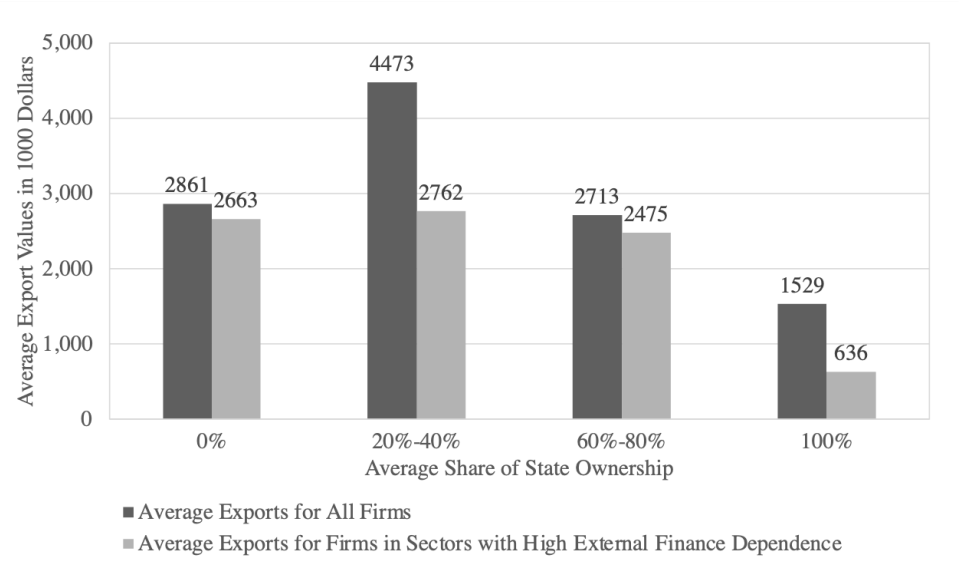
We also compute FPC_i, the first principal component of asset tangibility and direct external finance dependence, to streamline our analysis. This component ascends with $DExtFin_i$ and descends with $Tang_i$, signaling that industries are more financially vulnerable when they depend more on external capital and possess fewer tangible assets available as collateral. We choose FPC_i as our preferred measure in the empirical study because it incorporates the data from the two proxies associated with financial vulnerability. To recap, the five standard industry indicators have been widely used in prior research on trade, growth, and finance and seem suitable for our research design (Manova, Wei and Zhang, 2015; Manova, 2008, 2013; Li, Ouyang and Zhang, 2023; Iacovone et al., 2019; Carluccio and Fally, 2012; Tong and Wei, 2011; Bricongne et al., 2012; Chor and Manova, 2012).

3.3 A First Glimpse of Data

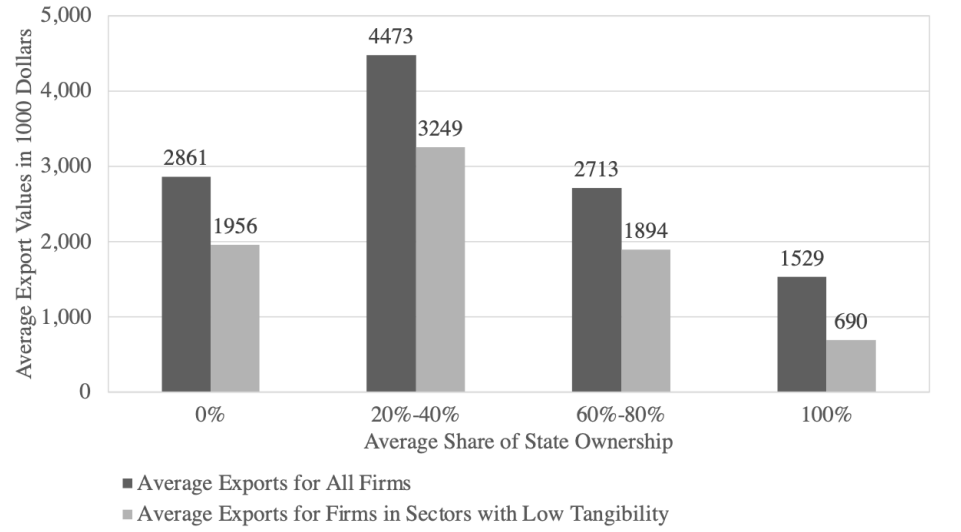
Average exports of firms are depicted in Figure 1 according to their share of state ownership, illustrating the inclination of firms to export less when they are in financially vulnerable sectors. In addition, firms tend to export more when they have a certain level of state ownership (e.g. 20% - 40%) and export less when the share of state ownership becomes dominant, especially for pure state-owned firms (i.e. 100%). This export advantage of firms with some state ownership and export disadvantage of firms with a dominant share of state ownership becomes evident in financially vulnerable sectors.

Sectors are divided into two groups in Figure 1 (a) and (b) respectively with direct external finance dependence or the ratio of tangible assets in total assets above and below the mean. The left bars (dark) represent the average export values in the full sample while the right bars (gray) show the average share of export values in the sample of financially vulnerable sectors, i.e. sectors with direct external finance dependence above the mean or sectors with the ratio of tangible assets in total assets below the mean.

Upon initial examination of trade activity in relation to sectors' financial vulnerability and state ownership, we observe consistent patterns that align with our assumptions. Specifically, as we can see from Figure 1, the average export value for all firms with a certain share of state ownership (i.e. 20% - 40%) is around 4.473 million dollars. The value decreases to 2.762 and 3.249 when we consider firms in financially vulnerable sectors. The same patterns also apply to firms with other shares of state ownership. In addition, in the full sample, firms with a share of state ownership of around 30% have triple the export values of pure state-owned firms' exports. This ratio comes to 4.34 and 4.71 for firms in the sectors with high external finance dependence and a low ratio of tangible assets to total assets. The difference between firms with a 20% - 40% share of state ownership and pure private firms also becomes more evident in the sample of firms in sectors with low tangibility.



(a) All firms *v.s.* Firms in Sectors with High External Finance Dependence



(b) All firms *v.s.* Firms in Sectors with low Tangibility

Figure 1: Average Exports of Firms in Various Share of State Ownership

Notes: Average export values are calculated based on the merged dataset of Chinese Customs Trade Statistics (CCTS) and Annual Census of Industrial Enterprises (ACIE). They are averages over 2000-2007 for all firms and for firms in financially vulnerable sectors.

4 Empirical Analysis

Our empirical design includes the following steps. First, we estimate the benchmark Equation (1) to examine the impact of credit constraints and state ownership on firm exports in both value and volume. We record evidence consistent with our hypotheses. Subsequently, we proceed to estimate Equation (2) with a stronger set of fixed effects, and Equation (3) with additional controls, offering further evidence to establish that our results resist easy attribution to confounding factors such as omitted variable biases.

Also, we investigate the impact of credit constraints on firms' exports in both extensive and intensive margins, shedding light on the underlying economic mechanisms. Six measures capturing the intensive and extensive margins of exports are incorporated to analyze specifications (1) and (2). To illuminate the influence of credit constraints on the intensive margin, we define exports at the country-sector-year level by specifying firm f's exports to destination d in industry i and year t, denoted as $Exports_{fdit}$. Besides, we identify firm exports at the product-year level as $Exports_{fht}$. We consider four measures of the extensive margin at the firm-sector-year level. Each of these measures serves as the outcome variable, encompassing the number of exporters' products ($\log \#Products_{fit}$ and $\log \#Products_{fidt}$), the number of destinations ($\log \#Dest_{fit}$), and the number of destination-product markets ($\log \#ProdDest_{fit}$).

Next, to provide additional support for the credit mechanism, we demonstrate that firms with state ownership exhibit superior performance not only in financially more vulnerable sectors but also in situations where firms face higher export costs. Consequently, we introduce a more refined variable, $TradeCost_d \times FinVuln_i$, which replaces $FinVuln_i$. A modified version of specifications (2) and (3) is then estimated using this new credit measure. $TradeCost_d$ is proxied by four variables: Log bilateral distance to China, indicating transportation costs of trade transactions; log nominal cost (per shipping container), log number of days, and log number of documents required to export to destination d, representing

fixed costs of shipping, setting up, and maintaining foreign distribution networks. All three proxies are obtained from the World Bank's Doing Business Report.

In our robustness check, we replace the current values of state-owned shares with lagged state-owned shares, as it may be that the pre-presence of the state-owned share status determines the effect of state ownership on financial conditions. Subsequently, we recalculate the five measures of financial vulnerability at the 3-digit SIC code level to further test our results. In addition, acknowledging the possible discrepancies between Chinese and US fundamentals, we compute sectors' financial vulnerability, substituting the US measures with Chinese indicators. This reassessment intends to reexamine the impact of state ownership and credit constraints on trade activities, considering variations in economic conditions between the two countries. Finally, we test the effect of state capital's linear term, cubic term and financing constraints on exports and find that there is no consistently significant linear relationship between state ownership share and export performance in financially more vulnerable sectors and the inverse "U" shape still holds within the range (0, 1).

Our analysis then identifies two primary mechanisms by which state ownership influences firm performance. Firstly, firms with a higher share of state ownership typically secure more credit due to implicit government guarantees. To explore the positive effect of state ownership on credit availability, we use $Credit_{ft}$ as dependent variable. Secondly, despite these financing benefits, firms with significant state ownership suffer from inefficiencies in credit utilization. We replace dependent variable with use efficiency of credit to explore this negative effect of state ownership.

Lastly, we provide additional evidence for the mechanisms of the baseline results. Specifically, we explore whether our baseline results vary with different productivity levels, trade modes, firm sizes, foreign firms, and provinces' financial conditions.

4.1 Empirical Design

To substantiate the nonlinear relationship between state ownership and firm exports, we study the variations in firms' export values and volumes across sectors and years with the following specification:[7]

$$\begin{aligned} LogY_{fit} =& \alpha + \delta_1 \cdot FinVuln_i \cdot SoShare_{ft} + \delta_2 \cdot FinVuln_i \cdot SoShare^2{}_{ft} + \\ & \delta_3 \cdot SoShare_{ft} + \delta_4 \cdot SoShare^2{}_{ft} + \varphi_i + \varphi_f + \varphi_t + \varepsilon_{fit} \\ =& \alpha + \delta_1 \cdot FinVuln_i \cdot (SoShare_{ft} + \frac{\delta_2}{\delta_1} \cdot SoShare^2{}_{ft}) + \\ & \delta_3 \cdot (SoShare_{ft} + \frac{\delta_4}{\delta_3} \cdot SoShare^2{}_{ft}) + \varphi_i + \varphi_f + \varphi_t + \varepsilon_{fit} \end{aligned} \tag{1}$$

Y_{fit} refers to $Exports_{fit}$ or $Quantity_{fit}$. The former, $Exports_{fit}$, describes the exports in terms of value, while the latter, $Quantity_{fit}$, describes the exports in terms of volume. To be specific, $Exports_{fit}$ gives firm f's total export values in sector i for year t, and $Quantity_{fit}$ gives firm f's total export volumes in sector i for year t. $FinVuln_i$ refers to industry i's financial vulnerability. $SoShare_{ft}$ is firm f's percentage of state ownership in its total capital. Industry fixed effects φ_i are employed to capture the systematic variance in trade activity across industries that do not count on firms' organizational structures, which also absorbs the level effect of $FinVuln_i$. We use five proxies of sectors' financial vulnerability, which can be found in Section 3.2. Furthermore, firm fixed effects φ_f and year fixed effects φ_t are used in our regression specification to control for firm-specific and year-specific characteristics.

[7] Building upon references such as Manova, Wei and Zhang (2015); Li, Lan and Ouyang (2020); Li, Ouyang and Zhang (2023), this study identifies the interactive effect of the share of state ownership and credit constraints on exports through their interaction term. Furthermore, inspired by Blundell, Pashardes and Weber (1993); Burnside and Dollar (2000); Dercon and Christiaensen (2011); Law, Kutan and Naseem (2018), we incorporate the square term of the share of state ownership in the interaction term to discern the inverse "U" relationship between the share of state ownership and exports in financially vulnerable sectors.

$$LogY_{fit} = \alpha + \delta_1 \cdot FinVuln_i \cdot SoShare_{ft} + \delta_2 \cdot FinVuln_i \cdot SoShare^2{}_{ft} + \delta_3 \cdot SoShare_{ft} + \delta_4 \cdot SoShare^2{}_{ft} + \varphi_i + \varphi_{ft} + \varepsilon_{fit} \quad (2)$$

In line with our theoretical framework, to gain further insights into the within-firm adjustments of a multi-sector exporter, we formulate the empirical model (2). The distinction between specification (1) and (2) lies in the latter's use of a more rigorous set of fixed effects denoted as φ_{ft}, enabling us to discern the within-firm adjustments of a multi-sector exporter. The firm-time fixed effects, φ_{ft}, can account for any sector-invariant observables or unobservables specific to the firm, time, or their combinations. The findings from specification (3) illuminate whether a firm-time pair responds to its credit constraints through adjustments across different sectors.

$$\begin{aligned} LogY_{fit} = &\alpha + \delta_1 \cdot FinVuln_i \cdot SoShare_{ft} + \delta_2 \cdot FinVuln_i \cdot SoShare^2{}_{ft} + \\ &\delta_3 \cdot SoShare_{ft} + \delta_4 \cdot SoShare^2{}_{ft} + \delta_5 \cdot Size_{ft} + \delta_6 \cdot FinVuln_i \cdot \\ &Size_{ft} + \delta_7 \cdot FOR_{ft} + \delta_8 \cdot FinVuln_i \cdot FOR_{ft} + \delta_9 \cdot Proc_{ft} \\ &+ \delta_{10} \cdot FinVuln_i \cdot Proc_{ft} + \delta_{11} \cdot TFP_{ft} + \delta_{12} \cdot FinVuln_i \cdot TFP_{ft} \\ &+ \varphi_i + \varphi_f + \varphi_t + \varepsilon_{fit} \end{aligned} \quad (3)$$

In addition, we add a series of firm-level control variables in the model (3). The model in Manova (2013) predicts a one-to-one mapping of firm productivity, size, and financial health. This is consistent with evidence in the existing literature that larger firms tend to be less credit-constrained than smaller ones. Therefore, the size dispersion across firms provides another source of variation in the data that we can exploit to identify the effect of credit constraints on firm exports. We can use firm size as an additional proxy for financial health and include its interaction with sectors' financial vulnerability in the regression, $FinVuln_i \cdot Size_{ft}$. We take the log of firms' total assets as a proxy for firm size. Furthermore, higher productivity implies a higher potential growth abil-

ity and thus prevents the firm from being credit-constrained. Thus, TFP and its interaction with sectors' financial vulnerability is included in the regression, $FinVuln_i \cdot TFP_{ft}$. In addition, firms engaged in processing trade are less credit-constrained as they face lower working capital needs (Li, Ouyang and Zhang, 2023). Therefore, we incorporate processing trade dummy $Proc$ and its interaction term with financial vulnerability in the model. $Proc$ is defined as 1 when the firm f's percentage of processing trade in its total export is over 50%. Similarly, as foreign firms can tap additional funds from their parent companies (Manova, 2013). We include $FinVuln_i \cdot For_{ft}$ in the new specification. For_{ft} indicates whether the firm is a foreign-invested enterprise (multinational enterprise).

We anticipate that $\delta_1 > 0$, which reflects the notion that firms with certain ownership can benefit from lower-cost financing than other firms. In addition, $\delta_2 < 0$ is expected. The second inequality predicts that high state share makes firms more subject to credit constraints.

4.2 The Baseline Results

Table 3 presents our baseline results for Specification (1) and Table 4 presents the results for Specification (2). Our results are highly significant both statistically and economically. Firms introducing state ownership firstly export significantly more than pure private firms in financially more vulnerable sectors ($\delta_1 > 0$ and $\delta_2 < 0$, Column (1)) and then export significantly less than other firms as the share of state ownership increases. Note that the higher the value of the first principal component of direct external finance dependence and share of tangible assets, the more financially vulnerable the sector is. These results accord with our prior that state ownership is associated with credit constraints since it lowers the financing cost on the one hand and decreases the efficiency of utilizing funding on the other hand.

We corroborate these findings when we use other proxies for $FinVuln_i$ in the remainder of Table 3. Firms with a small share of state ownership have a comparative advantage over other firms while firms with a large share of state

Table 3: Regressions with firm, year, sector fixed effect

Panel A: Dependent Variable: $logExport_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
SoShare	-0.1220	-0.0129	-0.3254	-0.2255	-0.2175	-0.4636**
	(-0.5444)	(-0.0582)	(-1.3331)	(-0.9817)	(-0.9922)	(-2.0600)
$Soshare^2$	0.0144	-0.1154	0.2350	0.1313	0.1725	0.4708*
	(0.0580)	(-0.4681)	(0.8700)	(0.5143)	(0.6861)	(1.7924)
$SoShare\times$ FV	1.1056***	0.9195***	1.4618***	-1.3201***	1.0597***	1.1526***
	(3.8648)	(3.6248)	(4.1725)	(-4.1257)	(4.6093)	(5.4049)
$SoShare^2\times$ FV	-1.3145***	-1.1255***	-1.6610***	1.5090***	-1.2888***	-1.3854***
	(-3.9767)	(-3.8123)	(-4.2536)	(4.1233)	(-4.9304)	(-5.5564)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,771,482	5,771,482	5,771,482	5,771,482	5,771,482	5,771,482
R-squared	0.5570	0.5570	0.5570	0.5570	0.5571	0.5571
Number of Firms	75930	75930	75930	75930	75930	75930
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8
Panel B: Dependent Variable: $logQuantity_{fit}$						
SoShare	0.0239	0.0869	-0.1035	-0.0248	-0.0623	-0.2522
	(0.1073)	(0.3959)	(-0.4466)	(-0.1087)	(-0.2868)	(-1.1310)
$Soshare^2$	-0.0425	-0.1361	0.0868	0.0286	0.0527	0.2751
	(-0.1603)	(-0.5217)	(0.3172)	(0.1051)	(0.1986)	(0.9786)
$SoShare\times$ FV	0.6889***	0.6155***	0.8755***	-0.7446***	0.6683***	0.7876***
	(2.9599)	(2.9587)	(2.9822)	(-2.8048)	(3.7355)	(4.4716)
$SoShare^2\times$FV	-1.0037***	-0.9156***	-1.1040***	1.0497***	-0.8265***	-0.9402***
	(-3.8566)	(-3.9343)	(-3.4557)	(3.5569)	(-4.1638)	(-4.5473)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,769,912	5,769,912	5,769,912	5,769,912	5,769,912	5,769,912
R-squared	0.6393	0.6394	0.6393	0.6393	0.6393	0.6393
Number of Firms	76914	76914	76914	76914	76914	76914
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8

Notes: All regressions include firm, year, sector fixed effects and a constant term. This table examines the effect of credit constraints on firm exports across sectors and years. $SoShare$ is the share of state ownership in total capital. The measure of sectors' financial vulnerability in columns 1 to 6 is indicated in the column heading. The measures of sector's financial vulnerability are indicated in the column heading. FPC refers to the first principal component of $DExtfin$ and $Tang$. $DExtfin$, direct external finance dependence, is defined as the ratio of total debt to fixed assets. $Invent$ refers to the ratio of inventories to sales. To measure sector's availability of tangible assets, $Tang$ is the ratio of tangible assets to total book value assets. The investment intensity, $CExp$, is the ratio of capital expenditures to net property, plant, and equipment. The measure of a sector's research intensity can be described by $R\&D$ as the ratio of research and development expenses over sales. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table 4: Regressions with firm-year and sector fixed effects

Panel A: Dependent Variable: $logExport_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	1.8196***	1.4982***	2.7361***	-2.1761***	2.3436***	2.4957***
	-4.2519	-3.8506	-4.9655	(-4.7849)	-6.5106	-7.5784
$SoShare^2\times$ FV	-2.0736***	-1.7471***	-3.0250***	2.4079***	-2.7011***	-2.8644***
	(-4.4222)	(-4.0913)	(-5.0453)	-4.8225	(-6.7398)	(-7.6739)
Observations	5746551	5746551	5746551	5746551	5746551	5746551
R-squared	0.6194	0.6194	0.6194	0.6194	0.6195	0.6195
Number of Firms	75930	75930	75930	75930	75930	75930
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8
Panel B: Dependent Variable: $logQuantity_{fit}$						
$SoShare\times$ FV	0.9968***	0.8665**	1.4354***	-1.1148***	1.3820***	1.6281***
	(2.6376)	(2.5287)	(2.7224)	(-2.6669)	(4.0809)	(5.1505)
$SoShare^2\times$ FV	-1.3728***	-1.2222***	-1.7423***	1.4835***	-1.6099***	-1.8501***
	(-3.4532)	(-3.3984)	(-3.1592)	(3.3600)	(-4.4661)	(-5.3798)
Observations	5,745,001	5,745,001	5,745,001	5,745,001	5,745,001	5,745,001
R-squared	0.6950	0.6951	0.6950	0.6950	0.6950	0.6951
Number of Firms	75930	75930	75930	75930	75930	75930
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8

Notes: All regressions include firm-year, sector fixed effects and a constant term. The measure of sectors' financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

ownership show a significant disadvantage over other firms in exporting activities, especially in sectors with greater first principal component, greater direct external finance dependence, higher inventory-to-sales ratios, higher capital expenditures to fixed assets and higher R&D ratios (Columns (1), (2), (3), (5), and (6)). Conversely, firms with a small share of state ownership outperform pure private firms, while firms with a large share of state ownership show an even worse export performance in industries with scarcer collateralizable assets (Column (4)). As expected, the interaction terms of share of state ownership with financial vulnerability and the square term's interaction term switch their signs in Column (4). Since financially more vulnerable sectors require more outside capital but dispose of less tangible assets. The export advantage of firms with state ownership is maximized when firms' share of state ownership lies around the turning point.

For example, based on the results reported in Table 3 (see Column(1) in Panel A), if the firms' share of state ownership is lower than 42.05%, the higher the share, the better performance they have in financial more vulnerable sectors. In contrast, if the firms' share of state ownership is higher than the turning point, the higher the share, the less they export in financially more vulnerable sectors. This turning point comes to 34.31% when we consider firm exports in terms of export volumes rather than values (see Column(1) in Panel B).

Notably, the export disadvantage of firms with full state ownership ($SoShare = 1$) compared to pure private companies ($SoShare = 0$) is 20.89% lower, as indicated by the results from the first principal component when using export value as the outcome variable. This detrimental effect increases to 31.48% when using export quantities as the outcome variable. The corresponding estimates reach 20.6% and 19.92% when comparing sectors with more external finance demand and more liquidity required by maintaining inventory. And, for sectors with a higher ratio of capital expenditure to fixed assets and more investment in R&D activities, this effect comes to 22.91% and 23.28% according to Panel A results. Using the asset tangibility as a measure of financial vulnerability, pure private firms ($SoShare = 0$) export 18.89% more than pure state-owned companies ($SoShare = 1$) in financially vulnerable sectors relative to financially less sensitive sectors. In contrast, the export advantage of firms with some state ownership (e.g., $SoShare = 0.5$) is 22.41% larger than pure private firms ($SoShare = 0$) and 43.31% larger than pure state-owned companies ($SoShare = 1$) in financially vulnerable sectors (Column (1) in Panel A). When considering export activities in terms of trade quantities, the export advantage of firms with some state ownership (e.g., $SoShare = 0.5$) is 9.35% larger than pure private firms ($SoShare = 0$) and 40.83% larger than pure state-owned companies ($SoShare = 1$) in financially vulnerable sectors (Column (1) in Panel B). To streamline the exposition, we report estimates using only first principal component below. Qualitatively similar results, however, are obtained for other sector measures as well.

Table 4 presents the results with the strong fixed effect φ_{ft}. The findings

Table 5: Regressions with control variables

Panel A: Dependent Variable: $logExport_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	0.7250***	0.5977***	0.7066**	-0.8735***	0.5726***	0.5988***
	(2.9033)	(2.7158)	(2.2614)	(-3.0927)	(2.9875)	(3.4230)
$SoShare^2\times$ FV	-0.8837***	-0.7398***	-0.8941***	1.0466***	-0.8145***	-0.8454***
	(-3.1243)	(-2.9461)	(-2.6292)	(3.2986)	(-3.6782)	(-4.0480)
Size $\times$ FV	0.0721***	0.0578***	0.1781***	-0.0901***	0.1723***	0.1873***
	(3.1707)	(2.7308)	(6.7233)	(-3.7876)	(9.0513)	(8.7046)
FOR $\times$ FV	0.1995***	0.1776***	0.2797***	-0.2186***	0.2006***	0.1940***
	(7.4524)	(7.0975)	(10.3860)	(-6.6553)	(11.9408)	(10.2385)
Proc $\times$ FV	0.3712***	0.3323***	0.3159***	-0.4005***	0.1207***	0.1161***
	(12.8294)	(13.4892)	(7.6705)	(-10.4496)	(4.2943)	(3.9356)
TFP $\times$ FV	0.0926***	0.0920***	0.0964***	-0.0855***	0.0267***	0.0221**
	(7.8482)	(9.5523)	(6.2160)	(-5.3856)	(2.8947)	(2.2508)
Observations	5,621,538	5,621,538	5,621,538	5,621,538	5,621,538	5,621,538
	0.5687	0.5686	0.5704	0.5680	0.5700	0.5699
Number of Firms	75940	75940	75940	75940	75940	75940
	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8
Panel B: Dependent Variable: $logQuantity_{fit}$						
$SoShare\times$ FV	0.5074**	0.4528**	0.4910*	-0.5537**	0.4333***	0.5019***
	(2.3056)	(2.3203)	(1.7897)	(-2.1843)	(2.6226)	(3.1616)
$SoShare^2\times$ FV	-0.6987***	-0.6273***	-0.6551**	0.7554***	-0.6156***	-0.6897***
	(-2.9529)	(-2.9599)	(-2.2695)	(2.8113)	(-3.3963)	(-3.6652)
Size $\times$ FV	-0.0035	-0.0066	0.0702***	-0.0032	0.1047***	0.1226***
	(-0.1813)	(-0.3907)	(2.6363)	(-0.1471)	(5.6335)	(5.9322)
FOR $\times$ FV	0.1605***	0.1464***	0.2335***	-0.1700***	0.1460***	0.1477***
	(6.5235)	(6.6237)	(8.7036)	(-5.4226)	(9.0731)	(8.0911)
Proc $\times$ FV	0.4285***	0.3778***	0.4221***	-0.4728***	0.1998***	0.1896***
	(15.4230)	(15.0996)	(11.0112)	(-12.7462)	(7.6558)	(6.9365)
TFP $\times$ FV	0.0773***	0.0779***	0.0765***	-0.0689***	0.0176**	0.0101
	(6.6754)	(8.9175)	(5.2191)	(-4.2518)	(2.0326)	(1.1275)
Observations	5,620,049	5,620,049	5,620,049	5,620,049	5,620,049	5,620,049
R-squared	0.6462	0.6463	0.6463	0.6458	0.6461	0.6462
Number of Firms	75924	75924	75924	75924	75924	75924
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8

Notes: All regressions include $SoShare$, $SoShare^2$, $Size$, FOR, $Proc$, TFP, and firm, year, sector fixed effects, and a constant term. The measure of sectors' financial vulnerability in columns 1 to 6 is indicated in the column heading. Firm size, $Size$, is proxied by firms' (log) total assets. FOR is defined as 1 if the firm has foreign capital. $Proc$ is an indicator variable set to be 1 if firms' share of processing trade exports in total exports is greater than 0. TFP is firms' total factor productivity calculated by LP Method (Levinsohn and Petrin, 2003). All other variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table 6: Regressions with control variables, firm-year and sector fixed effects

Panel A: Dependent Variable: $logExport_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	1.1906***	0.9618***	1.2759**	-1.4564***	1.2769***	1.2741***
	(3.1194)	(2.8054)	(2.3970)	(-3.5151)	(3.9462)	(4.2942)
$SoShare^2\times$ FV	-1.3148***	-1.0665***	-1.4617***	1.6050***	-1.6368***	-1.6475***
	(-3.2444)	(-2.9149)	(-2.6121)	(3.6673)	(-4.5646)	(-4.9550)
Size × FV	0.0458*	0.0326	0.1417***	-0.0653**	0.1581***	0.1782***
	(1.8939)	(1.4927)	(4.9089)	(-2.5012)	(7.6615)	(7.8428)
FOR × FV	0.2096***	0.1903***	0.3112***	-0.2233***	0.2766***	0.2685***
	(6.2433)	(6.2375)	(8.1402)	(-5.3566)	(10.9717)	(11.2400)
Proc × FV	0.4534***	0.4055***	0.3993***	-0.4884***	0.1106***	0.1008**
	(12.1612)	(13.2003)	(6.2637)	(-9.4755)	(2.6751)	(2.4011)
TFP × FV	0.1450***	0.1468***	0.1651***	-0.1290***	0.0672***	0.0547***
	(8.9141)	(11.0904)	(7.1888)	(-5.8406)	(4.1807)	(3.1693)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,597,671	5,597,671	5,597,671	5,597,671	5,597,671	5,597,671
R-squared	0.6253	0.6254	0.6266	0.6244	0.6261	0.6258
Panel B: Dependent Variable: $logQuantity_{fit}$						
$SoShare\times$ FV	0.7614**	0.6513**	0.7800	-0.8767**	0.9369***	1.0506***
	(2.1161)	(2.0106)	(1.5391)	(-2.1813)	(2.8958)	(3.5331)
$SoShare^2\times$ FV	-0.9235**	-0.7944**	-0.9010*	1.0586**	-1.1573***	-1.2845***
	(-2.5159)	(-2.3876)	(-1.7388)	(2.5993)	(-3.3319)	(-3.9339)
Size × FV	-0.0299	-0.0322*	0.0298	0.0215	0.0801***	0.1049***
	(-1.5109)	(-1.8912)	(1.0784)	(0.9403)	(4.0213)	(4.7251)
FOR × FV	0.1616***	0.1505***	0.2499***	-0.1662***	0.1932***	0.1990***
	(5.2880)	(5.6636)	(6.8981)	(-4.2343)	(8.9671)	(8.9304)
Proc × FV	0.5210***	0.4593***	0.5412***	-0.5725***	0.2481***	0.2311***
	(14.9222)	(15.3254)	(8.6886)	(-11.3431)	(6.3260)	(5.7375)
TFP × FV	0.1211***	0.1239***	0.1344***	-0.1048***	0.0528***	0.0350**
	(7.1418)	(9.4908)	(5.7914)	(-4.5350)	(3.0887)	(1.9859)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,596,200	5,596,200	5,596,200	5,596,200	5,596,200	5,596,200
R-squared	0.6981	0.6983	0.6980	0.6976	0.6976	0.6976

Notes: All regressions include $SoShare$, $SoShare^2$, $Size$, FOR, $Proc$, TFP, and firm-year, sector fixed effects, and a constant term. The measure of sectors' financial vulnerability in columns 1 to 6 is indicated in the column heading. All other variables are defined in Table 3 and Table 5. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

in Table 4 affirm the theoretical predictions regarding within-firm adjustment of a multi-sector exporter. In Panel A of Table 4, it is evident that a firm f exporting in year t tends to export relatively more in sectors with higher financing needs when the firm has some state ownership and relatively less in sectors

with higher financing needs when the firm has dominant state ownership. This conclusion is drawn by examining variations across sectors for a given firm-year pair. In essence, the constraining effects of credit constraints on exports, when dominated by state ownership, occur within a firm across sectors. Conversely, the constraining effects of credit constraints on exports, when possessing a certain level of state ownership, are alleviated within a firm across sectors. These results are consistent when considering export volumes (Panel B of Table 4).

Table 5 and Table 6 show the results with the firm-level control variables. The difference between Table 5 and Table 6 is that regressions in the latter employ a more demanding set of fixed effects φ_{ft}. The results indicate that the export advantage resulting from state ownership follows an initial increase, then decreases, and eventually turns into a disadvantage in sectors with higher financing needs or lower financing ability. Also, it confirms that bigger and more productive exporters export relatively more in financially more vulnerable sectors. Firms with foreign capital also enjoy an export advantage in financially vulnerable sectors as they are able to tap additional funding from their parent companies. Similarly, processing trade firms face lower financing needs and thus export more in sectors with more financing needs or lower financing ability. These patterns suggest that firm size, productivity, foreign capital and processing trade could indeed be associated with laxer financing constraints. To gauge the extent to which controlling for them might lead us to overestimate δ_1 and δ_2, we run Specifications (1) and (2) with size interactions, productivity interactions, foreign capital interactions and processing trade indicator interactions (Table 3 versus Table 5 and Table 4 versus Table 6). As we can see in Table 5 and 6, the coefficients of the interaction item of the control variables with financial vulnerability are significantly positive, as expected. The coefficients of the interaction between the share of state ownership with financial vulnerability and the interaction between the square term of the share of state ownership with financial vulnerability are consistent with Specification (1).

For specific analysis, the export advantage of firms with certain state own-

ership (e.g. $SoShare = 0.5$) over pure private companies, i.e. SoShare = 0, is 14.15% larger in financially more sensitive sectors. Besides, they export 30.03% more than pure state-owned companies ($SoShare = 1$) in sectors with a greater need for external capital and less tangible assets (see Column(1) in Panel A of Table 5). The advantage becomes 7.9% and 27.03% when we use export volume as the outcome variable (Panel B of Table 5) and increase to 26.66% and 39.08% in the regressions model with stricter fixed effects (Panel A of Table 6).

To summarize, our results consistently suggest that credit constraints hamper companies' export performance, but firms with some state ownership shares are less affected, while firms with too much state ownership are more affected. Our analysis thus serves the purpose that we provide direct evidence that firms introducing some (kitty) state ownership are less credit-constrained than other companies like pure private firms and pure state-owned firms, while firms with higher (lion) state ownership shares are even more credit-constrained than pure private firms.

4.3 Intensive versus Extensive Margin

We further investigate the mechanisms through which credit constraints and state ownership influence firms' export performance by analysing their effects on various trade margins. Constraints in financing variable costs could distort the intensive margin, diminishing the value of firm sales to individual export markets. Conversely, constraints in financing fixed trade costs might limit the extensive margin, constraining the number of markets that firms enter.

We begin by examining the influence of credit constraints on the intensive margin. We define export markets at the country-sector-year level, considering firm f's exports to destination d in industry i as $Exports_{fdit}$ (Equation (4)). In addition, defining export markets at the product-year level by 8-digit HS code, we consider firm f's exports of the product h $Exports_{fht}$ as shown by Equation (5).

$$LogExports_{fidt} = \alpha + \delta_1 \cdot FinVuln_i \cdot SoShare_{ft} + \delta_2 \cdot FinVuln_i \cdot SoShare^2{}_{ft} + \delta_3 \cdot SoShare_{ft} + \delta_4 \cdot SoShare^2{}_{ft} + \varphi_i + \varphi_f + \varphi_t + \varphi_d + \varepsilon_{fidt} \quad (4)$$

$$LogExports_{fht} = \alpha + \delta_1 \cdot FinVuln_i \cdot SoShare_{ft} + \delta_2 \cdot FinVuln_i \cdot SoShare^2{}_{ft} + \delta_3 \cdot SoShare_{ft} + \delta_4 \cdot SoShare^2{}_{ft} + \varphi_i + \varphi_f + \varphi_t + \varepsilon_{fht} \quad (5)$$

In addition to sector and firm fixed effects, specification (4) allows us to control for unobserved market characteristics with country fixed effects to better isolate the impact of credit constraints. For example, φ_d accounts for cross-country variations in market size, consumer income, exchange rates, and trade costs (e.g., tariff and non-tariff barriers, quality of ports, and other infrastructure). With this exhaustive set of fixed effects, the coefficients on the interaction terms are identified from the variation in financial vulnerability across sectors and in the share of state ownership across firms within destination markets, as well as from variations across sectors and destinations within firms. The corresponding empirical results are presented in Table 7 and Table 8 (with stricter fixed effects). At this level of disaggregation, 5,766,968 observations span 76,926 companies, 224 importing countries, 20 sectors, and 8 years.

Table 7 indicates that there is a non-linear relationship between firms' share of state ownership and exporting activities in sectors that are more financially vulnerable. The results show that firms with some state ownership export more than pure private firms, while this superior performance decreases as the share of state ownership increases. When the firm sacrifices the lion's share to the state, the firm's credit becomes even more binding than other firms. This is consistent with Specification (1). Specifically, firms with 50% state ownership export 17.03% more than pure private firms and 27.05% more than pure state-owned companies in financially more sensitive sectors. The results are consistent with our theory. δ_1 and δ_2 remain unchanged in Specification (2). Moreover, results obtained when

we incorporate a more demanding fixed effect — firm-year-destination fixed effect, according to Table 8, also support our prior hypothesis. More details, including the results of the measures of financial vulnerability other than FPC of direct external finance dependence and tangibility, can be found in Appendix Table A1 - A4.

We proceed to assess the impact of credit constraints on the extensive dimension of a firm's operations. This approach offers the benefit of avoiding a commitment to a particular level at which firms encounter fixed trade expenses or realize cost synergies across destinations within a product or across various products within a given destination. We first measure the extensive margin at the firm-sector-year level using exporters' product scope. Exporters' product scope ($Log\#products_{fit}$) counts the number of HS-8 products that firm f sells to at least one market in industry i in year t. This specification is shown in Equation (6). The corresponding empirical results are shown in Column (3) in Table 7 and Table 8. We then measure the extensive margin at the firm-sector-year level using exporters' destination scope. Exporters' destination scope ($Log\#Destinations_{fit}$) counts the number of countries that firm f sells to at least one market in sector i in year t. This specification is shown in Equation (7), and corresponding empirical results are presented in Column (4) in Table 7 and Table 8. Next, we use $Log\#DestProd_{fit}$, which counts the number of destination-product specific markets in sector i and year t to be the outcome variable (see Specification (8)). The results can be found in Column (5) in the two tables. Lastly, we calculate the number of products at the firm-sector-destination-year level and correspondingly add destination fixed effects in the specification (9) and Column (6) in both Table 7 and Table 8.

$$Log\#products_{fit} = \alpha + \delta_1 \cdot FinVuln_i \cdot SoShare_{ft} + \delta_2 \cdot FinVuln_i \cdot SoShare^2{}_{ft} + \delta_3 \cdot SoShare_{ft} + \delta_4 \cdot SoShare^2{}_{ft} + \varphi_i + \varphi_f + \varphi_t + \varepsilon_{fit} \tag{6}$$

$$Log\#Destinations_{fit} = \alpha + \delta_1 \cdot FinVuln_i \cdot SoShare_{ft} + \delta_2 \cdot FinVuln_i \cdot SoShare^2{}_{ft} + \delta_3 \cdot SoShare_{ft} + \delta_4 \cdot SoShare^2{}_{ft} + \varphi_i + \varphi_f + \varphi_t + \varepsilon_{fit} \tag{7}$$

$$Log\#DestProd_{fit} = \alpha + \delta_1 \cdot FinVuln_i \cdot SoShare_{ft} + \delta_2 \cdot FinVuln_i \cdot SoShare^2{}_{ft} + \delta_3 \cdot SoShare_{ft} + \delta_4 \cdot SoShare^2{}_{ft} + \varphi_i + \varphi_f + \varphi_t + \varepsilon_{fit} \tag{8}$$

$$Log\#products_{fidt} = \alpha + \delta_1 \cdot FinVuln_i \cdot SoShare_{ft} + \delta_2 \cdot FinVuln_i \cdot SoShare^2{}_{ft} + \delta_3 \cdot SoShare_{ft} + \delta_4 \cdot SoShare^2{}_{ft} + \varphi_i + \varphi_f + \varphi_d + \varphi_t + \varepsilon_{fidt} \tag{9}$$

Table 7: Regressions on the Intensive and Extensive Margins

Dependent Variable	Intensive Margin		Extensive Margin			
	$logExport_{fitd}$	$logExport_{fhd}$	$log\#Products_{fit}$	$log\#Destinations_{fit}$	$log\#\ Destination-ProductMarkets_{fit}$	$log\#Products_{fidt}$
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	-0.0776	0.0527	-0.1649**	0.0245	-0.0968	-0.1311**
	(-0.3926)	(0.3705)	(-2.1556)	(0.3684)	(-1.0197)	(-2.4491)
$SoShare^2$	-0.0597	-0.2258	0.2005**	-0.0017	0.1234	0.1373**
	(-0.2760)	(-1.4712)	(2.4707)	(-0.0236)	(1.1929)	(2.4921)
$SoShare\times$ FPC	0.7815***	0.5175**	0.2095***	0.2207***	0.3067***	0.0959**
	(3.2895)	(2.5622)	(3.2454)	(2.9681)	(3.4577)	(2.0441)
$SoShare^2\times$ FPC	-0.8817***	-0.6124**	-0.2140***	-0.2841***	-0.3471***	-0.0648
	(-3.1658)	(-2.5773)	(-2.6857)	(-3.3760)	(-3.3164)	(-1.1113)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes					Yes
Observations	5,766,968	5,771,477	5,771,482	5,766,970	5,766,970	5,766,968
R-squared	0.4152	0.2279	0.7647	0.7716	0.7118	0.6472
Number of Firms	76926	76930	76930	76926	76926	76926
Number of Sectors	20	20	20	20	20	20
Number of Countries	224					224
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table 8: Regressions on the Intensive and Extensive Margins with firm-year and sector fixed effects

Dependent Variable	Intensive Margin		Extensive Margin			
	$logExport_{fitd}$	$logExport_{fhd}$	$log\#Products_{fit}$	$log\#Destinations_{fit}$	$log\#Destination-ProductMarkets_{fit}$	$log\#Products_{fidt}$
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FPC	1.4681***	0.8292***	0.3907***	0.3370***	0.5061***	0.2706***
	(3.8092)	(2.9889)	(3.9645)	(3.0925)	(3.7136)	(3.0633)
$SoShare^2\times$ FPC	-1.6338***	-0.9118***	-0.4093***	-0.4238***	-0.5739***	-0.2679***
	(-3.8072)	(-2.9374)	(-3.6993)	(-3.5664)	(-3.8406)	(-2.6788)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm × Year × Country FE	Yes					Yes
Firm × Year FE		Yes	Yes	Yes	Yes	
Observations	4,698,304	5,746,546	5,746,551	5,742,032	5,742,032	4,698,304
R-squared	0.7332	0.2700	0.8381	0.8417	0.7803	0.8548

Notes: All regressions include a constant term. The measure of sectors' financial vulnerability in columns 1 to 6 is indicated in the column heading. All other variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Also, the corresponding evidence supports our hypothesis. Specifically, in financially more vulnerable sectors, firms with a share of state ownership around the turning point tend to export a broader range of products in the markets they enter and export to more countries than both pure private firms and pure state-owned firms. Take $SoShare = 0.5$ for example, the product advantage of firms with half state ownership over pure private ones ($SoShare = 0$) and pure state-owned ones ($SoShare = 1$) are 5.13% and 5.58% larger in sectors with a greater need for external capital and lower available tangible assets on average (see Column (3) in Table 7). According to the results in Column (4), the destination advantage of firms with half state ownership over pure private ones ($SoShare = 0$) and pure state-owned ones ($SoShare = 1$) are 3.93% and 10.27% larger in sectors with a greater need for external capital and lower available tangible assets on average. Similarly, firms with half share of state ownership export 6.66% and 10.70% more products-destination markets than pure private firms and pure state-owned firms based on the results in Column (5). Moreover, we find consistent results that are both economically and statistically significant in Table 8, where we incorporate stronger fixed effects of firm-year fixed effect and firm-year-destination fixed effect. More consistent results of financial vulnerability measured by other variables can be found in Appendix Table A5 - A12.

4.4 Trade Cost

We posit that credit constraints hinder firms' exports due to their incapacity to cover upfront costs associated with entering foreign markets. If these costs are trivial or not incurred upfront, the relevance of access to finance would diminish, rendering credit constraints non-binding. To further substantiate the credit mechanism, we demonstrate that firms adopting some state ownership surpass both pure private and pure state-owned firms, particularly when confronted with elevated export costs. We exploit the fact that certain destinations pose higher entry costs for firms engaging in export activities. The significance of external capital availability is heightened when a market involves higher trade costs, and

Table 9: Trade Cost

Panel A: with Firm FE, Year FE, Country FE and Sector FE				
Trade Cost Measure	$logDistance_d$	$logCost_d$	$log\#Days_d$	$log\#documents_d$
	(1)	(2)	(3)	(4)
$SoShare$	-0.0832	-0.0994	-0.1004	-0.1003
	(-0.4227)	(-0.5020)	(-0.5108)	(-0.5101)
$SoShare^2$	-0.0580	-0.0377	-0.0404	-0.0401
	(-0.2697)	(-0.1741)	(-0.1870)	(-0.1860)
FPC	-0.0468***	-0.0416**	-0.1569***	-0.1637***
$\times Trade\,Cost$	(-2.7138)	(-2.3524)	(-8.0047)	(-9.0634)
$SoShare \times FPC$	0.0878***	0.1142***	0.3417***	0.5077***
$\times Trade\,Cost$	(3.1778)	(3.3746)	(3.6632)	(3.6649)
$SoShare^2 \times FPC$	-0.0990***	-0.1296***	-0.3796***	-0.5655***
$\times Trade\,Cost$	(-3.0795)	(-3.2843)	(-3.5558)	(-3.5694)
Observations	5,627,299	5,598,046	5,598,046	5,598,046
R-squared	0.4173	0.4178	0.4184	0.4181
Number of Firms	76744	76633	76633	76633
Number of Sectors	20	20	20	20
Number of Countries	203	182	182	182
Number of Years	8	8	8	8
Panel B: with Firm × Year × Country FE and Sector FE				
FPC	-0.0829***	-0.1296***	-0.2510***	-0.2676***
$\times Trade\,Cost$	(-4.7379)	(-6.0237)	(-8.0385)	(-8.5068)
$SoShare \times FPC$	0.1654***	0.2123***	0.6324***	0.9184***
$\times Trade\,Cost$	(3.7021)	(3.8478)	(3.8789)	(3.8986)
$SoShare^2 \times FPC$	-0.1838***	-0.2372***	-0.6950***	-1.0141***
$\times Trade\,Cost$	(-3.6917)	(-3.8572)	(-3.8952)	(-3.9103)
Observations	4,591,215	4,567,211	4,567,211	4,567,211
R-squared	0.7334	0.7331	0.7336	0.7333

Notes: The dependent variable is $logExports_{fidt}$. All regressions include a constant term. The measure of trade costs in columns 1 to 4 is indicated in the column heading. Financial vulnerability is measured by FPC, the first principal component of direct external finance dependence and tangibility. All other variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

exporters necessitate more external funding to address these costs. We, therefore, introduce a refined indicator of the credit conditions specific to firms in sector i selling to the country d as the product of two variables, $TradeCost_d \times FinVuln_i$. We use this new measure together with $FinVuln_i$ in order to estimate a modified version of the specifications (1) and (2) for firms' cross-border trade by industry and year(see Specification (10)).

We employ four common proxies for $TradeCost_d$. The log form of bilateral distance to China reflects the variable transportation costs associated with trade transactions. It might also be related to taste similarity across borders and, hence, the cost of product customization. For the fixed costs of shipping, setting up, and maintaining foreign distribution networks, we use three estimates from the World Bank's Doing Business Report: the log nominal cost (per shipping container), the log number of days, and the log number of documents required to export to destination d. These four variables deliver sharp results consistent with our conclusion that credit constraints distort international trade activities and affect the sectoral composition of firms with state ownership. In financially more vulnerable sectors, bigger and processing trade firms with foreign capital and some share of state ownership export more than smaller, ordinary trade, pure private or state-owned companies to countries associated with higher trade costs.

$$\begin{aligned} LogExports_{fidt} =& \alpha + \delta_0 \cdot (TradeCost_d \cdot FinVuln_i) + \delta_1 \cdot (TradeCost_d \cdot FinVuln_i) \\ & \cdot SoShare_{ft} + \delta_2 \cdot (TradeCost_d \cdot FinVuln_i) \cdot SoShare_{ft}^2 + \\ & \delta_3 \cdot SoShare_{ft} + \delta_4 \cdot SoShare^2{}_{ft} + \varphi_i + \varphi_f + \varphi_d + \varphi_t + \varepsilon_{fdit} \end{aligned} \tag{10}$$

As before, we include firm, sector, and year fixed effects in the Panel A of Table 9 and firm-year fixed effect and sector fixed effect in the Panel B of Tale 9. These FEs still subsume the main effects of financial vulnerability but not that of $(TradeCost_d \times FinVuln_i)$, the coefficient of which is expected to be negative.

In Table 9, the findings indicate that in financially more vulnerable sectors, firms with a share of state ownership around the turning point tend to engage in more exports compared to both purely private firms and fully state-owned entities. This trend is particularly evident in sectors characterized by heightened financial vulnerability and destinations associated with higher trade costs. More specifically, the estimated turning point in Column (1) of Panel A in Table 9, with trade cost measured by distance and financial vulnerability assessed by FPC, is calculated to be 44.34%. When incorporating the more rigorous

fixed effects, firm-year-destination fixed effects, the turning point shifts slightly to 44.99% (Panel B of Table 9). Furthermore, the export advantage of firms with a certain share of state ownership (e.g. $SoShare = 0.5$) over pure private ones ($SoShare = 0$) and pure state-owned ones ($SoShare = 1$) respectively are 1.92% and 3.04% larger in financially more vulnerable sectors and destination countries associated with larger distance to China on average (Column(1) in Panel A). This export advantage becomes 3.68% and 5.52% when we consider more demanding fixed effects. More details, including the results of other measures of financial vulnerability across the four trade cost measures, can be found in Appendix Table B1 - B16. Consistent with our prior, δ_1 and δ_2 remain unchanged in Specifications (1) and (2).

4.5 Mechanism Analysis

In this section, we explore the dual effects of state ownership on firm performance, focusing on both the advantages and challenges associated with varying degrees of state ownership involvement.

Firstly, firms with a higher share of state ownership often benefit from an implicit government guarantee, which can make them more attractive to lenders. This perceived lower risk translates into easier access to credit and potentially more favorable borrowing terms. We use the specification (10) to study this mechanism. Such financial advantages in credit availability can provide these firms with critical resources needed for expansion, innovation, and operational stability, especially when facing credit constraints. The ability to secure funding can be a significant competitive edge, allowing those firms to undertake projects and investments that might be inaccessible to their non-state-owned counterparts due to credit constraints and thus secure their better performance in exports than others.

Table 10: Regressions of Credit on Firms' Share of State Ownership

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	$log(Credit)_{ft}$	$log(Credit)_{ft}$	$log(Credit)_{ft}$	$log(Credit)_{ft}$	$log(Credit)_{ft}$	$log(Credit)_{ft}$
SoShare	0.1199***	0.0988***	0.1192***	0.0981***	0.1137***	0.0920***
	(3.5102)	(3.1905)	(3.3893)	(3.0466)	(3.2636)	(2.9063)
Employment		0.2735***		0.2722***		0.2637***
		(16.8048)		(16.8506)		(17.1284)
Fixed Assets		0.2140***		0.2135***		0.2104***
		(8.6007)		(8.6173)		(8.3509)
Export		0.0503***		0.0502***		0.0375***
		(3.4651)		(3.4924)		(2.8088)
Age		-0.0831		-0.0939		-0.1109
		(-0.5022)		(-0.5638)		(-0.6444)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes		
Sector FE			Yes	Yes		
City FE			Yes	Yes		
City×Year FE					Yes	Yes
Sector×Year FE					Yes	Yes
Observations	322,829	317,239	322,826	322,820	322,756	322,750
R-squared	0.8103	0.7580	0.8109	0.8157	0.8143	0.8188
Number of Firms	91730	91729	91729	91728	91714	91713
Number of Sectors	519	519	519	519	519	519
Number of Cities	332	332	332	332	332	332
Number of Years	4	4	4	4	4	4

Notes: The dependent variable is $log(Credit)_{i,t}$ representing the level of credit, which is the logarithm of the difference of total liabilities and accounts payable. *Emploment* is the log form of number of employees. *FixedAssets* is the log form of book value of firms' fixed assets. *Export* is set to be 1 if the firm conducts export activities. *Age* is firms' age. All regressions include a constant term. Standard errors are clustered at the city level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

$$Log(Credit)_{ft} = \beta + \sigma_1 \cdot SoShare_{ft} + \sigma_2 \cdot Control_{ft} + \phi_f + \phi_t + \epsilon_{ft} \tag{10}$$

$$Log(Credit\ Efficiency)_{ft} = \beta + \sigma_1 \cdot SoShare_{ft} + \sigma_2 \cdot Control_{ft} + \phi_f + \phi_t + \epsilon_{ft} \tag{11}$$

Here we use $Log(credit)_{ft}$ as the dependent variable , which represents the log form of firms' credit. Credit is measured approximately by the difference of total liabilities and accounts payable. We opt for this definition over the use of long-term liabilities, as seen in Cong et al. (2019*b*), because a significant portion of bank loans have a maturity of less than one year.[8] By focusing on long-term

[8]Statistics on the loan information of China's listed companies from 2005 to 2010 indicate

Table 11: Regressions of Credit Use Efficiency on Firms' Share of State Ownership

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	$Credit\ Efficiency_{ft}$	$Credit\ Efficiency_{ft}$	$Credit\ Efficiency_{ft}$	$Credit\ Efficiency_{ft}$	$Credit\ Efficiency_{ft}$	$Credit\ Efficiency_{ft}$
SoShare	-0.0798***	-0.0784***	-0.0810***	-0.0798***	-0.0589**	-0.0577**
	(-3.0843)	(-3.0146)	(-3.1352)	(-3.0576)	(-2.2480)	(-2.1648)
Employment		0.1667***		0.1671***		0.1732***
		(15.0086)		(15.3277)		(16.4102)
Fixed Assets		-0.0985***		-0.0986***		-0.1024***
		(-6.2823)		(-6.3245)		(-6.4991)
Export		0.0472***		0.0470***		0.0598***
		(4.3245)		(4.3064)		(6.0627)
Age		-5.9801***		-5.9800***		-5.8664***
		(-601.5451)		(-608.6436)		(-72.5688)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes		
Sector FE			Yes	Yes		
City FE			Yes	Yes		
City×Year FE					Yes	Yes
Sector×Year FE					Yes	Yes
Observations	317,244	317,239	317,241	317,236	317,168	317,163
R-squared	0.7558	0.7580	0.7567	0.7588	0.7624	0.7647
Number of Firms	90850	90849	90849	90848	90832	90831
Number of Sectors	519	519	519	519	519	519
Number of Cities	332	332	332	332	332	332
Number of Years	4	4	4	4	4	4

Notes: The dependent variable is $LogCredit\ Efficiency_{ft}$ representing the use efficiency of credit, which is the logarithm of the ratio of main operating income and credit. All regressions include a constant term. Standard errors are clustered at the city level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

liabilities, we would overlook the majority of loan data. $Control_{ft}$ includes the *employment*, $fixed\ assets$, *export* and *Age*. *employment* is defined as the log form of number of employees. $FixedAssets$ is the log form of book value of firms' fixed assets. $Export$ is set to be 1 if the firm is exporting firms. *Age* is firms' age. Year fixed effect ϕ_t is used to control the time-varying characteristics and Firm fixed effect ϕ_f is used to control firm-level characteristics.

We also incorporate city and industry characteristics by controlling for city and industry fixed effects. Additionally, we account for the dynamic differential intensity of this financial crisis and corresponding crisis-rescue plans across different cities and industries by including double fixed effects for year-city and year-industry. This approach ensures a comprehensive analysis that acknowledges variations in how different regions and sectors are impacted.

All the regressions in this section are based on Annual Census of Industrial

that approximately 72% of loans had a maturity of less than one year.

Enterprises (ACIE) from 2004 to 2007 as accounts payable is only available after 2004.

Table 10 reports the results for specification (10). The regression in Column (1) only contains $SoShare_{ft}$, year fixed effect, and firm fixed effect while Column (2) adds control variables in regression. In column (3) and (4), we add sector and city fixed effects. Additionally, Column (5) and (6) use the set of fixed effects including the firm fixed effect and the dual fixed effects.

The coefficient on $SoShare_{ft}$ represents the state ownership's effect on credit allocation. All the columns consistently show the significantly positive results of this coefficient. According to the results in column (2), a 1% increase in the share of state ownership lead to approximately 9.88% increase in its loan volume, which indicates that there is an implicit guarantee for state ownership and these enterprises with highly share of state ownership can obtain more loans from the bank than others.

Secondly, despite the benefits of enhanced credit access, firms with a high share of state ownership also experience greater inefficiencies in credit utilization compared to their counterparts. These low efficiencies damage the overall effectiveness and consequently impair firm performance of these firms. This inefficiency can be attributed to several factors. For one, the cushion of state support might reduce the pressure on management to optimize operations and cut costs, leading to complacency and less stringent financial discipline. Moreover, the allocation of credit within SOEs may be influenced by non-economic factors such as political objectives or bureaucratic processes, which can divert resources away from their most productive uses. Such misallocation can dilute the impact of financial inputs on firm performance, ultimately negating the benefits of increased credit access.

We utilize specification (11) to examine the negative impact on credit efficiency, where $Credit\ Efficiency_{ft}$ serves as the dependent variable representing the efficiency of credit use. This variable is quantified by the logarithm of the ratio between main operating income and credit. The findings are detailed in

Table 11. The coefficient on $SoShare_{ft}$ reflects the influence of state ownership on credit efficiency. Across all columns, the results consistently show a significant negative effect of this coefficient. Specifically, as presented in column (2), a 1% increase in state ownership share leads to an approximate 7.84% decrease in credit efficiency. These findings suggest that the introduction of state ownership impedes the efficiency of these enterprises.

These findings underline a complex interplay between enhanced credit access and operational inefficiency, moderated by the degree of state ownership. While state involvement relaxes financial constraints, it also imposes constraints on firm agility and efficiency, ultimately impacting overall performance in the market.

4.6 Robustness Check

Table 12: Regressions of Lag Status of Firms' State Ownership

Panel A: with Firm FE, Year FE, and Sector FE						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$lag\_SoShare$	-0.1239	-0.0001	-0.3241	-0.2377	-0.2158	-0.4500*
	(-0.4783)	(-0.0003)	(-1.1847)	(-0.8976)	(-0.8601)	(-1.7727)
$lag\_SoShare^2$	0.0018	-0.1511	0.2203	0.1392	0.1658	0.4720*
	(0.0067)	(-0.5559)	(0.7545)	(0.4990)	(0.6098)	(1.7096)
$lag\_SoShare \times$ FV	1.2985***	1.0836***	1.6462***	-1.5400***	1.1748***	1.2010***
	(4.2388)	(3.9914)	(4.2095)	(-4.4901)	(4.4603)	(4.8438)
$lag\_SoShare^2 \times$ FV	-1.5697***	-1.3380***	-1.9376***	1.8092***	-1.4921***	-1.5181***
	(-4.4751)	(-4.2901)	(-4.4344)	(4.6307)	(-5.0744)	(-5.2587)
Observations	4,694,408	4,694,408	4,694,408	4,694,408	4,694,408	4,694,408
R-squared	0.5535	0.5535	0.5535	0.5535	0.5535	0.5535
Number of Firms	58208	58208	58208	58208	58208	58208
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8
Panel B: with Firm × Year FE and Sector FE						
$lag\_SoShare \times$ FV	1.9427***	1.6037***	2.7517***	-2.3138***	2.2390***	2.2623***
	(4.5175)	(4.0783)	(4.9163)	(-5.0558)	(5.2339)	(5.3645)
$lag\_SoShare^2 \times$ FV	-2.2974***	-1.9359***	-3.1918***	2.6670***	-2.7126***	-2.7440***
	(-4.8770)	(-4.4901)	(-5.2542)	(5.3132)	(-6.0046)	(-6.0810)
Observations	4,683,460	4,683,460	4,683,460	4,683,460	4,683,460	4,683,460
R-squared	0.6051	0.6051	0.6051	0.6051	0.6053	0.6052

Notes: The dependent variable is $logExports_{fit}$. All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table 13: Regressions of Financial Vulnerability in 3-digit SIC Code

Panel A: with Firm FE, Year FE, and Sector FE						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	0.0019	0.2683	0.0942	0.0025	0.1757	0.1227
	(0.0103)	(1.4399)	(0.5099)	(0.0141)	(0.9846)	(0.6831)
$Soshare^2$	-0.1265	-0.4415**	-0.1936	-0.0988	-0.2988	-0.2308
	(-0.6071)	(-2.0815)	(-0.9405)	(-0.4847)	(-1.4681)	(-1.1271)
$SoShare\times$ FV	1.8133***	1.7833***	0.6196**	-1.0652***	0.5338***	0.3831***
	(7.7827)	(9.4842)	(2.2683)	(-4.0750)	(2.8928)	(3.2681)
$SoShare^2\times$ FV	-2.1146***	-2.1113***	-0.7869***	1.2674***	-0.6801***	-0.4432***
	(-8.1353)	(-9.1962)	(-2.6020)	(4.4384)	(-3.4615)	(-3.3283)
Observations	4,862,948	4,862,948	4,862,948	4,862,948	4,862,948	4,862,846
R-squared	0.6038	0.6039	0.6037	0.6037	0.6037	0.6037
Number of Firms	71588	71588	71588	71588	71588	71585
Number of Sectors	94	94	94	94	94	93
Number of Years	8	8	8	8	8	8
Panel B: with Firm × Year FE and Sector FE						
$SoShare\times$ FV	2.7201***	2.5480***	0.9649**	-1.6371***	0.9142***	0.7163***
	(7.1292)	(8.6727)	(2.1059)	(-4.0119)	(3.3428)	(3.8948)
$SoShare^2\times$ FV	-3.1130***	-2.9274***	-1.2366**	1.9419***	-1.1549***	-0.8412***
	(-7.6304)	(-9.3310)	(-2.4933)	(4.3955)	(-4.0035)	(-4.0328)
Observations	4,837,025	4,837,025	4,837,025	4,837,025	4,837,025	4,836,925
R-squared	0.6639	0.6640	0.6637	0.6638	0.6638	0.6637

Notes: The dependent variable is $logExports_{fit}$. All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Our baseline results remain robust across various sensitivity checks, addressing concerns related to potential specification errors and measurement accuracy of key variables.

First, since it may be that pre-presence of the share of state ownership status helps to resolve or aggravate financial difficulty that firms face, we re-run Specifications (1) and (2) by lagging one period of the share of state ownership. The results in Table 12 show that δ_1 and δ_2 remain unchanged. The results are still consistent when we use export volumes as the outcome variable (see Table C1 and Table C2 in Appendix C).

In order to introduce more variations across sectors, we reevaluate the sectors' financial vulnerability using 3-digit SIC code classification, increasing the number of sectors from 20 to 94. The findings align with the results obtained

Table 14: Regressions of China Financial vulnerability Measure

Panel A: with Firm FE, Year FE, and Sector FE						
China FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
SoShare	0.4275	1.2495***	0.5409*	0.1904	-0.3590	-0.2869
	(1.5959)	(3.7883)	(1.8593)	(0.7476)	(-1.5058)	(-1.3401)
$Soshare^2$	-0.6733**	-1.6243***	-0.7332**	-0.3894	0.3082	0.2393
	(-2.1767)	(-4.3331)	(-2.3106)	(-1.3294)	(1.1603)	(0.9640)
SoShare× FV	2.9857***	6.8315***	1.6946***	-1.9384***	1.7629***	1.0138***
	(6.4429)	(7.3181)	(3.1697)	(-6.0540)	(5.4971)	(3.6162)
$SoShare^2$× FV	-3.5677***	-7.9805***	-2.0793***	2.3377***	-2.0922***	-1.2194***
	(-7.2063)	(-8.1349)	(-3.4933)	(6.7966)	(-5.4479)	(-3.6986)
Observations	5,771,482	5,771,482	5,771,482	5,771,482	5,771,482	5,771,482
R-squared	0.5571	0.5572	0.5570	0.5571	0.5571	0.5570
Number of Firms	76930	76930	76930	76930	76930	76930
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8
Panel B: with Firm × Year FE and Sector FE						
SoShare× FV	5.6917***	13.5507***	4.7557***	-1.9242***	3.7343***	2.0519***
	(7.4727)	(9.4272)	(4.8263)	(-5.9839)	(6.6323)	(4.8394)
$SoShare^2$× FV	-6.5175***	-15.2458***	-5.3941***	2.3007***	-4.1860***	-2.3409***
	(-8.0437)	(-10.1373)	(-5.1834)	(6.7063)	(-6.4039)	(-4.8431)
Observations	5,746,551	5,746,551	5,746,551	5,771,482	5,746,551	5,746,551
R-squared	0.6196	0.6197	0.6194	0.5571	0.6195	0.6194

Notes: The dependent variable is $logExports_{fit}$. All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

from specifications (1) and (2). Firms exhibit export advantages in sectors with higher financing needs and lower financing ability, with these advantages increasing initially and then decreasing, eventually turning negative when the share of state ownership becomes dominant (See Table 13). The descriptive analysis of financial vulnerabilities in the 3-digit SIC code can be found in Table C3. Results obtained with export volumes as the dependent variable are reported in Table C4 - C5, and they remain consistent with our priors.

In addition, as the measurement of the sectors' financial vulnerability based on Compustat data for all publicly listed US companies may not match Chinese sectors' baselines perfectly, we re-estimate sectors' financial vulnerability indicators based on the Annual Census of Industrial Enterprises (ACIE) constructed by China's National Bureau from 2000 to 2007 as a robustness test. All the Chi-

nese financial vulnerability measures are constructed with the same methodology as Rajan and Zingales (1998). We thus use financial vulnerability calculated by Chinese data to re-regress Specification (1) and (2) (Table 14). The outcomes align with our anticipation (Table 14). Table C6 provides the descriptive analysis of financial vulnerabilities in the 3-digit SIC code. The results from models using export volumes as the dependent variable are presented in Table C7 - C8, and they uphold our initial expectations.

Moreover, to examine the quadratic association between state ownership and export performance in financially more vulnerable sectors, we also run specifications (1) and (2), including the linear term and cubic term of state ownership. The results in Table C11 and Table C12 suggest that there is no consistently significant linear relationship between state ownership and export performance in financially more sensitive sectors. On the other hand, the results presented in Table C9 and Table C10 show that the two turning points of this cubic relationship are 28% and 98%, indicating that the quadratic relationship still approximately holds within the range (0,1). These results implicitly support our hypothesis of the quadratic relationship.

4.7 Additional Regressions

In this section, we first split the entire sample into two subgroups using the turning point estimated by specification (1) and assess the linear relationship between the share of state ownership and firm exports through financial vulnerability. Subsample 1 denotes the sample where firms possess a share of state ownership below 42.05%, whereas Subsample 2 designates the sample where firms have a share of state ownership higher than 42.05%. Subsequently, we can further explore the interactive effect of state ownership with other factors related to credit constraints, such as productivity, firm size, processing trade, foreign capital, financial development level, durable goods, and the exchange rate regime reform, across sectors on firm exports.

Table 15 presents the results of specification (1) without the square term of

Table 15: Regressions in Subsample 1 with Firm FE, Year FE and Sector FE

FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Dependent Variable: $logExport_{fit}$						
SoShare	-0.1696	-0.0723	-0.4577**	-0.2691	-0.2614	-0.4491**
	(-0.9172)	(-0.4013)	(-2.1210)	(-1.4426)	(-1.2834)	(-2.1416)
SoShare× FV	0.8921***	0.6795***	1.4415***	-1.1534***	0.9611***	0.9904***
	(3.5200)	(2.9254)	(4.8740)	(-4.3751)	(4.8893)	(5.4748)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,611,836	5,611,836	5,611,836	5,611,836	5,611,836	5,611,836
R-squared	0.5547	0.5547	0.5548	0.5547	0.5547	0.5547
Number of Firms	75037	75037	75037	75037	75037	75037
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8
Panel B: Dependent Variable: $logQuantity_{fit}$						
SoShare	-0.1815	-0.1346	-0.3969*	-0.2289	-0.3084	-0.4601**
	(-0.9670)	(-0.7452)	(-1.9479)	(-1.1764)	(-1.5917)	(-2.3183)
SoShare× FV	0.4356**	0.3338*	0.8801***	-0.5599**	0.6595***	0.7173***
	(1.9898)	(1.7114)	(3.4144)	(-2.2777)	(3.8216)	(4.4216)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,610,310	5,610,310	5,610,310	5,610,310	5,610,310	5,610,310
R-squared	0.6362	0.6362	0.6362	0.6362	0.6362	0.6362
Number of Firms	75022	75022	75022	75022	75022	75022
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

the share of state ownership, indicating that when the share of state ownership is below the turning point, firms with a higher share of state ownership experience lower credit constraints and consequently exhibit superior performance in sectors with higher financing needs and lower financing ability. The underlying reason is that state ownership can serve as an implicit government guarantee, facilitating firms in accessing external funding more easily and at a lower cost. The results are then confirmed by the results of specification (2) without the square term reported in Table 16: the coefficient of the interaction term of share of state

Table 16: Regressions in Subsample 1 with Firm-Year FE and Sector FE

Panel A: Dependent Variable: $logExport_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare \times FV$	1.4658***	1.1679***	2.6944***	-1.7803***	2.3291***	2.3404***
	(3.8585)	(3.1415)	(6.0903)	(-4.9091)	(6.8076)	(7.5541)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm ×Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,588,509	5,588,509	5,588,509	5,588,509	5,588,509	5,588,509
R-squared	0.6165	0.6164	0.6166	0.6165	0.6166	0.6166
Panel B: Dependent Variable: $logQuantity_{fit}$						
$SoShare \times FV$	0.7861**	0.6445*	1.7853***	-0.9274**	1.7007***	1.8061***
	(2.2570)	(1.9579)	(4.2561)	(-2.5601)	(5.1141)	(6.0500)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm ×Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,586,998	5,586,998	5,586,998	5,586,998	5,586,998	5,586,998
R-squared	0.6913	0.6913	0.6914	0.6913	0.6914	0.6914

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

ownership and financial vulnerability is positive except for the tangible asset ratio as expected. Moreover, Table C3 and Table C4 present the results derived from Subsample 2. These results still align with our expectations, as the coefficient of the interaction term remains negative. This implies that with an increasing share of state ownership, firms become more credit-constrained and consequently export less in financially more vulnerable sectors. This finding can be attributed to firms becoming less productive as the share of state ownership increases after the share becomes dominant.

We first investigate whether our baseline findings vary under different trade modes. In theory, ordinary trade generally requires more working capital as it involves costs for product design, domestic and foreign inputs, import duties on foreign inputs, final assembly, and distribution abroad. On the contrary, processing trade demands less financial liquidity, as it does not bear costs for product design, import tariffs, or distribution (Li, Ouyang and Zhang, 2023). Therefore, only financially healthier enterprises can pursue more ordinary trade

Table 17: Processing Trade Firms *v.s.* Ordinary Trade Firms

Panel A: Processing Trade Firms					
FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
$SoShare$	-0.4894*	-1.4055***	-0.8294***	-0.5290*	-0.7907***
	(-1.7869)	(-4.3043)	(-3.0034)	(-1.8629)	(-2.6842)
$SoShare \times FV$	1.0655***	2.6349***	-1.8271***	1.2547***	1.3058***
	(3.8843)	(8.3738)	(-5.6824)	(4.8291)	(5.5923)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	3,063,773	3,063,773	3,063,773	3,063,773	3,063,773
R-squared	0.5257	0.5259	0.5257	0.5257	0.5257
Number of Firms	19175	19175	19175	19175	19175
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Panel B: Ordinary Trade Firms					
$SoShare$	0.4628*	0.4864*	0.4045	0.0435	-0.0043
	(1.7586)	(1.8744)	(1.5429)	(0.1299)	(-0.0129)
$SoShare \times FV$	0.4438	-0.1040	-0.3767	0.9118***	0.7510***
	(1.3362)	(-0.2470)	(-1.1127)	(3.7138)	(3.3084)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,821,398	1,821,398	1,821,398	1,821,398	1,821,398
R-squared	0.5359	0.5359	0.5359	0.5360	0.5360
Number of Firms	25104	25104	25104	25104	25104
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Difference P-value	0.000	0.000	0.000	0.013	0.001

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. The full sample is divided into two subsamples according to trade type. All variables are defined in Table 3. Difference P-value is obtained by Chow test (Chow, 1960). Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

relative to processing trade, especially in financially vulnerable sectors. This suggests that, on one hand, financial frictions have a less significant impact on processing trade flows compared to ordinary trade when firms have a higher share of state ownership in Subsample 1. On the other hand, financial friction exerts a more substantial impact on ordinary trade flows than processing trade when firms have a higher share of state ownership in Subsample 2. To test this hypothesis, we

Table 18: High TFP Firms *v.s.* Low TFP Firms

FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
Panel A: High TFP Companies					
SoShare	-0.3568	-0.8058***	-0.5589**	-0.8085***	-1.0529***
	(-1.5775)	(-2.9292)	(-2.4287)	(-3.1029)	(-3.8612)
SoShare × *FV*	0.9557***	1.6343***	-1.4257***	1.3410***	1.3477***
	(3.6445)	(4.9536)	(-4.9910)	(6.4528)	(7.1500)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	3,304,213	3,304,213	3,304,213	3,304,213	3,304,213
R-squared	0.5350	0.5351	0.5351	0.5351	0.5351
Number of Firms	22732	22732	22732	22732	22732
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Panel B: Low TFP Companies					
SoShare	0.6657**	0.5190*	0.6699**	0.7035***	0.6491**
	(2.5917)	(1.9560)	(2.4376)	(2.7221)	(2.5337)
SoShare × *FV*	-0.1513	0.8025**	0.0899	0.3019	0.1211
	(-0.6035)	(2.4070)	(0.2641)	(1.1475)	(0.5160)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,580,958	1,580,958	1,580,958	1,580,958	1,580,958
R-squared	0.4777	0.4778	0.4777	0.4777	0.4777
Number of Firms	21547	21547	21547	21547	21547
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Difference P-value	0.000	0.000	0.000	0.000	0.000

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. The full sample is divided into two sub-samples according to the firm's productivity level that is estimated using Levinsohn and Petrin (2003) methodology. Firms whose TFP is below the median level of all firms' average TFP are grouped into low TFP sub-sample. Otherwise, they belong to the high TFP sub-sample. All variables are defined in Table 3. The difference P-value is obtained by Chow test (Chow, 1960). Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

further divide our subsamples based on trade modes and re-estimate specifications (1) and (2) with these new subsamples. The results in Table 17 and Table E1 confirm our hypothesis, as coefficients on the interaction terms are significant only for firms engaged in processing trade in Table 17 and ordinary trade in

Table 19: Big Firms *v.s.* Small Firms

Panel A: Big Firms					
FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
SoShare	-0.2058	-0.5441**	-0.3868*	-0.6618***	-0.8436***
	(-1.0281)	(-2.2104)	(-1.8587)	(-2.7629)	(-3.3629)
SoShare × *FV*	0.8097***	1.3611***	-1.2152***	1.2359***	1.1956***
	(3.1927)	(4.3018)	(-4.3339)	(6.0519)	(6.4503)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	3,220,619	3,220,619	3,220,619	3,220,619	3,220,619
R-squared	0.5319	0.5319	0.5319	0.5320	0.5320
Number of Firms	21998	21998	21998	21998	21998
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Panel B: Small Firms					
SoShare	0.9599**	0.5179	0.9704**	0.9025***	0.9195***
	(2.5367)	(1.2947)	(2.4017)	(2.6731)	(2.9316)
SoShare × *FV*	0.0039	1.0264**	0.0167	-0.1712	-0.3082
	(0.0176)	(2.3846)	(0.0449)	(-0.6276)	(-1.1076)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,664,552	1,664,552	1,664,552	1,664,552	1,664,552
R-squared	0.4493	0.4494	0.4493	0.4493	0.4493
Number of Firms	22281	22281	22281	22281	22281
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Difference P-value	0.001	0.005	0.000	0.000	0.000

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. The full sample is divided into two sub-samples according to firm's size that is estimated by total assets. Firms whose size is below the median level of all firms' median size are grouped into small firms sub-sample, otherwise they belong to big firms sub-sample. All variables are defined in Table 3. Difference P-value is obtained by Chow test (Chow, 1960). Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table E1.

We further investigate whether our baseline results are influenced by factors such as productivity, firm size, and foreign capital. Larger and more productive firms tend to face fewer credit constraints than smaller and less productive ones.

Table 20: Foreign Firms *v.s.* Domestic Firms

FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
Panel A: Foreign Firms					
SoShare	-0.1506	-0.7283**	-0.3318	-0.6234*	-0.8678**
	(-0.5286)	(-2.1010)	(-1.1546)	(-1.9596)	(-2.6072)
SoShare × *FV*	1.0225***	1.9068***	-1.4914***	1.5847***	1.5574***
	(3.1892)	(4.8417)	(-4.6907)	(5.9208)	(6.7135)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,708,527	1,708,527	1,708,527	1,708,527	1,708,527
R-squared	0.5444	0.5445	0.5444	0.5446	0.5446
Number of Firms	13566	13566	13566	13566	13566
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Panel B: Domestic Firms					
SoShare	-0.0952	-0.2516	-0.1516	-0.1088	-0.1853
	(-0.3633)	(-0.9921)	(-0.5505)	(-0.4160)	(-0.6900)
SoShare × *FV*	0.3616*	0.7573**	-0.4391	0.3541	0.3728*
	(1.7706)	(2.5530)	(-1.3903)	(1.5498)	(1.8005)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	3,176,643	3,176,643	3,176,643	3,176,643	3,176,643
R-squared	0.5445	0.5445	0.5445	0.5445	0.5445
Number of Firms	30713	30713	30713	30713	30713
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Difference P-value	0.000	0.000	0.000	0.000	0.000

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. The full sample is divided into two subsamples according to whether they have foreign capital. All variables are defined in Table 3. Difference P-value is obtained by Chow test (Chow, 1960). Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Besides, foreign firms may have access to additional funds from their parent companies, influencing their financial conditions (Manova, 2013). Therefore, when firms have a higher share of state ownership in Subsample 1, financial frictions have a less significant impact on big, productive, and foreign firms compared to others. The results in Table 18 - 20 confirm our hypothesis, as coefficients on the interaction terms are significant only for firms engaged in big, productive and

Table 21: Government Monopolized Industries *v.s.* Other Industries

FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
Panel A: State dominated sectors					
SoShare	-1.4323***	-2.2198***	-0.8569**	-2.5900***	-3.1391***
	(-3.3617)	(-4.2256)	(-2.3058)	(-4.8268)	(-4.9446)
SoShare × *Financial Vulnerability*	2.4037***	2.6594***	-1.7794***	2.2087***	2.3456***
	(4.9353)	(5.7983)	(-4.1475)	(5.7003)	(5.7559)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	403,447	403,447	403,447	403,447	403,447
R-squared	0.7537	0.7537	0.7536	0.7538	0.7538
Number of Firms	5790	5790	5790	5790	5790
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Panel B: Other sectors					
SoShare	-0.0070	-0.3224	-0.2013	-0.1346	-0.3010
	(-0.0359)	(-1.5113)	(-0.9953)	(-0.6459)	(-1.4392)
SoShare × *Financial Vulnerability*	0.5765**	1.3267***	-1.0496***	0.9085***	0.9205***
	(2.4764)	(4.1587)	(-3.7651)	(4.3312)	(4.6915)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	5,208,183	5,208,183	5,208,183	5,208,183	5,208,183
R-squared	0.5421	0.5421	0.5421	0.5421	0.5421
Number of Firms	71250	71250	71250	71250	71250
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Difference P-value	0.000	0.000	0.000	0.000	0.000

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. We partitioned the entire sample into two sub-samples based on the sectors of firms. Sectors are categorized into government monopolized industries *v.s.* Other industries. All variables are defined in Table 3. The difference P-value is obtained by Chow test (Chow, 1960). Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

foreign firms in Table 18 - 20. The results in Subsample 2 are reported in the Appendix Table E2 - E4 and most of the results are consistently significant with our priors.

Moreover, our study investigates the impact of government monopolized industries on the share of state capital, demonstrating that implicit government guarantees are particularly effective in government monopolized industries. This

Table 22: Financial Developed Provinces *v.s.* Financial Developing Provinces

Panel A: Financial Developed Provinces					
FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
$SoShare$	-0.2446	-1.1038***	-0.5376**	-0.5616**	-0.8384***
	(-0.9522)	(-3.4830)	(-2.0297)	(-2.0958)	(-2.9740)
$SoShare \times FV$	1.1085***	2.5564***	-1.8092***	1.3089***	1.3824***
	(3.5303)	(7.3743)	(-5.1565)	(5.2846)	(6.0597)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	3,621,280	3,621,280	3,621,280	3,621,280	3,621,280
R-squared	0.5589	0.5591	0.5590	0.5590	0.5590
Number of Firms	45534	45534	45534	45534	45534
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Panel A: Financial Developing Provinces					
$SoShare$	-0.0035	0.0602	-0.0627	-0.0786	-0.1682
	(-0.0130)	(0.2227)	(-0.2287)	(-0.2871)	(-0.5984)
$SoShare \times FV$	0.2037	-0.0075	-0.3494	0.4947**	0.4956**
	(0.7721)	(-0.0211)	(-1.1599)	(1.9945)	(2.1157)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,990,248	1,990,248	1,990,248	1,990,248	1,990,248
R-squared	0.5571	0.5571	0.5571	0.5571	0.5571
Number of Firms	31990	31990	31990	31990	31990
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Difference P-value	0.084	0.000	0.019	0.069	0.027

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. We partitioned the entire sample into two sub-samples based on the locations of firms. Provinces are categorized into two groups, distinguishing their financial development levels using the ratio of total loans to GDP as the measure. Firms situated in provinces with a financial development level below the mean levels across all provinces are classified into the financially developing provinces sub-sample. Firms located in provinces exceeding this mean level are assigned to the financially developed provinces sub-sample. All variables are defined in Table 3. The difference P-value is obtained by Chow test (Chow, 1960). Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

leads to a more pronounced effect of state capital in lowering financing costs within these sectors. To analyze these differences, we segment our sample into two groups based on whether the industry is categorized as a government mo-

nopolized industry. Government monopolized industries includes natural and administrative monopolized industries.The 12 industries considered natural monopolies in China are electric power, telecommunications, railroad transportation, civil aviation, highways, water transportation and port facilities, postal services, natural gas production and pipeline transportation, urban water supply, urban gas supply, urban residential heating, and urban sewage. The five administrative monopolies include petroleum, refined petroleum products, broadcasting, wireless and cable television stations, tobacco, and salt. The results presented in Table 21 confirm our hypothesis that the credit advantages of state-owned capital are significantly more substantial in government monopoly industries.

In addition, companies typically obtain external funding from banks or other financial institutions in the province they are located, and there is significant variation in the scale of loans across Chinese provinces in terms of access to credit. We explore this variation to shed light on the financing practices of companies introducing state ownership through the local capital market. In regions with a smaller scale of available loans, firms with certain state ownership cannot obtain external finance like pure private firms. Therefore, only in provinces with the larger scale of total loans state ownership can lower financing cost. We empirically explore this variation by dividing the subsamples further into two sub-samples by the financial development level of the province where the firm is located. The financial development level is measured by the ratio of total loans to GDP, where total loans are available from the Almanac of China's Finance and Banking. The results in Table 22 confirm our hypothesis, as coefficients on the interaction terms are significant only for firms located in financially developed provinces.

We admit that it is very difficult to deal with endogeneity problem empirically in this nonlinear context. We, therefore, construct the following theoretical framework to address the causality issue.

5 The Model

The empirical analysis shows that the introduction of state ownership helps relax the financial restrictions that firms face on exports but this advantage deteriorates as the share of state ownership increases. The following simple model illustrates a potential mechanism of how state ownership influences exports through credit constraints. To motivate our empirical analysis, we incorporate state ownership, credit constraints and firm heterogeneity into a static, partial equilibrium model in the spirit of Melitz (2003) and Manova (2013).

A Continuum of firms F produce differentiated goods in a country and S sectors and export to I countries. We thus use subscript i to denote destination countries, s to denote sectors and f to denote firms in this model. Country i's utility function is a Cobb-Douglas aggregate:

$$U_i = \Pi_s C_{is}^{\theta_s}$$

where C_{is} is the sector-specific CES consumption index:

$$C_{is} = [\int q_{is}(\omega)^{\alpha} d\omega]^{\frac{1}{\alpha}}$$

where $\omega \in \Omega_{is}$. Ω_{is} is the set of available consumption goods and $\varepsilon = 1/(1-\alpha) > 1$ is the elasticity of substitution. θ_s is the share of s sector's output in total expenditure Y_i and $\theta_s \in (0,1)$ and $\sum_s \theta_s = 1$. Given $P_{is} = [\int p_{is}(\omega)^{1-\varepsilon} d\omega]^{\frac{1}{1-\varepsilon}}$ is the price index, i's demand for the goods with price $p_{is}(\omega)$ is:

$$q_{is}(\omega) = \frac{p_{is}(\omega)^{-\varepsilon} \theta_s Y_i}{P_{is}^{1-\varepsilon}}$$

5.1 Domestic Producers

Firms in the home country are required to pay a sunk entry cost $c_s f_e$ in order to enter the domestic market and draw a productivity level $1/a$ from a cumulative distribution function $G(a) = (\frac{a-a_L}{a_H-a_L})^k$, where $a_H \geq a_L \geq 0$. Firms

decide their own ownership structure with the share of state ownership $g_f \in [0,1]$ when entering the market. Firms have to pay $c_s a$ to manufacture 1 unit of product. Note that g_f is only decided by firm f. c_s is the cost of a cost-minimizing bundle of inputs specific to each sector s. It captures differences in aggregate productivity, factor prices and factor intensities across sectors. $G(a)$ does not depend on s.

To focus on the effect of state ownership on exports through credit constraints, we follow the same assumptions in Manova (2013). The first is that firms' domestic activities of production and sales are financed with operating cash flows. The second one is that no fixed cost is required to serve the home market. Thus, all firms will enter into the sector and produce in the domestic market.[9]

5.2 Credit-Constrained Exporters

By paying a fixed export cost $c_s f_i$, firms in the home country can export to the country i. Exporters also face iceberg trade costs such as transportation loss so that $\tau_i > 1$ units of product needed to be shipped in order for 1 unit to arrive. Therefore, the variable cost of the marginal product is $\tau_i c_s a$.

To serve foreign markets, firms have a financing demand. Although variable costs can be funded internally, a fraction $d_s \in (0,1)$ of the fixed cost borne by firms has to be supported with external funding. In the case when only fixed costs need external finance and variable costs can be covered with internal funds, exporters in sector s need to borrow $d_s c_s f_i$ to export to country i. However, the state intervention over the firm's daily management reduces the real effective funding the firm can utilize. The higher the share of state ownership, the bigger

[9] Manova (2013) examines the channels through which credit constraints distort international trade. She finds that only 20%-25% of the impact of credit constraints on trade is driven by the reduction in aggregate output. In other words, credit constraints reduce foreign exports disproportionately more than domestic production. There is much other literature showing that exporters are more sensitive to credit constraints than firms who just sell products in the domestic market (Minetti and Zhu, 2011; Feenstra, Li and Yu, 2014). Therefore the assumption that credit constraints are not binding for firms serving the home market seems reasonable. If we relax the assumption, the results of our model would not change qualitatively.

intervention the state exercises in its daily management. Therefore, firms with the share of state ownership g_f engaged in exporting activities face an iceberg loss $v(g_f)$ of the outside capital, where $v(g_f) > 1$ and $v'(g_f) > 0$. It increases with the firm's share of state ownership. This specification ensures the iceberg cost is bigger than 1 and the ability to intervene in the firm's management grows stronger as the share increases. Thus, $v(g_f)d_s c_s f_i$ need to be borrowed for $d_s c_s f_i$ to use for exporting activities in s and country i. Accordingly, they have to pledge collateral. A fraction $t_s \in (0, 1)$ of the tangible assets that can be used as collateral from the fixed entry cost.[10] A firm uses part of the sunk entry cost $t_s c_s f_e$ to support its external finance.[11] Note that d_s and t_s are only decided by sectors and exogenous from the perspective of individual firms.

All firms are in the same home country. They thus face the same levels of financial contractibility. An investor can expect to be repaid F with probability $\lambda \in (0, 1)$, where λ is exogenous to the model and determined by the development of their home country's financial institutions.[12] In the case that the financial contract is not enforced by the firm with probability $(1 - \lambda)$, the firm defaults and the creditor takes the collateral $t_s c_s f_e$ from the firm. Therefore, the firm's expectation of repayment to investors is $\lambda F_{ifs} + (1 - \lambda)t_s c_s f_e$.

We assume that financial contracting proceeds as follows. At the beginning of each period, each firm makes a take-it-or-leave-it offer to potential investors like banks and financial institutions. In the case the contract is enforced, it specifies the amount the firm needs to borrow, which is $v(g_f)d_s c_s f_i$, and the financing cost $1+i$ the firm faces. Since the Chinese government endows firms with state ownership with implicit guarantees for bank borrowing (Song, Storesletten

[10] Firms might invest in tangible assets to increase their capacity for raising outside capital. This will be costly if the firm's asset structure deviates from the first-best.

[11] The results of the model will not change if the fixed cost is collateralizable instead of the sunk entry cost

[12] Note that the higher level of home country's financial development, the easier for firms to borrow money and the less credit constraints the firms face in the home country. Since we assume all firms are in the same home country, they face the same level of credit constraints at the country-level. The model's qualitative results will not change if we expand it into J different home countries.

and Zilibotti, 2011), the firms with a higher share of state ownership enjoy a lower financing cost.[13] Therefore, when a pure private firm faces a financing cost of $1+i$, the firm with g_f share of state ownership faces a financing cost of $(1+i)u(g_f)$, where $\frac{1}{1+i} < u(g_f) < 1$ and $u'(g_f) < 0$. So the financing cost is lower than $1+i$ and bigger than 1. We assume that the negative effect caused by state ownership, which is measured by $v(g_f)$ can eventually outweigh the positive effect accompanied with state ownership, which is measured by $u(g_f)$. The investor can expect to receive $F_{ifs} = v(g_f)d_s c_s f_i(1+i)u(g_f)$ when the contract is enforced. Note that only $[u(g_f)v(g_f)]'' > 0$ can the inefficiency caused by the state ownership eventually cover the low financing cost the firms enjoyed. In case of default, it also appoints the collateral. Revenues are then realized and the investor receives payment at the end of the period.

In each period, given the variable cost can be covered by internal cash flows and only part of fixed cost is financed with outside capital, firm f in sector $s$choose their export price and quantity in the market of country i to maximize their profits

$$\max_{p,q} \pi_{i,f,s}(a) = p_{ifs}(a)q_{ifs}(a) - q_{ifs}(a)\tau_i c_s a - (1-d_s)c_s f_i - [\lambda F_{ifs} + (1-\lambda)t_s c_s f_e]$$

Subject to:

$$q_{ifs}(a) = \frac{p_{ifs}(a)^{-\varepsilon}\theta_s Y_i}{P_{is}^{1-\varepsilon}} \tag{5.2.1}$$

$$A_{ifs}(a) \equiv p_{ifs}(a)q_{ifs}(a) - q_{ifs}(a)\tau_i c_s a - (1-d_s)c_s f_i \geq F_{ifs} \tag{5.2.2}$$

where $F_{ifs} = v(g_f)d_s c_s f_i(1+i)u(g_f)$.

In the absence of credit constraints, exporting firms maximize their profits subject to demand (5.2.1). With external financing, two additional conditions bind firms' decisions. Note that firms can offer, at most, their net revenue A_{ifs}

[13] On the one hand, it is easier for firms engaged in state ownership to borrow the outside funding they need. On the other hand, they are able to borrow from formal banks with a lower interest rate than pure private ones.

to the investors (5.2.2). Note that if credit constraint (5.2.2) does not bind, the model's solution is the same as Melitz (2003):

$$p_{is}(a) = \frac{\tau_i c_s a}{\alpha} \tag{5.2.3}$$

$$q_{is}(a) = \frac{p_{is}(a)^{-\varepsilon}\theta_s Y_i}{P_{is}^{1-\varepsilon}} \tag{5.2.4}$$

$$r_{is}(a) = p_{is}(a)q_{is}(a) = (\frac{\tau_i c_s a}{\alpha P_{is}})^{1-\varepsilon}\theta_s Y_i \tag{5.2.5}$$

$$\pi_{is}(a) = (1-\alpha)r_{is}(a) - c_s f_i = (1-\alpha)(\frac{\tau_i c_s a}{\alpha P_{is}})^{1-\varepsilon}\theta_s Y_i - c_s f_i \tag{5.2.6}$$

5.3 Selection into Exporting

Since net revenues $A_{ifs}(a)$ is an increasing function of productivity 1/a, the credit constraint (5.2.2) must bind for firms with lower productivity than a certain cut-off $1/a_{ifs}$. Plugging the optimal solutions from (5.2.3) and (5.2.4) into (5.2.2), the cut-off is given by the condition

$$r_{ifs}(a_{ifs}) = (\frac{\tau_i c_s a_{ifs}}{\alpha P_{is}})^{1-\varepsilon}\theta_s Y_i = \varepsilon\{c_s f_i[(f(g_f)-1)d_s + 1]\} \tag{5.3.1}$$

where $f(g_f) = v(g_f)u(g_f)(1+i)$. Note that $f(g_f) > 1$ due to $v(g_f) > 1$ and $(1+i)u(g_f) > 1$. Accordingly, we have:

$$\begin{cases} f'(g_f) > 0, if\ g_f > g_f^* \\ f'(g_f) < 0, if\ 0 < g_f < g_f^* \end{cases}$$

We obtained g_f^* from $v'(g_f)u(g_f) + v(g_f)u'(g_f) = 0$. Then, we label the left hand side of (5.3.1) as LHS_1, which has a positive relationship with productivity cut-off ($\frac{\partial LHS_1}{\partial 1/a_{ifs}} > 0$). Similarly, we label $c_s f_i(1 + f(g_f)d_s)$ from the right hand side of (5.3.1) as RHS_1.

Based on the condition (5.3.1), we have the following derivatives:

$$\begin{cases} \frac{\partial RHS_1}{\partial d_s} = c_s f_i f(g_f) > 0 \\ \frac{\partial RHS_1}{\partial g_f} = c_s f_i d_s f'(g_f) \\ \frac{\partial^2 RHS_1}{\partial d_s \partial g_f} = c_s f_i f'(g_f) \end{cases}$$

Since revenue $r_{ifs}(a_{ifs})$ are strictly increasing in productivity $1/a_{ifs}$ and $LHS_1 = RHS_1$, we reach that $\frac{\partial LHS_1}{\partial d_s} > 0$. Thus the second part of $\frac{\partial LHS_1}{\partial d_s}$ must be positive, i.e. $\frac{\partial 1/a_{ifs}}{\partial\ d_s} > 0$. In addition, we reach the following result:

$$\begin{cases} \frac{\partial^2 1/a_{ifs}}{\partial d_s g_f} < 0, if\ 0 < g_f < g_f^* \\ \frac{\partial^2 1/a_{ifs}}{\partial d_s g_f} > 0, if\ g_f > g_f^* \end{cases}$$

which can be summarized as the following proposition:

Proposition 1 *(Cut-off) All else constant, the productivity cut-off is higher in credit more constrained sectors as indicated in* $\frac{\partial 1/a_{ifs}}{\partial\ d_s} > 0$. *Compared to pure private firms, the negative effects of credit constraints on productivity cut-off are alleviated firstly as* $\frac{\partial^2 1/a_{ifs}}{\partial d_s \partial g_f} < 0$. *However, as the share of state ownership increases, the dampening effect of credit constraints on the productivity threshold is magnified as in* $\frac{\partial^2 1/a_{ifs}}{\partial d_s \partial g_f} > 0$.

Since exporters' manufacturing goods are differentiated, the lower the cut-off is, the greater the quantity of exporters and the number of products sold abroad. Thus, proposition 1 also indicates that credit conditions influence both the probability ρ_{ifs} and product variety X_{ifs} to export:

Corollary 1 *(Probability to export) For bilateral trade, credit constraints push up the productivity threshold of export and thus distort the probability that firms export to country i. While for firms with state ownership, this negative effect on probability is reduced when firms' share of state ownership is less than* g^* *(*$\frac{\partial \rho_{ifs}}{\partial d_s} < 0$, $\frac{\partial^2 \rho_{ifs}}{\partial d_s \partial g_f} > 0$*). However, if the firms' share of state ownership increases beyond the critical point* g_f^**, the influence of credit constraints further aggravates (*$\frac{\partial^2 \rho_{ifs}}{\partial d_s \partial g_f} < 0$*).*

Corollary 2 *(Product variety) Credit constraints distort product varieties as* $\frac{\partial^2 X_{ifs}}{\partial d_s} < 0$. *The negative effect is less pronounced when the firms' share of state ownership is less than* g_f^* *as* $\frac{\partial^2 X_{ifs}}{\partial d_s \partial g_f} > 0$ *and more significant when* $g_f > g_f^*$ *as* $\frac{\partial^2 X_{ifs}}{\partial d_s \partial g_f} < 0$.

Since firms are able to export to diverse destinations, they choose their trade destinations based on profitability. While the profit is only determined by τ_i, P_{is}, Y_i and f_i based on (5.2.6), exporters will add their destinations following the decreasing order of profitability until their financial resources are used up. Firms decide the number of destinations, price and quantity to maximize their global profit:

$$\begin{aligned}\max_{p,q,I,F} \pi_{f,s}(a) = &\sum_{i=1}^{I} p_{ifs}(a) q_{ifs}(a) - \sum_{i=1}^{I} q_{ifs}(a) \tau_i c_{js} a - (1 - d_s) c_s \sum_{i=1}^{I} f_i \\ &- [\lambda F_{ifs} + (1 - \lambda) t_s c_s f_e]\end{aligned}$$

Subject to:

$$q_{ifs}(a) = \frac{p_{ifs}(a)^{-\varepsilon} \theta_s Y_i}{P_{is}^{1-\varepsilon}} \tag{5.3.2}$$

$$A_{fs}(a) \equiv \sum_{i=1}^{I} p_{ifs}(a) q_{ifs}(a) - \sum_{i=1}^{I} q_{ifs}(a) \tau_i c_s a - (1 - d_s) c_s \sum_{i=1}^{I} f_i \geq F_{ifs} \tag{5.3.3}$$

where $F_{ifs} = v(g_f) d_s c_s \sum_{i=1}^{I} f_i (1 + i) u(g_f)$.

Note that if (5.3.3) is not binding, firms will choose the first-best price and quantity in each of the countries they serve. For any given I, there is a productivity threshold under condition (5.3.3). Plugging the optimal price into $A_{jst}(a_{jst,I}) = F_{ifs}$, the threshold is given by the following:

$$\sum_{i=1}^{I} r_{ifs}(a_{fs,I}) = \sum_{i=1}^{I} (\frac{\tau_i c_s a_{fs,I}}{\alpha P_{is}})^{1-\varepsilon} \theta_s Y_i = \varepsilon\{c_s \sum_{i=1}^{I} f_i(1 + f(g_f)d_s)\} \qquad (5.3.4)$$

Therefore, country j exports to I destinations only if at least one firm is more productive than the cut-off $1/a_{fs,I}$ and exports to these I countries. It can be concluded that the lower the cut-off $1/a_{fs,I}$, the more destinations I_{fs} will be served by exporters, i.e. $\frac{\partial I_{fs}}{\partial 1/a_{fs,I}} < 0$.

The left-hand side of (5.3.4) is increasing in $1/a_{fs,I}$. Note that both the left-hand side and the right-hand side inherits all properties of LHS_1 and RHS_1 above. This implies that $\frac{\partial 1/a_{fs,I}}{\partial d_s} > 0$, $\frac{\partial^2 1/a_{ifs}}{\partial d_s \partial g_f} < 0$ when $g_f < g_f^*$ and $\frac{\partial^2 1/a_{ifs}}{\partial d_s \partial g_f} > 0$ when $g_f > g_f^*$ Thus the following proposition can be drawn:

Proposition 2 *(Trade destinations) All else constant, sector-level credit constraints decreases the number of export destinations as* $\frac{\partial I_{fs}}{\partial d_s} < 0$*, while firms with share of state ownership less than* g_f^* *can reduce this negative effect as* $\frac{\partial^2 I_{fs}}{\partial d_s \partial g_f} > 0$*. However, if the state acquires the firms' share of state ownership more than* g_f^**, this negative effect become even more severe as* $\frac{\partial^2 I_{fs}}{\partial d_s \partial g_f} < 0$*.*

5.4 Level of Firm Exports

Until now, the analysis above assumes that only fixed export cost is financed by outside capital. In this section, we discuss the impact of state ownership on credit constraints under the scenario that part of both fixed export cost and variable costs are financed with outside funds. When exporters need outside funds for a fraction d_s of both fixed and variable costs, their profit maximization problem is as following:

$$\begin{aligned}\max_{p,q,F} \pi_{i,f,s}(a) =& p_{ifs}(a)q_{ifs}(a) - (1-d_s)q_{ifs}(a)\tau_i c_s a - (1-d_s)c_s f_i \\ & - [\lambda F_{ifs}(a) + (1-\lambda)t_s c_s f_e]\end{aligned}$$

Subject to

$$q_{ifs}(a) = \frac{p_{ifs}(a)^{-\varepsilon}\theta_s Y_i}{P_{is}^{1-\varepsilon}} \tag{5.4.1}$$

$$A_{ifs}(a) \equiv p_{ifs}(a)q_{ifs}(a) - (1-d_s)q_{ifs}(a)\tau_i c_s a - (1-d_s)c_s f_i \geq F_{ifs}(a) \tag{5.4.2}$$

where $F_{ifs}(a) = v(g_f)d_s[c_s f_i + q_{ifs}(a)\tau_i c_s a](1+i)u(g_f)$.

Note that the new F is correlated with q_{ifs}. Now two cut-offs characterize exporters' trade activities. While all suppliers with productivity above $1/a_{ifs}^L$ sell abroad, only those with productivity above a higher cut-off $1/a_{ifs}^H > 1/a_{ifs}^L$ export at the price and quantity levels that obtain in the absence of credit constraints. Firms with productivity below $1/a_{ifs}^H$ would not earn sufficient revenues to repay the investor if they exported at first-best levels. Instead, they choose to export at lower quantities in order to reduce the amount of external finance they need to repay $F_{ifs}(a)$. This allows them to meet the investors' participation constraint with a lower repayment $F_{ifs}(a)$. In this way, firms with intermediate productivity levels earn some export profits, albeit lower than their first-best $(1/a \in [1/a_{ifs}^L, 1/a_{ifs}^H))$.

With productivity above $1/a_{ifs}^H$, the liquidity constraint (5.4.2) does not bind, firms export at their unbinding first-best price as in Melitz (2003). $A_{ifs}(a_{ifs}^H) = F(a_{ifs}^H)$ defines the level of $1/a_{ifs}^H$ as follows:

$$[1-(1-d_s)\alpha - f(g_f)d_s\alpha](\frac{\tau_i c_s a_{ifs}^H}{\alpha P_{is}})^{1-\varepsilon}\theta_s Y_i = c_s f_i\{d_s[f(g_f)-1]+1\} \tag{5.4.3}$$

where $f(g_f) = v(g_f)u(g_f)(1+i)$.

Denote the right-hand side of (5.4.3) as RHS_2 that is equal to RHS_1 and have the same properties. Defining the left-hand side of (5.4.3) as LHS_2 , we

have the following derivatives:

$$\begin{cases} \frac{\partial LHS_2}{\partial d_s} = \alpha[1 - f(g_f)](\frac{\tau_i c_s a_{ifs}^H}{\alpha P_{is}})^{1-\varepsilon}\theta_s Y_i < 0 \\ \frac{\partial^2 LHS_2}{\partial d_s \partial g_f} = -\alpha(\frac{\tau_i c_s a_{ifs}^H}{\alpha P_{is}})^{1-\varepsilon}\theta_s Y_i f'(g_f) \end{cases}$$

where

$$\begin{cases} \frac{\partial^2 LHS_2}{\partial d_s \partial g_f} > 0, if\ 0 < g_f < g_f^* \\ \frac{\partial^2 LHS_2}{\partial d_s \partial g_f} < 0, if\ g_f > g_f^* \end{cases}$$

Since the signs of the two derivatives are opposite to those of $\frac{\partial RHS_2}{\partial d_s} > 0$ and

$$\begin{cases} \frac{\partial^2 RHS_2}{\partial d_s g_f} < 0, if\ 0 < g_f < g_f^* \\ \frac{\partial^2 RHS_2}{\partial d_s g_f} > 0, if\ g_f > g_f^*. \end{cases}$$

It follows that $\frac{\partial 1/a_{ifs}^H}{\partial d_s} > 0$ and

$$\begin{cases} \frac{\partial^2 1/a_{ifs}^H}{\partial d_s g_f} < 0, if\ 0 < g_f < g_f^* \\ \frac{\partial^2 1/a_{ifs}^H}{\partial d_s g_f} > 0, if\ g_f > g_f^*. \end{cases}$$

The comparative statics for $1/a_{ifs}^H$ are thus equivalent to those for $1/a_{ifs}$ above, which is consistent with Proposition 1.

Note that maximizing profits is identical to maximizing net revenues $A_{ifs}(a)$ as long as firms finance only fixed costs externally as in Section 5.3 because F_{ifs} is not correlated with $q_{ifs}(a)$. Therefore, first-best prices and quantities can also maximize firms' possible payment to investors and hence the probability of exporting. On the contrary, when both variable costs and fixed costs require external funding, firms with productivity below $1/a_{ifs}^H$ can also conduct export activities by reducing their export quantities from the unconstrained optimum. This is because the repayment $F_{ifs}(a)$ now is correlated with $q_{ifs}(a)$, which indicates that exporting on a larger scale requires more outside finance. It increases the amount of repayment F necessary to meet the investor's participation con-

straint. Given (5.4.1), credit-constrained companies thus sell fewer products at higher prices. Since this deviation from the first-best choice decreases firms' profits, firms scale down as little as possible to ensure that investors can break even. Plugging (5.4.1) into (5.4.2) and setting $A_{ifs}(a) = F(a)$, firms prices solve

$$\frac{p_{ifs}(a)^{1-\varepsilon}\theta_s Y_i}{P_{is}^{1-\varepsilon}} - [1 - d_s + f(g_f)d_s]\tau_i c_s a \frac{p_{ifs}(a)^{-\varepsilon}\theta_s Y_i}{P_{is}^{1-\varepsilon}} = c_s f_i\{d_s[f(g_f) - 1] + 1\} \tag{5.4.4}$$

where $f(g_f) = v(g_f)u(g_f)(1 + i)$.

Credit-constrained firms choose a price between the firs-best price $p_{ifs}(a) = \frac{\tau_i c_s a}{\alpha}$ and the price that maximizs the left-hand side of (5.4.4) LHS_3. In this range, LHS_3 is increasing in $p_{ifs}(a)$ because

$$\frac{\partial LHS_3}{\partial p_{ifs}} = \frac{p_{ifs}(a)^{-1-\varepsilon}\theta_s Y_i}{P_{is}^{1-\varepsilon}}[(1 - \varepsilon)p_{ifs}(a) + \varepsilon(1 - d_s + f(g_f)d_s)\tau_i c_s a]$$

Since $p_{ifs}(a) \geq \frac{\tau_i c_s a}{\alpha}$ and $f(g_f) > 1$, we have

$$\frac{\partial LHS_3}{\partial p_{ifs}} \geq \frac{p_{ifs}(a)^{-\varepsilon-1}\theta_s Y_i}{P_{is}^{1-\varepsilon}}\varepsilon\tau_i c_s a d_s[-d_s + f(g_f)d_s] > 0$$

Note that the right-hand side of (3.4.4) RHS_3 is identical to RHS above. For LHS_3, we have the following derivatives:

$$\begin{cases} \frac{\partial LHS_3}{\partial d_s} = (1 - f(g_f))\tau_i c_s a \frac{p_{ifs}^{-\varepsilon}(a)\theta_s Y_i}{P_{is}^{1-\varepsilon}} < 0 \\ \frac{\partial LHS_3}{\partial g_f} = -d_s\tau_i c_s a \frac{p_{ifs}^{-\varepsilon}(a)\theta_s Y_i}{P_{is}^{1-\varepsilon}} f'(g_f) \\ \frac{\partial^2 LHS_3}{\partial d_s \partial g_f} = -\tau_i c_s a \frac{p_{ifs}^{-\varepsilon}(a)\theta_s Y_i}{P_{is}^{1-\varepsilon}} f'(g_f) \end{cases}$$

Since the signs of these derivatives are opposite to those of RHS_3, it follows

that

$$\frac{\partial p_{ifs}}{\partial d_s} > 0 \quad \frac{\partial^2 p_{ifs}}{\partial d_s \partial g_f} > 0, (g_f > g_f^*) \quad \frac{\partial^2 p_{ifs}}{\partial d_s \partial g_f} < 0, (0 < g_f < g_f^*)$$

Since export quantities and revenues are decreasing in the price, the comparative statistics for them are reversed:

$$\frac{\partial r_{ifs}}{\partial d_s} < 0 \quad \frac{\partial^2 r_{ifs}}{\partial d_s \partial g_f} < 0, (g_f > g_f^*) \quad \frac{\partial^2 r_{ifs}}{\partial d_s \partial g_f} > 0, (0 < g_f < g_f^*)$$

which can be summarized as the following proposition:

Proposition 3 *(Firm exports) Credit-constrained firms export more with a share of state ownership smaller than g^* and even less with the share of state ownership bigger than g^* since $\frac{\partial r_{ifs}}{\partial d_s} < 0$, $\frac{\partial^2 r_{ifs}}{\partial d_s \partial g_f} < 0 (g_f > g_f^*)$, $\frac{\partial^2 r_{ifs}}{\partial d_s \partial g_f} > 0 (0 < g_f < g_f^*)$.*

6 Concluding Remarks

We provide a new perspective for evaluating the role of state ownership. To this end, we use a large panel for over 5 million Chinese manufacturing firms during the 2000-2007 period to show that firms introducing certain state ownership help relax the restriction of credit constraints on exports while too much of it aggravates the negative effect of credit constraints. While credit constraints restrict firms' total exports, preventing them from entering new international markets and limiting their export product range, introducing a small (kitty) share of state ownership firstly helps firms to perform better, especially in financially more vulnerable sectors. This comparative advantage is consistent with the fact that exporters with state ownership are less credit-constrained because they are able to obtain external funding from banks or other financial institutions. They thus face lower financing costs than pure private ones. In contrast, once the state acquires the lion's share of the company, the loss accompanied by inefficient use of capital caused by the state's intervention over the firm's daily management outweighs the benefit it gains from low financing costs. Therefore, firms with a high share of state ownership are more credit-constrained than others and export

less, especially in financially more vulnerable sectors.

Also, to guide the empirical analysis, this paper develops a heterogeneous-agent model that incorporates the status of state ownership and credit constraints. In the model, a firm's financing cost is negatively correlated with its share of state ownership. The demand for external funding is positively associated with firms' share of state ownership because of the iceberg financing loss caused by the state's inefficient intervention. We conclude that all else constant, the productivity cut-off is higher in credit more constrained sectors. Compared to pure private firms, the negative effects of credit constraints on productivity cut-off are alleviated first and then increased as the share of state ownership increases. In other words, a firm introducing certain state ownership exports systematically greater amounts than purely private ones in financially more vulnerable sectors and, therefore, can select into financially more vulnerable sectors. However, state ownership comes along with the inefficiency of using funds, which eventually outweighs the benefits of lower financing costs. Therefore, with too much state ownership, a firm would export less in financially more vulnerable sectors.

Our findings highlight both the important role and significant negative effect of state ownership in exports, particularly for those exporters in developing countries with imperfect capital markets. Imperfect capital markets impose more binding credit constraints on firms and hinder their entrance into international markets. Although a small share of state ownership provides credit-constrained firms with the opportunity to enter the international marketplace, too much share sacrificed to the state makes the situation worse. One final remark we intend to make: even though a "kitty" share of state ownership seems to be a blessing for a firm, it still squeezes out other private firms' financing opportunities. If we take all firms as a whole, a "blessing" from a "kitty" share of state ownership may not be a real blessing for the whole society.

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Appendix

Appendix A. Intensive and Extensive Margins

Table A1: Intensive Margin - Firm Exports per year, destination, and sector

Dependent Variable:$logExport_{fitd}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
SoShare	-0.0776	0.0008	-0.2616	-0.1555	-0.1637	-0.3405*
	(-0.3926)	(0.0042)	(-1.2821)	(-0.7741)	(-0.8901)	(-1.8846)
$SoShare^2$	-0.0597	-0.1485	0.1403	0.0247	0.0937	0.3161
	(-0.2760)	(-0.6837)	(0.6307)	(0.1118)	(0.4415)	(1.4893)
SoShare× FV	0.7815***	0.6378***	1.1452***	-0.9553***	0.7978***	0.8523***
	(3.2895)	(3.0399)	(4.0743)	(-3.5868)	(4.1466)	(4.6836)
$SoShare^2$× FV	-0.8817***	-0.7381***	-1.2643***	1.0430***	-0.9967***	-1.0553***
	(-3.1658)	(-2.9628)	(-4.0181)	(3.4020)	(-4.6124)	(-5.0490)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,766,968	5,766,968	5,766,968	5,766,968	5,766,968	5,766,968
R-squared	0.4152	0.4152	0.4152	0.4152	0.4152	0.4152
Number of Firms	76926	76926	76926	76926	76926	76926
Number of Sectors	20	20	20	20	20	20
Number of Countries	224	224	224	224	224	224
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A2: Intensive Margin - Firm Exports per year, destination, and sector with strong FEs

Dependent Variable: $logExport_{fitd}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	1.4681***	1.2014***	2.5991***	-1.7719***	1.9707***	2.1352***
	(3.8092)	(3.5026)	(5.3947)	(-4.1878)	(5.9978)	(7.0379)
$SoShare^2\times$ FV	-1.6338***	-1.3677***	-2.8589***	1.9151***	-2.3623***	-2.5632***
	(-3.8072)	(-3.5759)	(-5.2880)	(4.0607)	(-6.2860)	(-7.2346)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE × Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,698,304	4,698,304	4,698,304	4,698,304	4,698,304	4,698,304
R-squared	0.7332	0.7332	0.7332	0.7332	0.7333	0.7333

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A3: Intensive Margin - Firm Exports per year, destination, and product

Dependent Variable: $logExport_{fhd}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	0.0527	0.1178	-0.1252	-0.0245	-0.0293	-0.1725
	(0.3705)	(0.8434)	(-0.8034)	(-0.1666)	(-0.2137)	(-1.2559)
$SoShare^2$	-0.2258	-0.3003**	-0.0193	-0.1420	-0.0778	0.1020
	(-1.4712)	(-1.9935)	(-0.1152)	(-0.8872)	(-0.4877)	(0.6325)
$SoShare\times$ FV	0.5175**	0.3850**	0.9067***	-0.6986***	0.5601***	0.6337***
	(2.5622)	(2.1992)	(4.2192)	(-3.0243)	(3.8292)	(4.5456)
$SoShare^2\times$ FV	-0.6124**	-0.4779**	-1.0742***	0.7853***	-0.7672***	-0.8243***
	(-2.5773)	(-2.2902)	(-4.4462)	(2.9326)	(-4.6868)	(-5.1176)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,771,477	5,771,477	5,771,477	5,771,477	5,771,477	5,771,477
R-squared	0.2279	0.2279	0.2280	0.2279	0.2280	0.2280
Number of Firms	76930	76930	76930	76930	76930	76930
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A4: Intensive Margin - Firm Exports per year, destination, and sector with strong FEs

Dependent Variable: $logExport_{fhd}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	0.8292***	0.6046**	1.5824***	-1.1261***	1.0953***	1.2350***
	(2.9889)	(2.5703)	(4.6905)	(-3.5731)	(4.6711)	(5.8106)
$SoShare^2\times$ FV	-0.9118***	-0.6881**	-1.7715***	1.1957***	-1.3908***	-1.5163***
	(-2.9374)	(-2.5850)	(-4.8606)	(3.4097)	(-5.5494)	(-6.4700)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,746,546	5,746,546	5,746,546	5,746,546	5,746,546	5,746,546
R-squared	0.2700	0.2700	0.2701	0.2700	0.2701	0.2701

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A5: Extensive Margin - # of Products per year, firm, and sector

Dependent Variable: $log\#Products_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	-0.1649**	-0.1507*	-0.1472**	-0.1725**	-0.1528**	-0.1828***
	(-2.1556)	(-1.9484)	(-2.0963)	(-2.2640)	(-2.1622)	(-2.6563)
$SoShare^2$	0.2005**	0.1856**	0.1527**	0.2081**	0.1659**	0.1828**
	(2.4707)	(2.2697)	(2.0447)	(2.5657)	(2.1565)	(2.3408)
$SoShare\times$ FV	0.2095***	0.1896***	0.1190	-0.2233***	0.1701***	0.1701***
	(3.2454)	(3.1545)	(1.3237)	(-3.2322)	(2.7914)	(2.8332)
$SoShare^2\times$ FV	-0.2140***	-0.1958**	-0.0039	0.2241***	-0.0971	-0.1034
	(-2.6857)	(-2.5942)	(-0.0392)	(2.7037)	(-1.3821)	(-1.5201)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,771,482	5,771,482	5,771,482	5,771,482	5,771,482	5,771,482
R-squared	0.7647	0.7647	0.7648	0.7647	0.7648	0.7648
Number of Firms	76930	76930	76930	76930	76930	76930
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A6: Extensive Margin - # of Products per year, firm, and sector with strong FEs

Dependent Variable: $log\#Products_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	0.3907***	0.3580***	0.3335**	-0.4044***	0.4873***	0.4706***
	(3.9645)	(3.7322)	(2.4814)	(-4.0938)	(6.4285)	(6.5153)
$SoShare^2\times$ FV	-0.4093***	-0.3792***	-0.1994	0.4160***	-0.4139***	-0.4010***
	(-3.6993)	(-3.5279)	(-1.3302)	(3.7094)	(-4.4937)	(-4.6949)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,746,551	5,746,551	5,746,551	5,746,551	5,746,551	5,746,551
R-squared	0.8381	0.8381	0.8382	0.8381	0.8382	0.8382

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A7: Extensive Margin - # of Destinations per firm, year and sector

Dependent Variable: $log\#Destinations_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	0.0245	0.0482	-0.0160	0.0032	-0.0006	-0.0565
	(0.3684)	(0.7319)	(-0.2268)	(0.0473)	(-0.0090)	(-0.7758)
$SoShare^2$	-0.0017	-0.0306	0.0315	0.0192	0.0278	0.0872
	(-0.0236)	(-0.4245)	(0.4039)	(0.2552)	(0.3640)	(1.0733)
$SoShare\times$ FV	0.2207***	0.1859***	0.2809***	-0.2588***	0.2237***	0.2521***
	(2.9681)	(2.7341)	(2.9236)	(-3.2194)	(3.7036)	(4.4414)
$SoShare^2\times$ FV	-0.2841***	-0.2567***	-0.2956***	0.3006***	-0.2573***	-0.2789***
	(-3.3760)	(-3.3881)	(-2.7331)	(3.2265)	(-3.8332)	(-4.2421)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,766,970	5,766,970	5,766,970	5,766,970	5,766,970	5,766,970
R-squared	0.7716	0.7716	0.7716	0.7716	0.7716	0.7716
Number of Firms	76926	76926	76926	76926	76926	76926
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A8: Extensive Margin - # of Destinations per year, firm, and sector with strong FEs

Dependent Variable: $log\#Destinations_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	0.3370***	0.2710***	0.4895***	-0.4142***	0.5247***	0.5713***
	(3.0925)	(2.6707)	(3.1501)	(-3.6883)	(5.5123)	(6.5221)
$SoShare^2\times$ FV	-0.4238***	-0.3657***	-0.5327***	0.4750***	-0.5745***	-0.6112***
	(-3.5664)	(-3.3553)	(-3.1056)	(3.7325)	(-5.5807)	(-6.2864)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,742,032	5,742,032	5,742,032	5,742,032	5,742,032	5,742,032
R-squared	0.8417	0.8417	0.8417	0.8417	0.8417	0.8417

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A9: Extensive Margin - # of Destination-Product Markets per firm, year and sector

Dependent Variable: $log\#\ Destination - ProductMarkets_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	-0.0968	-0.0720	-0.1363	-0.1116	-0.1225	-0.1994**
	(-1.0197)	(-0.7573)	(-1.4679)	(-1.1691)	(-1.3440)	(-2.1987)
$SoShare^2$	0.1234	0.0957	0.1468	0.1341	0.1512	0.2339**
	(1.1929)	(0.9305)	(1.4410)	(1.2793)	(1.4970)	(2.2359)
$SoShare\times$ FV	0.3067***	0.2768***	0.3520***	-0.3274***	0.3128***	0.3475***
	(3.4577)	(3.3977)	(2.8684)	(-3.4176)	(3.9401)	(4.5068)
$SoShare^2\times$ FV	-0.3471***	-0.3303***	-0.3147**	0.3383***	-0.3217***	-0.3635***
	(-3.3164)	(-3.4445)	(-2.3524)	(3.0017)	(-3.6450)	(-4.1392)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,766,970	5,766,970	5,766,970	5,766,970	5,766,970	5,766,970
R-squared	0.7118	0.7118	0.7118	0.7118	0.7118	0.7118
Number of Firms	76926	76926	76926	76926	76926	76926
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A10: Extensive Margin - # of Destination-Product Markets per year, firm, and sector with strong FEs

Dependent Variable: $log\#Destination - ProductMarkets_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	0.5061***	0.4471***	0.6463***	-0.5526***	0.7357***	0.7842***
	(3.7136)	(3.4335)	(3.4887)	(-4.0192)	(6.9277)	(7.8093)
$SoShare^2\times$ FV	-0.5739***	-0.5298***	-0.6302***	0.5835***	-0.7722***	-0.8273***
	(-3.8406)	(-3.7642)	(-3.0862)	(3.7591)	(-6.4198)	(-7.1150)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,742,032	5,742,032	5,742,032	5,742,032	5,742,032	5,742,032
R-squared	0.7803	0.7803	0.7803	0.7802	0.7803	0.7803

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A11: Extensive Margin - # of Products per firm, year, destinations, and sector

Dependent Variable: $logProducts_{fidt}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	-0.1311**	-0.1296**	-0.1343***	-0.1240**	-0.1482***	-0.1768***
	(-2.4491)	(-2.4053)	(-2.7756)	(-2.3225)	(-2.9534)	(-3.6423)
$SoShare^2$	0.1373**	0.1391**	0.1280**	0.1248**	0.1597***	0.1928***
	(2.4921)	(2.5254)	(2.5073)	(2.2643)	(2.9320)	(3.4971)
$SoShare\times$ FV	0.0959**	0.1009**	0.0894	-0.0774	0.1367***	0.1414***
	(2.0441)	(2.2716)	(1.5471)	(-1.5943)	(3.1771)	(3.2589)
$SoShare^2\times$ FV	-0.0648	-0.0783	-0.0168	0.0341	-0.1262**	-0.1435***
	(-1.1113)	(-1.3841)	(-0.2677)	(0.5950)	(-2.5869)	(-2.9819)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,766,968	5,766,968	5,766,968	5,766,968	5,766,968	5,766,968
R-squared	0.6472	0.6472	0.6473	0.6472	0.6473	0.6472
Number of Firms	76926	76926	76926	76926	76926	76926
Number of Sectors	20	20	20	20	20	20
Number of Countries	224	224	224	224	224	224
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table A12: Extensive Margin - # of Products per year, firm, destination and sector with strong FEs

Dependent Variable: $logProducts_{fidt}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	0.2706***	0.2677***	0.3539***	-0.2459***	0.3754***	0.4120***
	(3.0633)	(3.1473)	(3.6571)	(-2.7889)	(5.9996)	(6.7938)
$SoShare^2\times$ FV	-0.2679***	-0.2772***	-0.2780**	0.2201**	-0.3813***	-0.4411***
	(-2.6788)	(-2.9102)	(-2.4646)	(2.1882)	(-4.9573)	(-5.9339)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE × Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,698,304	4,698,304	4,698,304	4,698,304	4,698,304	4,698,304
R-squared	0.8548	0.8548	0.8548	0.8548	0.8548	0.8548

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Appendix B. Trade Cost

Table B1: Regressions of Trade Cost Measured by Distance

Dependent Variable: $logExport_{fidt}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	-0.0832	-0.0101	-0.2542	-0.1536	-0.1608	-0.3197*
	(-0.4227)	(-0.0510)	(-1.2618)	(-0.7700)	(-0.8820)	(-1.7798)
$SoShare^2$	-0.0580	-0.1412	0.1301	0.0191	0.0828	0.2872
	(-0.2697)	(-0.6539)	(0.5916)	(0.0870)	(0.3949)	(1.3636)
$FV \times logDistance_d$	-0.0468***	-0.0403**	-0.0761***	0.0539***	-0.0347***	-0.0466***
	(-2.7138)	(-2.4289)	(-3.4255)	(3.0676)	(-2.6103)	(-3.6311)
$SoShare \times$ FV $\times$	0.0878***	0.0723***	0.1266***	-0.1061***	0.0866***	0.0918***
$logDistance_d$	(3.1778)	(2.9453)	(3.9333)	(-3.4395)	(3.8517)	(4.2796)
$SoShare^2 \times$ FV $\times$	-0.0990***	-0.0834***	-0.1405***	0.1161***	-0.1086***	-0.1148***
$logDistance_d$	(-3.0795)	(-2.8871)	(-3.9184)	(3.2892)	(-4.3163)	(-4.6946)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,627,299	5,627,299	5,627,299	5,627,299	5,627,299	5,627,299
R-squared	0.4173	0.4173	0.4174	0.4173	0.4173	0.4174
Number of Firms	76744	76744	76744	76744	76744	76744
Number of Sectors	20	20	20	20	20	20
Number of Countries	203	203	203	203	203	203
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B2: Regressions of Trade Cost Measured by Distance with Strong FEs

Dependent Variable: $logExport_{fidt}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
FV $\times logDistance_d$	-0.0829***	-0.0733***	-0.1581***	0.0908***	-0.0964***	-0.1008***
	(-4.7379)	(-4.2934)	(-8.1269)	(5.2562)	(-7.1419)	(-6.7968)
$SoShare\times$ FV $\times$	0.1654***	0.1354***	0.2898***	-0.1991***	0.2184***	0.2395***
$logDistance_d$	(3.7021)	(3.3891)	(5.2298)	(-4.0765)	(5.7245)	(6.7789)
$SoShare^2\times$ FV	-0.1838***	-0.1540***	-0.3186***	0.2150***	-0.2630***	-0.2885***
$\times logDistance_d$	(-3.6917)	(-3.4548)	(-5.1283)	(3.9435)	(-6.0317)	(-7.0243)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Year $\times$ Country $\times$ Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,591,215	4,591,215	4,591,215	4,591,215	4,591,215	4,591,215
R-squared	0.7334	0.7334	0.7336	0.7334	0.7336	0.7336

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B3: Regressions of Trade Cost Measured by Distance

Dependent Variable: $logQuantity_{fdit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	0.0582	0.0760	-0.0460	0.0490	-0.0271	-0.1311
	(0.3034)	(0.3993)	(-0.2508)	(0.2509)	(-0.1498)	(-0.7318)
$SoShare^2$	-0.0855	-0.1220	0.0294	-0.0620	0.0223	0.1654
	(-0.3915)	(-0.5624)	(0.1394)	(-0.2785)	(0.1055)	(0.7751)
FV $\times logDistance_d$	-0.0405**	-0.0363**	-0.0741***	0.0440**	-0.0280	-0.0452**
	(-2.3014)	(-2.1559)	(-2.9038)	(2.4381)	(-1.6332)	(-2.5903)
$SoShare\times$ FV	0.0238	0.0233	0.0486**	-0.0219	0.0331**	0.0433***
$\times logDistance_d$	(1.1209)	(1.2359)	(1.9965)	(-0.8930)	(2.0356)	(2.6808)
$SoShare^2\times$ FV	-0.0466*	-0.0448**	-0.0694**	0.0446*	-0.0513***	-0.0624***
$\times logDistance_d$	(-1.9716)	(-2.1143)	(-2.5897)	(1.6631)	(-2.8519)	(-3.3906)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,620,983	5,620,983	5,620,983	5,620,983	5,620,983	5,620,983
R-squared	0.5151	0.5151	0.5152	0.5151	0.5151	0.5151
Number of Firms	76744	76744	76744	76744	76744	76744
Number of Sectors	20	20	20	20	20	20
Number of Countries	203	203	203	203	203	203
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B4: Regressions of Trade Cost Measured by Distance with Strong FEs

Dependent Variable: $logQuantity_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
FV $\times logDistance_d$	-0.0545***	-0.0508***	-0.1104***	0.0550***	-0.0342*	-0.0509**
	(-3.1114)	(-3.0518)	(-4.6552)	(3.0646)	(-1.7620)	(-2.5905)
$SoShare\times$ FV	0.0578	0.0515	0.1169**	-0.0627	0.0957***	0.1288***
$\times logDistance_d$	(1.4519)	(1.4512)	(2.3582)	(-1.3829)	(2.8947)	(3.8608)
$SoShare^2\times$ FV	-0.0885**	-0.0814**	-0.1515***	0.0910*	-0.1301***	-0.1670***
$\times logDistance_d$	(-2.0730)	(-2.1611)	(-2.8071)	(1.8625)	(-3.6103)	(-4.5747)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Year × Country × Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,586,091	4,586,091	4,586,091	4,586,091	4,586,091	4,586,091
R-squared	0.7836	0.7836	0.7837	0.7836	0.7836	0.7836

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B5: Regressions of Trade Cost Measured by Nominal Cost per shipping container

Dependent Variable: $logExport_{fidt}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	-0.0994	-0.0210	-0.2848	-0.1745	-0.1689	-0.3384*
	(-0.5020)	(-0.1060)	(-1.3916)	(-0.8694)	(-0.9121)	(-1.8532)
$SoShare^2$	-0.0377	-0.1273	0.1640	0.0446	0.0928	0.3069
	(-0.1741)	(-0.5852)	(0.7337)	(0.2020)	(0.4347)	(1.4267)
FV $\times logCost_d$	-0.0416**	-0.0343**	-0.0920***	0.0504***	-0.0918***	-0.1025***
	(-2.3524)	(-2.0459)	(-4.0594)	(2.7762)	(-6.9084)	(-7.7506)
$SoShare\times$ FV	0.1142***	0.0943***	0.1659***	-0.1377***	0.1106***	0.1178***
$\times logCost_d$	(3.3746)	(3.1314)	(4.1985)	(-3.6565)	(4.0197)	(4.4960)
$SoShare^2\times$ FV	-0.1296***	-0.1096***	-0.1837***	0.1514***	-0.1368***	-0.1452***
$\times logCost_d$	(-3.2843)	(-3.0860)	(-4.1676)	(3.5058)	(-4.4253)	(-4.8226)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,598,046	5,598,046	5,598,046	5,598,046	5,598,046	5,598,046
R-squared	0.4178	0.4178	0.4179	0.4178	0.4181	0.4181
Number of Firms	76633	76633	76633	76633	76633	76633
Number of Sectors	20	20	20	20	20	20
Number of Countries	182	182	182	182	182	182
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B6: Regressions of Trade Cost Measured by Nominal Cost per shipping container with Strong FEs

Dependent Variable: $logExport_{fidt}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
FV $\times logCost_d$	-0.1296***	-0.1109***	-0.2007***	0.1482***	-0.1628***	-0.1474***
	(-6.0237)	(-5.2675)	(-8.0203)	(6.9071)	(-9.1609)	(-7.5729)
$SoShare\times$ FV	0.2123***	0.1744***	0.3805***	-0.2548***	0.2792***	0.3048***
$\times logCost_d$	(3.8478)	(3.5254)	(5.6246)	(-4.2471)	(5.9418)	(7.0044)
$SoShare^2 \times FV$	-0.2372***	-0.1998***	-0.4169***	0.2757***	-0.3332***	-0.3640***
$\times logCost_d$	(-3.8572)	(-3.6138)	(-5.4943)	(4.1245)	(-6.1991)	(-7.1684)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Year × Country × Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,567,211	4,567,211	4,567,211	4,567,211	4,567,211	4,567,211
R-squared	0.7331	0.7331	0.7332	0.7331	0.7333	0.7332

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B7: Regressions of Trade Cost Measured by Nominal Cost per shipping container

Dependent Variable: $logQuantity_{fdit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	0.0415	0.0638	-0.0781	0.0300	-0.0402	-0.1549
	(0.2178)	(0.3366)	(-0.4276)	(0.1548)	(-0.2232)	(-0.8716)
$SoShare^2$	-0.0614	-0.1041	0.0682	-0.0348	0.0403	0.1930
	(-0.2816)	(-0.4798)	(0.3232)	(-0.1568)	(0.1901)	(0.9008)
FV $\times logCost_d$	-0.0593***	-0.0519***	-0.1191***	0.0667***	-0.1026***	-0.1175***
	(-2.9046)	(-2.6692)	(-4.2647)	(3.1887)	(-5.6110)	(-6.1630)
$SoShare\times$ FV	0.0372	0.0360	0.0716**	-0.0351	0.0464**	0.0598***
$\times logCost_d$	(1.4297)	(1.5550)	(2.3394)	(-1.1713)	(2.3040)	(2.9493)
$SoShare^2\times$ FV	-0.0675**	-0.0647**	-0.0985***	0.0648*	-0.0683***	-0.0824***
$\times logCost_d$	(-2.3195)	(-2.4785)	(-2.9280)	(1.9733)	(-3.0577)	(-3.5654)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,591,753	5,591,753	5,591,753	5,591,753	5,591,753	5,591,753
R-squared	0.5150	0.5150	0.5151	0.5150	0.5152	0.5152
Number of Firms	76633	76633	76633	76633	76633	76633
Number of Sectors	20	20	20	20	20	20
Number of Countries	182	182	182	182	182	182
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B8: Regressions of Trade Cost Measured by Nominal Cost per shipping container with Strong FEs

Dependent Variable: $logQuantity_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
FV $\times logCost_d$	-0.1190***	-0.1050***	-0.1946***	0.1308***	-0.1409***	-0.1409***
	(-5.2756)	(-4.6977)	(-6.4690)	(5.8456)	(-6.1120)	(-5.3331)
$SoShare\times$ FV	0.0789	0.0709	0.1612***	-0.0842	0.1230***	0.1640***
$\times logCost_d$	(1.6243)	(1.6420)	(2.6477)	(-1.5266)	(3.0248)	(4.0176)
$SoShare^2\times$ FV	-0.1183**	-0.1099**	-0.2042***	0.1199**	-0.1638***	-0.2095***
$\times logCost_d$	(-2.2673)	(-2.3858)	(-3.0780)	(2.0142)	(-3.6869)	(-4.6574)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Year × Country × Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,562,094	4,562,094	4,562,094	4,562,094	4,562,094	4,562,094
R-squared	0.7832	0.7832	0.7832	0.7832	0.7832	0.7832

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B9: Regressions of Trade Cost Measured by Number of Days

Dependent Variable: $logExport_{fidt}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	-0.1004	-0.0245	-0.2661	-0.1690	-0.1430	-0.2844
	(-0.5108)	(-0.1239)	(-1.3298)	(-0.8515)	(-0.7841)	(-1.5828)
$SoShare^2$	-0.0404	-0.1257	0.1337	0.0318	0.0358	0.2010
	(-0.1870)	(-0.5786)	(0.6110)	(0.1453)	(0.1721)	(0.9557)
FV $\times log\#Days_d$	-0.1569***	-0.1275***	-0.1905***	0.1931***	-0.0870***	-0.0880***
	(-8.0047)	(-6.8945)	(-8.4497)	(9.4633)	(-5.2035)	(-5.1211)
$SoShare\times$ FV	0.3417***	0.2861***	0.4669***	-0.4039***	0.2903***	0.3030***
$\times log\#Days_d$	(3.6632)	(3.4278)	(4.4875)	(-3.9103)	(3.9643)	(4.3383)
$SoShare^2\times$ FV	-0.3796***	-0.3264***	-0.5006***	0.4328***	-0.3304***	-0.3455***
$\times log\#Days_d$	(-3.5558)	(-3.3856)	(-4.3280)	(3.7065)	(-3.9687)	(-4.2442)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,598,046	5,598,046	5,598,046	5,598,046	5,598,046	5,598,046
R-squared	0.4184	0.4183	0.4185	0.4185	0.4181	0.4181
Number of Firms	76633	76633	76633	76633	76633	76633
Number of Sectors	20	20	20	20	20	20
Number of Countries	182	182	182	182	182	182
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B10: Regressions of Trade Cost Measured by Number of Days with Strong FEs

Dependent Variable: $logExport_{fidt}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
FV $\times log\#Days_d$	-0.2510***	-0.1926***	-0.3351***	0.3220***	-0.1892***	-0.1794***
	(-8.0385)	(-6.9465)	(-8.7147)	(10.7113)	(-7.3943)	(-7.0444)
$SoShare\times$ FV	0.6324***	0.5198***	1.0942***	-0.7594***	0.7227***	0.7940***
$\times log\#Days_d$	(3.8789)	(3.5248)	(5.6619)	(-4.3351)	(5.3298)	(6.3161)
$SoShare^2\times$ FV	-0.6950***	-0.5887***	-1.1692***	0.8030***	-0.8365***	-0.9243***
$\times log\#Days_d$	(-3.8952)	(-3.6320)	(-5.4968)	(4.1978)	(-5.4640)	(-6.3551)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Year × Country × Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,567,211	4,567,211	4,567,211	4,567,211	4,567,211	4,567,211
R-squared	0.7336	0.7334	0.7337	0.7338	0.7334	0.7334

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B11: Regressions of Trade Cost Measured by Number of Days

Dependent Variable: $logQuantity_{fdit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	0.0423	0.0648	-0.0704	0.0306	-0.0263	-0.1273
	(0.2249)	(0.3448)	(-0.3959)	(0.1608)	(-0.1466)	(-0.7181)
$SoShare^2$	-0.0675	-0.1086	0.0485	-0.0451	0.0033	0.1218
	(-0.3117)	(-0.5023)	(0.2340)	(-0.2058)	(0.0154)	(0.5668)
FV $\times log\#Days_d$	-0.1809***	-0.1518***	-0.2256***	0.2142***	-0.1223***	-0.1199***
	(-9.0004)	(-7.6744)	(-10.5793)	(10.5367)	(-7.5354)	(-6.6607)
$SoShare\times$ FV	0.1077	0.1043*	0.2007**	-0.1026	0.1241**	0.1574***
$\times log\#Days_d$	(1.5512)	(1.6791)	(2.5189)	(-1.2938)	(2.3316)	(2.9463)
$SoShare^2\times$ FV	-0.1912**	-0.1872***	-0.2633***	0.1779**	-0.1602***	-0.1917***
$\times log\#Days_d$	(-2.4598)	(-2.6750)	(-2.9994)	(2.0392)	(-2.6458)	(-3.0789)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,591,753	5,591,753	5,591,753	5,591,753	5,591,753	5,591,753
R-squared	0.5156	0.5156	0.5157	0.5156	0.5154	0.5154
Number of Firms	76633	76633	76633	76633	76633	76633
Number of Sectors	20	20	20	20	20	20
Number of Countries	182	182	182	182	182	182
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B12: Regressions of Trade Cost Measured by Number of Days with Strong FEs

Dependent Variable: $logQuantity_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
FV $\times log\#Days_d$	-0.2385***	-0.1859***	-0.3347***	0.3014***	-0.2138***	-0.2041***
	(-8.9251)	(-7.1748)	(-10.9617)	(13.2895)	(-10.1651)	(-9.0573)
$SoShare\times$ FV	0.1735	0.1540	0.3907**	-0.1916	0.2535**	0.3667***
$\times log\#Days_d$	(1.2340)	(1.2206)	(2.2828)	(-1.2057)	(2.2436)	(3.1705)
$SoShare^2\times$ FV	-0.2770*	-0.2618*	-0.4826**	0.2759	-0.3339***	-0.4604***
$\times log\#Days_d$	(-1.8500)	(-1.9600)	(-2.6038)	(1.6327)	(-2.6930)	(-3.6101)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Year × Country × Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,562,094	4,562,094	4,562,094	4,562,094	4,562,094	4,562,094
R-squared	0.7836	0.7835	0.7837	0.7837	0.7835	0.7834

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B13: Regressions of Trade Cost Measured by Number of Documents

Dependent Variable: $logExport_{fidt}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	-0.1003	-0.0224	-0.2693	-0.1721	-0.1503	-0.2990*
	(-0.5101)	(-0.1132)	(-1.3498)	(-0.8681)	(-0.8255)	(-1.6665)
$SoShare^2$	-0.0401	-0.1277	0.1395	0.0361	0.0477	0.2240
	(-0.1860)	(-0.5882)	(0.6402)	(0.1657)	(0.2299)	(1.0685)
FV $\times log\#documents_d$	-0.1637***	-0.1355***	-0.1995***	0.1978***	-0.0872***	-0.0853***
	(-9.0634)	(-7.9976)	(-9.2118)	(10.1606)	(-5.1768)	(-4.9613)
$SoShare\times$ FV	0.5077***	0.4220***	0.6988***	-0.6045***	0.4394***	0.4622***
$\times log\#documents_d$	(3.6649)	(3.3947)	(4.5216)	(-3.9722)	(4.0089)	(4.4556)
$SoShare^2\times$ FV	-0.5655***	-0.4827***	-0.7543***	0.6500***	-0.5057***	-0.5333***
$\times log\#documents_d$	(-3.5694)	(-3.3617)	(-4.3755)	(3.7873)	(-4.0528)	(-4.4037)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,598,046	5,598,046	5,598,046	5,598,046	5,598,046	5,598,046
R-squared	0.4181	0.4181	0.4181	0.4181	0.4180	0.4179
Number of Firms	76633	76633	76633	76633	76633	76633
Number of Sectors	20	20	20	20	20	20
Number of Countries	182	182	182	182	182	182
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B14: Regressions of Trade Cost Measured by Number of Documents with Strong FEs

Dependent Variable: $logExport_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
FV $\times log\#documents_d$	-0.2676***	-0.2092***	-0.3583***	0.3392***	-0.2114***	-0.1899***
	(-8.5068)	(-7.4964)	(-8.5294)	(10.8940)	(-7.0624)	(-6.2455)
$SoShare\times$ FV	0.9184***	0.7546***	1.5880***	-1.1012***	1.0604***	1.1640***
$\times log\#documents_d$	(3.8986)	(3.5437)	(5.7112)	(-4.3488)	(5.3473)	(6.2851)
$SoShare^2\times$ FV	-1.0141***	-0.8576***	-1.7027***	1.1721***	-1.2390***	-1.3665***
$\times log\#documents_d$	(-3.9103)	(-3.6403)	(-5.5100)	(4.2213)	(-5.5087)	(-6.3678)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Year × Country × Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,567,211	4,567,211	4,567,211	4,567,211	4,567,211	4,567,211
R-squared	0.7333	0.7332	0.7334	0.7334	0.7332	0.7332

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B15: Regressions of Trade Cost Measured by Number of Documents

Dependent Variable: $logQuantity_{fdit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	0.0445	0.0672	-0.0685	0.0321	-0.0282	-0.1335
	(0.2362)	(0.3570)	(-0.3843)	(0.1686)	(-0.1575)	(-0.7564)
$SoShare^2$	-0.0683	-0.1103	0.0507	-0.0440	0.0086	0.1358
	(-0.3154)	(-0.5102)	(0.2452)	(-0.2009)	(0.0408)	(0.6375)
FV $\times log\#documents_d$	-0.2033***	-0.1729***	-0.2579***	0.2375***	-0.1362***	-0.1300***
	(-10.0709)	(-8.7726)	(-11.2623)	(11.1724)	(-7.6114)	(-6.4686)
$SoShare\times$ FV	0.1586	0.1527	0.2956**	-0.1521	0.1822**	0.2362***
$\times log\#documents_d$	(1.5327)	(1.6433)	(2.4768)	(-1.2957)	(2.3030)	(2.9960)
$SoShare^2\times$ FV	-0.2858**	-0.2775***	-0.3967***	0.2688**	-0.2420***	-0.2950***
$\times log\#documents_d$	(-2.5185)	(-2.7035)	(-3.0701)	(2.1299)	(-2.7512)	(-3.2658)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,591,753	5,591,753	5,591,753	5,591,753	5,591,753	5,591,753
R-squared	0.5154	0.5153	0.5154	0.5154	0.5152	0.5152
Number of Firms	76633	76633	76633	76633	76633	76633
Number of Sectors	20	20	20	20	20	20
Number of Countries	182	182	182	182	182	182
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table B16: Regressions of Trade Cost Measured by Number of Documents with Strong FEs

Dependent Variable: $logQuantity_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
FV $\times log\#documents_d$	-0.2831***	-0.2237***	-0.4062***	0.3550***	-0.2747***	-0.2555***
	(-9.2309)	(-7.4128)	(-10.7467)	(13.5707)	(-10.9738)	(-9.0877)
$SoShare\times$ FV	0.2601	0.2337	0.5694**	-0.2802	0.3777**	0.5445***
$\times log\#documents_d$	(1.2662)	(1.2634)	(2.2706)	(-1.2150)	(2.2746)	(3.2079)
$SoShare^2\times$ FV	-0.4155*	-0.3936**	-0.7059**	0.4100*	-0.5014***	-0.6878***
$\times log\#documents_d$	(-1.8949)	(-2.0035)	(-2.5970)	(1.6697)	(-2.7708)	(-3.7023)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Year × Country × Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,562,094	4,562,094	4,562,094	4,562,094	4,562,094	4,562,094
R-squared	0.7834	0.7833	0.7834	0.7834	0.7834	0.7833

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Appendix C. Robustness Checks

Table C1: Regressions of Lag Status of Firms' State Ownership

Dependent Variable: $logQuantity_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$lag\_SoShare$	0.1834	0.2551	0.0263	0.1323	0.1468	0.0225
	(0.6195)	(0.8718)	(0.0939)	(0.4376)	(0.5275)	(0.0787)
$lag\_SoShare^2$	-0.2605	-0.3680	-0.1029	-0.1796	-0.2131	-0.0479
	(-0.8126)	(-1.1580)	(-0.3385)	(-0.5461)	(-0.7116)	(-0.1558)
$lag\_SoShare\times$ FV	0.8537***	0.7657***	1.1299***	-0.9183***	0.6819***	0.6795**
	(3.1447)	(3.1596)	(3.2911)	(-2.9731)	(2.6559)	(2.5661)
$lag\_SoShare^2\times$ FV	-1.1988***	-1.0847***	-1.4193***	1.2710***	-0.8942***	-0.8789***
	(-4.0276)	(-4.1004)	(-3.7731)	(3.7433)	(-3.2656)	(-3.0602)
Constant	13.0110***	13.0111***	13.0114***	13.0109***	13.0104***	13.0103***
	(1,598.1431)	(1,597.1478)	(1,597.3084)	(1,599.4728)	(1,601.9037)	(1,600.9318)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,693,196	4,693,196	4,693,196	4,693,196	4,693,196	4,693,196
R-squared	0.6345	0.6345	0.6345	0.6345	0.6345	0.6345
Number of Firms	58204	58204	58204	58204	58204	58204
Number of Sectors	20	20	20	20	20	20

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table C2: Regressions of Lag Status of Firms' State Ownership with strong FEs

Dependent Variable: $logQuantity_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$lag\_SoShare\times$ FV	1.1464***	1.0044***	1.6126***	-1.2693***	1.1282**	1.1832**
	(2.9489)	(2.8442)	(3.2492)	(-2.9485)	(2.5560)	(2.6080)
$lag\_SoShare^2\times$ FV	-1.5771***	-1.4013***	-1.9963***	1.7123***	-1.4001***	-1.4488***
	(-3.8632)	(-3.8045)	(-3.7807)	(3.7533)	(-3.0855)	(-3.0874)
Constant	13.0180***	13.0179***	13.0171***	13.0181***	13.0167***	13.0162***
	(2,699.1964)	(2,733.9250)	(2,636.9447)	(2,671.7238)	(2,652.3095)	(2,492.3311)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,682,250	4,682,250	4,682,250	4,682,250	4,682,250	4,682,250
R-squared	0.6808	0.6808	0.6807	0.6808	0.6807	0.6807

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table C3: Industry Characteristics in 3-digit SIC Code

Industrial Sectors	SIC Code	Dextfin	Invent	Tang	Capx	R&D
Food and Kindred Products	200	0.92	0.14	0.36	0.11	0.01
Meat Products	201	0.92	0.07	0.38	0.11	0.00
Dairy Products	202	1.19	0.06	0.40	0.18	0.04
Preserved Fruits and Vegetables	203	0.95	0.16	0.37	0.13	0.00
Grain Mill Products	204	0.66	0.10	0.36	0.10	0.01
Bakery Products	205	0.58	0.06	0.43	0.16	0.01
Sugar and Confectionery Products	206	0.75	0.13	0.36	0.08	0.01
Fats and Oils	207	0.86	0.12	0.34	0.18	0.00
Beverages	208	0.74	0.11	0.33	0.13	0.01
Miscellaneous Food and Kindred Products	209	1.29	0.14	0.33	0.19	0.01
Tobacco Products	210	1.18	0.32	0.20	0.12	0.00
Cigarettes	211	1.13	0.22	0.27	0.16	0.00
Textile Mill Products	220	0.86	0.17	0.33	0.10	0.01
Broadwoven Fabric Mills, Cotton	221	0.55	0.18	0.36	0.10	0.00
Broadwoven Fabric Mills, Manmade	222	0.67	0.16	0.32	0.09	0.01
Knitting Mills	225	1.00	0.21	0.24	0.12	0.01
Carpets and Rugs	227	1.06	0.18	0.34	0.10	0.01
Apparel and Other Textile Products	230	1.56	0.23	0.17	0.11	0.01
Men's and Boys' Furnishings	232	2.21	0.21	0.15	0.14	0.00
Women's and Misses' Outerwear	233	3.04	0.19	0.10	0.12	0.01
Women's and Children's Undergarments	234	2.55	0.31	0.16	0.07	0.01
Miscellaneous Fabricated Textile Products	239	1.55	0.23	0.16	0.08	0.01
Lumber and Wood Products	240	0.68	0.14	0.48	0.12	0.01
Sawmills and Planing Mills	242	0.35	0.19	0.48	0.17	0.02
Millwork, Plywood and Structural Members	243	1.09	0.16	0.37	0.13	0.01
Wood Buildings and Mobile Homes	245	1.10	0.09	0.24	0.06	0.00
Household Furniture	251	0.89	0.16	0.26	0.07	0.01
Office Furniture	252	0.88	0.13	0.32	0.13	0.01
Public Building and Related Furniture	253	3.32	0.14	0.25	0.10	0.01
Partitions and Fixtures	254	0.47	0.16	0.31	0.15	0.01
Miscellaneous Furniture and Fixtures	259	1.38	0.19	0.35	0.17	0.01
Paper and Allied Products	260	0.42	0.10	0.69	0.12	

Pulp Mills	261	1.53	0.18	0.61	0.15	
Paper Mills	262	0.40	0.13	0.62	0.12	0.01
Paperboard Mills	263	0.40	0.11	0.62	0.13	0.01
Paperboard Containers and Boxes	265	0.46	0.10	0.52	0.09	0.00
Miscellaneous Converted Paper Products	267	0.93	0.14	0.34	0.11	0.02
Newspapers	271	0.76	0.03	0.35	0.13	0.00
Periodicals	272	2.46	0.06	0.12	0.16	0.02
Books	273	1.55	0.19	0.20	0.17	0.04
Miscellaneous Publishing	274	4.13	0.10	0.14	0.18	0.03
Commercial Printing	275	0.87	0.09	0.37	0.15	0.01
Manifold Business Forms	276	0.70	0.11	0.33	0.15	0.01
Greeting Cards	277	5.65	0.23	0.18	0.38	
Blankbooks and Bookbinding	278	0.57	0.07	0.37	0.15	0.00
Printing Trade Services	279	0.69	0.04	0.41	0.09	
Chemicals and Allied Products	280	0.64	0.16	0.35	0.15	0.03
Industrial Inorganic Chemicals	281	0.91	0.11	0.46	0.11	0.02
Plastics Materials and Synthetics	282	0.72	0.15	0.40	0.13	0.02
Drugs	283	1.14	0.17	0.23	0.27	0.14
Soap, Cleaners and Toilet Goods	284	1.40	0.15	0.22	0.16	0.02
Paints and Allied Products	285	0.88	0.15	0.30	0.10	0.02
Industrial Organic Chemicals	286	0.66	0.09	0.42	0.21	0.02
Agricultural Chemicals	287	0.96	0.15	0.47	0.12	0.04
Miscellaneous Chemical Products	289	0.67	0.14	0.33	0.14	0.03
Petroleum Refining	291	0.72	0.08	0.58	0.15	0.00
Asphalt Paving and Roofing Materials	295	1.00	0.13	0.36	0.21	0.01
Miscellaneous Petroleum and Coal Products	299	0.66	0.15	0.30	0.21	0.03
Tires and Inner Tubes	301	0.81	0.15	0.33	0.07	0.01
Rubber and Plastics Footwear	302	2.70	0.28	0.14	0.17	0.01
Hose and Belting and Gaskets and Packing	305	0.79	0.17	0.29	0.09	0.01
Fabricated Rubber Products, NEC	306	0.78	0.13	0.28	0.11	0.02
Miscellaneous Plastic Products, NEC	308	0.86	0.13	0.37	0.12	0.01
Leather and Leather Products	310	2.16	0.21	0.14	0.23	0.01
Footwear, Except Rubber	314	1.54	0.20	0.16	0.12	0.01
Flat Glass	321	0.74	0.13	0.50	0.23	0.01
Glass and Glassware, Pressed or Blown	322	0.51	0.16	0.42	0.13	0.14
Products of Purchased Glass	323	0.89	0.21	0.22	0.08	0.01
Cement, Hydraulic	324	0.41	0.14	0.63	0.08	0.00
Structural Clay Products	325	0.72	0.18	0.53	0.10	0.01
Pottery and Related Products	326	0.90	0.16	0.30	0.08	0.02

Concrete, Gypsum and Plaster Products	327	0.65	0.12	0.46	0.12	0.01
Miscellaneous Nonmetallic Mineral Products	329	0.52	0.13	0.45	0.11	0.02
Blast Furnace and Basic Steel Products	331	0.70	0.17	0.42	0.09	0.01
Iron and Steel Foundries	332	0.56	0.14	0.41	0.09	0.01
Primary Nonferrous Metals	333	0.43	0.20	0.59	0.15	0.01
Secondary Nonferrous Metals	334	1.34	0.08	0.19	0.13	0.01
Nonferrous Rolling and Drawing	335	1.19	0.21	0.27	0.13	0.01
Nonferrous Foundries (Castings)	336	0.96	0.15	0.28	0.10	0.01
Miscellaneous Primary Metal Products	339	0.39	0.04	0.35	0.13	0.00
Metal Cans and Shipping Containers	341	0.72	0.13	0.44	0.12	0.01
Cutlery, Hand Tools and Hardware	342	0.91	0.20	0.30	0.13	0.01
Plumbing and Heating, Except Electric	343	1.47	0.19	0.22	0.21	0.01
Fabricated Structural Metal Products	344	1.25	0.16	0.27	0.17	0.01
Screw Machine Products, Bolts, Etc.	345	0.76	0.18	0.31	0.11	0.01
Metal Forgings and Stampings	346	0.78	0.15	0.37	0.09	0.00
Metal Services, NEC	347	0.73	0.09	0.43	0.16	0.01
Ordnance and Accessories, NEC	348	1.33	0.17	0.17	0.10	0.03
Miscellaneous Fabricated Metal Products	349	0.89	0.21	0.27	0.13	0.01
Engines and Turbines	351	0.84	0.14	0.40	0.09	0.03
Farm and Garden Machinery	352	1.36	0.24	0.22	0.12	0.02
Construction and Related Machinery	353	1.51	0.22	0.26	0.13	0.02
Metalworking Machinery	354	1.21	0.23	0.21	0.13	0.01
Special Industry Machinery	355	1.76	0.25	0.20	0.26	0.04
General Industrial Machinery	356	1.12	0.20	0.25	0.11	0.01
Computer and Office Equipment	357	1.94	0.22	0.17	0.41	0.08
Refrigeration and Service Machinery	358	1.30	0.19	0.25	0.14	0.01
Industrial Machinery, NEC	359	0.80	0.21	0.30	0.10	0.03
Electronic and Other Electric Equipment	360	1.66	0.19	0.19	0.19	0.03
Electric Distribution Equipment	361	1.09	0.21	0.29	0.12	0.02
Electrical Industrial Apparatus	362	1.15	0.21	0.24	0.15	0.02
Household Appliances	363	1.17	0.20	0.21	0.12	0.01
Electric Lighting and Wiring Equipment	364	1.35	0.22	0.26	0.15	0.02

Household Audio and Video Equipment	365	3.02	0.19	0.15	0.23	0.02
Communications Equipment	366	1.78	0.25	0.19	0.27	0.06
Electronic Components and Accessories	367	1.03	0.20	0.31	0.20	0.05
Miscellaneous Electrical Equipment and Supplies	369	1.55	0.22	0.26	0.14	0.05
Motor Vehicles and Equipment	371	1.18	0.16	0.29	0.14	0.02
Aircraft and Parts	372	1.16	0.24	0.26	0.14	0.02
Ship and Boat Building and Repairing	373	1.41	0.14	0.33	0.13	0.02
Railroad Equipment	374	1.05	0.22	0.31	0.14	0.01
Motorcycles, Bicycles and Parts	375	5.14	0.12	0.28	0.16	0.02
Guided Missiles, Space Vehicles, Parts	376	1.37	0.11	0.32	0.18	0.02
Miscellaneous Transportation Equipment	379	1.71	0.14	0.21	0.21	0.01
Search and Navigation Equipment	381	1.30	0.20	0.21	0.18	0.03
Measuring and Controlling Devices	382	1.39	0.24	0.22	0.22	0.06
Medical Instruments and Supplies	384	1.73	0.22	0.17	0.30	0.07
Ophthalmic Goods	385	1.44	0.26	0.26	0.20	0.05
Photographic Equipment and Supplies	386	1.61	0.21	0.22	0.20	0.06
Watches, Clocks, Watchcases and Parts	387	0.90	0.28	0.16	0.10	0.03
Jewelry, Silverware and Plated Ware	391	3.04	0.27	0.20	0.14	0.00
Musical Instruments	393	2.82	0.24	0.20	0.10	0.01
Toys and Sporting Goods	394	1.87	0.19	0.19	0.15	0.02
Pens, Pencils, Office and Art Supplies	395	1.13	0.20	0.24	0.12	0.01
Costume Jewelry and Notions	396	2.55	0.24	0.17	0.08	0.01
Miscellaneous Manufactures	399	1.66	0.21	0.22	0.17	0.03
Mean		1.25	0.17	0.31	0.14	0.02
Median		1.02	0.16	0.30	0.13	0.01
Standard Deviation		0.85	0.06	0.12	0.06	0.02

Notes: This table lists different sector measures of financial vulnerability at three-digit SIC code used in the robustness analysis. All the financial vulnerability measures are constructed with the methodology of Rajan and Zingales (1998), which are averages over the 1980-1989 period for the median U.S. firms in each sector.

Table C4: Regressions of Financial vulnerability in 3-digit SIC Code

Dependent Variable: $logQuantity_{fit}$						
China FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	0.0582	0.2588	0.1915	0.0799	0.2019	0.1025
	(0.3273)	(1.4492)	(1.0501)	(0.4506)	(1.1449)	(0.5649)
$Soshare^2$	-0.1201	-0.3629*	-0.2285	-0.1150	-0.2598	-0.1530
	(-0.5781)	(-1.7435)	(-1.0978)	(-0.5598)	(-1.2664)	(-0.7239)
$SoShare\times$ FV	1.3751***	1.4102***	0.2765	-0.7228***	0.3802**	0.3862***
	(6.3053)	(8.0485)	(1.1578)	(-3.1123)	(2.1259)	(3.4556)
$SoShare^2\times$ FV	-1.6519***	-1.7018***	-0.4366*	0.9172***	-0.5433***	-0.4272***
	(-6.8530)	(-8.1164)	(-1.6542)	(3.6410)	(-2.8933)	(-3.3539)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,861,405	4,861,405	4,861,405	4,861,405	4,861,405	4,861,303
R-squared	0.6787	0.6787	0.6786	0.6786	0.6786	0.6786
Number of Firms	71572	71572	71572	71572	71572	71569
Number of Sectors	94	94	94	94	94	93
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table C5: Regressions of Financial vulnerability in 3-digit SIC Code with Strong FEs

Dependent Variable: $logQuantity_{fit}$						
China FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	1.7964***	1.7901***	0.2516	-0.9066**	0.4023	0.5365***
	(5.2865)	(6.4583)	(0.6418)	(-2.5738)	(1.5267)	(2.8646)
$SoShare^2\times$ FV	-2.1373***	-2.1093***	-0.4876	1.1806***	-0.6333**	-0.6071***
	(-5.9151)	(-7.1054)	(-1.1561)	(3.1395)	(-2.3401)	(-2.9346)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,835,500	4,835,500	4,835,500	4,835,500	4,835,500	4,835,400
R-squared	0.7326	0.7326	0.7325	0.7325	0.7325	0.7325

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table C6: China Industry Characteristics

Industrial Sectors	sic	DExtfin	R&D	CExp	Invent	Tang
Food and kindred products	20	1.4315	0.0018	0.0737	0.1380	0.3816
Tobacco manufactures	21	1.3331	0.0003	0.0221	0.3430	0.3523
Textile mill products	22	1.5884	0.0021	0.0932	0.1040	0.3640
Apparel and other textile products	23	1.8985	0.0023	0.0748	0.0871	0.2848
Lumber and wood products	24	1.4857	0.0018	0.0689	0.1393	0.3516
Furniture and fixtures	25	1.8324	0.0028	0.0927	0.1345	0.3004
Paper and allied products	26	1.5099	0.0021	0.0793	0.1381	0.3581
Printing and publishing	27	1.2837	0.0039	0.0862	0.1170	0.4135
Chemicals and allied products	28	1.5586	0.0057	0.0836	0.1524	0.3483
Petroleum and coal products	29	1.6001	0.0040	0.0915	0.1531	0.3436
Rubber and miscellaneous plastics	30	1.5291	0.0036	0.0857	0.1299	0.3520
Leather and leather products	31	1.9815	0.0027	0.0749	0.1012	0.2679
Stone, clay, glass, and concrete products	32	1.3188	0.0038	0.0742	0.1428	0.3785
Primary metal industries	33	1.7851	0.0023	0.1007	0.1336	0.3235
Fabricated metal products	34	1.8983	0.0035	0.1161	0.1251	0.2950
Industrial machinery and equipment	35	1.9650	0.0067	0.1097	0.1645	0.2874
Electrical and electronic equipment	36	2.2083	0.0067	0.1282	0.1344	0.2499
Transportation equipment	37	2.1727	0.0045	0.1046	0.1538	0.2755
Instruments and related products	38	2.1401	0.0140	0.1042	0.1665	0.2411
Miscellaneous manufacturing industries	39	1.8998	0.0032	0.0830	0.1104	0.2730
Mean		1.7210	0.0039	0.0874	0.1434	0.3221
Median		1.6926	0.0033	0.0860	0.1363	0.3336
Standard Deviation		0.2937	0.0029	0.0220	0.0514	0.0487

Notes: This table lists different sector measures of financial vulnerability used in the empirical analysis. All the financial vulnerability measures are constructed with the methodology of Rajan and Zingales (1998), which are averages over the 2000-2007 period for the median China firms in each sector.

Table C7: Regressions of China Financial vulnerability Measure

Dependent Variable: $logQuantity_{fit}$						
China FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	0.3617	0.8755***	0.4334*	0.2162	-0.1235	-0.0804
	(1.5085)	(2.9368)	(1.8138)	(0.9524)	(-0.6222)	(-0.3545)
$Soshare^2$	-0.5445*	-1.1985***	-0.5242*	-0.3495	0.0959	0.0612
	(-1.8450)	(-3.3146)	(-1.9696)	(-1.2569)	(0.4250)	(0.2208)
$SoShare\times$ FV	1.8419***	4.2775***	1.0982**	-1.1880***	1.0352***	0.5928***
	(4.2013)	(4.8872)	(2.5862)	(-3.9231)	(3.0799)	(2.9157)
$SoShare^2\times$ FV	-2.4479***	-5.4946***	-1.2406***	1.6014***	-1.2067***	-0.7164***
	(-5.1218)	(-5.7886)	(-2.6939)	(4.8389)	(-2.9186)	(-3.0174)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,769,912	5,769,912	5,769,912	5,769,912	5,769,912	5,769,912
R-squared	0.6394	0.6394	0.6393	0.6394	0.6393	0.6393
Number of Firms	76914	76914	76914	76914	76914	76914
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table C8: Regressions of China Financial Vulnerability Measure with Strong FEs

Dependent Variable: $logQuantity_{fit}$						
China FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare\times$ FV	3.3224***	8.1501***	2.8839***	-1.1841***	2.2762***	1.0028**
	(4.2124)	(5.3898)	(3.0033)	(-3.8755)	(4.1852)	(2.4605)
$SoShare^2\times$ FV	-4.1588***	-9.8562***	-3.1190***	1.5824***	-2.4841***	-1.1598***
	(-5.0657)	(-6.3115)	(-3.1964)	(4.7925)	(-4.0196)	(-2.6141)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,745,001	5,745,001	5,745,001	5,769,912	5,745,001	5,745,001
R-squared	0.6951	0.6951	0.6950	0.6393	0.6950	0.6950

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table C9: Regressions with Cubic of Share of State Ownership

Dependent Variable: $logExports_{fit}$						
Panel A: with Firm FE, Year FE, Province FE, and Sector FE						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
SoShare	-0.2670	0.0234	-1.0889*	-0.5853	-0.6347	-1.2723**
	(-0.5322)	(0.0483)	(-1.8566)	(-1.1327)	(-1.1222)	(-2.1866)
$Soshare^2$	0.4194	-0.2797	2.6269	1.2322	1.4060	2.9916*
	(0.2771)	(-0.1909)	(1.5632)	(0.7896)	(0.8566)	(1.7838)
$SoShare^3$	-0.2504	0.1421	-1.6375	-0.7397	-0.8229	-1.7326
	(-0.2317)	(0.1353)	(-1.4215)	(-0.6639)	(-0.7289)	(-1.5021)
$SoShare\times$ FV	2.7707***	2.0810***	4.5447***	-3.6549***	3.1926***	3.2988***
	(3.9353)	(3.2110)	(6.0931)	(-4.9640)	(5.5768)	(6.2861)
$SoShare^2\times$ FV	-6.5688***	-4.7671***	-11.6399***	8.9542***	-8.1262***	-8.2880***
	(-3.4289)	(-2.7112)	(-5.8102)	(4.4094)	(-5.0765)	(-5.6775)
$SoShare^3\times$ FV	3.6361***	2.5118**	6.9930***	-5.1788***	4.7652***	4.8187***
	(2.8567)	(2.1617)	(5.2196)	(-3.7837)	(4.3687)	(4.8850)
Observations	5,771,482	5,771,482	5,771,482	5,771,482	5,771,482	5,771,482
R-squared	0.5571	0.5570	0.5571	0.5571	0.5572	0.5572
Number of Firms	76930	76930	76930	76930	76930	76930
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8
Panel B: with Firm × Year FE and sector FE						
$SoShare\times$ FV	4.5490***	3.5181***	8.9293***	-5.7376***	7.4762***	7.6309***
	(4.4560)	(3.4780)	(9.0775)	(-5.9771)	(9.0672)	(9.8228)
$SoShare^2\times$ FV	-10.8239***	-8.1340***	-23.4423***	14.0610***	-19.1892***	-19.4614***
	(-3.7652)	(-2.9018)	(-8.3335)	(5.0065)	(-8.2245)	(-8.6258)
$SoShare^3\times$ FV	6.0736***	4.4041**	14.3532***	-8.1657***	11.4461***	11.5580***
	(3.1517)	(2.3808)	(7.3724)	(-4.2048)	(7.2338)	(7.4902)
Observations	5,746,551	5,746,551	5,746,551	5,746,551	5,746,551	5,746,551
R-squared	0.6194	0.6194	0.6195	0.6194	0.6197	0.6197

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table C10: Regressions with Cubic of Share of State Ownership

Dependent Variable: $logQuantity_{fit}$						
Panel A: with Firm FE, Year FE, Province FE, and Sector FE						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
SoShare	0.0582	0.2588	0.1915	0.0799	0.2019	0.1025
	(0.3273)	(1.4492)	(1.0501)	(0.4506)	(1.1449)	(0.5649)
$Soshare^2$	-0.1201	-0.3629*	-0.2285	-0.1150	-0.2598	-0.1530
	(-0.5781)	(-1.7435)	(-1.0978)	(-0.5598)	(-1.2664)	(-0.7239)
$SoShare\times$ FV	1.3751***	1.4102***	0.2765	-0.7228***	0.3802**	0.3862***
	(6.3053)	(8.0485)	(1.1578)	(-3.1123)	(2.1259)	(3.4556)
$SoShare^2\times$ FV	-1.6519***	-1.7018***	-0.4366*	0.9172***	-0.5433***	-0.4272***
	(-6.8530)	(-8.1164)	(-1.6542)	(3.6410)	(-2.8933)	(-3.3539)
Observations	4,861,405	4,861,405	4,861,405	4,861,405	4,861,405	4,861,303
R-squared	0.6787	0.6787	0.6786	0.6786	0.6786	0.6786
Number of Firms	71572	71572	71572	71572	71572	71569
Number of Sectors	94	94	94	94	94	93
Number of Years	8	8	8	8	8	8
Panel B: with Firm $\times$ Year FE and sector FE						
$SoShare\times$ FV	1.7964***	1.7901***	0.2516	-0.9066**	0.4023	0.5365***
	(5.2865)	(6.4583)	(0.6418)	(-2.5738)	(1.5267)	(2.8646)
$SoShare^2\times$ FV	-2.1373***	-2.1093***	-0.4876	1.1806***	-0.6333**	-0.6071***
	(-5.9151)	(-7.1054)	(-1.1561)	(3.1395)	(-2.3401)	(-2.9346)
Observations	4,835,500	4,835,500	4,835,500	4,835,500	4,835,500	4,835,400
R-squared	0.7326	0.7326	0.7325	0.7325	0.7325	0.7325

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table C11: Regressions with Share of State Ownership

Dependent Variable: $logExports_{fit}$						
Panel A: with Firm FE, Year FE, Province FE, and Sector FE						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
SoShare	-0.0754	-0.0754	-0.0920	-0.0856	-0.0627	-0.0509
	(-1.3942)	(-1.4365)	(-1.6536)	(-1.5211)	(-1.1724)	(-0.8493)
SoShare× FV	-0.0512	-0.0718	0.0159	0.0066	-0.0771	-0.0682
	(-0.7430)	(-1.1760)	(0.1810)	(0.0850)	(-1.1245)	(-0.9977)
Observations	5,771,482	5,771,482	5,771,482	5,771,482	5,771,482	5,771,482
R-squared	0.5569	0.5569	0.5569	0.5569	0.5569	0.5569
Number of Firms	76930	76930	76930	76930	76930	76930
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8
Panel B: with Firm × Year FE and sector FE						
SoShare× FV	-0.0581	-0.0866	0.0208	-0.0031	-0.1097	-0.1004
	(-0.6535)	(-1.1093)	(0.1700)	(-0.0311)	(-1.1099)	(-1.0119)
Observations	5,746,551	5,746,551	5,746,551	5,746,551	5,746,551	5,746,551
R-squared	0.6192	0.6192	0.6192	0.6192	0.6192	0.6192

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table C12: Regressions with Share of State Ownership

Dependent Variable: $logQuantity_{fit}$						
Panel A: with Firm FE, Year FE, Province FE, and Sector FE						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
SoShare	0.0141	0.0003	-0.0072	0.0194	-0.0121	-0.0096
	(0.2554)	(0.0062)	(-0.1287)	(0.3393)	(-0.2175)	(-0.1505)
SoShare× FV	-0.1939***	-0.1905***	-0.0849	0.1779**	-0.0609	-0.0411
	(-2.6722)	(-2.9965)	(-1.0188)	(2.1296)	(-1.0123)	(-0.6588)
Observations	5,769,912	5,769,912	5,769,912	5,769,912	5,769,912	5,769,912
R-squared	0.6393	0.6393	0.6393	0.6393	0.6393	0.6393
Number of Firms	76914	76914	76914	76914	76914	76914
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8
Panel B: with Firm × Year FE and sector FE						
SoShare× FV	-0.2464**	-0.2423***	-0.1289	0.2242**	-0.0806	-0.0492
	(-2.5760)	(-2.9501)	(-1.0488)	(1.9894)	(-0.8925)	(-0.5422)
Observations	5,745,001	5,745,001	5,745,001	5,745,001	5,745,001	5,745,001
R-squared	0.6950	0.6950	0.6950	0.6950	0.6950	0.6950

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Appendix D. Regressions Results in Subsample 2

Table D1: Regressions in Subsample 2 with Firm FE, Year FE and Sector FE

Dependent Variable: $logExport_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare$	-0.3388	-0.4294	-0.302	-0.2753	-0.05	0.1481
	(-0.6319)	(-0.7959)	(-0.5756)	(-0.5126)	(-0.1003)	-0.2907
$SoShare \times FV$	-1.0673***	-0.9650***	-0.9507**	1.1304***	-1.0424***	-1.0749***
	(-4.1697)	(-4.1563)	(-2.5991)	-4.0118	(-4.2750)	(-4.5804)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	159307	159307	159307	159307	159307	159307
R-squared	0.6713	0.6715	0.6703	0.6709	0.672	0.672
Number of Firms	3761	3761	3761	3761	3761	3761
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8
Dependent Variable: $logQuantity_{fit}$						
$SoShare$	-0.3812	-0.4428	-0.4738	-0.3609	-0.3229	-0.2307
	(-0.8101)	(-0.9498)	(-1.0127)	(-0.7601)	(-0.6689)	(-0.4580)
$SoShare \times FV$	-0.8619***	-0.8254***	-0.4535	0.8247***	-0.5484***	-0.5497***
	(-3.8148)	(-4.0673)	(-1.5208)	-3.265	(-2.8565)	(-2.6159)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	159,263	159,263	159,263	159,263	159,263	159,263
R-squared	0.7514	0.7516	0.7507	0.7511	0.7511	0.7510
Number of Firms	3760	3760	3760	3760	3760	3760
Number of Sectors	20	20	20	20	20	20
Number of Years	8	8	8	8	8	8

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table D2: Regressions in Subsample 2 with Firm-Year FE and Sector FE

Dependent Variable: $logExport_{fit}$						
FV Measure	FPC	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$SoShare \times FV$	-1.2522***	-1.1148***	-1.2321***	1.3602***	-1.2518***	-1.2792***
	(-4.7353)	(-4.6577)	(-3.1452)	(4.6709)	(-4.9164)	(-5.0309)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	158,042	158,042	158,042	158,042	158,042	158,042
R-squared	0.7226	0.7228	0.7216	0.7222	0.7233	0.7232
Dependent Variable: $logQuantity_{fit}$						
$SoShare \times FV$	-0.9960***	-0.9316***	-0.4872	0.9935***	-0.5680**	-0.5538**
	(-3.9171)	(-4.1213)	(-1.3749)	(3.4588)	(-2.4693)	(-2.2834)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	158,003	158,003	158,003	158,003	158,003	158,003
R-squared	0.7979	0.7981	0.7971	0.7976	0.7974	0.7973

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 6 is indicated in the column heading. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Appendix E. Group Regressions in Subsamples

Table E1: Processing Trade Firms *v.s.* Ordinary Trade Firms in Subsample 2

FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
Panel A: Processing Trade Firms					
$SoShare$	-0.6201	-0.7315	-0.8478	-0.3747	-0.1851
	(-0.5629)	(-0.7319)	(-0.7791)	(-0.3813)	(-0.1858)
$SoShare \times FV$	0.4332	0.5256	-0.8832*	-0.0313	-0.2686
	(1.0892)	(0.8168)	(-1.7895)	(-0.0592)	(-0.5330)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	51,518	51,518	51,518	51,518	51,518
R-squared	0.6700	0.6699	0.6704	0.6697	0.6698
Number of Firms	619	619	619	619	619
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Panel B: Ordinary Trade Firms					
$SoShare$	-0.2878	-0.1337	-0.0373	0.1578	0.2422
	(-0.8732)	(-0.3869)	(-0.1118)	(0.4589)	(0.7377)
$SoShare \times FV$	-0.8703***	-0.8961**	1.4801***	-0.9695***	-0.9131***
	(-3.1171)	(-2.4095)	(4.6014)	(-4.3404)	(-4.1746)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	52,992	52,992	52,992	52,992	52,992
R-squared	0.6433	0.6426	0.6445	0.6444	0.6440
Number of Firms	1386	1386	1386	1386	1386
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Difference P-value	0.000	0.001	0.000	0.259	0.561

Notes: All regressions include a constant term. The dependent variable is the log form of export value per year, firm and sector. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. The full sample is divided into two sub-samples according to trade type. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table E2: High TFP Firms *v.s.* Low TFP Firms in Subsample 2

Panel A: High TFP Companies					
FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
SoShare	-0.1276	-0.1218	0.1093	0.0128	0.1505
	(-0.1683)	(-0.1694)	(0.1446)	(0.0181)	(0.2104)
SoShare× FV	-0.8281***	-0.6104	1.3220***	-0.7056**	-0.8011**
	(-2.9015)	(-1.3317)	(3.5167)	(-2.1089)	(-2.5280)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	80,177	80,177	80,177	80,177	80,177
R-squared	0.6619	0.6609	0.6624	0.6618	0.6621
Number of Firms	1258	1258	1258	1258	1258
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Panel B: Low TFP Companies					
SoShare	-0.0643	0.1036	0.1070	0.2437	0.3015
	(-0.1530)	(0.2308)	(0.2528)	(0.5669)	(0.6771)
SoShare× FV	-0.7360***	-1.3237***	0.8508**	-0.6644***	-0.5748**
	(-2.7086)	(-3.2645)	(2.5242)	(-2.7748)	(-2.4484)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	24,333	24,333	24,333	24,333	24,333
R-squared	0.6579	0.6586	0.6577	0.6577	0.6574
Number of Firms	747	747	747	747	747
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Difference P-value	0.172	0.01	0.043	0.134	0.209

Notes: All regressions include a constant term. The dependent variable is the log form of export value per year, firm and sector. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. The full sample is divided into two sub-samples according to the firm's productivity level that is estimated using Levinsohn and Petrin (2003) methodology. Firms whose TFP is below the median level of all firms' average TFP are grouped into low TFP sub-sample. Otherwise, they belong to the high TFP sub-sample. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table E3: Big Firms *v.s.* Small Firms in Subsample 2

FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
Panel A: Big Firms					
SoShare	-0.1803	-0.1300	0.0670	0.0850	0.2206
	(-0.2561)	(-0.1942)	(0.0960)	(0.1283)	(0.3271)
SoShare× FV	-0.8387***	-0.6396	1.3354***	-0.7523**	-0.8347***
	(-2.9167)	(-1.5487)	(3.8087)	(-2.6058)	(-3.0783)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	91,260	91,260	91,260	91,260	91,260
R-squared	0.6746	0.6737	0.6752	0.6747	0.6750
Number of Firms	1569	1569	1569	1569	1569
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Panel B: Small Firms					
SoShare	0.6899	0.9927*	0.4690	0.1139	0.3213
	(1.3093)	(1.6729)	(0.8705)	(0.2178)	(0.6789)
SoShare× FV	-0.4418	-1.4544**	0.2129	-0.3711	-0.0576
	(-1.4521)	(-2.3469)	(0.4250)	(-0.8074)	(-0.1113)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	13,250	13,250	13,250	13,250	13,250
R-squared	0.5848	0.5863	0.5841	0.5842	0.5840
Number of Firms	436	436	436	436	436
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Difference P-value	0.956	0.089	0.895	0.000	0.000

Notes: All regressions include a constant term. The dependent variable is the log form of export value per year, firm and sector. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. All variables are defined in Table 3. The full sample is divided into two sub-samples according to firm's size that is estimated by total assets. Firms whose size is below the median level of all firms' median size are grouped into small firms sub-sample, otherwise they belong to big firms sub-sample. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table E4: Foreign Firms *v.s.* Domestic Firms in Subsample 2

Panel A: Foreign Firms					
FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
SoShare	-0.3608	-0.4896	-0.7475	-1.0421	-1.3132
	(-0.3891)	(-0.5013)	(-0.7762)	(-0.9496)	(-1.0913)
SoShare× FV	1.3032**	1.3085	-1.5622*	1.1126*	1.0386*
	(2.1065)	(1.6368)	(-1.8135)	(1.8457)	(1.6916)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	18,938	18,938	18,938	18,938	18,938
R-squared	0.6994	0.6989	0.6991	0.6992	0.6991
Number of Firms	392	392	392	392	392
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Panel B: Domestic Firms					
SoShare	-0.1295	0.0374	0.0842	0.0013	0.1441
	(-0.1836)	(0.0575)	(0.1207)	(0.0020)	(0.2196)
SoShare× FV	-0.8784***	-0.9684*	1.3154***	-0.6968**	-0.8087**
	(-3.1083)	(-1.9646)	(3.4007)	(-2.0498)	(-2.5129)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	85,572	85,572	85,572	85,572	85,572
R-squared	0.6747	0.6740	0.6749	0.6742	0.6745
Number of Firms	1613	1613	1613	1613	1613
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Difference P-value	0.115	0.253	0.068	0.092	0.138

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. All variables are defined in Table 3. he full sample is divided into two sub-samples according to whether they have foreign capital. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table E5: Government Monopolized Industries *v.s.* Other Industries in Subsample 2

FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
Panel A: State dominated sectors					
SoShare	-1.1473	-1.2388	-1.5973**	-0.7781	-0.9463
	(-1.5696)	(-1.5296)	(-2.4235)	(-0.8704)	(-1.0566)
SoShare × *Financial Vulnerability*	-1.1462*	-0.7910	0.6046	-0.8729*	-0.7154
	(-1.9196)	(-1.3288)	(1.1394)	(-1.7108)	(-1.4997)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	5,675	5,675	5,675	5,675	5,675
R-squared	0.7838	0.7830	0.7828	0.7837	0.7833
Number of Firms	213	213	213	213	213
Number of Sectors	18	18	18	18	18
Number of Years	8	8	8	8	8
Panel B: Other sectors					
SoShare	-0.3535	-0.2280	-0.1774	-0.0195	0.1917
	(-0.6035)	(-0.4028)	(-0.3052)	(-0.0362)	(0.3508)
SoShare × *Financial Vulnerability*	-0.9552***	-0.9424**	1.1382***	-1.0243***	-1.0701***
	(-4.0221)	(-2.4468)	(3.8963)	(-3.9798)	(-4.3679)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	153,620	153,620	153,620	153,620	153,620
R-squared	0.6718	0.6706	0.6712	0.6722	0.6723
Number of Firms	3618	3618	3618	3618	3618
Number of Sectors	19	19	19	19	19
Number of Years	8	8	8	8	8
Difference P-value	0.000	0.004	0.309	0.000	0.002

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. We partitioned the entire sample into two sub-samples based on the sectors of firms. Sectors are categorized into government monopolized industries *v.s.* Other industries. All variables are defined in Table 3. The difference P-value is obtained by Chow test (Chow, 1960). Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.

Table E6: Financial Developed Provinces *v.s.* Financial Developing Provinces in Subsample 2

Panel A: Financial Developed Provinces					
FV Measure	Dextfin	Invent	Tang	CExp	R&D
	(1)	(2)	(3)	(4)	(5)
SoShare	0.7251	0.9280	0.8144	1.1497	1.5492
	(0.6117)	(0.8207)	(0.6860)	(1.0413)	(1.4014)
SoShare× FV	-1.1589***	-1.3974***	1.3031***	-1.5941***	-1.8128***
	(-3.7372)	(-2.6144)	(3.1460)	(-4.0277)	(-5.2232)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	80,120	80,120	80,120	80,120	80,120
R-squared	0.6885	0.6873	0.6873	0.6913	0.6926
Number of Firms	1786	1786	1786	1786	1786
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Panel A:Financial Developing Provinces					
SoShare	-1.0907***	-0.9469**	-0.8524**	-0.9664***	-0.9921***
	(-3.0859)	(-2.5702)	(-2.4148)	(-2.8663)	(-2.8896)
SoShare× FV	-1.0320***	-0.9103**	1.3261***	-0.4610**	-0.3292
	(-4.6452)	(-2.4127)	(4.2345)	(-2.0065)	(-1.3432)
Sector FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	79,153	79,153	79,153	79,153	79,153
R-squared	0.6718	0.6704	0.6716	0.6701	0.6698
Number of Firms	2086	2086	2086	2086	2086
Number of Sectors	20	20	20	20	20
Number of Years	8	8	8	8	8
Difference P-value	0.001	0.426	0.004	0.186	0.039

Notes: All regressions include a constant term. The measure of financial vulnerability in columns 1 to 5 is indicated in the column heading. We partitioned the entire sample into two sub-samples based on the locations of firms. Provinces are categorized into two groups, distinguishing their financial development levels using the ratio of total loans to GDP as the measure. Firms situated in provinces with a financial development level below the mean levels across all provinces are classified into the financial developing provinces sub-sample. Firms located in provinces exceeding this mean level are assigned to the financial developed provinces sub-sample. All variables are defined in Table 3. Standard errors are clustered at the sector-year level. T-statistics in parentheses. Significant at *** 1%, ** 5%, * 10%.