Will Local Financial Development Affect the Competitive Advantage of Chinese Enterprises' Exports?

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Abstract: *Many studies confirm the impact of financial development on the macro economy, but systematic studies of the impact of financial development on corporate exports is still lacking. Based on the quasi-natural experiment established by city commercial banks, this paper uses micro-data of Chinese industrial enterprises from 1998 to 2013 and adopts a double difference method to test the impact of the development of local financial institutions on corporate exports. The results show that the establishment of city commercial banks has significantly increased the export participation rate and total export volume of manufacturing enterprises in the city where they are located; comparatively speaking, its impact on the export expansion margin of industrial enterprises exceeds the intensive margin. At the same time, the study also found that the above-mentioned influences exist in both long-term and short-term, and in enterprises of different sizes and attributes. These findings provide new evidence for understanding the relationship between local financial development and corporate exports.*

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1.   Introduction

Since its reform and opening up over 40 years ago, China has achieved an average annual export growth rate of 20% by giving full play to its export competitive advantages brought by low labour costs, and by actively promoting its export-oriented economic development. However, as labour costs continue to rise, China's traditional trade model has come to an end. Today, its new working-age population (16-59 years old) has become negative, and real wages have been increasing at an average annual rate of 30%. In the context of the gradual decline of traditional cost competitive advantages (Tian & Slocum, 2015; Zhao et al., 2016; Sölvell, 2015), China has looked to maintain its export expansion and stabilise economic growth. So where can this further export competitive advantage be found? China continues to open up to the outside world and promote global trade liberalisation, relying on deepening market reforms and strengthening innovation to explore financial system factors that can enhance export competitiveness.

In international trade, finance is considered one of the determinants of export competitive advantage (Svaleryd & Vlachos, 2005), which affects other institutions (Defever & Suedekum, 2014). The construction of a modern financial system includes two levels—building a modern financial market and institutions, as well as an advanced supervision system. The impact of financial supervision on business activities is usually determined by the activities of institutions. Developed and emerging market countries have long sought to increase the competitiveness of financial institutions by loosening access to the financial industry. The continuous development of institutions and markets reduces transaction costs, thereby promoting improved corporate operation and production efficiency.

2.   Institutional Background and Theoretical Hypotheses

This paper puts forward the following theoretical hypothesis: the establishment of a city commercial bank can enhance export competitive advantages. In other words, once a commercial bank is established in the city where the company is located, its export participation rate and total export volume will be significantly increased. This paper empirically tests the inference and mechanism based on the data of Chinese industrial enterprises.

2.1 Sample selection and data collection

This paper takes the establishment of commercial banks in various cities in China in the mid and late 1990s as a quasi-natural experiment to examine the impact of local financial institutions on the exports of Chinese enterprises. The core explanatory variables of this paper include 184 city commercial banks, including those that were later merged. The data comes from the *Statistical Yearbook of Commercial Banks of China (2007-2012), Statistical Yearbook of Commercial Banks of China (2007-2013)*, and the official website of the China Banking and Insurance Regulatory Commission. The data for each branch were taken from the website of each city commercial bank. The specific registration and establishment dates were taken from the National Enterprises Credit Information System (NECIS). However, the exact establishment date of some city commercial banks that were merged or transformed into urban credit cooperatives were not recorded in the NECIS.

For the sample of enterprises, this paper uses data on Chinese industrial enterprises from 1998 to 2013, taken from the Chinese Industrial Enterprise database. Given that enterprise data after 2008 is discrete year by year, this paper uses the company code, name, and phone number to match the continuous panel data from 1998 to 2008, year by year, to obtain a sample of 20,701 companies that existed continuously from 1998 to 2013. This paper also uses the industrial gross domestic product (GDP) conversion index as an alternative measure of inflation to delete the price factor in the nominal variables included in the corporate sample.

To improve data quality, this study also processed this matched data in accordance with accounting principles, such as: (1) deleting the sample of companies with a month of establishment greater than December and year of establishment greater than the data year; (2) deleting sales income less than samples of export delivery value; (3) deleting samples with fixed assets or current assets greater than total assets; and (4) deleting samples with less than 10 employees.[1] This was done to avoid the influence of the error sample.

2.2 Model design, variable definition and statistical characteristics

This paper adopts the difference in difference (DID) estimation to investigate the impact of the establishment of city commercial banks on corporate

exports. Given that the study focuses on the exports of Chinese companies, one difficulty was faced, namely the fact that some companies had parts with sales limited to the domestic market. Thus, to overcome the sample selection bias in the model, this paper draws on the method of Shahriar et al. (2019) and uses the Heckman measurement model for estimation:

$$er_{it} = \alpha_1 l\_cb_{it} + \beta_1 X_{it} + \alpha_i + \alpha_t + \varepsilon_{it} \qquad (1)$$

where i and t are index cities and time periods respectively. er_{it} stands for local financial development in the establishment of commercial banks i at year t, which is expressed as the ratio of employed population to economically active population (employed population plus unemployed population). l_cb_{it} is our primary variable of interest, $l\_cb_{it} = 1$ if city i is a low commercial pilot city (LCPC) in year t and $l\_cb_{it} = 0$ if city i is a non-LCPC city in year t. α_i are city fixed effects, capturing city's all time-invariant characteristics such as geographic features, climate, natural endowment, etc.; and α_t are year fixed effects, capturing all yearly factors common to all cities such as business cycle, monetary policy, macro shocks etc. X_{it} controls for an additional set of covariates that capture employment and city characteristics at the city by year, and ε_{it} is the error term.

$$\Pr(Exp_i = 1) = \Phi(\alpha_j + \alpha_c + \alpha_y + \alpha_1 bank + \Psi' X_i + \eta_1 time) \qquad (2)$$

$$export_i = \beta_j + \beta_c + \beta_y + \beta_1 bank + \Gamma' X_i + \beta_2 \phi_i + \varepsilon \qquad (3)$$

j, x, y indicate the industry, unit and year respectively[2]; $export_i = ln(Export_i)$, Exp_i indicates the actual total export volume of the company and Exp_i^*, indicates the potential export volume of the company; $Exp_{ic}^* > 0$, $Exp_{ic} = 1$, 1 means export, 0 means no export. If $Exp_{ic}^* \leq 0$ then $Exp_{ic} = 0$. $bank$ is the core explanatory variable. 1 is if a city commercial bank was established in the city where the company is located and 0 represents the opposite. The Heckman two-stage selection model requires at least one exclusive variable, which only affects the export selection in the first stage and does not directly affect the export scale. This paper refers to the research of Helpman et al. (2008) and uses the regulatory cost faced by enterprises to capture the fixed costs that enterprises may face in export trade. That is, the time it takes a

company to start a new project in each province announced by World Bank in the 2008 *China Business Environment Report*.[3] The larger the variable, the more time it takes the company to start a new project. Therefore, companies face greater regulatory costs.

X_i represents other control variables that reflect the characteristics of the enterprise; ε represents the error terms; α_j, α_c and β_y and β_j represent the fixed effects of industry, individual and year.

Equation (3) is the modified Heckman two-stage export quantity model. Within this model, the term $\phi_i \left(= \varphi / \Phi \right)$ is used to overcome sample selectivity bias, where $\varphi(\cdot)$ is the probability density function of the standard normal distribution number. If this item is excluded and ordinary least squares (OLS) regression is performed, estimation bias may occur, or the effect of enterprise selection in industry exports may not be considered. Because the export industry and the residual are positively correlated in the equation, it implies that the export quantity observation sample may have a residual with an average value greater than zero. At this time, the random errors of the two stages are related, and the problem of sample selection will cause the traditional least squares regression to be biased (Heckman, 1979). In the two equations, the estimated coefficients of *bank*, α_1 and β_1 are the focus of this paper. If, α_1, β_1 are significantly positive, it means the establishment of city commercial banks significantly increases the exports of Chinese industrial enterprises.

The significant estimation coefficient of β_2 indicates that the sample selection bias caused by the establishment of city commercial banks affecting export participation will have an significant impact on traditional model estimation. This not only validates the theoretical hypothesis proposed in this paper, but also verifies the rationality of the measurement model. To further verify the stability of the model in this paper, we also added the following control variables: (1) the logarithm of enterprise sales revenue ($scale_{it}$) used to measure the size of the enterprise; (2) the logarithm of the intangible assets of the enterprise ($repu_{it}$) used to measure the external reputation of the enterprise; (3) the logarithm of the enterprise profit ($prof_{it}$) used to reflect the level of economic profit of the enterprise; (4) the logarithm of employees in a company ($worker_{it}$) used to measure the level of business capacity represented by the size of the company's employees; (5) the business capacity measured by the ratio of financial expenses to the total interest rate ($busi_{it}$) used to measure the company's reverse operating

capacity; (6) quick rate measured by the ratio of current assets to net fixed assets (sdl_{it}) used to measure the speed of corporate asset adjustment; (7) taxation capacity measured by the logarithm of the value-added tax payable (tax_{it}) used to measure the degree of government support that an enterprise may obtain by paying taxes; and (8) innovative ability measured by whether there are new products ($innor_{it}$) is used to measure the level of innovation of an enterprise. Table 1 reports the statistical characteristics of each variable.

Table 1: Descriptive Statistics

Variable	Definition	Sample size	Mean	Standard deviation	Minimum value	Maximum value
export	Explained variable	276881	3.5421	4.5113	-1.6277	17.0085
bank	Explanatory variables	276881	0.2043	0.4032	0	1
scale	Enterprise size	276649	9.9091	1.4190	-1.1145	17.9347
repu	Corporate reputation	276881	1.6340	2.9900	-1.4292	14.6997
prof	Profit level	233078	6.5156	2.1654	-1.6484	16.2024
worker	number of workers	276867	5.7400	1.1421	2.3026	12.5774
busi	Management capacity	273677	3.9960	86.7567	-8426	17182
sdl	Quick rate	251103	3.9498	171.7938	-602.5000	67364.1600
tax	Tax level	266821	6.2965	1.7732	-1.6012	15.4930
inno	Enterprise innovation level	276881	0.3886	0.4874	0	1

Source: Authors'own.

3.   Empirical Results

3.1 *Regression results*

Table 2, models I and II, reports the estimation results of the regression equations (2) and (3) of the Heckman model. The statistical results of the model without controlling variables (I), and the model with controlling variables (II), show that in the selection equation and the exit equation, the estimated coefficients of the explanatory variables are significantly positive; in the aggregate equation, the inverse Mill's rates (ϕ) are significantly positive. The former indicates that after the establishment of a city commercial bank, the company will choose to export more, and its

Table 2: Estimated Results of Heckman Model

| | I | | II | | III | | IV | |
| | No control variable added | | Added control variables | | Placebo experiment | | Deleted abnormal sample 5 | |
	(1) Selected equation	(2) Aggregate equation	(1) Selected equation	(2) Aggregate equation	(1) Selected equation	(2) Aggregate equation	(1) Selected equation	(2) Aggregate equation
bank	0.0769*** (6.3868)	0.1978*** (15.6850)	0.0865*** (7.0459)	0.2429*** (17.6368)	0.0018 (0.1534)	-0.0474*** (-3.0633)	0.1178*** (8.6224)	0.2009*** (17.5646)
scale			-0.0121 (-1.0002)	0.0959*** (7.1891)	-0.0133 (-1.100)	0.0896*** (6.7183)	0.0100 (0.6871)	0.1572*** (14.0317)
repu			-0.0022*** (-2.8264)	-0.0044*** (-3.3625)	-0.0021*** (-2.8114)	-0.0042*** (-3.2807)	-0.0419*** (-4.7195)	-0.0027*** (-0.9019)
prof			0.0002*** (2.7431)	0.0003*** (3.3262)	0.0002*** (2.7353)	0.0003*** (3.2567)	0.00001 (0.0754)	0.0002*** (0.8802)
worker			0.1659*** (30.9935)	0.6437*** (89.8861)	0.1653*** (30.8824)	0.6425*** (89.7538)	0.2321*** (37.4034)	0.5597*** (87.7113)
busi			0.0001 (0.0326)	-0.00002 (-0.5478)	0.000004 (0.0249)	-0.00002 (-0.5732)	0.000001 (0.0406)	-0.00001 (-0.2678)
sdl			-0.0001** (-2.4045)	-0.0002*** (-8.5241)	-0.0001** (-2.3905)	-0.0002*** (-8.3651)	-0.0001** (-2.0028)	-0.0001*** (-4.0242)
tax			-0.0347*** (-15.7900)	-0.1338*** (-48.8671)	-0.0343*** (-15.6046)	-0.1326*** (-48.4878)	-0.0474*** (-15.6704)	-0.1279*** (-46.1255)
inno			0.3330*** (31.7373)	0.7866*** (69.8098)	0.3330*** (31.7405)	0.7878*** (69.9647)	0.5122*** (39.6243)	1.2553*** (105.4314)
time	-0.0481*** (-31.3390)		-0.0489*** (-33.5226)		-0.0497*** (-34.1143)		-0.0351*** (-23.4885)	
ϕ		4.6820*** (339.2775)		4.6450*** (343.3570)		4.6450*** (343.7909)		4.6455*** (343.4188)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall average effect	Yes		Yes		Yes		Yes	
Individual fixed effect		Yes		Yes		Yes		Yes
R^2	0.0355	0.8810	0.2972	0.8869	0.1194	0.8855	0.1148	0.9028
N	277037	277037	263949	263949	263949	263949	207561	203656

Notes: The estimated coefficients in parentheses are the robustness standard errors of the regression coefficients. *** represents the 1% significance level, ** represents the 5% significance level, and * represents the 10% significance level. Since the Probit model uses a nonlinear model for parameter estimation, fixed effects cannot be used. For this reason, this paper refers to the advice of the well-known scholar Woodridge and adopts the overall average.

Source: Authors' own.

total export volume will increase significantly. This is consistent with the theoretical hypothesis in this paper. The development of local financial institutions marked by the establishment of city commercial banks had a significant positive impact on the competitive advantage of Chinese enterprises' product exports. The latter shows that the establishment of city commercial banks will affect the export participation behaviour of enterprises, leading to biases in the estimation of the traditional OLS model.

At the same time, in the export equation, the size of the company is significantly positive, indicating that the 'scale effect', predicted by the new trade model proposed by Krugman and others (Krugman, 1995), is significantly established. Corporate reputation and profitability are significantly positive, indicating that the influence of reputation and managerial capabilities emphasised by modern corporate theory on corporate competitive advantage is significantly established in China. The significantly positive corporate labour input indicates that the 'factor advantage effect' predicted by Heckscher and Ohlin's (Heckscher, 1950; Ohlin, 1933) factor endowment theory is significant; while the significantly positive corporate technological innovation indicates that technological innovation has become an important source of Chinese enterprises' export competitive advantage.

On the contrary, the quick rate is significantly negative, indicating that the flexibility of corporate asset operations will inhibit the competitive advantage of Chinese corporate product exports. The possible explanation is that Chinese industrial companies still need a large amount of equipment investment to increase the complexity of product exports; corporate taxation is significantly negative, indicating that an increase will reduce the competitive advantage of exports, which is consistent with the predictions of mainstream theories. Finally, the estimated coefficient of business capability is positive, indicating that the business capability embodied in finance can also enhance the competitive advantage of its product exports.

The estimated coefficients in models (I) and (II) are significantly positive, which has important economic significance (it is assumed that there is no inverse causality between and corporate exports, which will be discussed in detail below). First, according to the estimated results of model (II), after the establishment of a city commercial bank, the rate of participation of the city's enterprises in exports increased by 7.69%, and the export volume was even higher by about 19.78%. This is exactly the 'pure effect' of the establishment of city commercial banks on the export of

Chinese manufacturing enterprises. They show that the establishment of city commercial banks will have a significant impact on the export behaviour of Chinese industrial enterprises, and the theoretical inference of local financial institutions will have a positive impact on the export of manufacturing enterprises.

Second, since the selection equation examines the export participation behaviour of enterprises, and the total amount equation examines the total export volume of enterprises, the explained variables in the two models are different, so the estimated coefficients of the same explanatory variable *bank* in the two models are not comparable. At this time, the variance standardisation of the measurement model can identify the unit change in the explanatory variable and the degree of influence on different models. This paper uses the following formula to estimate the coefficients of *bank* in the models (I) and (II). Standardisation: $\alpha_1' = \alpha_1 \times s(bank)/s(dummy)$ and $\beta_1' = \beta_1 \times s(bank)/s(export)$, where α_1 and β_1 represent the estimated coefficient of *bank* in the models (I) and (II), respectively, and $s(.)$ represents the standard deviation of the variable. α_1' and β_1' are estimated coefficients after standardisation.

If $\alpha_1' > \beta_1'$, it means that the establishment of a city commercial bank has more influence on the expansion margin of Chinese enterprise exports than the intensification margin. The estimation results are shown in Table 3. The standardised coefficient α_1 of α_1' in Table 2-I and Table 2-II are both significantly larger than the coefficient β_1 of β_1'. It shows that the establishment of city commercial banks can affect the export behaviour of enterprises, and that its impact on the export participation exceeds the impact on total export volume.

Table 3: Standardised Comparison of Estimated Coefficients

	Table 2-I	Table 2-II	Table 5-I	Table 5-II
α_1'	0.0693	0.0779	0.0651	0.0776
β_1'	0.0201	0.0239	0.0168	0.0225

Source: Authors' own.

3.2   Parallel trend test

Different cities may have differences in financial markets before the implementation of the policy establishing city commercial banks. This difference may be the cause of the gap in export advantages. The original hypothesis of the DID model is before the implementation of the policy establishing a city commercial bank, there is either no systematic difference or the difference is fixed, and the development trends of the two are consistent. For this reason, parallel trend testing is needed to verify the reliability of the above estimation results. The specific test model design is as follows:

$$\Pr\left(Exp_i=1\right)=\Phi\left(\alpha_j+\alpha_c+\alpha_y+\sum_{t=-7}^{7}\tilde{\alpha}_t\times du\cdot d\left(t\right)+\eta_1 time\right) \qquad (4)$$

$$export_i=\beta_j+\beta_c+\beta_y+\sum_{t=-7}^{7}\tilde{\beta}_t\times du\cdot d\left(t\right)+\beta_2\phi_i+\varepsilon \qquad (5)$$

Where *du* represents the city in which the commercial bank is established, and *d*(*t*) represents the year dummy variable corresponding to time *t*, where *t* = 0 corresponds to the year the city commercial bank was established. There are 15-year dummy variables and *du* product variables in both models. $\tilde{\alpha}_t$ and $\tilde{\beta}_t$ are the 30 parameters to be estimated.

The estimation results of models (4) and (5) are shown in Figures 1 and 2, respectively. The estimated values of the parameters in each period before the *t* = 0 period is positive or negative, with a large difference, while the estimated values after the *t* = 0 period are significant and gradually increase. It shows that there is no systematic difference between the treatment group and the control group before policy implementation, but the difference gradually becomes more prominent thereafter. This shows that the model in this paper has passed the parallel trend test; that is, after the establishment of the city commercial bank, the difference in export participation and total export volume between the treatment group and the control group cities has significantly expanded. This shows that the establishment of a city commercial bank strengthens corporate export competitive advantage.

Figure 1: Parallel Trend Test Results of Estimated Parameters in Model (4)
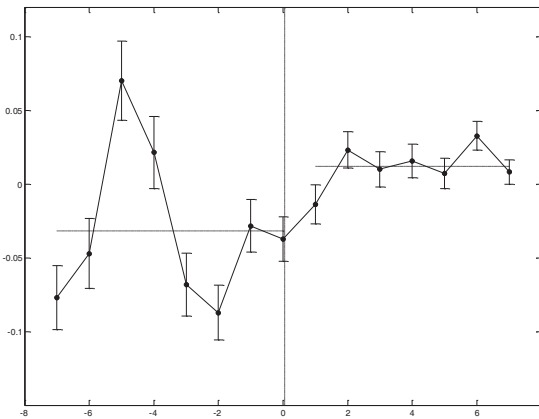
Source: Authors' own.

Figure 2: Parallel Trend Test Results of Estimated Parameters in Model (5)
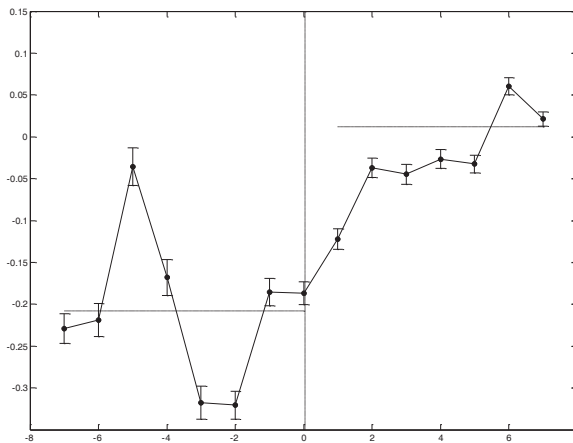
Source: Authors' own.

3.3   More robustness analysis

To verify the robustness and sensitivity of the previous model estimation results, it is necessary to further investigate the influence of different situations on the above conclusions. One is the placebo test. This paper

draws on the methods of existing literature and conducts a placebo test by changing the implementation time of the policy. The logic behind this is that other policies or random factors may also have impacted on the comparative advantage of a company's exports. If this impact is related to the establishment of a city commercial bank, there is no correlation between the two, so *bank* should also be significantly positive in other years, which means that the contribution of the *bank* item to the company's exports is attributed to factors other than the establishment of a city commercial bank. There were no city commercial banks established in 2004.

The result shows that the estimated coefficient of the key explanatory variable *bank* is no longer significant in the first stage, and is significantly negative in the second stage, indicating that the company has a competitive advantage in product exports after the establishment of a city commercial bank. This rules out the previous positive effect from other factors besides the policy of establishing city commercial banks.

There is a huge difference in the export of Chinese companies, with the logarithmic standard deviation reaching 4.51, exceeding the logarithmic mean. It is observed that there are extreme samples in the model used here, resulting in a huge residual error of model estimation, which will amplify model variance and affect the validity of estimation results. This refers to the practice of the existing literature, first regressing equation (3) without adding the inverse Mill's rate (ϕ), and then using the deleted samples whose absolute value of the residual is less than |7| to perform the Heckman estimation again. The estimated results are shown in Table 2-IV.

The result shows that the estimated coefficient of *dudt* is still significantly positive in the first and second stages; at the same time, the estimated coefficient of inverse Mill's rate is significantly positive in the second stage of regression. The above results show that the appearance of outliers does not affect the estimation results of the previous model and the selection of Heckman model in this paper is effective and reasonable. Therefore, the following empirical conclusions of the previous model are robust and effective, that is, the establishment of city commercial banks can enhance the competitive advantage of Chinese industrial enterprises in product export.

The DID method can only differ in terms of the impact of a city commercial bank being established on exports; it cannot measure the difference in the impact of the policy on exports in different stages. Moreover, the impact of financial policies often varies over time. For this

reason, this paper introduces two variables describing the length of time based on the previous model, namely, the variable with the value of 1 in 2004 to 2008, the variable with the value of 0 in other years, and the variable with the value of 1, in other years, from 2009 to 2013. For variables with a value of 0, it describes the short-term years after the implementation of the policy, and the long-term years after the implementation of the policy. Using the product of these two variables and as explanatory variables, this

Table 4: Estimated Results – Robustness Checks

	I Using samples from 1998 to 2007		II Control short-term and long-term impact		III Control the impact of large and small and medium enterprises		IV Control the influence of state-owned and private enterprises	
	(1) Selected equation	(2) Aggregate equation	(1) Selected equation	(2) Aggregate equation	(1) Selected equation	(2) Aggregate equation	(1) Selected equation	(2) Aggregate equation
bank	0.1039*** (12.2161)	0.2146*** (23.7864)						
bank × κ			0.0817*** (6.6259)	0.2312*** (16.8128)	0.1307*** (9.0333)	0.4783*** (28.2883)	0.0428*** (2.8508)	0.0777*** (4.7857)
bank × μ			0.1178*** (8.0634)	0.3959*** (22.5959)	0.0658*** (5.2420)	0.1549*** (11.1234)	0.0997*** (7.9270)	0.3126*** (22.0658)
scale	-0.0447*** (-3.6075)	0.0273** (2.3289)	-0.0128 (-1.0613)	0.0903*** (6.7644)	-0.0108 (-0.9851)	0.1013*** (7.6120)	-0.0108 (-0.8982)	0.1002*** (7.5118)
repu	-0.0107*** (-3.8001)	-0.00005 (-0.4229)	-0.0022*** (-2.8413)	-0.0045*** (-3.3894)	-0.0022*** (-2.8049)	-0.0042*** (-3.1775)	-0.0022*** (-2.9321)	-0.0046*** (-3.6045)
prof	-0.0001 (-1.5317)	-0.00003 (-1.5367)	0.0002*** (2.7628)	0.0003*** (3.3579)	0.0002*** (2.7265)	0.0003*** (3.1586)	0.0002*** (2.8230)	0.0003*** (3.5278)
worker	0.2099*** (51.5646)	0.7132*** (126.1499)	0.1657*** (30.9788)	0.6429*** (89.8275)	0.1522*** (26.7218)	0.5738*** (79.7198)	0.1667*** (31.0967)	0.6463*** (90.2201)
busi	0.00001 (0.1118)	0.00001 (0.4964)	0.00001 (0.0367)	-0.00002 (-0.5601)	0.0000003 (0.0193)	-0.00002 (-0.6381)	0.000002 (0.1343)	-0.00001 (-0.3492)
sdl	-0.00002 (-1.0743)	-0.0001*** (-4.6242)	-0.0001** (-2.3990)	-0.0002*** (-8.4737)	-0.0001** (-2.4478)	-0.0002*** (-8.8715)	-0.0001** (-2.3725)	-0.0002*** (-9.0000)
tax	-0.0301*** (-15.6496)	-0.1220*** (-58.7038)	-0.0346*** (-15.7582)	-0.1335*** (-48.8117)	-0.0347*** (-15.7548)	-0.1333*** (-48.7523)	-0.0347*** (-15.7955)	-0.1338*** (-48.9338)
inno	0.4969*** (52.5529)	1.2630*** (138.9561)	0.3333*** (31.7614)	0.7872*** (69.7622)	0.3336*** (31.7759)	0.7843*** (69.5209)	0.3342*** (31.8527)	0.7914*** (70.2582)
time	-0.0512*** (-50.4858)		-0.0487*** (-33.3783)		-0.0491*** (-33.6487)		-0.0484*** (-33.1511)	
φ		4.4063*** (428.9846)		4.6451*** (343.2246)		4.6379*** (340.0968)		4.6455*** (343.4188)

Source: Authors' own.

paper re-estimates the models (4) and (5), and the results are shown in Table 4 (Model II).

The result shows that the estimated coefficients of *bank* $\times$ κ and *bank* $\times$ μ are significantly positive in the first and second stages, indicating that the establishment of the city commercial bank has improved the competitive advantage of the city's enterprise exports in the short and long term. In addition, the estimated coefficient of the inverse Mill's rate is significantly positive in the second stage regression, which indicates that the choice of Heckman model as the measurement model in this paper is effective and reasonable. Therefore, this paper proposes that the policy of establishing a city commercial bank has a long-term effect on the promotion of corporate exports, and its series of financial reforms around it can become an important tool for China to reconstruct corporate export competitive advantages.

Chinese companies may have scale advantages when applying for loans, that is, under the same conditions, large-scale companies may get priority use of financial resources. Finally, there is an impact of corporate attributes. Many studies state that Chinese state-owned enterprises have a certain soft budget constraint function and can give priority to the use of financial credit resources. In other words, state-owned enterprises with the same characteristics as private enterprises may be prioritised, which allows for more effective resource allocation, reduction of operating costs, and improvement in production efficiency, thereby gaining greater competitive advantage. Therefore, the establishment of city commercial banks may have a differential impact on the exports of enterprises with different attributes.

3.4   A preliminary probe into the influence mechanism

City commercial banks affect the export competitive advantage of enterprises. Its more direct mechanism is to reduce financial transaction costs, increase the possibility of obtaining credit, increase the vitality of enterprises, increase the possibility of enterprises to improve their financial and operating structures, and ultimately increase their labour productivity. To test this mechanism, this paper uses the data of Chinese industrial enterprises from 1998 to 2013 to construct four types of indicators. The first is an indicator that reflects the burden of corporate financial transaction costs, that is, the interest expenditure of unit liabilities, for which the ratio of corporate interest expenditure to debt is used here. The second is an

indicator that reflects market vitality, for which the logarithm of corporate sales revenue and short-term investment is used. The reason being if market vitality increases, then corporate sales revenue and short-term investment in the market will appear to increase. The third is to reflect the two indicators of corporate financial health and commercial credit, namely accounts payable and accounts receivable of unit sales revenue. This paper uses the ratio of accounts payable to sales output value, accounts receivable and sales output value, respectively. The fourth is labour productivity, which is an indicator that reflects the labour production efficiency of enterprises, for which this study uses the labour average rate of value added.

According to the previous analysis, when a city commercial bank is established in a city, it will be easier for companies to obtain financial credit, and financial market transaction costs will be further reduced. Companies are more likely to obtain greater market vitality by adjusting their business strategies, thereby reducing accounts payable, increasing accounts receivable, adjusting their production structure, and improving their labour productivity, which allows them to gain a greater export competitive advantage. According to this logic, the estimated coefficients of the core explanatory variables in the regression of the second index of the first type of index and the first index of the second index should be expected to be negative. The estimated coefficients in the regression of other indicators should be expected to be positive, that is, after the establishment of a city commercial bank, the company will gain greater market and operational vitality, and will be more flexible in collecting accounts. The estimated coefficients in the regression of the fourth type of indicator should be expected to be positive. This paper uses the above indicators to regress the core explanatory variables. The estimated results are shown in Table 5.

The result indicates that the estimated coefficients of the core explanatory variables in combinations (1) and (2) are significantly positive and negative, respectively. This shows that after the establishment of a city commercial bank, the credit availability of the enterprise is greatly improved, and the financial interest cost it pays drops significantly. In combinations (3) and (4), the estimated values of the core explanatory variables are significantly negative and positive, respectively, indicating that after the establishment of a city commercial bank, the likelihood of failure drops significantly, and sales revenue goes up significantly. In combination (5), the estimated coefficient of the core explanatory variable

is significantly positive. This shows that after the establishment of a city commercial bank, the company's asset-liability ratio will increase, and the financial situation will improve. The estimated coefficient of the core explanatory variable in combination (6) is significantly positive, indicating that the labour productivity of the company improves significantly after the establishment of a city commercial bank. These results all support the mechanism hypothesis proposed in the previous deduction theory hypothesis.

Table 5: Estimated Results – Influence Mechanisms

	(1) Credit availability	(2) Unit interest payment rate	(3) Business status	(4) Logarithm of sales revenue	(5) Assets and liabilities	(6) Labour productivity
bank	0.3940***	-0.0891***	-0.2025***	0.1633***	0.0300***	0.0751***
	(5.6770)	(-4.6491)	(-6.7642)	(14.6442)	(3.7111)	(8.5890)
scale	0.6186***	-0.1409***	-0.5070***	-0.1210***	-0.2032***	-0.1374***
	(4.5128)	(-6.3571)	(-6.7744)	(-11.5168)	(-24.6916)	(-11.3005)
repu	0.5038***	0.0028	-0.2361	-0.0049	-0.0002***	-0.0003
	(2.7757)	(0.3063)	(-1.1945)	(-1.4060)	(-0.2150)	(-1.3610)
prof	-0.0003**	-0.0002	0.0002***	0.0004	0.00001	0.0001**
	(-2.3989)	(-0.3604)	(3.6410)	(1.4598)	(0.1896)	(2.5258)
worker	0.2173***	0.0387***	-0.1343***	0.4424***	-0.0072**	-0.4547***
	(5.9986)	(4.6122)	(-10.5838)	(70.0927)	(-2.2151)	(-87.7315)
busi	0.00003	0.0003***	-0.0002***	-0.00003**	-0.00003***	-0.00003
	(0.1726)	(6.8017)	(-3.8887)	(-2.0803)	(-4.1579)	(-1.5075)
sdl	-0.000005	-0.0001	-0.0032	0.00002***	-0.00004	0.00001
	(-0.0905)	(-1.3319)	(-1.3609)	(2.8178)	(-1.3104)	(1.0265)
tax	0.0494**	0.0970***	0.0120	-0.0868***	0.0285**	-0.0238***
	(1.9875)	(22.1774)	(0.9544)	(-36.3952)	(17.1568)	(-10.7316)
innor	-0.0692***	0.0471***	0.8503***	0.0517***	-0.0084**	-0.0494***
	(0.7960)	(3.9842)	(26.4663)	(8.3218)	(-2.0121)	(-34.4545)

Source: Authors' own.

4.   Conclusions

This paper investigates how city commercial banks affect the competitive advantage of Chinese enterprises' exports. We first look at the export patterns of 260 Chinese cities between 1998 and 2013 and identify lending discrimination against domestic private firms. We find that domestic private firms systematically underperform compared to foreign affiliates in

financially more vulnerable sectors. Our results suggest that city commercial banks influence the export competitive advantage of enterprises, by reducing transaction costs, increasing the possibility of obtaining credit, increasing vitality, increasing the possibility of improving their financial and operating structures, and ultimately increasing labour productivity. The local development of city commercial banks is associated with a more pronounced rebalancing of exports, a significant drop in the likelihood of failure, and an increase in sales revenue.

Acknowledgement

Notes

[1] To set the lower limit of enterprise personnel scale, this paper uses five and eight people as lower bound indicators, reorganises the data, and uses these two new micro samples to test the measurement model. The empirical results show that the main conclusions obtained in this paper are soundly established. The establishment of city commercial banks significantly increases the exports of Chinese industrial enterprises from the expansion margin and the intensive margin.

[2] It is worth mentioning that this paper introduces units in formula (2) to control the overall average effect and to uniformly estimate the average bias effect of the Probit model.

[3] This paper does not cover Tibet.

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