# The Construction of Free Trade Zones Will Invest and Finance for China's Enterprises Study on the Impact of Maturity Mismatch

#### Ye Yang

Capital University of Economics and Business, Bei jing, China

Abstract: With the intensification of market competition, the investment and financing risks of enterprises increase, especially the maturity mismatch may lead to the rupture of capital flow and affect the stable development of enterprises. This paper studies how the free trade zone affects the maturity mismatch of enterprise investment and financing. The paper first summarizes the influencing factors of the establishment of free trade zone and the mismatch of enterprise investment and financing period, and then defines the mismatch between pilot free trade zone and enterprises, and puts forward the research hypothesis. By analyzing the data of China's listed companies from 2009 to 2022, the impact of the construction of the free trade zone is studied by the dual difference method, and the robustness is tested by various methods. Then, the mechanism of the construction of the free trade zone affecting the maturity mismatch of enterprise investment and financing was tested, and the heterogeneity was analyzed from different angles, so as to enrich the literature in related fields.

Keywords: Free Trade Zone; Mismatch of Investment and Financing Period; Financing Constraint; Cost

#### 1. Introduction

To enhanceChina's comprehensive strength and international competitiveness, the CPC Central Committee has decided to establish a pilot free trade zone. In September 2013, Chinas first pilot free trade zone was established in Shanghai. By the end of November 2023,22 pilot free trade zones had been approved, forming a new strategic layout of reform and opening up covering the whole country. Qian Xuesong et al. (2020) found that industrial policy plays an important role in improving the factor productivity of the company. The government guided enterprises to optimize resource allocation and improve production efficiency through macro-control, which played a key role in promoting the rational allocation of capital.

At present, the Chinese market is facing the problem of capital mismatch, which damages the value of enterprises and the development of the real economy. Wang Zhuquan (2017) pointed out that the decline in the efficiency of social capital allocation will directly affect the operation efficiency and market competitiveness of enterprises. Wei Yan (2018) statistics show that the short-term debt ratio of Chinese enterprises is as high as 80%. Optimizing resource allocation and improving total factor productivity is the key to taking China's

economy to a new level. Economic development needs to constantly exploration and innovate to meet challenges and opportunities.

After the completion of the free trade zone, can the enterprises supported by the policy get credit funds? What is the impact mechanism of the establishment of the free trade zone to alleviate the maturity mismatch of investment and financing in China? In terms of different enterprise sizes, property rights and regions, what is the heterogeneous effect of the FTZ construction on the maturity mismatch of enterprise investment and financing? This paper has important practical implications for the research on these issues.

# 2 Section Literature Review

## **2.1 Research on the Construction of Pilot** Free Trade Zones

At the macro level, Ren Zaiping (2020) pointed out that the financial policies of the Shanghai Free Trade Zone have significantly promoted the growth of Shanghais financial industry. Yang Bo and Cheng Xinxuan (2021) found that the increase in the number of free trade zones promoted the growth of China's manufacturing output, but had a limited effect on improving export competitiveness. Jiang Lingduo et al. (2021) believed that the establishment of the free trade zone boosted China's exports, but did not significantly improve the export structure. Li et al. (2022) found that the establishment of the free trade zone improved the regional environmental performance, and the impact of private enterprises was more obvious.

At the micro level, Ba Shusong et al. (2021) proposed that the reform of the financial system in the free trade zone can improve the efficiency of financial services and alleviate the maturity mismatch and interests mismatch in the financial market. Xu Chenxi et al. (2023) adopted the multi-phase dual-difference method, and found that the pilot free trade zone increased the total amount of overseas financing of enterprises, improved the scale of inter-bank loans and overseas financing, and alleviated the limitations of enterprises equity financing.

# **2.2 Study on the Mismatch of Investment and Financing Period**

Term matching of investment and financing is the basic principle of finance, that is, short-term capital is used for working capital, and long-term capital is used for long-term investment. There is a maturity mismatch in China's capital market, which is mainly caused by the defects of financial system and managers. Tang Yongjie (2021) pointed out that banks are constrained in the allocation of credit resources, making it difficult for enterprises to obtain credit loans. Zhong Kai et al. (2016) and Wang Yanli et al. (2020) believe that in the short term, maturity mismatch may improve enterprise performance, but in the long term may lead to the mismatch between debt and asset maturity date, reducing the ability to resist risks. Based on the data from 2003 to 2017, Li Sihai et al. (2021) found that enterprises cannot obtain short-term loans and equity financing, and use short-term loans for long-term investment, resulting in maturity mismatch.

#### **3** Model Setting and Variable Definition

#### 3.1 Model Setting

Using the multi-stage DID model can effectively overcome the heterogeneity of the nonchange over time before and after the establishment of the free trade zone, and can reveal the impact of the policy impact after the establishment of the free trade zone. In terms of model construction, this paper measures the influence of the construction on the maturity mismatch of investment and financing of Chinese enterprises by establishing the multi-stage DID model with two-way fixed effect. The model is as follows:

 $\begin{array}{c} Lnv_{ict=}\beta_{0+}\beta_{1}Slev_{it\times}FTZ_{it+}\beta_{2}Slev_{it+}\beta_{3}FTZ_{it+}\\ \gamma Control_{it+}\mu_{i+}\delta_{t+}\epsilon_{ict}~(\ 3-1) \end{array}$ 

In the model, i represents the enterprise, c represents the city, and t represents the year. The explained variable LnV represents the enterprise fixed asset investment, reflecting the investment amount of the enterprise. The explanatory variable (Slev×FTZ) indicates the current liabilities level of the enterprises affected by the policy after the establishment of the free trade zone. Slev represents the current liabilities of the enterprise, and FTZ is the virtual variable, indicating whether the registered enterprise establishes the free trade zone. In addition, this paper also controls variables such as company size (Size), profitability (Roa), asset-liability ratio (Lev), book market value ratio (BM), listing years (Age), change in cash flow (CFflow) and corporate growth (Growth).

#### **3.2 The Explained Variables**

The sensitivity analysis method of "fixed asset investment-current liabilities". The method is based on the earlier "investment-current liabilities" equation, which was widely used by McLean and Zhao (2014) based on research in the field of corporate finance, and the sensitivity coefficient in this equation can observe the sensitivity of companies to short-term debt when making long-term investments. Bai Yunxia (2016), Zhong Kai (2016) and Liu Wanchun (2022) further constructed the sensitivity model of "fixed asset investment-current liabilities" based on the above assumptions to measure the degree of the mismatch between the Companys'

investment and financing period. Referring to the above ideas, this paper constructs the explained variable - fixed assets investment (Inv), using the method of "setting up cash payment for fixed assets, intangible assets and other long-term assets" in the cash flow statement, and standardizes the total assets of the previous year.

#### 3.3 Core Explanatory Variables

The core explanatory variable of this paper is

Slev×FTZ, in which Slev represents the level of current liabilities of the enterprise, calculating the growth of the year except the total assets of the previous year; FTZ is the policy shock variable, indicating whether the enterprise is registered in the free trade zone. To study the impact of the construction of the free trade zone on the investment and financing mismatch of enterprises, and divide the enterprises into experimental group (registered in the free trade zone) and control group (non-free trade zone). FTZ is a virtual variable. If the enterprise is registered in the free trade zone, the FTZ will be 1 in and after the year of establishment, and 0 before the establishment; if the enterprise is not in the free trade zone, the FTZ will always be 0. For example, after the FTA in Shanghai Lujiazui in 2013, the local registered FTZ was 1 from 2013, and 0 before; while in Yunnan Province, the local FTZ was always 0.

#### **3.4 Control Variables**

3.4.1 Company size (Size): a key indicator to measure the size of an enterprise, affecting the probability, quantity and loan time that enterprises can obtain credit funds from financial institutions.

3.4.2 Profitability (Roa): it reflects the operating efficiency, market competitiveness and long-term development potential of an enterprise. Strong profitability can alleviate the maturity mismatch of enterprise investment and financing.

relationship between the assets and liabilities of an enterprise. High asset-liability ratio means more liabilities and less assets.

3.4.4 Book market value ratio (BM): the book value is the net assets, and the market value is the total market value of the stock. BM small said that the market value is high, the market recognizes the companys future growth potential, and investors may think that the company is undervalued and has investment value.

3.4.5 Listing period (Age): After listing, enterprises can attract new human capital through exchange and patent purchase and promote technological progress and operation development; meanwhile, in the initial stage of listing, facing more capital financing and investment.

3.4.6 Operating cash flow ratio (Cflow): an important indicator to assess the operating health of enterprises. A high ratio means that the enterprise has more accounts receivable, cash reserves and stronger risk resistance.

3.4.7 Growth (Growth): The economic indicators to measure the companys health status and future development potential are mainly reflected in the growth rate of operating income, reflecting the current operating conditions and future development trend. With good growth, the possibility of investment and financing term mismatch is small.

The variable types, names, symbols, and definition formulas used in this paper are shown in Table 2.

type of variable	Variable name	variable symbol	variable-definition	
explained variable	investment in the fixed assets	Lnv	Enterprise fixed asset investment	
Core explanatory variables	cross term	slev×FTZ	The current debt level of enterprises after the construction of the free trade zone	
Mechanism	agency cost	Mfee	Administrative expense rate	
variables	Financing constraints	Constraints	KZ index number	
	caala	Size	The natural logarithm of the total	
	scale		enterprise assets	
controlled variable	profitability	Roa	Enterprise net profit / total assets	
	asset-liability ratio	Lev	Total liabilities / total assets	
	Book market value	РM	Shareholder equity / enterprise market	
	ratio	DIVI	value	
	Listing years	Age	Ln (current year-market year + 1)	
	Proportion of operating cash flow	Cflow	Net cash flow / total enterprise assets	
	Growth	Growth	The annual growth rate of the enterprises operating income	

3.4.3 Asset-liability ratio (Lev): it shows the **Table 1. Primary Variables and Their Implications** 

# 3.5 Sample Data

By December 2023, China had set up 22 pilot free trade zones in seven batches. As the data of manufacturing enterprises is affected by social development and the accounting standards for enterprises are significantly adjusted in 2007, in order to eliminate the interference of the economic crisis in 2008, this paper selects the and Shenzhen A-share Shanghai listed companies in 2009-2022 as the research objects for empirical analysis. At the same time, in view of the delay of the establishment of the free trade zone on the maturity mismatch of enterprise investment and financing period, the research experiment group only includes the samples of the first 5 batches (2013-2019). To ensure the reliability of the study results, the sample data are processed accordingly:

3.5.1 Eliminate the company samples with abnormal data and missing important variables;

3.5.2 Samples of listed financial companies such as insurance, securities and banking were excluded;

3.5.3 Eliminate the samples of ST, \* ST and PT enterprises.

After the above operation processing, 2,964 sample companies finally met the empirical requirements, and the sample observations were 29,680. The data sources used in this paper are

CSMAR, China Research Data Service Platform and Wind et al.

### 4 Empirical Analysis of the Impact of Free Trade Zone Construction on the Term Mismatch of Enterprise Investment and Financing

Table 2 presents the descriptive statistical analysis of the main variables in this study. The mean FTZ was 0.172, indicating that about 17.2% of the data were affected by the FTA policies, and the sample size was 29,680. The average current debt ratio is 0.035, the maximum value is 0.926, and the minimum value is-11.56, indicating that the current debt ratio between enterprises varies greatly, which provides a basis for the study of the impact of the construction of the free trade zone on the maturity mismatch of enterprise investment and financing. The average enterprise size (Size) is 22.21, the maximum value is 26.45, and the minimum value is 19.32, indicating that the degree of maturity mismatch of different scale enterprises varies greatly. The average value of fixed asset investment (Lnv) is 0.061, the maximum value is 0.275, and the minimum value is 0.001, indicating the large difference of fixed asset investment between enterprises, and the research is reasonable

variable	observed value	mean	standard deviation	p50	least value	crest value
Lnv	29680	0.0610	0.0610	0.0410	0.00100	0.275
Slev	29680	0.0350	0.144	0.0300	-11.56	0.926
FTZ	29680	0.172	0.377	0	0	1
Size	29680	22.21	1.261	22.05	19.32	26.45
Roa	29680	0.0390	0.0670	0.0380	-0.373	0.247
Lev	29680	0.428	0.200	0.424	0.0270	0.908
BM	29680	0.612	0.248	0.607	0.0640	1.246
Age	29680	2.891	0.351	2.944	1.099	3.611
Cflow	29680	0.0490	0.0680	0.0470	-0.222	0.283
Growth	29680	0.166	0.403	0.105	-0.658	4.024

 Table 2. Descriptive Statistics of the Primary Variables

In this paper, the enterprise fixed asset investment (Lnv) is the dependent variable, and the current liabilities and the establishment time of the free trade zone policy (Slev×FTZ) is used as the independent variable for empirical regression test. The empirical study is as shown in Table 5-3. The results show that the establishment of the free trade zone has a great impact on the mismatch between the investment and financing period of listed companies in China. Column (1) results in Table 3 is obtained using the xtreg regression instruction, while column (2) is obtained after the addition of the control variable. As can be seen from Table 3, the coefficient of Slev×FTZ, the core explanatory variable of this model, is negative at the significant level of 1%. The establishment of the free trade zone significantly weakens the positive sensitivity of the companys fixed asset investment to current debt, thus improving the mismatch of investment and financing maturity of enterprises. We prove that hypothesis 1 of this

Term Mismatch of Investment and Financing					
of Enterprises					
	(1)	(2)			
VARIABLES	L nv	L nv			
Slev×FTZ	-0.281	-0.285			
	(0.010)	(0.010)			
Slev	0.106	0.091			
	(0.004)	(0.004)			
FTZ	-0.010	-0.010			
	(0.002)	(0.002)			
Size		0.007			
		(0.001)			
Roa		0.076			
		(0.008)			
Lev		-0.017			
		(0.005)			
BM		-0.001			
		(0.003)			
Age		-0.051			
		(0.009)			
Cflow		-0.011			
		(0.006)			
Growth		0.008			
		(0.001)			
Constant	0.085	0.070			
	(0.002)	(0.034)			
Observations	29,671	29,671			
R-squared	0.180	0.203			
yearfix	YES	YES			
idfix	YES	YES			
NumberofSymbol	2.964	2,964			

Table 3. Benchmark Regression Results of theTerm Mismatch of Investment and Financingof Enterprises

paper holds.

Note: represent significant at 1%, 5% and 10% levels, respectively, and values in parentheses are robust standard error of heteroscedasticity.

#### **6 Robustness Test**

#### **6.1 Parallel Trend Test**

This paper uses the multi-stage dual difference model to study the impact of the establishment of the free trade zone on the maturity mismatch of enterprise investment and financing. This method requires that before the establishment of the free trade zone, there is no significant difference between the investment and financing period mismatch between the control group and the experimental group. In order to verify the parallel trend, this paper refers to the method of Li Jianjun and Li Juncheng (2020), and takes the seven years before the establishment of the FTZ

Copyright @ STEMM Institute Press

to construct the interaction between the group virtual variable (Treat) and the year virtual variable (Policy). A total of 15 periods, and the first policy period was excluded as the benchmark period to eliminate multiple linearity. shown in Figure 2, before As the implementation of the free trade zone policy, the development trend of the maturity mismatch between the experimental group and the control group was parallel, and the coefficient of each year was not significant within the 95% confidence interval, indicating that they had passed the parallel trend test. After the implementation of the free trade zone policy, its establishment has a significant effect on the mismatch of enterprise financing and investment term, and has a negative effect, and the influence increases with time. This shows that the selected data sample is comparable in the study of the impact of the mismatch between enterprise investment and financing period before and after the establishment of the free trade zone. The multi-stage DID model is used to verify that the impact effect of the construction of the free trade zone is reasonable, and the research results are stable.



Figure 2. Parallel Trend Test

#### 6.2 Placebo Test

In order to verify whether the conclusion is affected by missing variables and random factors, this paper refers to the methods of LaFerrara et al. (2012) and Li et al. (2016), and uses random sampling to sample the policy areas of the pilot free trade zones to construct a time-place randomized trial of the reform. The benchmark regression parameter probability values were obtained through false trials to determine the confidence. To improve the effectiveness of placebo test, 500 repeats to obtain the coefficient of Slev×FTZ. To test the impact of other factors except for the construction of the free trade zone on the mismatch of the investment and financing period of China. In random cases, the Slev×FTZ parameter estimates tended to 0, indicating that the model did not miss significant influencing factors. Benchmark research focuses on the effect of policies on specific target groups, which is manifested in the various consequences caused by the implementation of policies and evaluates the effect of policies. Figure 3 shows the distribution of the estimated coefficients. The false estimated coefficients are all around 0. the model variables indicating that and comprehensive, parameters are and can accurately reflect the actual situation after the implementation of the policy. The main conclusions are stable and reliable.



#### 6.3 Mechanism of Action Test

6.3.1 Analysis of the action mechanism based on financing constraints

In this paper, the regression model of financing constraint (FR) of current liabilities and free trade zone construction and the regression model of financing constraint (FR) on enterprise investment and financing period mismatch (Lnv) are constructed. The specific model expression form is shown as follows:

 $\begin{array}{l} FR_{it=}\beta_{0+}\beta_{1}Slev_{it\times}FTZ_{it+}\beta_{2}FR_{it+}\beta_{3}FTZ_{it+}\\ \gamma Control_{it+}\mu_{i+}\delta_{t+}\epsilon_{ict} ~~(4-1)\\ Lnv_{it=}\rho_{0+}\rho_{1}FR_{it+}\rho_{2}Slev_{it+}\rho_{3}FTZ_{it+}\\ \gamma Control_{it+}\mu_{i+}\delta_{t+}\epsilon_{ict} ~~(4-2) \end{array}$ 

In the model (2), the KZ index is an important indicator to measure the financing constraints of enterprises. The study found that the establishment of the free trade zone is significantly negatively correlated with the financing constraints of enterprises, and is significant at the 1% level, indicating that the free trade zone can reduce the financing constraints of enterprises, thus improving the operational efficiency of enterprises and promoting sustainable development.

6.3.2 Analysis of the action mechanism based on

#### the agency cost

The ratio of management expenses can reflect the operation status of the enterprise, mainly manifested as the proportion of administrative expenses in operating income. Administrative include business entertainment expenses expenses, board expenses and other production and operation activities. From the perspective of enterprise interests and sustainable development, the welfare policy of the free trade zone can relieve the capital pressure, reduce the agency cost, and may alleviate the maturity mismatch of enterprise investment and financing through this way.

Table 4.	Mech	nanistic	Regre	ession	Results
Bas	ed on	Financi	ing Co	onstrai	ints

	(1)	(2)	(3)
VARIABLES	L nv	KZ	L nv
Slevz× FTZ	-0.284	-7.602	-0.263
	(0.010)	(0.474)	(0.010)
KZ			0.003
Slevz	0.100	-0.790	0.102
	(0.004)	(0.139)	(0.004)
FTZ	-0.011	0.212	-0.011
	(0.002)	(0.065)	(0.002)
Size	0.007	0.032	0.007
	(0.001)	(0.039)	(0.001)
Roa	0.093	-2.472	0.100
	(0.008)	(0.280)	(0.008)
Lev	-0.016	3.755	-0.026
	(0.005)	(0.163)	(0.005)
BM	-0.001	-1.233	0.002
	(0.003)	(0.092)	(0.003)
Age	-0.051	0.307	-0.052
	(0.009)	(0.228)	(0.009)
Cflow	-0.011	-7.785	0.011
	(0.006)	(0.229)	(0.007)
Constant	0.061	-0.950	0.063
	(0.034)	(0.927)	(0.034)
Observations	29,671	29,679	29,670
R-squared	0.200	0.222	0.208
Number of Symbol	2,964	2,971	2,964
yearfix	YES	YES	YES
idfix	YES	YES	YES

Note: represent significant at 1%, 5% and 10% levels, respectively, and values in parentheses are robust standard error of heteroscedasticity. This paper constructs the intersection of current liabilities and free trade zone construction (SlevFTZ) to the agency cost (Mfee) regression model:

 $Mfee_{it}=\beta_{0+}\beta_{1}Slev_{it\times}FTZ_{it+}\beta_{2}Slev_{it+}\beta_{3}FTZ_{it+}$ 

$$\begin{array}{l} \gamma Control_{it+}\mu_{i+}\delta_{t+}\epsilon_{ict}~_{(5-3)} \\ Lnv_{it=}\rho_{0+}\rho_{1}Mfee_{it+}\rho_{2}Slev_{it+}\rho_{3}FTZ_{it+} \\ \gamma Control_{it+}\mu_{i+}\delta_{t+}\epsilon_{ict}~_{(5-4)} \end{array}$$

In Model 2, Mfee was used as the explained variable, the enterprise agency cost was measured by the administrative expense ratio, and Slev×FTZ was the core explanatory variable. Table 5-7 regression results show that the agency cost (Mfee) is significantly negatively correlated with the cross term at the 1% level, indicating that the enterprise agency cost decreases after the construction of the free trade zone. To further test the impact of agency cost on the maturity mismatch of enterprise investment and financing, the results in column (3) in Table 5 show that the regression coefficient of agent cost (Mfee) is significantly negative at the 1% level, proving that the reduction of agent cost is conducive to alleviating the degree of maturity mismatch of enterprise investment and financing

 Table 5. Results of the Regression Based on

 Agent Costs

	(1)	(2)	(3)
VARIARIES	$\frac{1}{1}$	Mfee	$\frac{(3)}{\ln y}$
Slovy ET7	0.284	0.216	0.225
SIEV^ FIZ	-0.204	-0.510	-0.223
	(0.010)	(0.014)	(0.010)
Mtee			0.187
			(0.013)
Slevz	0.100	0.016	0.097
	(0.004)	(0.004)	(0.004)
FTZ	-0.011	-0.017	-0.007
	(0.002)	(0.003)	(0.002)
Size	0.007	-0.011	0.009
	(0.001)	(0.002)	(0.001)
Roa	0.093	-0.190	0.129
	(0.008)	(0.011)	(0.008)
Lev	-0.016	-0.033	-0.010
	(0.005)	(0.006)	(0.005)
BM	-0.001	-0.002	-0.001
	(0.003)	(0.003)	(0.003)
Age	-0.051	-0.049	-0.042
	(0.009)	(0.009)	(0.009)
Cflow	-0.011	-0.020	-0.007
	(0.006)	(0.008)	(0.006)
Constant	0.061	0.483	-0.030
	(0.034)	(0.040)	(0.035)
Observations	29,671	29,679	29,670
R-squared	0.200	0.191	0.230
Number of Symbol	2,964	2,971	2,964
yearfix	YES	YES	YES
idfix	YES	YES	YES

Note: represent significant at the levels of 1%, 5% and 10%, respectively, and the values in parentheses are robust standard error of heteroscedasticity.

#### 6.4 heterogeneity Analysis

It can be seen that after the establishment of the free trade zone, the financing capacity of Chinese enterprises has been significantly enhanced, among which, the proportion of loans, long-term loans and short-term loans has been significantly increased, and the coefficient of medium-and long-term loans is also large. At the same time, the establishment of the pilot free trade zones has greatly improved the mismatch between investment and financing periods for enterprises. And the time-dynamic effects that occur over time. However, due to the different actual implementation conditions of different provinces and cities (Chen Donghua, et al., 2018), this paper will conduct empirical research on the heterogeneity of the free trade zone from three dimensions: enterprise property attributes, location characteristics and enterprise size.

6.4.1 Heterogeneity analysis based on property rights

**SOEs** usually assume more social responsibilities, focus on non-economic goals, have strong total assets, and tend to obtain funds from financial institutions. Private enterprises pursue profit maximization, have low ability to resist risks, and have more difficult financing. This paper divides the sample into state-owned enterprises and non-state-owned enterprises. Table 6 shows that the impact of the FTZ construction on the maturity mismatch of investment and financing enterprise is significant at the 1% level, and the mitigation is more obvious for state-owned enterprises. The p-value of chow test is 0, and the regression results of state and non-SOEs are comparable, conclusions are robust. The and the characteristics of state-owned enterprises make financial institutions more inclined to provide credit resources.

Table 6. Results of Heterogeneity Regressionbased on Property Rights Properties

		· •
	(1)	(2)
	state-owned	Non-state-own
	enterprises	ed enterprises
VARIABLES	L nv	L nv
Slev×FTZ	-0.284	-0. 190
	(0.020)	(0.011)
Slev	0.096	0.099
	(0.007)	(0.005)

Copyright @ STEMM Institute Press

FTZ	-0.012	-0.010
	(0.004)	(0.003)
Size	0.010	0.007
	(0.002)	(0.002)
Roa	0.111	0.082
	(0.016)	(0.009)
Lev	-0.008	-0.016
	(0.009)	(0.006)
BM	-0.014	0.002
	(0.005)	(0.004)
Age	-0.053	-0.042
	(0.018)	(0.011)
Cflow	-0.017	-0.007
	(0.010)	(0.008)
Growth	0.011	0.007
	(0.002)	(0.001)
Constant	-0.005	0.053
	(0.063)	(0.041)
Observations	10,747	18,924
R-squared	0.192	0.204
NumberofSymbol	1,086	2,187
yearfix	YES	YES
idfix	YES	YES

Note: represent significant at the levels of 1%, 5% and 10%, respectively, and the values in parentheses are robust standard error of heteroscedasticity.

# 6.5 Heterogeneity Analysis based on Geographical Location

China has a vast territory and has a long-term uneven level of development in various regions. The free trade zone involves a wide range of regions, and there are obvious differences in economic development levels between the east and the west. Do regional differences affect the establishment of the free trade zone, thus reducing the mismatch between enterprise investment and financing? According to the regional distribution characteristics, the enterprises in the free trade zone are divided into eastern and western regions. Table 7 regression results show that the impact of maturity on enterprise investment mismatch and financing was significantly negatively correlated at the 1% level. The show test p-value is 0, and the eastern and Midwest regression has comparable results with robust conclusions. The study shows that the eastern region has developed economy, obvious location advantages of enterprises and easy access to loans, thus reducing the degree of mismatch of investment and financing maturity.

Table 7. Results of the Heterogeneity					
Regression based on Geographic Location					
	(1)	(2)			
	east	midwest			
VARIABLES	L nv	L nv			
Slev×FTZ	-0.278	-0. 156			
	(0.011)	(0.027)			
Slev	0.096	0.101			
	(0.005)	(0.010)			
FTZ	-0.007	-0.013			
	(0.003)	(0.006)			
Size	0.007	0.007			
	(0.002)	(0.003)			
Roa	0.081	0.124			
	(0.008)	(0.024)			
Lev	-0.016	-0.033			
	(0.006)	(0.013)			
BM	0.001	0.004			
	(0.004)	(0.007)			
Age	-0.057	-0.051			
	(0.011)	(0.026)			
Cflow	-0.007	-0.019			
	(0.007)	(0.014)			
Constant	0.085	0.073			
	(0.041)	(0.093)			
Observations	20,583	9,088			
R-squared	0.199	0.211			
Number of Symbol	2,141	866			
yearfix	YES	YES			
idfix	YES	YES			

Note: represent significant at 1%, 5% and 10% levels, respectively, and values in parentheses are robust standard error of heteroscedasticity. Chapter 5: Study Conclusions and recommendations

#### 6.6 Study Conclusions

Globalization and liberalization have accelerated, and the status of pilot free trade zones in Chinas economy has increased, providing loose policies and market space for enterprises to attract investment. This paper studies the data of listed companies from 2009 to 2022, and discusses the maturity mismatch between enterprise investment and financing.

The pilot free trade zone has eased the maturity mismatch between investment and financing, and the defects of Chinas financial system have made it difficult for enterprises to obtain long-term credit funds. The establishment of the free trade zone provides new opportunities to solve this problem, and financial institutions in the zone have increased long-term loans. After the establishment of the free trade zone, corporate loans, short-term loans and long-term loans growth, policy promotion and corporate internal demand work together. The government optimizes the financing environment, reduces financing cost and encourages enterprise investment; enterprise loans to meet medium and long-term needs. The deepening of the construction of the free trade zone and the growth of enterprise investment demand, the lending behavior of enterprises will maintain the growth and inject vitality into the free trade zone.

The role of fta affects heterogeneity. In terms of geographical location, the east is better than the central and western regions. Thanks to the superior geographical location and mature business environment in the east, the free trade zone is promoted to play a better role in the eastern region. In terms of enterprise nature, the FTZ plays a significant role in alleviating the mismatch of the investment and financing period, due to the special status of state-owned enterprises and their large investment and financing needs.

Analysis of the mismatch mechanism of enterprise investment and financing period affected in the free trade zone. Internally, the free trade zone reduces agency costs and improves the maturity mismatch between investment and financing. Externally, the FTZ alleviates financing constraints, provides diversified financing channels, and alleviates the mismatch between investment and financing. The free trade zone provides enterprises with rich financing channels and open financial market environment, innovates financial models, alleviates financing pressure, and reduces the mismatch of investment and financing periods.

#### 7. Implications

Through theoretical analysis and empirical test, this study aims to enrich the literature related to the construction of free trade zone, enterprise financing and investment term mismatch. Make the following policy recommendations:

7.1 Strengthen the construction of the financial market, improve the information asymmetry between banks and enterprises, and improve the efficiency of enterprise loan approval.

7.2 Deepen the construction of the pilot free trade zones, optimize financial services, reduce the financing costs of enterprises, and enhance their competitiveness.

7.3 Strengthen government policy support, guide enterprises, pay attention to talent training and provide talent support.

7.4 Deepen the reform of state-owned enterprises, promote the common development of soand private enterprises, and improve their operational efficiency and market competitiveness.

7.5 Attach importance to the construction of inland free trade zones, formulate targeted policies, optimize the industrial structure, alleviate the maturity mismatch of investment and financing, and boost regional economic development.

## References

- [1] Arreyndip Nkongho Ayuketang. African continental free trade area (AfCFTA): projected economic impactassessment under future warming in CMIP6[J]. Environmental Research Letters,2021,16(9).
- [2] Bartelsman E, Haltiwanger J, Scarpetta S. Cross -country Differences in Productivity: The Role of Allocation and Selection he American Economic Review,013.03(1)305-334
- [3] Charumilind, C., Kali, R., Wiwattanakantang, Y.. Connected Lending: Thailand before the Financial Crisis. The Journal of Business, 2006, 79(1): 181-218.
- [4] Chen, Z., He, Z. and Liu, C., 2020, "The Financing of Local Government in China: Stimulus Loan Wanes and Shadow Banking Waxes", Journal of Financial Economics, vol.137 (1), pp.42~71.
- [5] Ba Shusong, Chai Hongrui, Fang Yunlong, Wang Bo. Has the establishment of pilot free trade zones improve the efficiency of financial services to the real economy?: Experience evidence from the four major free trade zones in Shanghai, Tianjin, Guangdong and Fujian [J]. Research of the World Economy, 2021 (12): 3-21 + 132.
- [6] Li Rui, Ao Yiwen, Li Zhixuan. A quasi-natural experimental study on the impact of the establishment of free trade zones on foreign direct investment [J]. World Economic Research, 2021 (08): 91-106 + 137.
- [7] Li Tianyu, Liu Yan. Misallocation of investment and financing maturity and credit spread of corporate bonds [J]. Financial Regulation Research, 2020 (10): 1-16