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## Legal environment, and trade credit

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### ABSTRACT

Taking the Chinese listed companies which transacted in ShenZhen SME board from 2004 to 2010 as the object of this dissertation, we explore the relation between legal environment and enterprise trade credit. We find that the law level of area which enterprises belong to influence enterprise trade credit in both direct and indirect ways. More specifically, the direct positive effect is greater impact than the indirect negative effect, so there is a significant positive relationship between law and trade credit. Further studies show that when compared with private enterprises, the law level puts lower impact on the state-owned enterprises in trade credit. In conclusion, higher law level provides higher trade credit, which is the key to enterprise growth.

### KEYWORDS

Legal environment; Path analysis; Property right; Trade credit.



## INTRODUCTION

Previous studies have indicated that a good legal environment can generally improve the country's investment climate, and reduce the borrowing rate between creditors and debtors. So the legal level can enhance the country's economic growth. Since La Porta et al.<sup>[12]</sup> pioneered to research the "law and finance", more and more scholars begin to pay attention to the law's effect on promoting the development of financial market, increasing investment efficiency and enhancing the role of economic growth<sup>[5]</sup>. Based on this research, some scholars began to investigate the mechanism of how the level of legal protection promotes the economic growth from different aspects. For example, from the legal level impact of micro enterprise financing constraint conditions, some literatures study on that how is it that an rule of law involve enterprises growth<sup>[4]</sup>. However, as a complex and emerging issue, the rule of law level mechanism must be urgently studied from different angles

By compared Chinese economic growth, law system and financial system with other countries, we find out that, although with relatively poor financial system and imperfect law system, the speed of Chinese economic growth is more quickly than other countries<sup>[1]</sup>. During scholar explore the mystery of Chinese economy development, trade credit gets more attention gradually. Numerous studies show that trade credit has sustained release effect on enterprise financing constraints. Under the condition of information asymmetry, enterprise often suffer bank credit discrimination, it usually turn to trade credit which is provided by the seller<sup>[3]</sup>. Trade credit can reduce the enterprise's cost of transaction, stable customer relationships and enhance enterprise cash flow<sup>[14]</sup>. It also can be used as the most important external way for enterprises to raise capital<sup>[9]</sup>. Trade credit is an important financing tool for rapid development of Chinese enterprises. Then, a problem worthy of thinking deeply is: can be law provided security for the use of enterprise trade credit? Especially in China, where capital market is not perfect, what is mechanism that legal environment affects the use of enterprise trade credit?

The main contribution of this paper include: Firstly, we systematically research the relationship between law environment and enterprise trade credit, summarize the mechanism of the legal environment of trade credit combining with method of path analysis. Secondly, we comparative study that the related degree between law and trade credit is weaker in the in state-owned enterprise than in private enterprise. when we join the common variable nature of property right. Thirdly, this paper further extends the research on "law and finance", and have a better understanding with the factors which influence on trade credit.

### Theoretical analysis and research hypothesis

Under an imperfect financial market condition, the degree of financing constraints that enterprise may be encountered will be enhanced, so enterprise have to rely more on trade credit to alleviate the shortage of funds. Especially in the financial underdevelopment area, financing substitution of trade credit and capital allocation function both play important roles in enterprise growth<sup>[15]</sup>. However, in the real market, because there are problems such as asymmetric information and adverse selection between enterprises, the use of enterprise trade credit usually is constraint. The protection of law can effectively alleviate the problems with information asymmetry and moral hazard<sup>[6]</sup>, thus improve the use of trade credit.

From the enterprise's development level, stronger legal protection helps to improve the efficiency of investment, it also enhances the enterprise internal management, promotes enterprise technology innovation and enterprise performance. So it transfer a good information source to enterprise which provide the trade credit, then it promote the use of enterprise trade credit. In addition, promotion of the legal and judicial system effectively protect the realization of the creditor's rights and reduce the opportunism behavior that due to contract enforcement threat<sup>[13]</sup>, it also contribute to the development of a healthy and sustained credit market<sup>[8]</sup>. Therefore, good legal environment provide information superiority and object security for the use of enterprise trade credit.

From the bank to provide loans to enterprise, many studies show that stronger legal protection let bank provide more extensive loans and also increase the supply of credit. Improving judicial efficiency will help to reduce enterprise's credit constraints and improve the bank's loan willingness<sup>[10]</sup>. To achieve effective creditor rights will ensure the enterprise obtain a longer term loans and lower loan interest rates from the bank<sup>[11]</sup>. However, the alternative hypothesis shows that enterprise will reduce the use of trade credit if it can obtain more bank loans. Especially with the background of emerging countries and transition countries, trade credit is often used as an alternative bank credit for external financing<sup>[7]</sup>. From this point view, higher law level loosen threshold that bank give loans to enterprise. Enterprise will reduce the extent of using trade credit because it suffers less financial constraints.

Given the above analysis on the relationship of legal environment and enterprise trade credit from positive and negative two directions theory, we propose the following series of hypothesis 1:

1a: Higher law level will significantly increase the use of enterprise trade credit

1b: Higher law level will significantly reduce the use of enterprise trade credit

1c: A favorable law level for the use of enterprise trade credit is not obvious

For a long time, China is under economic transition. The state-owned economy occupies a leading position in China's overall economy, the state-owned enterprises are undertaking strategic and social policy burden. When the state-owned enterprises suffer financing constraints, the government have to intervene the bank credit decision. So banks will provide more loans to the state-owned enterprises. This leads to more loans transfer to the state-owned enterprises provided by bank, thus, creates soft budget constraint phenomenon and makes the private enterprises lie under long-term credit discrimination from bank<sup>[2]</sup>. Compared with the private enterprises, state-owned enterprises have nature advantages both in the size of bank loan and in loan period.

From the preceding analysis we know that higher law level will increase the bank's loan size and loan term, and reduce enterprise's reliance on trade credit. But due to the state-owned enterprise born with the characteristic of government

policy support and implicit guarantee, undoubtedly it narrows the way that enterprise obtain bank loans. Therefore, compared to the private enterprises, because state-owned enterprises can easily acquire the bank loan, it will reduce the use of trade credit. The negative influence degree between law level and trade credit will be increased.

Through the above research on the mechanism of enterprise property rights to trade credit, we can see that state owned enterprises will have lower financing constraints degree because of the strong support of bank loan, thus it will be less dependent on trade credit. Therefore, compared with the private enterprises, the negative effect of law level to trade credit will be increased in the state-owned enterprises. According to the series of hypothesis 1, we propose the following series of hypothesis 2:

2a: Compared with the private enterprise, the influence degree between law level and trade credit will be weaker in the state-owned enterprises.

2b: Compared with the private enterprise, the influence degree between law level and trade credit will be stronger in the state-owned enterprises.

## Research and design

### Index construction

#### Dependent variable: trade credit (TC)

We mainly investigate the impact of the area law level on the usage of enterprise trade credit. Following the mainstream literature, we use the ratio of accounts payable and notes payable to total assets as a proxy variable, to explain Trade credit.

#### Explanatory variables: area legal environment (LEGAL); property rights (STATE)

To measure the area of legal environment, we adopt the index of “development of market intermediary organization and environment of the legal system” which organized in the book<sup>[16]</sup> of “NERI INDEX of Marketization of China’s Provinces 2011 Report” (including 31 provinces, autonomous regions and municipalities directly under the central government) to measure. To measure the enterprise’s property rights, if the actual controller of the enterprise belongs to the state-owned, the STATE value is 1. Otherwise, the STATE value is 0.

#### Control variables: bank loans (LOAN); enterprise scale (SIZE); Enterprise age (AGE); mortgage assets ratio (COLLATERAL); enterprise growth (GROWTH); profitability of the enterprise (EPS); enterprise operating cash flow (CASH)

To better test the solution of this study, we refer to the domestic related literatures and then add the factors which could influence the use of the enterprise trade credit must be considered. As an important tool of enterprise finance, bank loans have a complicated relationship with trade credit. Our country capital market is not perfect, the instead relationship between bank loans and trade credit will be more significant. So we expect the regression coefficients is negative. Larger scale enterprises usually have stronger strength, they are more likely to obtain external financing, enterprises default probability is smaller, so more upstream enterprises were willing to provide trade credit for them. Enterprise age is the life of enterprise existence, usually the old enterprise has more credit than new enterprise, and the old enterprise will be more trade credit. Mortgage assets is the ratio of fixed assets to total assets, if enterprise have higher mortgage assets, it will obtain more trade credit. As an important indicator for measuring business performance, higher growth enterprise and profitability indicates superior prospect and more trade credit. In addition, good operating cash flow is the key to ensure the normal operation company operating, higher cash flow is often the basic guarantee for creditor being gains on schedule. Thus, if enterprise have higher cash flow, it can obtain more trade credit.

### Data source and choose

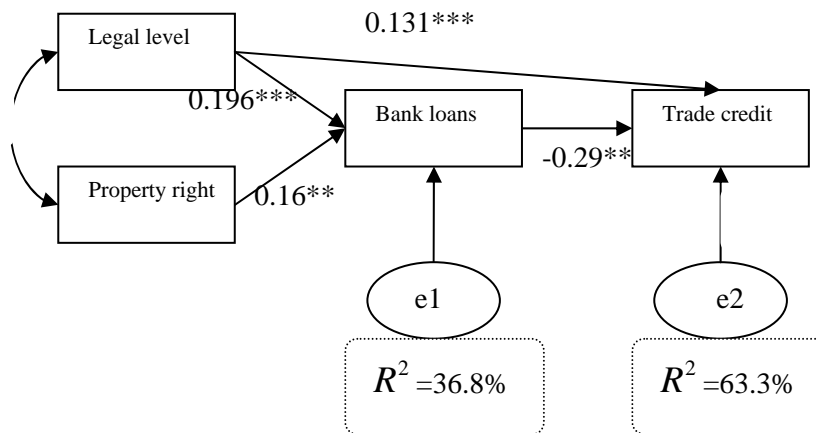
We use the data in Shenzhen Stock Exchange SME listing corporate from 2004 to 2010 years. Compared with listing corporate in A shares, second board and other types market, the scale of company in the Shenzhen SME board is smaller, their financing channel is single. We use the following criteria for sample selection: first, the observation value will be eliminated that financial, management and ownership structure are missing, the value which the enterprise’s area is not obvious also will be rejected. Second, we eliminate the listing corporate sample of finance. Finally, we get the 1610 annual data of 431 companies. Among them, the company’s financial management and ownership attribute data are from the CSMAR database. The data of area law level index are from Fang Gang. et.al2011 in the “NERI INDEX of Marketization of China’s Provinces 2011 Report”. The software of processing, calculation, path analysis and regression are EXCEL 2007, SPSS17 and STATE 10.

### Path analysis

To better clarify the mechanism of how the law legal and property right affect the usage of enterprise’s trade credit, on the basis of above theoretical analysis and hypotheses, we construct a theory of path analysis (as shown in Figure 1) according to the trade credit, area law level, property right, bank loans and other key variables. Among them, law legal and property right are the model’s exogenous variables, they are not influenced by other variables in the model, bank loans and trade credit are the model’s endogenous variables, “e1” and “e2” are the residuals of model variables. By the above theoretical analysis the relationship of law legal, property right, bank loans and trade credit are one –way (recursive model), we use the recursive model to research and use the least squares model to estimate.

All variables will be standardized. We standardized all variables, and then symbolize the result of path analysis in Figure 1. As can be seen, the direct influence value of legal level to trade credit is 0.131, the direct influence value of legal level to bank loans is 0.196, and the direct influence value of bank loans to trade credit is -0.29. Thus, two effective paths can be found in the Figure and the total effect coefficient is 0.073, hypothesis 1a get preliminary support. The direct effect value of property right of bank loans is 0.16, therefore, the total effect value of property right of bank loans is -0.0464. It is obvious that the effect of legal level of trade credit get weaker in the state-owned enterprise when we consider different property right of enterprise at the same time, the total effect value of legal level of trade credit switched from 0.196 to 0.0268. The hypothesis 2a get preliminary support. In addition, from the determination coefficient of the path analysis, we can draw a conclusion that legal level and property rights can explain 36.8% the value of bank loans, bank loans and legal level can explain 63.3% the value of trade credit. It shows that the path analysis can better illustrate the mechanism of how legal level and property right impact trade credit. Not only the above theories are validated, but it also provides support for the next regression analysis.

Figure 1 : The causal model of path analysis



Empirical results analysis

In order to study the impact of legal level of trade credit, we do following regression to test.

TABLE 1 : Regression results of legal level and trade credit

variable	Model 1.1	Model 1.2	Model 1.3
CONSTANT	0.0939*** (14.71)	0.0913*** (12.91)	0.8683 (10.96)
LEGAL	0.6099*** (5.29)	0.5196*** (5.09)	0.4795*** (4.61)
LOAN		-0.0144*** (5.88)	-0.0343*** (2.91)
SIZE			0.0629*** (9.41)
AGE			0.0023*** (3.98)
COLLATERAL			0.0248 (1.46)
GROWTH			0.0675*** (16.66)
EPS			0.0281*** (5.77)
CASH			-0.4683** (2.63)
YEAR	control	control	Control
Adj - R <sup>2</sup>	0.171	0.176	0.249
F value	97.95	104.36	126.11

Note: “\*\*\*, \*\*, \*” respectively express significantly at “1%,5%,10%”. The value in parentheses are the T value in the corresponding estimated coefficient, it is the same in the following table.

As can be seen from TABLE 1, we fix the year and consider the single effect of legal level of enterprise trade credit in the first column. The coefficient of legal level (LEGAL) is 0.6099, it is significant at 1% level, it is shown that more trade credit will be used in the higher area legal level by enterprises. We consider the regression results with bank loans, the coefficients of legal level (LEGAL) and bank loans (LOAN) are 0.5196 and 0.0144, they are significant at 1% level. The result is consistent in the above theory, that is, enterprise which have more bank loan will have less trade credit use, there are significant alternative relationship between bank loans and trade credit. It is in the third column that we consider all control variables' regression result, the coefficient of legal level (LEGAL) is 0.4795, it is significant at 1% level. It shows that legal level of trade credit is still significant after we control all other factors which may be influence trade credit, and this verifies to the hypothesis of 1a. In addition, the coefficient of firm size and credit has significant positive correlation. The longer term the enterprise set up, the more trade credit will be used. Business growth and earning per share will increase the use of trade credit. It is worth to illustrate that in the impact of asset mortgage of trade credit is not significant, this may be due to the upper companies which provide trade credit will pay more attention to the growth ability of the enterprise. It is contrary to our expectation that the relationship between operating cash flow and trade credit is negative, this may be that the enterprise will reduce the use of trade credit, because company have more cash flow.

In order to test the hypothesis 2, consider different influence degree of legal level to trade credit in different property rights. we test as follow:

**TABLE 2 : Regression results of property right, legal level and trade credit**

Variable	Model 2.1	Model 2.2 (state-owned enterprise)	Model 2.3 ( private enterprise)	Model 2.4
CONSTANT	0.0934*** (14.17)	0.2713*** (17.32)	0.5491*** (6.98)	0.4679*** (7.94)
LEGAL	0.6116*** (5.3)	0.4276*** (3.87)	0.7921*** (5.85)	0.5396*** (4.23)
STATA	0.0019** (2.35)			0.0036** (2.29)
STATE*LEGAL				-0.0695** (1.83)
LOAN		-0.0342*** (4.93)	-0.0298* (1.85)	-0.0337*** (3.86)
SIZE		0.0534*** (8.97)	0.0683*** (9.71)	0.0627*** (9.34)
AGE		0.0022*** (3.74)	0.0025*** (3.99)	0.0023*** (3.96)
COLLATERAL		0.019 (1.09)	0.026* (1.77)	0.025 (1.48)
GROWTH		0.0671*** (16.43)	0.068*** (16.69)	0.0676*** (16.57)
EPS		0.0282*** (5.85)	0.0283*** (5.66)	0.0281*** (5.74)
CASH		-0.0172* (1.87)	-0.0183*** (3.14)	-0.0168** (2.62)
$Adj - R^2$	0.159	0.224	0.236	0.259
F value	94.03	122.56	129.28	140.84

The regression results of legal level (LEGAL) and property right (STATE) of trade credit are listed in first column of TABLE 2. The coefficient of property right (STATE) is 0.0019, it is significant at 5% level. It indicates that different property right enterprise will affect the use of trade credit. The regression result of state-owned enterprise and non state-owned enterprise are respectively listed in second and third column. The coefficients of legal level (LEGAL) are 0.4276 and 0.7921, they are all significant at 1% level. Preliminary validation shows that the influence coefficient of legal level to trade credit is smaller in the state-owned enterprise than in the non private enterprise. The product (STATE\*LEGAL) result is listed in the fourth column, the regression coefficient of product is -0.0695, it is significant at 5% level. This shows that the influence of legal level of trade credit have a significant difference in two kinds of companies. Compared to private enterprise, the impact degree of legal level of trade credit will decrease in the state-owned enterprise, this is the same in hypothesis 2a. In addition, the adjusted coefficient has achieved 25.9%, which mean that the model has a good explanation ability and relatively high degree of fitting.

## CONCLUSIONS

Based on the provincial legal environment index, we study the relationship between area legal level, property right and trade credit. Empirical analysis shows that in the area of higher legal level, problems of adverse selection and moral hazard in inter enterprise can be reduced, the enterprise will make more use of trade credit, it shows that improving legal level will strengthen the use of enterprise trade credit. Further study find that compared with private enterprise, the state-owned enterprise will reduce the use of trade credit, because they will acquire strong bank leading support, improving legal level will reduce the positive effect of the use of trade credit, it is shown that the property right will significant decrease the degree of correlation between legal level and trade credit.

We draw the following revelation:

(1) From the point view of legal level, government must strengthen the law construction of social market economy. Fully, extent the important function of law in the promotion of enterprise financing, problems of adverse selection and moral hazard reduction and market interests protection. From the conclusions in this paper, a better legal protection will promote the use of trade credit, enhance the enterprise growth. Therefore, It will be of great importance in strengthening and improving the legal system.

(2) From the study of trade credit, it is common that previous studies investigate the influence factors of enterprise trade credit is from the theory of the trade credit's supply (including financing advantages, asymmetric, price discrimination and competition hypothesis of trade credit) and demand ( financing demand and business environment). We explore the impact of trade credit and legal level from the perspective of "law and finance". The research get the use of trade credit not only rely on internal investment, but also depends on the improvement of the external system environment, the use of enterprise trade credit in different areas will be affected by the area legal level.

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