



Geographical distance, Fintech and Leasing Contract Design

-Analysis Based on Linear Models

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Abstract. It has been proved that geographical distance has a certain impact on distance market transactions, but there are still few studies systematically elaborating whether geographical factors have an impact on financial contract. Based on the data of geographical distance and fintech index, the empirical results show that: (1) The greater the geographical distance, the leasing companies reduce the financing amount in the financing contract to reduce their own risk; (2) In the regions with high fintech level, geographical distance has no significant effect on the financing amount, and fintech can alleviate the information asymmetry caused by geographical distance; On the contrary, geographical distance still has a significant negative correlation with financing amount in low-level fintech regions. This paper not only studies the correlation between geographical factors and financing contract design, but also explores the influence of fintech level on financing contract based on regional fintech level.

Keywords: Geographical distance; Financing contract; Fintech

1 Introduction

As an emerging financial financing tool, financial leasing is an important financing way for enterprises to meet their own technology and equipment needs in production and operation activities, and can alleviate the financial problems of production and operation of enterprises.

At the same time, geographical factors are also one of the important factors indispensable for economists in studying the laws of economic activities, and since the last century, many scholars have been constantly studying the influence of geographical factors.

To study the influence of geographical distance on the design of financing contracts, it is necessary not only to further study the mechanism of the role of geographical factors in influencing the design of corporate finance lease contracts, but also to consider

whether the level of fintech will change or mitigate the influence brought about by geographical factors as technological development has led to an increasing level of fintech. The analysis of the relationship between geographical distance and the design of financing contracts is conducive to deepening the degree of awareness of relevant enterprises from the financing level under the increasing level of fintech, further providing assistance to the development of enterprises, helping enterprises facing difficulties and risks in their development as much as possible, enabling them to finance more cost effectively and efficiently, and solving their financing constraints as well as cash difficulties. It also enables companies to better face the opportunities and challenges brought about by digital economization, thus leading to the development of their innovation drive and competitiveness.

2 Research Hypothesis

Based on the above analysis, the following two research hypotheses are proposed:

H1: The greater the geographical distance, the more serious the information asymmetry, and at the same time, the leasing company will cut the financing amount, i.e., the financing contracts are designed to be more stringent.

H2: The development of fintech will mitigate the impact of geographical distance on the amount of financing, and the amount of financing curtailed by excessive geographical distance is greatly mitigated in regions with higher levels of fintech.

3 Empirical Design

The data used in this paper are obtained from the data of financial leases disclosed by some listed companies in the Beijing-Tianjin-Hebei region from 2008 to 2016. Finally, 78 samples were obtained, which are adopted in this paper as the research object to study the relationship between geographical distance and corporate financing contract design.

The data used in this paper include financial lease amount, financial lease maturity, geographical distance between lessee company and lessor, corporate cash ratio, Tobin's Q, and FinTech index. The amount of the financial lease, the maturity of the financial lease, the cash ratio of the enterprise, and the "Tobin's Q" are obtained from the announcement of the listed company; the geographical distance is calculated by manually searching the latitude and longitude of the location of both the lessee company and the lessor.

The specific synthesis of the FinTech index can be obtained by contacting the author.

The financial lease amount, as a crucial item in the financing contract, represents the design of the financing contract by the financing amount.

The geographical distance between the two sides of the finance lease is measured by selecting the latitude and longitude distance of the physical location of the two sides of the finance lease.

The cash ratio is also referred to as the cash-to-assets ratio.

Tobin's Q is defined as the ratio of the market value of an asset to its replacement value.

The financial lease maturity is stipulated in the finance lease deed. (Unit: year)

In order to verify how firms deal with the design of financing contracts when information asymmetry is triggered due to geographical factors, the regression equation is as follows:

$$\text{Amount} = \beta_0 + \beta_1 \text{Maturity} + \beta_2 \text{Distance} + \beta_3 \text{Cashratio} + \beta_4 \text{TobinQ} + \varepsilon$$

The financial lease amount is the explained variable, the geographical distance between the lessor and the lessee company is the core explanatory variable, and the control variables are the financial lease maturity, cash ratio, and Tobin's Q. β_0 is the model estimation parameter and ε is the random error term. A fixed-effects model is used to regress the Equation.

4 Empirical Results

The row of Distance in the column of basic results indicates that geographical distance has a significant negative effect on the amount of finance leases at the 5% level with a correlation coefficient of -2.34, indicating that geographical distance has a negative effect on the amount of finance leases and to a greater extent. It can be explained that the greater the geographical distance between the leasing company and the lessee company, the more serious the information asymmetry, and the leasing company is worried about the moral hazard deepened by the lessee company due to the information asymmetry, the leasing company will cut the finance lease amount in the financing contract to reduce its own risk. This result verifies that hypothesis H1 is correct.

The 78 samples of fintech composite index are arranged from largest to smallest, and the median is taken as the dividing line to be divided into two groups, with 38 samples in each group. The samples corresponding to the fintech index below the median are classified as low level fintech regions, and the samples corresponding to the index above the median are classified as high level fintech regions. In order to test whether two regions with different levels of fintech development have different effects on the basic results of the experiment, the two groups of samples are regressed separately. As demonstrated by the two columns of Table 1 at low and high levels: in the low level areas, geographical distance is significantly negative to the amount of finance leases at the 10% level with a correlation coefficient of -1.98; in the high level areas, geographical distance is not significant to the amount of finance leases with a correlation coefficient of -1.16. The results indicate that in areas with low levels of fintech, geographical distance has a negative impact on the amount of financial leases and has a large impact; in areas with high levels, geographical distance, although negatively related to the amount of financial leases, has a small and negligible impact. The experimental results are explained as follows: in areas with low level of fintech development, the information asymmetry brought by geographical distance is not effectively alleviated by fintech, and the information asymmetry brought by geographical distance still makes leasing companies alert, and with the increase of geographical distance, they still need to reduce the amount of financial lease and adjust the financial lease contract to reduce

their own risks; while in areas with high level of fintech development, the rapid development of fintech greatly alleviates or even solves the information asymmetry brought by geographical distance, so that the amount of financial lease in the financing contract designed by leasing companies will not be reduced due to the increase of geographical distance. And as the level of fintech continues to improve, the correlation between geographical distance and the amount of financial leasing decreases. This result verifies that hypothesis H2 is correct.

Table 1. Results

	Basic results	low level	high level
Variables	(1)	(2)	(3)
Distance	-0.246** (-2.34)	-0.232* (-1.98)	-0.039 (-1.16)
Maturity	-0.843 (-0.45)	-0.220 (-0.15)	-0.808 (-0.31)
Cash ratio	-5.465 (-1.17)	-3.026 (-0.50)	-1.061 (-0.08)
Tobin'Q	0.194 (1.17)	1.229** (2.44)	0.167 (0.59)
Constant	22.353*** (9.40)	20.133*** (9.23)	20.454*** (11.51)
Observations	55	30	25
Adj-R ²	0.849	0.846	0.986

***, **, * indicate significant at 1%, 5%, 10% level respectively

5 Conclusions

The results of the empirical study indicate that the greater the geographical distance, the more serious the information asymmetry, and the leasing company is worried about the moral hazard of the lessee company deepened by the information asymmetry, and the leasing company will cut the finance lease amount in the financing contract to reduce its own risk. Further analysis, nowadays, under the increasingly perfect development of fintech, the rapid development of fintech has greatly alleviated and overcome the information asymmetry caused by geographical distance, so that the amount of financial leases in the design of financing contracts by leasing companies will not shrink

due to the increase of geographical distance, that is, the binding conditions in the contracts will not be increased in the design of financing contracts simply because of the increase of geographical distance.

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