

The Impact of the Use of Fintech on Enterprise Value

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Abstract. With the evolution and progression of fintech, an increasing number of enterprises have introduced fintech. However, it is still unclear whether fintech can improve enterprise value in practical application. This study collected relevant data of Shanghai and Shenzhen A-share listed companies in China from 2011 to 2019, and analyze the objective impact of fintech on enterprise value by linear regression. Linear regression model was established, descriptive statistics were performed, collinearity problem was excluded, and significance level was observed. By conducting rigorous empirical research to explore the use of fintech on the value of enterprises. Through this research, it is found that the use of fintech has a significant improvement on the value of enterprises, indicating that fintech is conducive to improving the efficiency of business operations and improving their performance in the market. Further research finds that the significance level of small enterprises is significantly positive at the 5% level. It is speculated that this is because for small enterprises, the technology level is relatively backward compared with that of large enterprises. At this time, the introduction of fintech will greatly promote the development and value of enterprises. Finally, it is concluded that relevant enterprises can improve their self-value by introducing fintech.

Keywords: Fintech; enterprise value; linear regression.

1. Introduction

Emerging technologies like big data, blockchain, and artificial intelligence have recently developed quickly and have found extensive use in the financial sector. The term "fintech", an abbreviation of "financial technology", refers to businesses or their representatives that integrate contemporary and innovative technologies with financial services [1]. According to the Financial Stability Board in 2019, fintech is defined as "technology-based advancement in financial services that could result in novel business models, applications, procedures, or products that largely influence the delivery of financial services" [2].

The birth and application of fintech has brought a series of positive effects. Wangyan found that fintech can promote the productivity of enterprises by improving the level of technological innovation [3]. Xueying and Hujian proposed that fintech is conducive to promoting resource allocation and enhancing innovation [4]. At the same time, it will reduce information asymmetry, reduce transaction costs, enhance risk management capabilities, and innovate production technologies and production methods. According to Li Rensi and Wan Yinglin, the use of blockchain in fintech can increase business operation efficiency and degree of trust between businesses [5]. Numerous benefits of fintech have been studied in archival literature. But there remains a gap in determining whether fintech can enhance corporate value, as it has not been rigorously empirically demonstrated. There is still significant research potential in this area.

This study will employ rigorous empirical methods to establish a linear regression model, and analyze the impact of fintech on firm value. Furthermore, this comprehensive analysis meticulously exams its ramifications across a spectrum of enterprise sizes. At the same time, this serves as a reference for government departments to better promote enterprise development.

2. Research Hypothesis

Fintech is highly convenient and accessible, and it can save human resources and effectively reduce the cost of financial services. Therefore, this paper expects that the use of fintech is beneficial to the enhancement of enterprise value.

2.1. The Influence of Fintech on Firm Value

The emergence and development of financial technology has brought new possibilities to various financial services, which in turn has had varying degrees of impact on the value of companies in various industries. Financial technology merges the worlds of finance with technology, allowing for varied degrees of operational efficiency improvement for businesses as well as the optimization of financial services and customer experience through the use of technologies like big data, blockchain, and artificial intelligence. And these results can often lead to higher business revenue and competitive advantage. As businesses adopt fintech-driven solutions to provide faster and more convenient payment methods, personalized financial advice, and automated investment platforms, they can attract a wider customer base and foster stronger customer loyalty. Hence, these remarkable advancements play a pivotal role in enhancing an organization's financial standing. By diversifying revenue streams and fostering innovation, they create a dynamic environment conducive to sustainable growth. Consequently, this not only bolsters short-term profitability but also augments the long-term viability of the business, fortifying its position in the market. The first study hypothesis is therefore:

H1: Firms using fintech can increase the value of their businesses.

2.2. The Influence of Fintech on Firm Value in Different Firm Sizes

In this digital age, traditional business practices have given way to more streamlined and data-driven operations. This shift not only enhances efficiency but also demands adaptability. Competition has evolved as well [6]. Startups armed with technology now challenge established giants, emphasizing innovation and customer-centricity. Long-term survival hinges on adaptability and foresight. Enterprises must invest in innovation, anticipate emerging trends, and embrace digital transformation. Meeting evolving customer expectations is crucial, requiring businesses to deliver seamless digital experiences and personalized solutions.

In essence, technology has reshaped the business landscape, necessitating ongoing innovation and agility to compete and thrive in an ever-changing environment. For relatively large enterprises, they have complex facilities and large business operation processes. The problems left over by the old system are tremendous. As a result, the implementation of fintech is needed to input more efforts and financial costs. Nevertheless, fintech in China is in a preliminary stage, and a huge amount of large companies are in a transition process. So, the positive effect of fintech may not be obvious. On the other side, relatively small enterprises can afford the relatively cheap costs to implement fintech and they have many opportunities to try. The number of employees and product scale enable them to become flexible and acute to change. Relatively small companies have the ability to change the process of business operation process quickly. Moreover, they can change their model and apply the technology to implementation at a faster speed. In summary, small companies can be beneficial from fintech.

The second study hypothesis is therefore:

H2: The smaller the business, the more effective the use of fintech is in increasing the value of the business.

3. Research Methodology

3.1. Sample Description and Data Sources

This study uses financial and governance data from the CSMAR database to analyze Chinese A-share listed companies in Shanghai and Shenzhen from 2011 to 2019. The Guo Feng et al. measurement method is used to generate the fintech data, which is sourced from the Peking University Digital Finance Research Center's official website [7]. Finally, 19,443 firm-year observations are produced after the samples with missing primary variables are eliminated.

3.2. Variable Selection

3.2.1 Dependent variable

Financial technology (fintech), which mainly measures the stage of development of fintech in a zone, data from the "Digital Financial Inclusion Index" published by Peking University [8].

3.2.2 Independent variable

In this paper, Tobin's Q is chosen as the measurement index of enterprise value (VALUE), referring to the research of GU et al [9]. Tobin's Q value considers the current operating conditions of the enterprise and the market's future expectations of the enterprise, is not easily affected by short-term behavior, and can be the more objective and scientific measurement of enterprise value.

3.2.3 Control variables

Referring to the strategy used by Song et al., the following indicators are selected as control variables: The ratio of current assets to current liabilities is known as the current ratio (abbreviated as "Currat") [10]. Total current assets minus Total Current Liabilities, or Working Capital. The ratio of total liabilities to total assets is known as the gearing ratio (Preserverat). The ratio of total liabilities to total owner equity is known as the equity ratio (Equityrat). The ratio of the current period's opening value to its closing value, known as the capital preservation ratio (Netprogrowth). The ratio of the difference between the net profit for the current quarter of the current year and the net profit for the previous quarter to the preceding quarter is known as the net profit growth rate (Gearrat).

3.3. Model Setting

To test the effect of fintech on enterprise value, after referring to the literature, this paper constructs the following model:

$$VALUE_{i,t} = \alpha + \beta fintech_{m,t-1} + \gamma X_{i,t-1} + \varphi_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

Where $VALUE_{i,t}$ stands for the company's enterprise value in year t . Tobin's Q is utilised in this study to calculate the value. The Peking University Digital Financial Inclusion Index is used in the data to determine the amount of fintech development in area m in year $t-1$.

Control variables are denoted by $X_{i,t-1}$, firm and year fixed effects are denoted by i and t , respectively, while the error term is denoted by i,t . The coefficients of the main explanatory variables $fintech_{m,t-1}$ are the main subject of this investigation. If is significant and favourable, Hypothesis 1 holds and the region's fintech development can considerably contribute to the improvement of enterprise value.

To test the influence of fintech on enterprise value in varied enterprise sizes, the model is established for enterprises of different sizes, as shown in formula 1. Observe the impact of fintech on enterprise value in enterprises of different sizes. If the coefficients of the core explanatory variables of the model, $fintech_{m,t-1}$ are significant and positive, the value of such enterprises can obviously promoted by the progression of fintech in the region. Hypothesis 2 holds.

4. Empirical Results and Discussion

4.1. Descriptive Statistics

The variables' descriptive statistics are displayed in Table 1. The analysis comes to the conclusion that the distribution of fintech scores is generally even, with the minimum value of fintech being 16 and the maximum value of fintech being 431. This shows a very substantial variation in the amount of fintech development between different locations. The average value is 2.24 and the median is 1.585, indicating that the majority of enterprises are concentrated and distributed in the interval of smaller Q values, and enterprises with very high enterprise value account for a minority. The minimum value of enterprise value is 1 and the maximum value is 730, indicating that the value gap between enterprises is very large.

Table 1. Descriptive statistics

	Min	Max	Mean	Standard deviation
Q	1	730	2.24	7.681
fintech	16	432	241.18	95.015
Currat	-5	191	2.71	4.131
Workcapital	-278440747209	337221490640	1164039928.76	12059744850.125
Gearrat	0	64	0.44	0.570
Equityrat	-236	532	1.39	7.093
Preserverat	-223	366	1.22	3.880
Netprogrowrat	-19115	6962	-1.83	179.440

Number of valid cases: 19443

4.2. Regression Analysis

The impact of regional fintech development on business value is depicted in Table 2 by the findings of regression analysis. When the VIF is less than 5, which may be seen, covariance is thought to be unaffected. Hypothesis 1 is supported because the coefficient of fintech is significantly positive at the 5% level, demonstrating that the development of fintech has a favourable impact on increasing firm value.

As for the control variables, the net profit growth rate is negative at 1% level of significance, indicating that higher net profit growth causes a passive effect on enterprise development. The explanation may lie in the fact that the net profit growth rate is too high, which pursues the development speed to the neglect of other aspects, leading to the decline of enterprise value.

Table 2. Regression analysis

	Standardization coefficient	t	Significance level	VIF
(Constant)		39.187	0	
fintech	0.016	2.189	0.029**	1.012
Currat	0.005	0.577	0.564	1.334
Workcapital	-0.005	-0.752	0.452	1.008
Gearrat	-0.138	-14.766	0.000***	1.739
Equityrat	0.027	3.254	0.001***	1.362
Preserverat	-0.009	-1.249	0.212	1.009
Netprogrowrat	-0.002	-0.225	0.822	1.001

Dependent Variable: Q
R²: 0.017

4.3. Analysis After Enterprise Scale Intervention

Firms were categorized into larger and smaller firms based on the amount of working capital, defining firms above the average as larger firms and firms below the average as smaller firms.

Table 3 displays the descriptive statistics for larger-scale firms, while Table 4 presents the descriptive statistics for smaller-scale firms which show that the average enterprise value of larger scale firms is less than that of smaller scale firms, while fintech is greater than that of smaller scale firms.

Table 3. Descriptive statistics

	Mean	Standard deviation
Q	1.796394892	1.065328547
fintech	256.9323245	91.29911272
Currat	3.137009869	4.273292521
Workcapital	6201837896	17566100556
Gerrat	0.411639914	0.210411205
Equityrat	1.083598698	1.314571968
Preserverat	1.33148618	2.539487261
Netprogrowth	1.144854876	53.36189699
Number of valid cases: 6070		

Table 4. Descriptive statistics

	Mean	Standard deviation
Q	2.160595474	2.516895201
fintech	236.0973544	95.91237498
Currat	2.757685772	4.35407248
Workcapital	-748578669.9	9723702769
Gerrat	0.395138755	0.204315961
Equityrat	0.997776748	2.306160281
Preserverat	1.255564947	0.603534244
Netprogrowth	-3.395021982	219.5725903
Number of valid cases: 13373		

Table 5 demonstrates how the regional fintech growth can affect the regression results of the large business valuation. The influence of regional fintech development on firm value for smaller size enterprises is depicted in Table 6 based on the findings of regression analysis. Observations can be found that VIF are less than 5, and it is considered that there is no covariance problem. For larger firms, the significance level of fintech is 0.988, and it is considered that there is no relationship between fintech and firm value. For smaller firms, the coefficient of fintech is significantly positive at the 5% level, which suggests that there is a relationship between fintech and firm value. Therefore, hypothesis 2 is valid. The reason for this may be that firms are able to grow on a large scale and are relatively technologically advanced in their own right, which is less enhanced by emerging fintech. The technology of smaller-scale enterprises is already relatively backward, and after the introduction of fintech, the technological level is rapidly improved, and the enterprise value also rises.

Table 5. Regression analysis

	Standardization coefficient	t	Significance level	VIF
(Constant)		41.837	0	
fintech	0	0.014	0.988	1.027
Currat	-0.009	-0.62	0.536	1.359
Workcapital	-0.01	-0.786	0.432	1.139
Gearrat	-0.351	-14.97	0	3.781
Equityrat	0.012	0.569	0.57	3.27
Preserverat	0.003	0.258	0.796	1.004
Netprogrowth	0.003	0.277	0.782	1.001

Dependent Variable: Q
R²: 0.116

Table 6. Regression analysis

	Standardization coefficient	t	Significance level	VIF
(Constant)		24.622	0	
fintech	0.027	3.17	0.002	1.017
Currat	0.02	1.993	0.046	1.361
Workcapital	0.039	4.486	0	1.027
Gearrat	-0.091	-8.134	0	1.684
Equityrat	0.028	2.861	0.004	1.255
Preserverat	-0.026	-2.912	0.004	1.06
Netprogrowth	-0.002	-0.196	0.844	1.006

Dependent Variable: Q
R²: 0.012

5. Conclusion

This study matches data from Chinese A-share listed companies from 2011 to 2019 with regional levels of fintech development. It employs a linear regression model for empirical analysis to explore the influence of fintech adoption on partnership valuation.

The final conclusion is that fintech can apparently enhance partnership value, especially for smaller-sized enterprises. The introduction of fintech is beneficial for breaking through the limitations of the initial technological level and notably increasing corporate value. As a result, enterprises, considering their unique circumstances, have the opportunity to strategically employ fintech in their corporate development journey. This enables them to improve operational efficiency, trim development costs, reduce unnecessary use of human resources, and bolster their overall corporate worth. This strategic adoption of fintech allows businesses to streamline operations, boost productivity, and optimize resource allocation. It also helps in cost management by leveraging existing fintech solutions, freeing up financial resources for innovation. Furthermore, fintech integration reduces the need for manual tasks, allowing employees to focus on higher-value activities. In addition, embracing fintech enhances a company's market position, attracting investors, partners, and customers who value innovation and efficiency, thus increasing its overall value.

On the governmental front, fostering fintech development within enterprises through supportive policies can optimize resource allocation and promote financial inclusion. It will be a good choice for the government to develop fintech, which will help the country's economic growth and innovation.

In summary, the conscious use of fintech by enterprises can lead to improved efficiency, reduced costs, optimized resource allocation, and enhanced corporate value. All this shows that fintech has the potential to drive economic growth and sustainable development.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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