The Impact of Financial Technology on the Financial Value of Enterprises

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Abstract. In the context of the scientific and technological revolution and industrial transformation, financial technology has developed vigorously, solving the problem of financing difficulties for SMEs. And it enables SMEs to develop smoothly and improve self-value. So, it is of great importance to go deeply into the impact of financial technology on the enterprise's value. Based on the financial data source of Chinese A-share listed companies and the digital inclusive financial index of China's provinces and cities from 2013 to 2020, this paper uses the two-way fixed effect model to explore the relationship between financial technology and the financial value of enterprises. This paper finds that the development of financial technology can effectively enhance enterprises' financial value. Therefore, enterprises should correctly use the advantages brought by financial technology to achieve value enhancement, which is of great significance to most enterprises.

Keywords: Financial technology; Two-way fixed effect model; Financial value.

1. Introduction

Recently, with the accelerated evolution of the world's political, economic, and cultural patterns, China's economy is developing at a high speed. Financial technology is taking technology and data as the core to promote the development of financial innovation, which has an impact on green growth in China [1]. Meanwhile, the booming of the digital economy is also inseparable from financial science and technology, by promoting technological innovation and weakening the governments' fiscal decentralization [2]. The rapid evolution of digital technology has injected vitality into the digital transformation of finance.

Due to the duality of technology and finance, the field of financial technology is widely absorbing emerging technologies and business models precipitated in the process of digitalization of various industries. Besides, it is also reshaping the operation mode of the financial industry itself. The secondary market's valuation model for financial institutions is also evolving synchronously. China's financial technology industry has been in a deterministic long-term growth. With reference to the normality of leading European and American banks' technology investment accounting for 10% of their revenues and China's current investment intensity of 3%, hundreds of billions of new markets will be opened in the future.

The financial applications of blockchain, artificial intelligence, quantitative investment, big data, cloud computing, blockchain, and other technologies related to Fintech have achieved remarkable results. And it alleviated the phenomenon of information asymmetry [3], accurately identified promising enterprises, and provided them with financial support. On the other hand, in addition to emerging enterprises, financial technology has also promoted the development of traditional industries. In the era of Industry 4.0, financial technology is conducive to favorable positioning and appropriate resource allocation [4]. The application of financial technology has also promoted the development of clean technology and the increase of the green economy [5].

2. Research Hypothesis

There stand a lot of elements that influence the financial value of enterprises, including internal factors of the company itself and external environmental factors [6]. Some scholars found that among the internal influencing factors of corporate value, the comprehensive factors have the greatest explanatory power to corporate value, followed by growth potential, solvency, profitability, and

finally governance structure [7]. Among the external factors that affect the value of the company, there is the macro environment, scientific and technological development, industry prospects, and so on. Financial technology belongs to the external factors of enterprises. And it is the product of the organic integration of information technology and finance. FinTech has a strong information screening ability, which can effectively solve the poser of information asymmetry of capital demand in the process of enterprise development. On the other hand, FinTech has strong financing capability and comprehensive service capability, which can better match the long-term and short-term capital demand in the process of enterprise development, and create a good financial ecology for enterprise innovation. At present, China's traditional financial system is accompanied by problems such as low efficiency, uneven capital allocation, and asymmetric information, resulting in insufficient capital supply for enterprises, which cannot keep up with the pace of economic reform, and enterprises cannot achieve sustainable development. The financial technology system has solved the shortcomings of traditional banks, quickly adapted to market demand, and allowed rapid capital circulation.

To begin with, financial technology provides a favorable external financial environment for the growth of enterprises. For example, FinTech has optimized financial services and improved the accuracy of enterprise financial services. FinTech has provided a new model, which has reduced and simplified most service processes and reduced financial services and transaction costs. Then, the innovation of financial technology contributes to the value of enterprises. By acquiring new resources and expanding new channels, enterprises can enhance their core competitiveness and promote their sustainable development capabilities. The technological advantages of FinTech can also enhance the liquidity of capital, guide the matching of capital resources and enterprise development, and promote the transformation and upgrading of enterprises [8]. In accordance with it, this paper proposes the following assumptions:

Hypothesis: The growth of financial technology helps to increase enterprise value.

3. Research Methods

3.1 Data Sources

The relevant data all come from the CSMAR database. And this paper winsorizes all continuous variables at the individual level, which ensures the reliability of the data. In order to eliminate the clustering characteristics that may exist in the sample data, the standard error at the individual level is also adjusted before the start of research and analysis. Data analysis are mainly completed through the software Stata16.0.

3.2 Sample Selection

The incipient research sample for this empirical analysis, which employs annual data for the study, includes all businesses listed on the A-share from 2013 through 2020. The initial research sample was tested for the following criteria to guarantee the scientific validity of this paper's findings:

(1) Remove the sample of the financial enterprise. The market access and commercial development of companies listed in the financial industry are heavily regulated by the government. Financial enterprises are mainly asset-light, which is very different from traditional enterprises, and their accounting treatment is also distinct. Consequently, the sample of the financial industry is left out of this paper;

(2) Eliminate the ST, SST, *ST, and PT samples. These marked enterprises usually have operational problems. As a result, many businesses frequently decide to conceal their financial information in order to stay listed. Therefore, to avoid it, these abnormal research samples were excluded from this paper;

(3) Samples with missing values and abnormal values of pertinent variables were also removed. This paper finally acquires unbalanced panel data consisting of 24372 "enterprise-year" observations after the above operations.

3.3 Regression Variables

3.3.1. Financial value of Enterprises(dependent variables)

The financial value of enterprises (EVA). The research on the financial value on a world-wide scale primarily adopts the cash flow model and economic value-added method. EVA theory demonstrates that the shareholder capital taken up by enterprises also has costs. And when measuring enterprise performance, the cost of shareholder capital must be taken into consideration. EVA index provides a new approach to evaluate enterprises' value and its growth. So the growth of enterprises' value comes from the growth of enterprise economic added value, rather than the growth of profit. So this paper uses EVA to measure enterprise value.

3.3.2 Financial Technology(independent variable)

Financial Technology (Fintech). The development of financial technology is measured by the logarithmic provincial-level digital inclusive financial index. This indicator roots in the Institute of Digital Finance of Peking University. It uses 24 indicators, covering 31 provinces and 337 cities, which can comprehensively reflect the development level of China's financial technology.

3.3.3 Control variable

Referring to the experimentations of other scholars, this paper uses Enterprise age, Enterprise Size, Asset reliability ratio, Proportion of fixed assets, and Operating cash flow as control variables. The index variables are presented in Table 1.

Table 1. Variable definitions

Variable types	Variable name	Variable symbol	Variable description
Explained variable	Financial value of enterprise	EVA	EVA per share
Explanatory variable	Digital Financial technology	DiFi	The digital inclusive financial index of China's provinces
Control variables	Enterprise age	Age	Listing time of the enterprise
	Enterprise Size	Size	Enterprise's total assets in a fiscal year
	Asset-liability ratio	Loar	Total liabilities/total assets in a fiscal year
	The proportion of fixed assets	PPE	Total fixed assets/total assets in a fiscal year
	Operating Cash Flow	OCF	OCF/Total assets

3.4 Model Setting

Table 2. Test Results of Model Setting

Table A: Test Results for Using Fixed Effect Model or Mixed Effect Model
H0: all ui=0: _i
F(3704,19253)=5.62
ProbF=0.0000>F=0.0000
Table B: Test Results for Using Fixed Effect Model or Random Effect Model
H0: difference in coefficients not systematic
chi2(14)=660.20
Probchi2=0.0000>chi2=0.0000

Three analytic models exist for panel data. Models with fixed effects, mixed effects, and random effects are among them. Therefore, before starting the regression model, it is vital to decide which model will be utilized. This section begins by performing an F-test on the sample data, which are

displayed in Table A in Table 2. Based on Table A, the P-value is less than 0.05, and the first hypothesis is disproved. For the examination of this component, the fixed effect model is preferable to the mixed effect model. And another result of Hausman-test is presented in Table B in Table 2. The evidence suggests that P-value of the Hausman-test is likewise less than 0.05. And it indicates the fixed effect model is more accurate than any other.

$$EVA_{i,t} = \beta_0 + \beta_1 \ln DIFI_{i,t} + \sum \phi_i Controls_{i,t} + \mu_i + \mu_{year} + \varepsilon_{i,t} \quad (1)$$

The model use Yingying Chang and Yiming Yang's research [9,10] for reference. As the two-way fixed enterprise individual and year model can eliminate the endogenous problem caused by missing variables, and eliminate the impact of different macro-environment in different years. On the other hand, this paper mainly uses the model for analysis. In this model, β0 stands for the intercept term; β1 means the regression coefficient of explanatory variable; i and t represent individual enterprises and year; ϕi means the regression coefficient of control variables; εi,t represent the residual term; μI and μyear represent fixed effects of the enterprise and year levels.

3.5 Descriptive Statistics

Table 3. Descriptive Statistics

	N	MEAN	SD	MIN	MEDIAN	MAX
EVA	24372	0.0678	0.5554	-3.0780	0.0298	2.8560
lnDIFI	24372	5.6250	0.2729	4.7976	5.6671	6.0683
Age	24372	2.8687	0.3309	1.6628	2.9103	3.5481
Size	24372	22.1938	1.2952	19.4703	22.0192	26.3978
Lev	24372	0.4196	0.2073	0.0463	0.4079	0.9426
PPE	24372	0.2254	0.1707	0.0023	0.1891	0.7694
OCF	24372	0.0469	0.0686	-0.2003	0.0469	0.2559

The descriptive statistics are shown in table 3, which demonstrate that the median value of (EVA) is 0.0298 and the maximum is 2.8560. And it means the financial value of enterprises varies greatly at different individual levels. From 2013 to 2020, The difference between the maximum and minimum value of lnDIFI implies that the development of financial technology is unbalanced in the region

3.6 Correlation Analysis

Up to a point, it is determined that the data utilized is accurate and reasonable. Then, this study performs correlation analysis to determine the preliminary level of correlation between variables while also determining whether there appears to be a multicollinearity issue between them. In this section, this paper uses the Pearson coefficient and the Spearman coefficient to examine the correlation. Table 5 displays the test results, with the results of the Pearson and Spearman correlation coefficient tests located in the lower left and upper right corners, respectively.

Table 4. Results of Correlation Analysis among Variables

	EVA	lnDIFI	Age	Size	Lev	PPE	OCF
EVA	1.0000	0.0993***	-0.0787***	0.0234***	-0.2337***	-0.1062***	0.3777***
lnDIFI	0.0665***	1.0000	0.2235***	0.0580***	-0.0544***	-0.1524***	0.0940***
Age	-0.0519***	0.2381***	1.0000	0.1910***	0.1733***	-0.0207***	-0.0102
Size	0.0478***	0.0716***	0.1647***	1.0000	0.5169***	0.0355***	0.0511***
Lev	-0.2430***	-0.0651***	0.1734***	0.5069***	1.0000	0.0265***	-0.1740***
PPE	-0.0880***	-0.1629***	0.0130**	0.0985***	0.0684***	1.0000	0.2519***
OCF	0.3381***	0.0883***	-0.0080	0.0569***	-0.1812***	0.2350***	1.0000

Note: *** p<0.01, ** p<0.05, * p<0.1(two-tailed test).

From the data results of correlation analysis, most of the data are less than 0.25, which proves that the relationship between them is weak or no correlation. The rest of the data is greater than 0.25 and

less than 0.5, which indicates that the relationship between them is low correlation. According to the table's findings, the absolute correlation coefficient values of the variables employed are less than 0.5. So there won't be a multicollinearity problem.

3.7 Regression Analysis and Hypothesis Testing

Table 5. Regression Results

	(1) EVA
lnDIFI	0.2209*
	(1.78)
Age	0.0271
	(0.30)
Size	0.1632***
	(12.19)
Lev	-1.0850***
	(-21.05)
PPE	-0.6626***
	(-11.14)
OCF	1.2818***
	(16.00)
_cons	-4.0755***
	(-5.52)
Firm	Yes
Year	Yes
N	24372
R^2	0.134
adj. R^2	0.134
F	96.8788

Note: *** p<0.01, ** p<0.05, * p<0.1(two-tailed test); At the enterprise level, the cluster-adjusted t-test results are displayed in parentheses.

According to the regression results of the two-way fixed effect model of fixed enterprise individuals and years, which are shown in Table 5, the evidence demonstrates that the core explanatory variable ln DIFI in this paper will have a positive impact on the financial value of enterprises(EVA), and this impact is a significance level of 10%.

4. Conclusion and Suggestions

This research uses a two-way fixed effect model to examine the influence of developing financial technology on corporate financial value using imbalanced panel data of A-share listed companies from 2013 to 2020. And the findings demonstrate that financial technology significantly and steadily improves the financial worth of businesses. The financial value of businesses increases more quickly as financial technology advances.

From the macro level, this paper explores the impact of financial technology, an external factor, on the value of micro-enterprises, which improves the research on scientific and technological innovation promoting economic development and promoting enterprise growth. Studying the effect of this technological innovation on micro-enterprises has important implications both in academia and in government policy formulation. The following suggestions are made in light of the research's conclusions mentioned.

First, the government should formulate relevant norms to guide enterprises to correctly use financial technology. Today, financial technology is accelerating its development, but it also brings some hidden dangers, such as the disclosure of customer information collected by Internet companies, which may violate user privacy. For this reason, FinTech needs to be strictly supervised. Future research on financial technology can explore the regulatory mechanism of financial technology.

Second, China should support the integration of Fintech development with the "Belt and Road" initiative. Now, some financial technology companies in China have taken root and carried out business in Southeast Asia and other regions. Taking advantage of the importance of big data and other financial technology applications, financial technology companies can make overall arrangements and become an important area of "Belt and Road" cooperation.

Last, enterprises should improve the financing and talent training system to meet the needs of financial science and technology development. Financial technology companies are mostly innovative companies with light assets and high growth. They are short of collateral, have unstable cash flow, and can't meet the lending standards of commercial banks. The financial market should improve the supporting financing system and give full play to the role of the capital market. The disciplines involved in financial science and technology are interdisciplinary, cutting-edge, and highly applicable, and the technology is updated rapidly. There is a shortage of professionals, general talents in the industrial chain, and complex talents in finance and information technology. The government should increase investment and integrate resources in talent cultivation, talent introduction, and transformation of scientific and technological achievements.

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