The impact of financial uncertainty on enterprise value

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Abstract: This paper examines the response of corporate value to the impact of fiscal policy uncertainty based on the uncertainty index of China's fiscal policy from 2000 to 2019 and the sample data of A-share listed companies in Shanghai and Shenzhen from 2000 to 2019. The study finds that fiscal policy uncertainty is conducive to the increase of enterprise value. On one hand, it indicates that China's fiscal policy is currently in a relatively stable state. On the other hand, it suggests that China's fiscal policy, when formulated, does not deviate from the market but rather better regulates the economy, leading to healthier and sustained economic growth. The existing fiscal policy adjustments are beneficial for the long-term and healthy development of enterprises, with a more significant effect on value increase observed in enterprises with lower asset-liability ratios, lower book values, and smaller scales.

1. Introduction

Since the reform and opening-up, the Chinese economy has transitioned from high volatility and high growth to low volatility and medium-high-speed growth. The New Normal of Mature Economic Growth. In order to better develop the economy and build a prosperous and strong nation, China has implemented reforms in political, economic, and fiscal systems to better adapt to social development. Faced with the development of political and economic conditions in various countries, China must continuously adjust its policies in all aspects while adhering to the path of socialism with Chinese characteristics, in order to ensure stable and sustained economic development.

Under the conditions of a modern market economy, fiscal policy is an important tool for the state to intervene in the economy and achieve macroeconomic goals. Therefore, fiscal policy is a crucial means of adjusting the economy. Since the beginning of the 21st century, fiscal policy has been continuously adjusted in response to events such as the 9/11 attacks, natural disasters, SARS, financial crises, and the COVID-19 pandemic. The uncertainty of fiscal policy is bound to affect the behavior of enterprises, thereby impacting their profitability and altering their value.

Enterprise value refers to the value of the enterprise itself, which is the market evaluation of its tangible and intangible assets. The academic community generally measures enterprise value in the following ways: the market capitalization perspective, which considers the overall stock price of the company, including not only its profitability but also the intangible value of future expectations; the sum of intangible assets and book value perspective, which believes that the market-based

evaluation of enterprise value includes not only the value of tangible assets but also the value of intangible assets such as intellectual property, surplus, and human resources; the sum of asset value and debt value perspective, which holds that enterprise value is realized through joint ventures, mergers and acquisitions, reorganizations, and transactions in the market, equivalent to the sum of equity value and debt value of the enterprise; and the profitability perspective, which focuses on the ability of the enterprise to generate profits.

This paper focuses on the impact and prediction of fiscal policy uncertainty on firm value, using Chinese A-share listed companies from 2000 to 2019 as the sample. The study is based on the "China Economic Policy Uncertainty Index" compiled by Lu Shangqin and Huang Yun. The results show that fiscal policy uncertainty generally increases firm value, with a more significant effect observed in companies with lower leverage, lower book-to-market ratio, and smaller size.

2. Literature Review

Fiscal uncertainty is one of the indicators of economic uncertainty.Fiscal policy uncertainty is a common phenomenon in national development, especially after globalization. Both domestic and international factors can affect the volatility of the domestic economy. In order to stabilize the economy, governments continuously adjust fiscal policies to mitigate economic shocks.The trend of global capital market openness has also had an impact on the Chinese capital market. The trend of global capital market openness has also had an impact on the Chinese capital market.An open capital market can increase capital market liquidity, improve corporate governance, and reduce systemic risks to enhance enterprise value.[1][6][10]

These uncertainties not only bring risks but also opportunities, thereby affecting firm value. For example, Fernández-Villaverde (2015) conducted empirical research and numerical simulations, concluding that fiscal policy uncertainty has influenced the recovery of the US economy, and the negative effects of policy uncertainty should not be underestimated.[2]The uncertainty index system of China's fiscal policy constructed by Zhu Jun(2017) includes fiscal expenditure, transfer payments, local debt, fiscal system, pension, fiscal and tax reform, policy pilot, value-added tax, consumption tax, corporate income tax, personal income tax, property tax, and tax policies.[11]

Other studies have focused on the uncertainty of overall economic policies and their macroeconomic effects.Economic uncertainty can inhibit corporate investment.[4] Representative studies include Born and Pfeifer (2014)[3] and Baker et al. (2016)[5]. The common practice in academia is to compile an Economic Policy Uncertainty (EPU) index to quantify the impact of policy uncertainty on economic factors. The measurement method based on news developed by Baker, Bloom, and Davis (2016) is widely used.[5]Huang Ning and Guo Ping(2015) used Baker's China Policy Uncertainty Index and provincial panel data to analyze the impact of economic policy uncertainty on China's macroeconomy and regional differences using the PVAR model. Research has found that policy uncertainty has a short-term negative impact on China's economic growth, investment, consumption, and CPI, with a greater impact on economic growth in the eastern region and a greater impact on consumption and CPI in the western region.[7]

3. Theoretical Analysis

The volatility of fiscal policy has gradually become a focus of attention in both theoretical and practical fields, and related research literature is constantly emerging, including the measurement of fiscal policy volatility, the impact of fiscal policy volatility, the determining factors of fiscal policy volatility, and research on the relationship between policy elasticity, persistence, and policy volatility.[8]Policy uncertainty is an important pricing factor in the stock market.[9]Uncertainty in fiscal policy manifests itself in the form of contractionary or expansionary fiscal policies adopted by

the government in response to economic fluctuations. On the other hand, it also impacts the overall economic environment, thereby influencing firm value. Expansionary fiscal policies have macro-level impacts on social aggregate demand and aggregate supply, while at the micro-level, their effects on firm behavior are realized through market demand and market supply derived from social aggregate demand and aggregate supply. In fiscal economics theory, fiscal policy regulation refers to the government's adjustment of the scale and internal structure of fiscal revenue and expenditure through fiscal policy tools. This is achieved through the direct transmission mechanism of government revenue and expenditure and its multiplier effect.

The indirect transmission mechanism of fiscal policy affects social demand and supply, thereby guiding and influencing the behavior of residents and enterprises through changes in economic operating parameters. In the process of regulation, on the one hand, the government influences household consumption and enterprise investment through policy tools such as taxation, transfer payments, government consumption, and government investment, forming effective social demand. Enterprises provide products or services to the market in order to meet market demand and achieve sales and operating income in the product market, thereby enhancing enterprise value, which is manifested as a multiplier effect. For enterprises, social total demand, product market demand stimulated by fiscal financing, and capital market supply are difficult to change and are external opportunities and constraints faced by enterprises. Among them, demand from the product market provides opportunities for enterprises and affects the quantity and size of enterprise market sales opportunities. In theory, this should promote an increase in enterprise value, manifested as a multiplier effect of fiscal policy on enterprise value. The supply constraint from the capital market limits enterprise development, affects the quantity and size of market opportunities that enterprises can grasp, and affects the cost of seizing market opportunities. In theory, this will reduce enterprise value, manifested as a crowding-out effect of fiscal policy on enterprise value.

In addition, fiscal policies, especially government expenditures on social aspects such as healthcare and education, as well as expenditures on national defense and infrastructure, can effectively improve the supply and production efficiency of social labor. It can also increase the supply and productivity of other economic resource factors. Thus, it has an impact on the business behavior of enterprises in the dimension of social supply, which in turn affects the value of enterprises.

In summary, fiscal policy affects enterprise micro-behavior and subsequently influences enterprise value through three paths:

(1) Fiscal policy → social total demand → enterprise product demand → product sales → enterprise operations → enterprise value. (2) Fiscal policy → Funds supply and demand → Capital amount, interest rate, exchange rate, and inflation rate → Capital constraint → Business operation → Enterprise value; (3) Fiscal policy → Total social supply → Enterprise factor supply → Factor constraint → Business operation → Enterprise value.

Based on the above analysis, this paper proposes the following hypotheses:

H1: Fiscal policy uncertainty increases enterprise value.

H2: Fiscal policy uncertainty decreases enterprise value.

4. Research Design and Sample Selection

4.1. Data

This paper selects Chinese A-share listed companies from 2000 to 2019 as the initial research sample to construct a balanced panel dataset. The data is sourced from the CSMAR database and WIND database. The sample is processed as follows: financial listed companies are excluded; ST and *ST listed companies are excluded; samples with missing key variables are excluded. Referring

to the study by Pan Yue et al. (2020) [7], samples from the listing year are excluded. Finally, a total of 37,791 "year-company" samples from 3,510 companies are obtained. The uncertainty index used in this paper is selected from the "China Economic Policy Uncertainty Index" compiled by Lu Shangqin and Huang Yun. The monthly uncertainty index is transformed into annual variables using the arithmetic average method. Data processing is conducted using Stata14 software. To mitigate the impact of extreme values on regression results, winsorization is applied to all continuous variables within the upper and lower 1st percentiles.

4.2. Variable Definitions

4.2.1. Dependent Variable

Enterprise value is measured using Tobin's Q: Tobin = (number of outstanding shares $\times$ share price + number of non-tradable shares $\times$ net asset value per share + book value of liabilities) / book value of assets.

4.2.2. Independent Variable

In this paper, the fiscal policy uncertainty index from the China Economic Policy Uncertainty Index is used as the independent variable. This index is widely used in domestic and international research on economic policy uncertainty. In constructing the index, the average of the monthly index values with a lag of one year is selected and measured using the natural logarithm, denoted as $lnFPU_{i,t-1}$.

4.2.3. Control variables

Table 1: Variable definition.

Variable Name	Definitions
Tobin	Tobin = (number of outstanding shares $\times$ share price + number of non-tradable shares $\times$ net asset value per share + book value of liabilities) / book value of assets
$lnFPU_{t-1}$	For China's fiscal policy uncertainty index, the larger the value is, the higher the degree of uncertainty is
Size	Ln Total assets
Age	Year of report - year of establishment
Lev	Total liabilities/total assets
ROE	Net profit/owners' equity
ROA	Net profit after tax/total assets
Grow	Growth rate of operating income = (operating income at the end of the period - operating income at the beginning of the period)/operating income at the beginning of the period
SOE	The value is 1 for soes and 0 otherwise
Dturn	Measure stock liquidity, average monthly turnover rate in year t − average monthly turnover rate in year $t − 1$
Board	Natural logarithm of the number of board members
Indep	Number of independent directors/number of board of directors
Dual	The value of the company's chairman and general manager concurrently is 1, otherwise it is 0
Top1	Shareholding ratio of the largest shareholder
INST	The total number of shares held by institutional investors divided by outstanding capital stock
Balance	The sum of the shareholding ratio of the second to the fifth largest shareholder divided by the shareholding ratio of the largest shareholder
BM	Book value/total market value (the higher the ratio, the lower the future potential of the company)

There are multiple factors that influence firm value. In this paper, we refer to relevant studies on the factors influencing firm value (Zhou Taiyun et al., 2021) and select the following control variables: firm size (Size), firm age (Age), return on assets (ROA), leverage ratio (Lev), return on equity (ROE), growth (Grow), ownership nature (SOE), ownership balance (Balance), board size

(Board), proportion of independent directors (Indep), dual roles of directors (Dual), shareholding ratio of the largest shareholder (Top1), institutional shareholding ratio (INST), average monthly excess turnover rate (Dturn), and average monthly return (BM). Detailed information can be found in Table 1.

4.2.4. Model specification

To test H1, this paper constructs the following empirical model to examine the impact of fiscal policy uncertainty on enterprise value.

$$\text{Tobin}_{i,t} = \alpha + \beta \ln\text{FPU}_{i,t-1} + \gamma \sum \text{Control}_{i,t} + \varepsilon_{i,t}$$

5. Empirical Results Analysis

5.1. Descriptive Statistics

Table 2 presents the descriptive statistics of the main variables. From the overall sample, the mean value of the dependent variable, firm value, is 1.9171, indicating a generally good level of firm value. However, the standard deviation is 1.2707, with a maximum value of 17.6759 and a minimum value of 0.8153, suggesting significant differences in firm value among companies and a reasonable distribution, which helps us observe the impact of fiscal policy uncertainty on firm value. The mean value of the explanatory variable, fiscal policy uncertainty index, is 4.7399, indicating a relatively high level of fiscal policy uncertainty in China. The minimum value is 3.7995 and the maximum value is 5.3908, indicating frequent adjustments of fiscal policy during the sample period. The standard deviations of other control variables, such as firm size, firm age, leverage ratio, return on equity, ownership nature, ownership balance, board size, dual roles of directors, shareholding ratio of the largest shareholder, and institutional shareholding ratio, are relatively small. The mean value of ownership nature is 0.4130, indicating that private enterprises dominate Chinese listed companies. Overall, the statistical results indicate relatively small differences in the aforementioned characteristics of Chinese listed companies.

Table 2: Summary statistics.

Variable	observation	Mean	Std. Dev.	Min	Max	Mean value
Tobin	37791	1.5280	1.2707	0.8153	17.6759	1.9171
LnFPUt-1	37791	4.7677	0.3868	3.7995	5.3908	4.7399
Size	37791	21.6874	1.2628	19.1651	26.3686	21.8636
Lev	37791	0.4342	0.2036	0.0278	0.9911	0.4362
ROA	37791	0.0395	0.0651	-0.4516	0.2447	0.0406
ROE	37791	0.0745	0.1374	-1.3558	0.4624	0.0653
Grow	37791	0.1204	0.4714	-0.7465	6.0499	0.1951
Board	37791	2.1972	0.2099	1.6094	2.8332	2.1616
Indep	37791	0.3333	0.0932	0	0.6000	0.3489
Dual	37791	0	0.4320	0	1	0.2482
SOE	37791	0	0.4924	0	1	0.4130
ListAge	37791	2.0794	0.8838	0	3.3322	1.9405
Top1	37791	0.3378	0.1523	0.0838	0.7584	0.3589
Balance	37791	0.5193	0.6000	0.0046	2.9612	0.6837
Dturn	37791	-0.0277	0.4612	-2.4939	1.5854	-0.0895
INST	37791	0.2753	0.2499	0	0.8901	0.3050
BM	37791	0.6554	0.9982	0.0514	8.1646	0.9744

5.2. Full Sample Regression

Table 3 reports the regression results for the impact of fiscal policy uncertainty on firm value. In column (1), the impact of fiscal policy uncertainty on firm value is examined independently. The results show that the coefficient of lnFPU is significantly positive at the 1% level, indicating that fiscal policy uncertainty can significantly increase firm value. In columns (2) and (3), control variables for firm characteristics and governance are gradually introduced. The coefficient of lnFPUt-1 remains significantly positive at the 1% level, indicating a significant positive relationship between fiscal policy uncertainty and firm value, supporting H1.

Table 3: Full sample regression.

	(1)	(2)	(3)
LnFPUt-1	0.4656***	0.4262***	0.1364***
	(0.0167)	(0.0221)	(0.0243)
Size		-0.2421***	-0.3713***
		(0.0070)	0.0078
Age		0.4019***	0.2477***
		(0.0109)	(0.0120)
ROA		5.1389***	4.5774***
		(0.2455)	(0.2503)
Lev		0.0759**	0.1416***
		(0.0427)	(0.0430)
ROE		-1.5403***	-1.4390***
		(0.1068)	(0.1103)
Grow		-0.0073	0.0286*
		(0.0148)	(0.0148)
Soe		-0.2392***	-0.2017***
		(0.0145)	(0.0159)
Dturn		0.1378***	0.2127***
		(0.0146)	(0.0143)
BM		-0.3915***	-0.3309***
		(0.0087)	(0.0087)
Board			-0.1649***
			(0.0396)
Indep			1.5792***
			(0.1449)
Dual			0.0727***
			(0.0162)
Top1			-1.2223***
			(0.0687)
Balance			-0.1329***
			(0.0165)
INST			1.6386***
			(0.0339)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	37791	37791	37791
R^2	0.0201	0.2718	0.3282

5.3. Mediation Model

As can be seen from table 4, (1) the uncertainty of fiscal policy will significantly increase the debt level of enterprises; (2) Under the uncertainty of fiscal policy, corporate liabilities have an adverse impact on enterprises, and the mediating effect of corporate liabilities between the

uncertainty of fiscal policy and enterprise value is significant; (3) The increase of fiscal policy uncertainty significantly reduces the book to market ratio; (4) The reduction of the book to market ratio significantly increases the enterprise value, and the uncertainty of fiscal policy will have a positive impact on the enterprise value through the book to market ratio; (5) The increase of fiscal policy uncertainty significantly reduces the size of enterprises; (6) The reduction of enterprise size significantly increases enterprise value, and the uncertainty of fiscal policy will have a positive impact on enterprise value through enterprise size.

Table 4: Intermediary effect.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Tobin	Lev	Tobin	BM	Tobin	Size	Tobin
LnFPUt-1	0.3312***	0.0110**	0.3473***	-.3778***	.1246***	-.1841***	.2329***
	(0.0274)	(0.0037)	(0.0269)	(.0203)	(.0252)	(.0221)	(.0248)
Lev			-1.4588***				
			(0.0426)				
BM					-.5471***		
					(.0072)		
Size							-.5342***
							(.0065)
_cons	2.9180***	-0.0368	2.8644***	-.2580*	2.7769***	16.5071***	11.7353***
	(0.1940)	(0.0260)	(0.1903)	(.1440)	(.1773)	(.1566)	(.2053)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	37791	37791	37791	37791	37791	37791	37791
F	351.12***	1009.02***	422.72***	588.10***	808.06***	1193.71***	883.69***
R^2	0.1334	0.3068	0.1664	0.2050	0.2762	0.3436	0.2945
R^2_a	0.1331	0.3065	0.1660	0.2047	0.2759	0.3433	0.2941
Bootstraptest		Z=-3.09 P=0.002		Z=-20.22 P=0.000		Z=-8.52 P=0.000	
		(-0.0264879 -0.0055767)		(.1878903 .2278586)		(.0758698 .1225487)	
IE/DE		4.62%		62.40%		42.2%	

6. Conclusion and Recommendations

Firstly, this paper regards fiscal policy as the external environment faced by corporate operations. Using non-financial companies listed on the A-share market in China as the sample, an intermediary effect model is constructed to study the impact and pathway of economic policy uncertainty on firm value. The research findings are as follows: (1) Fiscal policy uncertainty significantly increases firm value; (2) Asset-liability ratio significantly decreases firm value, indicating that under fiscal policy uncertainty, debt has a detrimental effect on firms, with an indirect effect of 4.62%; (3) Firm size and book-to-market ratio play an intermediary effect between fiscal policy uncertainty and firm value. Fiscal policy uncertainty has a positive impact on firm value through the book-to-market ratio, with intermediary effects of 42.2% and 62.40% respectively; (4) Overall, fiscal policy uncertainty has a positive effect on firm value. The enhancement of firm value through firm size and book-to-market ratio is greater than the reduction of firm value through debt.

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