

Research on the Influence of Macroeconomic Policy Uncertainty on Cash Dividend Level of Enterprises

-- Based on the Empirical Analysis of Listed Companies in China's Main Board and Small and Medium-Sized Board

Tingting Pan^{1, a, *}

¹College of Economics, Jinan University, Guangzhou 510632, China.

^aCorresponding author e-mail: ptt160114@163.com

Abstract

Based on the semi annual data of non-financial companies in China's main board and small and medium-sized board from 2009 to 2017, this paper constructs a fixed effect model to study how the uncertainty of macroeconomic policies affects the specific theoretical mechanism and economic consequences of cash dividend distribution. The results show that: (1) When the uncertainty of economic policy increases, enterprises will reduce the cash dividend; (2) the negative correlation between the uncertainty of economic policy and the cash dividend will increase with the decrease of equity concentration, the increase of financing constraints and the increase of entrepreneurs' confidence in the future economic development situation;(3) In addition, this paper also uses the analysis method of grouping and refining, and finds that when the uncertainty of economic policy increases, when the volatility of equity concentration is large, the enterprise has a strong inhibition on cash dividend distribution, reflecting the "interest embezzlement effect", when the volatility of equity concentration is small, the inhibition on cash dividend distribution is reduced, reflecting the "interest synergy effect"; through the economic policy It is found that the higher the uncertainty of economic policy is, the stronger the inhibition of cash dividend payout rate is.

Keywords

Economic policy uncertainty, cash dividends, equity concentration, financing constraints, entrepreneur confidence index.

1. INTRODUCTION

The uncertainty of economic policy refers to the uncertainty expectation of economic subjects on the possibility, specific time and implementation mode of the government to change the current economic policy (Gulen and Ion, 2016) [1]. In recent years, in order to promote economic development, the Chinese government has issued a series of policies to promote macroeconomic development. These policies play an important role in dealing with the fluctuation of economic situation and preventing the macro-economic recession, but at the same time, they bring great uncertainty impact to the development of micro enterprises.

At present, the existing literature not only studies the impact of economic policy uncertainty on economic fluctuation and economic growth from a macro perspective, but also analyzes from a micro perspective that economic policy uncertainty will not only affect stock prices (pastor l et al [2], 2012) and investor behavior (Julio B et al [3], 2017), but also the capital structure allocation of enterprises (Guangli Z et al Al [4]), investment (Wensheng K et al [5], 2014),

financing (Lin Jianhao, Ying mengke [6], 2016) and cash holding behavior (Li Fengyu, Shi Yongdong [7], 2016) have an impact. As one of the three major financial decisions of an enterprise, the cash dividend policy will not only affect the asset allocation and profit distribution of the company, but also play an important role in protecting the interests of investors and stabilizing investor confidence (Zhu Jigao and Wang chunfei [8], 2013), and become an important tool to maintain the stability of the capital market. Therefore, the research on the uncertainty of economic policy on the cash dividend distribution Bank of an enterprise It is particularly important to see what kind of impact it will have.

Economic policy uncertainty has always been a hot topic in financial research. At present, there are two mainstream theories in this field: Agency Theory (Jensen [10], 1986) holds that shareholders can reduce managers' holding of free cash flow by increasing dividend distribution, so as to reduce internal principal-agent problems (LA porta et al., 2000). In countries and regions with imperfect systems and supervision mechanisms, large shareholders often use control rights to transfer interests and then infringe on the interests of small and medium-sized shareholders (LA porta et al., 2002), including resource encroachment in the form of cash dividends (Lee and Xiao, 2003). Another point of view is based on the signaling theory (Miller and rock [9], 1985), which holds that there is information asymmetry between the management and the investors. The management transmits the information of high profit to the market by increasing dividend, reducing the signal of dividend transmission profit margin, and developing the company's characteristic factors (Jagannathan et al [11], 2000), and the ownership structure(Wei Zhihua [12], et al., 2012), marketization process (Lei Guangyong and Liu Huilong [13], 2007) and financial crisis (Zhu Jigao and Wang chunfei [8], 2013) will affect corporate dividend policy. However, there are few studies on how the uncertainty of economic policy affects the company's cash dividend policy, the specific mechanism and the resulting economic consequences.

This paper uses the "China economic policy uncertainty index" jointly issued by Stanford University and the University of Chicago to measure the economic policy uncertainty, and studies the specific mechanism of the impact of the economic policy uncertainty on the cash holding level of the company, which will not only be conducive to the establishment of an analysis framework of the impact of macroeconomic policy uncertainty on the behavior of micro enterprises, but also from the micro perspective It is of great significance to formulate more scientific macro-economic policies and realize sound and rapid growth of macro-economy.

Based on the semi-annual data of non-financial listed companies in China's main board and small and medium-sized board from 2009 to 2017, this paper studies the specific mechanism and economic consequences of the impact of macroeconomic policy uncertainty on the company's cash dividend distribution behavior. The contributions of this paper are as follows:

(1) This paper uses the uncertainty index of China's economic policy issued jointly by Stanford University and the University of Chicago to measure the uncertainty of China's economic policy, and introduces the index of entrepreneur confidence to measure whether entrepreneurs are optimistic or pessimistic when the economic policy changes are uncertain, which is conducive to refining the regression effect of the model.

(2) At present, the impact of economic policy uncertainty on enterprises is mainly focused on the research of enterprise investment and cash holding. A few literatures have studied the impact of policy uncertainty factors such as official changes on dividend policy, but no research has used the index of economic policy uncertainty to study its impact on the company's cash dividend payout rate. This paper provides a reference for the research in this field A new way of thinking.

(3) This paper calculates the standard deviation of the top ten shareholders' shareholding ratio fluctuation of each listed company from 2009 to 2017, and groups them according to the

median size of their volatility. It is concluded that the company with the larger fluctuation of shareholding ratio is more inclined to issue less cash shares when the uncertainty of economic policy rises, so as to cope with the possible adverse situation in the future, which reflects the "interest encroachment effect"; while in the The group with low volatility of equity has a relatively low inhibition effect on cash dividend distribution, reflecting "interest synergy effect". By grouping the economic policy uncertainty index according to the median size, when the economic policy uncertainty is high, the coefficient of the economic policy uncertainty index is significantly negative and the absolute value is large, which indicates that when the economic policy uncertainty is high, it has a greater impact on the company's cash dividend payment rate; when the economic policy uncertainty is low, the economic policy uncertainty is low The absolute value of the index coefficient is small, which shows that the negative effect on the company's cash dividend payout rate is small when the economic policy uncertainty is low.

The full text is divided into five parts: the first part is the introduction; the second part is the literature review; the third part is the research scheme design, including sample selection, data source, premise hypothesis and theoretical model setting; the fourth part is the empirical results analysis and robustness test; the fifth part is the research conclusion and deficiency of this paper.

2. LITERATURE REVIEW

From the overall macro background, China's current political system and the current stage of economic development are conducive to studying the impact of economic policy uncertainty on corporate cash dividend policy (Li Fengyu and Shi Yongdong, 2016[14]). On the one hand, under the current political system of China, the government intervenes seriously, the economic policy changes are relatively frequent, and the political connection is relatively large, which makes the uncertainty of economic policy faced by Chinese enterprises significantly higher than that of enterprises in mature market economies of developed countries; On the other hand, China's economy is currently in the transition period of socialist market economy, and the business decisions of enterprises are still highly dependent on the economic policies of the government. The property rights protection system and market mechanism are poor, and the auditor's independence is weak (Piotroski and Wong, 2012[15]), which determines that the sensitivity of business decision-making of Chinese enterprises to economic policy uncertainty is higher than that of enterprises in mature market economies of developed countries. In addition, in the transition period of China's securities market, there are market defects in legal system and regulatory power. Any impact on the economy, including real impact and monetary impact, will be magnified due to the existence of market defects (Luo Qi and Zhang Kezhong, In 2007 and 2015[16]), the stock market disaster in China made the government increase its intervention in the financial market and the real economy. In the face of political uncertainty caused by frequent adjustment of economic policies, micro subjects must adjust their business strategies and behaviors accordingly. Therefore, based on China's special institutional environment, it is of great significance to study the mechanism and economic consequences of the uncertainty of economic policy affecting the company's cash dividend policy.

After the financial crisis, the academia generally believes that the uncertainty of economic policy is one of the main reasons that hinder the recovery of the world economy, and the degree of government intervention in the economy is significantly increased compared with that before the crisis, so the research in this field has gradually become a research hotspot. It is found that the increase of economic policy uncertainty will not only increase the risk premium, volatility range and volatility linkage of financial assets (pastor and Veronesi., 2013[17]), but also affect the business decision-making of enterprises and inhibit enterprise investment (Gulen and ion, 2012[18]), increased cash holdings of enterprises (Wang Hongjian, Li Qingyuan and Xing Fei

[20], 2014; Li Fengyu and Shi Yongdong [21], 2016), and reduced cash dividend distribution (Huang El Al., 2013[22]). In terms of the indicators to measure the uncertainty of economic policy, foreign studies have mainly used the government transition (Julio and Yook., 2012[19]), the political territory (Kim et al., 201[23]) and the economic policy uncertainty index (Gulen and ion., 2012; pastor and Veronesi, 2013[24]) jointly issued by Stanford University and the University of Chicago as the indicators to measure the economic uncertainty index.

With the development of the research on cash dividend policy, some scholars focus on the financial characteristics of the company at present. For example, Baker et al. (2001) thinks that the main influencing factors of the choice of cash dividend policy are the situation of dividend payment in the past, the stability of profit and the current and expected return level French (2001) thought that company size, profitability and growth were the three most important factors when he investigated American listed companies. Allen and Michaely (2002) believed that in addition to the size, profitability and growth of the company, the debt ratio also has an important impact on the dividend distribution policy. Another part of scholars based on corporate governance, such as Shleifer and Vishny (1986), based on the agency problem between large shareholders and small shareholders, use the cross period model to prove the optimal choice of small shareholders for dividend policy and the compensation effect of dividends on large shareholders. Xiao Shufang and Yu Mengying (2012) studied the relationship between equity incentive and dividend policy. The results show that the announcement of equity incentive plan of listed companies has a positive impact on the level of share transfer and cash dividend. Share transfer is a tool for management to maximize the equity incentive income. As the current research on the specific influence mechanism of variables in the regression model is not deep enough, this paper will refine the specific influence of each factor on the cash dividend payment rate by grouping.

3. RESEARCH SCHEME DESIGN

3.1. Sample Selection and Data Source

The data of this paper are from Guotai'an database and the official website of the People's Bank of China. The calculation of the uncertainty index of economic policy is based on Baker et al (2013), measured by the monthly China economic policy uncertainty index jointly released by Stanford University and the University of Chicago, the index has better time variability and continuity, and can more accurately reflect the short-term and medium-term changes of economic policy uncertainty. The index takes the South China Morning Post (SCMP), the largest English language newspaper in Hong Kong, as the analysis object, to identify the articles about China's economic policy uncertainty published by the newspaper every month, divide the number of articles identified by the total number of articles published in that month, and finally get the monthly China's economic policy uncertainty index.

Because this paper uses semi annual data, and the economic policy uncertainty index is monthly data, this paper weighted the six-month China's economic policy uncertainty index by time. The closer the time is to the statistical option, the greater the weight is. The calculation results are taken as the measurement indicators of semi annual China's economic policy uncertainty. The specific formula is as follows:

$$EPU = \frac{1}{21} EPU_{m-5} + \frac{2}{21} EPU_{m-4} + \frac{3}{21} EPU_{m-3} + \frac{4}{21} EPU_{m-2} + \frac{5}{21} EPU_{m-1} + \frac{6}{21} EPU_m \quad (1)$$

We choose the semi-annual data of Listed Companies in Shanghai and Shenzhen main boards and small and medium-sized boards from January 2009 to December 2017 as the initial samples. The reason why we choose the semi annual data is that the dividend will be paid in the middle

of the year and the end of the year. The reason why we choose the semi compulsory dividend policy in 2008 is to control the influence of this factor on the cash dividend. The initial samples were processed as follows:

- (1) Remove the listed companies whose financial or other conditions are abnormal by ST and PT;
- (2) The sample of Listed Companies in all financial and insurance industries should be eliminated;
- (3) Delete the company with long-term loss and no dividend;
- (4) In order to eliminate the influence of outliers, winsorize processing was carried out for all the relevant continuity variables.

Finally, 1301 companies were selected as research samples.

3.2. Premise Assumption and Theoretical Model Setting

3.2.1 assumptions

As a systematic risk faced by enterprises, the uncertainty of economic policy will generally affect the behavior of dividend distribution. The uncertainty of economic policy mainly affects the cash dividend distribution behavior of enterprises through two channels: one is the preventive motivation channel. When the uncertainty of economic policy increases, enterprises tend to increase cash holding and reduce cash dividend distribution in order to avoid possible financial difficulties (Han s and Qi j [22], 2007). The second is the agency cost channel. When the uncertainty of economic policies faced by enterprises increases, the difficulty of shareholders' supervision over management will increase, which increases the risk of information asymmetry between shareholders and management (Han Liyan and Liu Boyan [23], 2010). The rise of agency cost makes self-interest managers reduce cash dividend distribution and retain more free cash flow to empty enterprises Or to build an enterprise Empire (Wang Hongjian, Li Qingyuan and Xing Fei [20], 2014). It can be seen that the increase of uncertainty of economic policy will lead to the decrease of cash dividend distribution in both preventive motivation channel and agency cost channel. Based on this, this paper proposes the following assumptions:

H1 As the uncertainty of economic policy increases, the company will reduce the cash dividend.

According to the management opportunism hypothesis based on the free cash flow hypothesis, speculative managers may keep cash in the company for additional consumption, power construction and some investment projects that can improve the personal reputation of managers but are unnecessary for the interests of shareholders (Jensen, 1986[24]). China's investor protection laws are not perfect, corporate governance is still to be improved, the absence of "owners" of state-owned enterprises, and the weakness of the supervision and balance mechanism of private enterprises, all these make the opportunistic behavior of management seeking for private interests more serious. It is found that with the increase of executive power, management compensation increases (Quan Xiaofeng et al., 2010[25]), on-the-job consumption increases (Lu Rui et al., 2008), cash held increases (Yang Jingyan et al., 2012[26]), and investment efficiency of the company decreases (Zhao Chunxiang and Zhang Dunli [27], 2013) This will undoubtedly squeeze the company's cash used for dividend; the ineffective rate behavior caused by the concentration of executive power will also reduce the company's performance and affect the future dividend ability. In the face of this situation, ownership concentration has become an effective means to restrict the self-interest behavior of enterprise managers. When the stock rights of enterprises are concentrated in the hands of a few major shareholders, they have more motivation and ability to supervise the management of enterprises, so as to effectively restrain the behavior of too little cash dividend distribution

caused by the uncertainty of economic policies. Based on this, this paper proposes the following assumptions:

H2 The negative correlation between the uncertainty of economic policy and the behavior of cash dividend distribution weakens with the increase of ownership concentration.

The theory of Priority Financing indicates that the degree of information asymmetry will increase the cost of external financing, so the company financing is generally internal financing, followed by debt financing and equity financing (Myers and Majluf, 1984[29]). This financing sequence affects the behavior of cash holding and cash dividend payment. The research shows that when the uncertainty of economic policy increases, the behavior of increasing cash holdings is more obvious in the enterprises with more severe financing constraints (Li Fengyu and Shi Yongdong, 2016[30]). When other conditions are certain, companies with lower external financing costs (lower financing constraints) do not need to increase their cash holdings when economic uncertainty is rising, so they can distribute more internal funds as cash dividends. However, companies with high external financing costs (high financing constraints) can't obtain enough funds through external financing to realize the optimal investment, so they hold more cash for preventive action opportunities, thus paying lower level dividends or even not (Quan Yi, Liang Shangkun and Fu Yuxiang [28], 2016). Based on this, this paper proposes the following assumptions:

H3 The negative correlation between the uncertainty of economic policy and the distribution of cash dividends increases with the increase of financing constraints.

Entrepreneurs' recognition of the value of enterprises also determines their preferred financing methods. Hackbarth (2002) put forward the theory of pre entrustment. He believed that optimistic entrepreneurs tend to use bond investment, so irrational managers endogenously reduce the conflict between managers and shareholders. Barros and Silveira (2007) [31] judge the confidence of entrepreneurs by distinguishing whether the company's managers are founders. They believe that the debt ratio of companies with founders as managers is much higher than that of external employees. There are few literatures about the impact of entrepreneurial behavior on capital structure in China, but some scholars began to study in this field. Domestic scholars such as Hua Guiru, Liu Zhiyuan, Xu Qian (2011)[32] put investor sentiment into the research of enterprise behavior, and they believed that investor sentiment is the driving force of enterprise investment, while manager confidence plays an intermediary role. They believe that managers' confidence can be restored through reasonable economic policies to avoid the negative effects of the economic crisis on the real economy, and when investors are in high spirits, it is necessary to issue an increase in holdings to cool down managers. Korean Gao and Hu (2016)[33] use empirical test to find that entrepreneur confidence has a significant role in promoting fixed asset investment of enterprises, and improving entrepreneur confidence will reduce the inhibition of economic uncertainty. Based on the cost-benefit analysis, when the direction of economic uncertainty is positive expectation, the investment expenditure may increase with the increase of uncertainty, and the increase of investment in the current period may mean the decrease of cash dividends used for distribution in the current period. Based on this, this paper puts forward the following assumptions:

The negative correlation between the uncertainty of H4 economic policy and the behavior of cash dividend distribution increases with the improvement of entrepreneurs' confidence in the future economic situation.

3.2.2 theoretical model setting

According to the research hypothesis of this paper, the cash holding model of Wang Hongjian, Li Qingyuan and Xing Fei (2014)[34] is extended to the analysis framework of economic policy uncertainty, and the following regression equation is used to investigate the impact of economic policy uncertainty on cash dividend distribution of enterprises. In order to alleviate the

endogenous problem of the model caused by missing variables, the lag dependent variables are introduced on the right side of the model. The specific regression model is as follows:

$$\begin{aligned} div_{i,t} = & \beta_0 + \beta_1 epu_{t-1} + \beta_2 tq_{i,t-1} + \beta_3 size_{i,t-1} + \beta_4 age_{i,t} + \\ & \beta_5 fcf_{i,t-1} + \beta_6 invest_{i,t-1} + \beta_7 lev_{i,t-1} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

Table 1. Definition of main variables

variables	Variable name	Variable definition
Explained variable	Payout ratio($div_{i,t}$)	Dividend / net income per share
Explanatory variable	Economic policy uncertainty index(epu_{t-1})	Baker et al.(2013) Constructed uncertainty index of economic policy
Moderator variable	Equity concentration($contr_{i,t}$)	Sum of top ten shareholders' shares
	Degree of financing constraint ($sa_{i,t}$)	$-0.737*size+0.043*size^2-0.04*age^2$
	Entrepreneur confidence index($eci_{i,t}$)	The entrepreneur confidence index published on the official website of the people's Bank of China on a quarterly basis, weighted by time
control variable	Tobin Q($tq_{i,t-1}$)	(current market value of the company + non current market value of the company + book value of liabilities) / (book value of assets)
	company size($size_{i,t-1}$)	Natural logarithm of total assets
	Years of listing($age_{i,t-1}$)	Difference between the year of report period and the year of listing of the company
	Operating cash flow per share($fcf_{i,t-1}$)	Operating cash flow / total equity
	Investment demand($invest_{i,t-1}$)	Investment activity expenditure / total assets
	financial leverage($lev_{i,t-1}$)	Total liabilities / total book value of assets

In the above regression equation, the explained variable cash dividend payout ($div_{i,t}$) is the ratio of dividend per share to net income per share. epu_{t-1} is for China's economic policy uncertainty index, considering that the current business decision-making often needs to rely on the information of the previous period to make a judgment, but also can reduce the potential endogenous problems, so the economic policy uncertainty index takes the lag value of the first period for regression. β_1 as the main test coefficient, it reflects the impact of economic policy uncertainty on the cash dividend payment behavior of enterprises, and expects it to be significantly negative, which means that the higher the uncertainty of economic policy, the lower the cash dividend payment rate of enterprises. According to the results of Hausmann test, the fixed effect model is used to estimate the dynamic panel model (1). There is no time dummy

variable in the model, the purpose of which is to avoid the mutual offset between time dummy variable and economic policy uncertainty index.

Among them, Tobin Q ($tq_{i,t-1}$), company scale ($size_{i,t-1}$), number of listed years ($age_{i,t-1}$), operating cash flow per share ($fcf_{i,t-1}$), investment demand ($invest_{i,t-1}$), financial leverage ($lev_{i,t-1}$) and other specific definitions are shown in Table 1.

In order to further test the above three hypotheses, this paper introduces the adjustment variable and its cross multiplication term with the economic policy uncertainty index on the basis of the model (1). The specific model is as follows:

$$\begin{aligned} div_{i,t} = & \beta_0 + \beta_1 epu_{t-1} + \beta_2 tq_{i,t-1} + \beta_3 size_{i,t-1} + \beta_4 age_{i,t} + \\ & \beta_5 fcf_{i,t-1} + \beta_6 invest_{i,t-1} + \beta_7 lev_{i,t-1} + \beta_8 adj_{i,t} + \beta_9 epu_{t-1} * adj_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (3)$$

Among them are the adjustment variables of the regression model, which respectively represent the equity concentration ($contr_{i,t}$) in the hypothesis, the financing constraint ($sa_{i,t}$) and the entrepreneur confidence index ($eci_{i,t}$). See Table 1 for the specific definitions.

4. EMPIRICAL RESULTS AND ANALYSIS

4.1. Descriptive Statistics

Table 2 shows the statistical analysis of the main variables after 1% tail reduction. The results show that the mean value of dependent variable dividend payout rate (0.1136292) is greater than the median value (0), indicating that the overall cash dividend payout level of Listed Companies in China is relatively high, which may be related to the semi compulsory dividend policy implemented after 2008 in China. The mean value of economic policy uncertainty index (193.3841) is larger than the median (144.0917), which means that the level of China's economic policy uncertainty is generally high. The mean value (54.7421) of equity concentration ($contr_{i,t}$) is basically the same as the median value (54.8398), which is basically normal distribution. The mean value (4.0304) and median value (4.0347) of financing constraint ($sa_{i,t}$) are close, and they are basically normal distribution.

Figure 1 shows the trend of China's economic policy uncertainty index in the sample period. Figure 1 shows that China's economic policy uncertainty index rose sharply around 2011 and 2015[35], which is mainly due to the negative effects of the central government's "four trillion" investment plan in 2011, the sharp rise in prices, and the obvious strengthening of economic uncertainty in the future. In 2015, China's stock market saw a bull market rise, followed by a sharp fall, and the Shanghai index fell from more than 5000 points Breaking 3000, the huge fluctuation of the stock market affects the whole national economy, and also brings great uncertainty to investors. Generally speaking, the uncertainty of China's economic policy presents high volatility between 2009 and 17 years.

Figure 1 shows the relationship between China's economic policy uncertainty index and the change of cash dividend distribution level of listed companies. It can be seen that the trend of economic policy uncertainty and the change of cash dividend distribution level of listed companies shows obvious synchronization, indicating that the economic policy uncertainty will have an important impact on the cash dividend distribution level of micro enterprises. Therefore, how the uncertainty of economic policy affects the level of cash dividend distribution and its economic consequences is a very worthy of study.

Table 2. Descriptive statistics of main variables

variable	mean value	Median	standard deviation	minimum value	maximum value	Observation number
$div_{i,t}$	0.1242142	0	0.2211586	0	1.1538	N = 18666
epu_{t-1}	194.0709	144.0917	112.2882	78.04266	457.5927	N = 18666
$size_{i,t-1}$	8.690078	8.577078	1.366336	5.422809	12.48237	N = 18666
$fcf_{i,t-1}$	0.2758239	0.18155	0.8293757	-2.5634	3.4657	N = 18666
$age_{i,t-1}$	15.52523	15.5	4.428717	5	25	N = 18666
$tq_{i,t-1}$	2.23209	1.7224	1.584456	0.8703	10.5268	N = 18664
$invest_{i,t-1}$	0.0886769	0.0428498	0.1398287	0	0.8933467	N = 18666
$contr_{i,t}$	53.85187	53.67585	16.02769	20.8966	90.6053	N = 18666
$eci_{i,t}$	65.09333	65.39999	9.204424	47.23	79.03	N = 18666
$sa_{i,t}$	4.056569	4.06235	0.24209	3.26	4.6799	N = 18666
$lev_{i,t-1}$	0.5193969	0.5289	0.1991307	0.0842	1.003	N = 18663

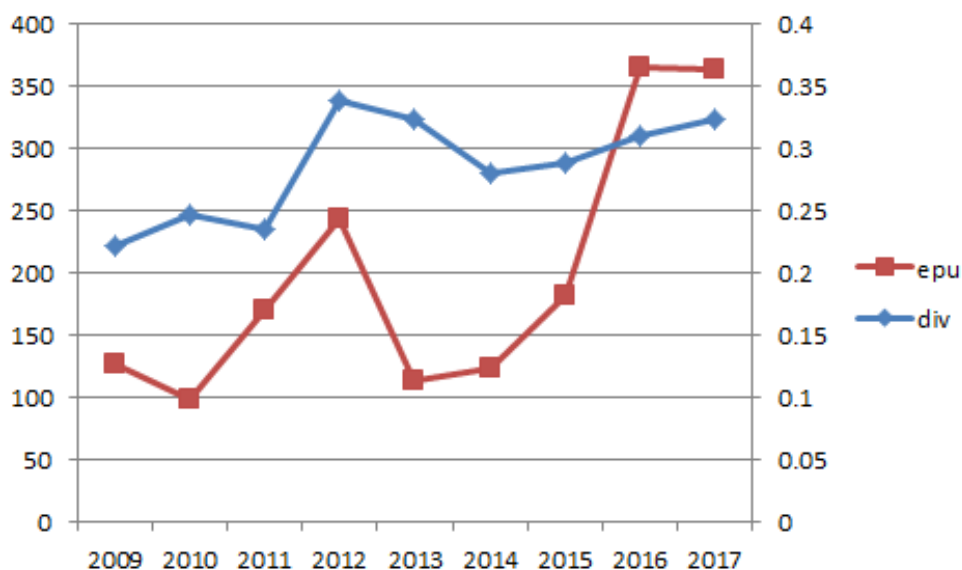


Figure 1. trend of China's economic policy uncertainty index

(data sources: http://www.Policyuncertainty.com/China_monthly.html)

4.2. Unit Root Inspection

In the empirical study, Stata 12.0 is used for panel data processing. Firstly, we test the stability of each variable. According to the results of unit root test, all variables used in this paper are stable in the sample period.

Table 3. Stability test of main variables

variable	P value	Is it smooth?
$div_{i,t}$	0.0000	smooth
$epu_{i,t-1}$	0.0000	smooth
$contr_{i,t}$	0.0000	smooth
$sa_{i,t}$	0.0000	smooth
$eci_{i,t}$	0.0000	smooth
$tq_{i,t-1}$	0.0000	smooth
$size_{i,t-1}$	0.0000	smooth
$age_{i,t-1}$	0.0000	smooth
$fcf_{i,t-1}$	0.0000	smooth
$invest_{i,t-1}$	0.0000	smooth
$lev_{i,t-1}$	0.0000	smooth

4.3. Empirical Results Analysis

Column 2 of Table 4 shows the relationship between the uncertainty of economic policy and the payment rate of cash dividends issued by enterprises in 2009-2017. The regression results show that there is a significant negative correlation between the uncertainty of economic policy and the payment rate of cash dividends. The regression coefficient of the index lagging behind the first stage of economic policy uncertainty is -0.0001209, which is significantly negative at the level of 1%, indicating that when the uncertainty of economic policy increases, enterprises tend to be more cautious and tend to hold more cash and reduce cash dividend distribution, which shows a negative correlation. This regression result supports hypothesis 1. In addition, from the perspective of control variables, the larger the company scale, the longer the listing period, the higher the cash dividend payout rate; the greater the cash flow per share of operation, the higher the level of financial leverage, the higher the actual new investment rate, the greater the Tobin Q value, the better the growth opportunity of the company, and the lower the cash dividend payout level[36].

The regression results in column 3 of Table 4 show that the regression coefficient of the economic policy uncertainty index is still significantly negative at the significance level of 10% after the introduction of equity concentration and its cross multiplication with the economic policy uncertainty index. The cross product of equity concentration and economic policy uncertainty index is significantly positive at the 1% significance level, which indicates that the increase of equity concentration can inhibit the behavior of enterprises to reduce cash dividends when the uncertainty of economic policy increases, and the negative correlation between economic policy uncertainty and cash dividend behavior of enterprises decreases with the increase of equity concentration. The results support hypothesis 2.

The regression results in column 4 of Table 4 show that the regression coefficient of the economic policy uncertainty index is significantly negative at the level of 10% after the introduction of the financing constraint index and its multiplier with the economic policy uncertainty index. The regression coefficient of the multiplier of the financial constraint index and the economic policy uncertainty index is significantly negative at the significance level of 1%, which indicates the negative correlation between the economic policy uncertainty and the

cash dividend distribution behavior of the enterprise increases with the increase of the financing constraint faced by the enterprise, which supports hypothesis 3.

Table 4. Regression analysis of the impact of economic policy uncertainty on the behavior of cash dividend distribution

variable	Regression analysis results			
	Model 1	Model 2	Model 3	Model 4
<i>c</i>	-0.0503426* (-1.8)	-0.0498999 (-0.54)	-0.049195 (-1.53)	0.4105812*** (6.9)
<i>epu_{t-1}</i>	-0.0001433*** (-8.01)	-0.0005963** (-2.31)	-0.0002775*** (-5.21)	-0.0019506*** (-11.67)
<i>age_{i,t-1}</i>	0.0105558*** (10.14)	0.009571*** (6.8)	0.0105312*** (10.09)	0.0049254*** (3.25)
<i>fcf_{i,t-1}</i>	-0.0345963*** (-18.01)	-0.0345814*** (-18)	-0.0347598*** (-18.1)	-0.0334524*** (-17.45)
<i>invest_{i,t-1}</i>	-0.1159148*** (-12.34)	-0.116749*** (-12.41)	-0.1155379*** (-12.3)	-0.1117771*** (-11.93)
<i>size_{i,t-1}</i>	0.0105993*** (2.9)	0.0092737** (2.32)	0.0075031** (2.01)	0.0097302*** (2.67)
<i>tq_{i,t-1}</i>	0.0008971** (2.24)	0.0008733** (2.17)	0.000792** (1.97)	0.0010012** (2.5)
<i>tr_{i,t-1}</i>	-0.0002973*** (-2.93)	-0.0002769*** (-2.72)	-0.0001807 (-1.63)	-0.000361*** (-3.56)
<i>lev_{i,t-1}</i>	-0.0040803** (-1.99)	-0.0038175* (-1.85)	-0.0037173* (-1.81)	-0.0044477** (-2.17)
<i>contr_{i,1}</i>		0.0003102 (1.03)		
<i>epu*contr</i>		2.43E-06*** (2.66)		
<i>sa_{i,t}</i>			0.0061804 (0.22)	
<i>epu*sa</i>			-0.0001092* (1.76)	
<i>eci_{i,t}</i>				-0.0055868*** (-9.8)
<i>epu*eci</i>				0.0000283*** (10.92)

Note: T statistics are in brackets, ***, **, * are significant at the level of 1%, 5% and 10%, respectively. The value in brackets is the corresponding t value under the error of clustering robust standard. All explanatory variables and control variables lag the explanatory variables for one period.

The regression results in column 5 of Table 4 show that after the introduction of the entrepreneur confidence index and its cross multiplication with the economic policy uncertainty index, the regression coefficient of the economic policy uncertainty index is significantly negative at the significance level of 1%, and the cross multiplication coefficient of the entrepreneur confidence index and the economic policy uncertainty index is significantly positive at the level of 1%, indicating the economic policy uncertainty and the enterprise faction. The negative correlation of cash dividend behavior weakens with the improvement of entrepreneurs' confidence in the future economic situation, which supports Hypothesis 4.

4.4. Robustness Analysis

4.4.1 discussion on Endogeneity

As the economic policy belongs to the macro policy at the national level, it is difficult for the micro behavior of the individual enterprise to affect all the macro policies, so there is almost no reverse causal relationship between the cash dividend distribution behavior of the enterprise and the uncertainty of the economic policy. In addition, the empirical study adopts the method that all explanatory variables and control variables lag one period, which can effectively avoid the possible reverse causality. At the same time, in the empirical study, the fixed effect of the establishment period of enterprises is strictly controlled, which effectively avoids the endogenous problems caused by missing variables[37].

In order to eliminate the possible influence of the correlation between the pre and post periods of the explained variables, this paper, referring to Fang et al. (2015)[38], adds the lag term of the explained variables into the regression equation, and finds that the significance of the explained variables remains unchanged.

In addition, although there is almost no reverse causal relationship between macroeconomic policy and cash dividend distribution behavior, in order to further verify the robustness of empirical results, this paper uses the U.S. economic policy uncertainty index as a tool variable of China's economic policy uncertainty index to verify the results. The empirical results show that the effect of EPU is still significant.

4.4.2 re-measurement of economic policy uncertainty index

The economic policy uncertainty index constructed by Baker et al. (2016) is a monthly index. In the empirical process of this paper, the semi-annual data of the cash dividend payment rate of the explained variable is used, so the monthly index needs to be weighted to get the semi-annual data to measure the uncertainty of China's economic policy. In addition to using weighted average method to calculate the semi annual economic policy uncertainty index, this paper also uses arithmetic average and median value to measure the economic policy uncertainty, and repeats the above empirical research process. The results show that the effects of explanatory variables and important control variables on the explanatory variables are consistent with the above conclusions.

In addition, the uncertainty from the macro-economy or the enterprise's own operation level will also affect the enterprise's decision-making. In order to verify whether the previous research only reflects the influence of the uncertain factors of the government's economic policies, this paper uses the existing research [29] for reference, and uses the conditional variance of the growth rate of industrial added value to measure the uncertainty of the macro-economy level faced by the enterprise, and the company's business performance waves. The dynamic rate index is used to measure the uncertainty of the enterprise's own management

level, and it is used as the control variable in the regression model. The semi annual sales revenue standard deviation of the company from 2009 to 2017 is used to measure the operating performance volatility. The specific calculation formula is as follows:

$$\sigma(Y_{i,k}) = \frac{\sqrt{\sum_{i=1}^{17} \frac{(Y_{i,k} - \bar{Y}_i)^2}{18}}}{\bar{Y}_i} \quad (4)$$

Among them, it represents the operating revenue of the company i in period k , which is the average operating revenue of the company i in 18 half years. In this paper, the industry average value of the above indicators is used to adjust the indicator value in order to eliminate the influence of industry factors. The regression results show that, after controlling the macroeconomic uncertainty index and the enterprise's own operation uncertainty index respectively, the empirical results of the previous paper are still valid, which shows that the previous research results only reflect the impact of the economic policy uncertainty on the enterprise's cash dividend distribution.

4.4.3 impact of macroeconomic factors

In the previous panel regression model, the factors at the enterprise level are mainly used as control variables, but the macroeconomic factors are not controlled. The omission of some important macroeconomic variables may make the regression model face endogenous problems. Therefore, in the regression model, the year-on-year growth rate of GDP, macroeconomic leading index and macro-economic prosperity index are introduced as the control variables to reflect the macro-economic factors and analyze the impact on the dividend distribution of enterprises. The unit root test of these three variables shows that the macroeconomic leading index and macroeconomic prosperity index are stable in the sample period, and the annual year-on-year growth rate of GDP is single and integral in order 1, so the regression model uses the first order difference sub item of this index. Using the same method for regression, the results show that after controlling the above macroeconomic factors respectively, the above conclusions are still valid.

4.5. Further Study

In order to further study the impact of equity concentration on the cash dividend payout of companies over the years, we will first calculate the variance of each company in the sample period, and then divide it into two sub samples of high volatility and low volatility of equity concentration according to the median of variance, and then multiply them with the index of economic policy uncertainty, and then regression the model. The third and fourth columns of table 5 show that in the group with large fluctuation of equity concentration, the higher the equity concentration, the less the cash dividend will be paid, which reflects the "interest encroachment effect". In the external face, the uncertainty of economic policy is high, while the internal equity change is large, the large shareholders and the management implement opportunistic behavior to provide convenience, so as to make it more convenient to empty the company. The company's assets seek private interests and damage the company's value, which is more likely to pay less cash dividends and leave more money for its own use. However, the higher the equity concentration is, the higher the cash dividends are, which reflects the "benefit synergy effect"[40]. When the external economic policy uncertainty is high, and the internal equity change is small, it means that the interest level's The relationship is relatively stable, so it is difficult for the major shareholders or management to implement opportunistic behavior, so it is difficult to occupy the company's cash assets and damage the company's value, and more likely to pay more cash dividends to cause investors.

The columns 4 and 5 in Table 5 are divided according to the median of the economic policy uncertainty index and regressed respectively. The results show that in the group with high economic policy uncertainty, the regression results of all variables in the model are relatively significant, and the coefficient of the economic policy uncertainty index is significantly negative and the absolute value is large, indicating that the cash shares of the company are affected by high economic policy uncertainty. When the uncertainty of economic policy is low, the absolute value of the coefficient of the uncertainty index of economic policy is small, which shows that the negative effect of the uncertainty index of economic policy on the payment rate of cash dividends is small.

Table 5. Further analysis of the impact of economic policy uncertainty on cash dividend distribution behavior of enterprises

	Volatility of equity concentration		Uncertainty degree of economic policy	
	large	Small	large	Small
<i>c</i>	0.0826599 (0.63)	4.00E-01** (2.35)	0.3402483*** (3.54)	0.2421694 (0.8)
<i>epu_{t-1}</i>	-0.0002647*** (-2.97)	-0.000356*** (-5.71)	-0.0001355*** (-2.73)	-0.0013063** (-2.08)
<i>age_{i,t}</i>	0.0026492 (0.54)	0.0083247** (2.41)	-0.0112451*** (-3.37)	-0.0029274 (-0.37)
<i>fcf_{i,t-1}</i>	-0.0499674*** (-3)	-0.0876273*** (-9.06)	0.0316093*** (3.46)	0.0471592** (1.99)
<i>invest_{i,t}</i>	-0.3387463*** (-3.84)	-0.6061425*** (-7.62)	0.11586** (2.23)	0.2008953 (0.98)
<i>size_{i,t-1}</i>	0.0186229 (1.01)	-0.0107169 (-0.54)	-0.0108673 (-0.83)	-0.016702 (-0.46)
<i>tq_{i,t-1}</i>	-0.0151885* (-1.78)	-0.0473726*** (-5.89)	-0.0250061*** (-3.48)	0.0044195 (0.27)
<i>lev_{i,t-1}</i>	-0.1311407* (-1.89)	-0.3093248*** (-4.52)	0.0170313 (0.32)	-0.0077246 (-0.06)
<i>contr_{i,t}</i>	-0.000301** (-2.37)	0.0012197** (2.77)		
<i>epu_t * contr_{i,t}</i>	6.34E-06*** (3.99)	5.96E-06*** (5.54)		
<i>div_{i,t} * epu_{i,t}</i>			0.0044524*** (55.53)	0.0172633*** (24.43)

Note: T statistics are in brackets, ***, **, * are significant at the level of 1%, 5% and 10%, respectively. The value in brackets is the corresponding t value under the error of clustering robust standard. All explanatory variables and control variables lag the explanatory variables for one period.

5. CONCLUSION

This paper studies the impact of economic policy uncertainty on the behavior of cash dividend distribution, which is more significant when the economic policy uncertainty is high. It is found that when the economic policy uncertainty is rising, enterprises will reduce the cash dividend distribution, and this behavior is more obvious when the ownership concentration is low, the financing constraints are more serious, and entrepreneurs are more optimistic about the future economy. Moreover, when the volatility of equity concentration is high, it is shown as "interest encroachment effect", which will reduce cash dividend distribution; when the volatility of equity concentration is low, it is shown as "interest synergy effect", which will increase cash dividend distribution.

Although the decrease of cash dividend distribution caused by the increase of economic policy uncertainty may be a rational choice for enterprises, it will damage the interests of long-term investors, which is not conducive to improving the efficiency of resource allocation of the whole society. At present, expanding the channels of property income is an important measure to promote the fairness of income distribution, and the distribution of cash dividends is of great significance to improve the proportion of property income in national income[41]. Therefore, when the government introduces policies to stimulate the economy, it should also pay attention to the possible negative effects of the uncertainty of economic policies caused by frequent changes of economic policies. At the same time, the government should play the decisive role of the market in the allocation of resources, reduce the excessive dependence of enterprises on the government's economic policies, and enhance the ability of enterprises to defend risks, so as to promote the sustainable development of the economy.

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