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China's Economic Policy Uncertainty and China Commodity Futures Company Performance

Guoge Liu

School of Economics and Management, South China Agricultural University, Guangzhou 510042, China

Abstract: Under the background of the innovation of the futures market, the mixed operation of the capital market and the liberalization of the financial market, China's futures companies are faced with rare opportunities for development, as well as severe difficulties and challenges. Based on the theoretical model and analysis, this paper discusses the impact of economic policy uncertainty on the performance of commodity futures companies based on the panel data of China's A-share agricultural, forestry, fishery and animal husbandry, manufacturing listed companies and the Baker's China economic policy uncertainty index from 2013 to 2020, and draws the conclusion that China's economic policy uncertainty can have a positive impact on the performance of China's agricultural, forestry, fishery and animal husbandry, manufacturing commodity futures companies. In light of this perspective, it is essential for government agencies to carefully assess the influence on various economic sectors while employing policy measures to manage economic growth and mitigate the effects of economic fluctuations. This would prevent policy-induced fluctuations. Simultaneously, it is crucial for commodity futures companies to bolster innovation and enhance their operational capabilities in order to secure long-term progress.

Keywords: Economic policy uncertainty, Commodity futures, Company performance.

1. Introduction

Economic policy uncertainty involves the challenges faced by economic entities in accurately predicting if, when, and how governments will modify existing economic policies. It constitutes a significant aspect of economic uncertainty. Since the 2008 financial crisis, governments have frequently adjusted their economic policies to alleviate economic fluctuations, leading to a primary shift towards economic policy uncertainty. Gulen & Ion [10] suggest that approximately two-thirds of the decline in U.S. corporate investment between 2007 and 2009 can be attributed to economic policy uncertainty. Other researchers have argued that this uncertainty may be a major contributor to economic recessions [5]. As a result, economic policy uncertainty has gained increasing attention from scholars in recent years.

The notion of uncertainty dates back to Knight (1921), who differentiated "uncertainty" into "risk," which pertains to the estimable uncertainty of future events through probability distribution, and genuine "uncertainty" that is immeasurable. Economic policy uncertainty arises from the government's inability to clarify the direction and intensity of policy expectations, implementation, and position shifts. Research has shown that uncertainty varies over time and impacts macroeconomic aspects such as economic growth [1][6], business cycles [8], and bank liquidity creation [4].

Although it falls under the macro category, numerous studies have demonstrated that economic policy uncertainty significantly influences micro-level corporate behavior, such as enterprise investment. Leahy and White [14] and Guiso and Parigi [9] found a notable negative correlation between uncertainty and enterprise investment. Bloom et al. [5] and Campello et al. [7] argue that when economic policy uncertainty rises, increased corporate financing costs lead to more cautious decision-making by management. Baum et al. [2] noted that uncertainty also affects corporate cash flow, which in turn influences investment.

In the existing literature, numerous scholars concur that economic policy uncertainty has adverse effects on both macro and micro economies. These impacts manifest not only in the heightened volatility of key macroeconomic variables and financial asset variables, which affect economic cycles [3][15][16], but also in the negative influence of economic policy uncertainty on macroeconomic variables like output and employment, obstructing economic recovery [1]. Concurrently, some researchers have started examining the consequences of economic policy uncertainty on micro-enterprise business activities [10][12][13]. These studies suggest that economic policy uncertainty may suppress enterprise investment activities by altering the costs of their operations. This suppression is related to enterprise and industry characteristics such as irreversible investment ratios, financial constraints, and competition levels.

In the context of China, scholars have also discovered that economic policy uncertainty impacts not only the fluctuations in housing prices, GDP, and employment but also the investment decisions, capital demands, and business activities of enterprises, thereby restraining enterprise investment [19][20][22]. Bloom [6] argued that although uncertainty brings temporary negative effects on investment, employment, and productivity, its influence on R&D may differ from other economic activities due to variations in adjustment cost characteristics. Bloom also emphasized that the relationship between uncertainty and R&D activities is a vital topic requiring further theoretical and empirical research.

Existing research has investigated the effects of economic policy uncertainty on economic activities such as enterprise investment and technological innovation from various angles. Although numerous domestic and international studies have concentrated on the influence of economic policy uncertainty on macroeconomic variables and micro-enterprise activities, there has been limited targeted research on specific industries that impact the national economy and people's livelihoods. Moreover, few scholars have connected economic policy uncertainty with the futures market.

Examining the impact of rising economic policy

uncertainty on the performance of commodity futures enterprises and effectively identifying enterprise responses to macroeconomic shocks hold significant practical implications for the risk management of futures companies and the development of the commodity futures industry.2.Theoretical model and data

1.1. The Theoretical Model of China's Economic Policy Uncertainty Affecting the Performance of China's Commodity Futures Companies

This paper regards corporate profits as the external performance of performance. Based on the research of Bloom [5] and Gu Xiaming [18], this paper expounds the impact of economic policy uncertainty on corporate performance through model deduction. The production activities of enterprises meet the Cobb-Doug-las production function form:

$$Y = AK^{\alpha}L^{1-\alpha} \tag{1}$$

Y is output, K is capital stock, L is labor input, and A is other influencing factors. Assuming that the price elasticity of demand remains unchanged, the market demand function of enterprises is:

$$Q = BP^{-1/\kappa} \tag{2}$$

B is the demand impact faced by enterprises, which is related to the macroeconomic environment. The enterprise income function based on the supply and demand function is:

$$W = PQ = A^{(1-\kappa)}B^{\kappa}K^{\alpha(1-\kappa)}L^{(1-\kappa)(1-\alpha)} = MK^{\alpha(1-\kappa)}L^{(1-\kappa)(1-\alpha)} \tag{3}$$

Where, $M = A^{1-\kappa}B^{\kappa}$, A reflects the impact of the supply level on enterprise production, B reflects the impact of the demand level on enterprise production, and M represents the production conditions of enterprises, which are mainly affected by their own attributes and macroeconomic environment. Let $M=\rho Z$. Z is the coefficient of influence of economic policy uncertainty on enterprise production conditions, ρ Indicates other factors that affect the production conditions of the enterprise. Assuming that labor wage w and capital interest r have price stickiness, the enterprise profit function can be expressed as:

$$V = \rho ZK^{\alpha(1-\kappa)}L^{(1-\alpha)(1-\kappa)} - wL - rK = F(K, L, Z, \rho) \tag{4}$$

In addition, if intellectual capital G is introduced into Cobb-Douglas production function, formula (1) can be changed as follows:

$$Y = AK^{\alpha}L^{\beta}G^{(1-\alpha-\beta)} \tag{5}$$

If other conditions remain unchanged, the enterprise income function is:

$$W = A^{(1-\kappa)}B^{\kappa}K^{\alpha(1-\kappa)}L^{\beta(1-\kappa)}G^{(1-\alpha-\beta)(1-\kappa)} = MK^{\alpha(1-\kappa)}L^{\beta(1-\kappa)}G^{(1-\alpha-\beta)(1-\kappa)} \tag{6}$$

In addition, it is assumed that the average growth rate of knowledge capital is G, the depreciation rate is η, and R_t is the R&D expenditure in T period. This paper calculates the knowledge stock according to the method of Hall et al. [11], namely:

$$G_t = (1-\eta)G_{t-1} + R_t \cong \frac{R_t}{\eta + g} \tag{7}$$

The profit function and simplified profit function of the enterprise are:

$$W \cong MK^{\alpha(1-\kappa)}L^{\beta(1-\kappa)}\left(\frac{R}{\eta+\mathrm{g}}\right)^{(1-\alpha-\beta)(1-\kappa)} = \theta MK^{\alpha}L^{\nu}R^{1-\sigma-\nu} \tag{8}$$

$$V \cong \theta\rho ZK^{\sigma}L^{\nu}R^{1-\sigma-\nu} - wL - rK - zR = F(K, L, R, Z, \rho) \tag{9}$$

Where θ=1/(η+g), $\sigma = \alpha$ (1-κ) and $\upsilon = \beta$ (1-κ). From the above deduction, it can be seen that the final profit of the enterprise is related to the uncertainty of economic policy, and the uncertainty of economic policy affects the performance of the enterprise by affecting the production conditions, but its influence direction is difficult to determine, and it may interact with the characteristics of the enterprise itself, such as the degree of technological innovation.

1.2. Data and variables

This paper selects China's A-share listed companies in agriculture, animal husbandry, fishery, forestry and manufacturing industries from 2013 to 2020 as samples, and the screening conditions are as follows: (1) excluding financial and insurance companies; (2) Eliminate ST and PT companies; (3) Eliminate companies with missing data; (4) Excluding the companies that are insolvent, that is, the asset-liability ratio exceeds 100%. Finally, 116 samples of listed companies were obtained, and the article data were mainly from CSMAR database. In order to eliminate the impact of outliers, Winsorize the enterprise financial variables at 1% and 99% quantiles.

This paper derives an indicator of economic policy uncertainty by calculating the proportion of relevant articles in the South China Morning Post that include the keywords "China", "economy", "uncertainty", and "policy" to the total number of articles published in that month [1]. Currently, numerous domestic and international studies have utilized this indicator to analyze the influence of economic policy uncertainty on enterprise investment, enterprise innovation, and macroeconomic effects [17][20][21].

Table 1. Variable definition and description

Variables	Description	Measuring method
EPUC	Uncertainty of China's economic policy	/
ROA	Return on assets	Net profit after tax /total assets
Size	Company size	Total assets at the end of the year
Time	Time to market	Number of years since the listing year
Debt	Asset-liability ratio	Average annual total liabilities / average annual total assets
State	State-owned or not	If the company is a state-owned enterprise, *State*=1, otherwise, *State*=0
Top1	Shareholding ratio of the largest shareholder	Number of shares held by the largest shareholder /total share capital
Zindex	Ratio of the shareholding of the first and second largest shareholders	Number of shares held by the largest shareholder /number of shares held by the second largest shareholder
Indepe	Percentage of independent directors	Number of independent directors/number of board of directors
Sepera	Whether to concurrently serve as chairman and general manager	If concurrently hold the position of the company's chairman and general manager, *Sepera* = 1, otherwise, *Sepera* = 0

The dependent variable in this study is company performance, represented by Return on Assets (ROA). *ROA* is one of the most widely used indicators to measure profitability within the banking industry. A higher *ROA* indicates better asset utilization, suggesting that the enterprise has achieved favorable results in increasing revenue and optimizing the use of funds; lower values suggest the opposite. The independent variable is China's Economic Policy Uncertainty Index (EPUC).

The control variables selected in this paper include: company size, listing duration, return on assets, state ownership (dummy variable), the ownership percentage of the company's largest shareholder, the ratio between the first and second largest shareholders, the percentage of independent directors, and a dummy variable for whether the Chairman and General Manager positions are held concurrently. The specific variable names and descriptions are presented in *Table 1*.

2. Empirical Analysis

2.1. Regression model design

Based on the theoretical model and analysis, the baseline regression measurement equation was set as:

$$ROA_{i,t} = \alpha + \beta_1 \ln EPUC_t + \beta_2 \ln size_{i,t} + \beta_3 time_{i,t} + \beta_4 \text{debt}_{i,t} + \beta_5 top1_{i,t} + \beta_6 zindex_{i,t} + \beta_7 state_{i,t} + \beta_8 indepe_{i,t} + \beta_9 sepera_{i,t} + \beta_{10} \sum Year + \varepsilon_{i,t} \quad (10)$$

where $ROA_{i,t}$ is the return on assets of firm i in year t, $lnEPUC_t$ is the logarithm of China's economic policy uncertainty indicators in year t. Taking the logarithm of *EPUC* can well eliminate the effect of the magnitude. $lnsize_{i,t}$ is the logarithm of total assets of firm i in year t. In addition, the model controls for year dummy variables, and other variables and definitions are referred to Table 1.

2.2. Descriptive statistical analysis

Table 2 shows the results of descriptive statistics for each variable under the full sample. Among them, there is a large difference in the asset size of each company with a standard deviation of 1.611702; the maximum value of economic policy uncertainty is 6.866779, the minimum value is 4.245502, and the standard deviation is 0.7771628, which indicates that there is an intensive adjustment interval of economic policy in the examined time period, which is of research value.

Table 2. Variable definition and description

Variables	Sample size	Mean	Standard deviation	Minimum	Maximum
ROA	3,169	0.0152284	0.0443555	-0.155186	0.196396
lnEPUC	3,896	5.835739	0.7771628	4.245502	6.866779
lnsize	3,896	22.85608	1.611702	20.27408	28.23334
time	3,896	12.36961	6.546521	-1	28
debt	3,169	0.4546982	0.1885373	0.059887	0.926108
top1	3,168	40.02894	17.56744	4.08	87.5
zindex	3,168	15.99588	28.96131	1	369.15
state	3,886	0.5658775	0.4957049	0	1
indepe	3,052	0.3792736	0.0581557	0.25	0.6666667
sepera	3,896	0.1214066	0.3266411	0	1

The current Economic Policy Uncertainty (EPU) primarily utilizes the News-Index, which measures economic policy

uncertainty by counting the number of articles related to economic policy uncertainty in major newspapers. Specifically, several large newspapers are selected, and articles related to economic policy uncertainty are identified by searching for keywords such as 'uncertain/uncertainty', 'economic/economy', 'policy', 'tax', 'spending', 'regulation', 'central bank', 'budget', and 'deficit'. The index is obtained after a statistical and standardization process.

As seen in Figure 1, China's economic policy uncertainty has recently surpassed its previous maximum since 2013, largely due to the US-China trade war (2018-present) and the global COVID-19 pandemic (2020-present), resulting in a continued upward trend. However, since the end of 2020, with the easing of the US-China trade war and the pandemic under control, China's economic policy uncertainty has started to decline.

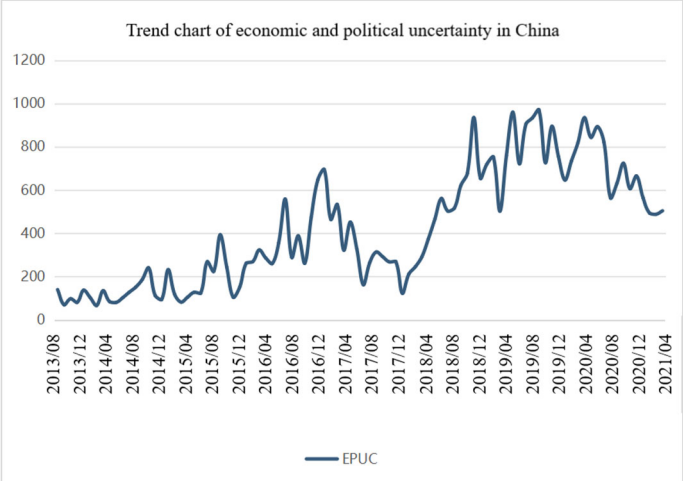

Figure 1. Trend chart of economic and political uncertainty in China

2.3. Regression result analysis

In the regression results in Table 3, the coefficient of the China Economic Policy Uncertainty Index *lnEPUC* is significantly positive when controlling for firm size, time to market, return on assets, whether state-owned or not dummy variables, the percentage of shares held by the firm's largest shareholder, the ratio of shares held by the firm's first and second largest shareholder, the percentage of independent directors, and whether the chairman and general manager are both dummy variables as control variables. It indicates that the performance of commodity futures companies in China's agriculture, forestry, fishing and animal husbandry, and manufacturing industries rises when China's economic policy uncertainty increases, i.e., when domestic macroeconomic risks increase.

Table 3. Regression results

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
lnEPUC	.005	.002	2.75	.006	.002	.009	***
lnsize	.009	.002	4.95	0	.005	.013	***
time	-.004	.001	-5.36	0	-.005	-.002	***
debt	-.127	.007	-17.78	0	-.141	-.113	***
top1	.001	0	4.86	0	0	.001	***
zindex	0	0	1.32	.186	0	0	
state	-.026	.014	-1.79	.073	-.054	.002	*
indepe	-.013	.018	-0.74	.457	-.047	.021	
sepera	-.01	.003	-3.45	.001	-.015	-.004	***
2013b.year	0	.	.	.	.	.	
2014.year	-.013	.003	-4.40	0	-.019	-.007	***
2015.year	-.021	.003	-8.00	0	-.026	-.016	***
2016.year	-.015	.003	-5.66	0	-.021	-.01	***
2017.year	-.005	.002	-2.34	.019	-.01	-.001	**
2018.year	-.001	.002	-0.63	.526	-.006	.003	
2019.year	.001	.003	0.36	.721	-.004	.006	
2020o.year	0	.	.	.	.	.	
Constant	-.118	.04	-2.95	.003	-.196	-.039	***

Mean dependent var	0.015	SD dependent var	0.045
R-squared	0.142	Number of obs	3048.000
F-test	32.211	Prob > F	0.000
Akaike crit. (AIC)	-11787.134	Bayesian crit. (BIC)	-11690.778

*** p<.01, ** p<.05, * p<.1

Therefore, China's economic policy uncertainty can have a positive impact on the performance of China's agriculture, forestry, fishing and animal husbandry and manufacturing commodity futures companies. The reason is that commodity futures have their own advantages such as standardized contracts, centralized trading, two-way trading and hedging mechanism, margin system and leverage mechanism, and margin system for futures trading on the one hand, and can help companies lock in production costs, realize expected profits and use futures price signals to organize spot production on the other hand, therefore, commodity futures are an important tool for companies to hedge risks and hedge. In times of increased uncertainty in China's economic policies, companies will prefer to invest more capital in the commodity futures market out of the need to hedge risks, especially in more stable futures varieties such as agricultural futures and non-ferrous metal futures, leading to the positive development of the performance of Chinese agriculture, animal husbandry, fishery, forestry and manufacturing commodity futures companies.

3. Conclusions and Recommendations

Based on the theoretical model and analysis, this paper explores the impact of economic policy uncertainty on firm performance based on panel data of Chinese A-share listed companies in agriculture, forestry, fishery, animal husbandry, and manufacturing industries from 2013 to 2020, and concludes that economic policy uncertainty in China can have a positive impact on the performance of Chinese agriculture, forestry, fishery, animal husbandry, and manufacturing commodity futures companies.

Based on the previous discussion and conclusions, this paper offers the following reflections and recommendations:

(1) While the findings indicate that economic policy uncertainty may positively drive an increase in firms' performance, it is crucial to acknowledge that it could also affect short-term business activities. Consequently, when employing policy instruments to regulate economic development and mitigate the effects of economic fluctuations, government departments should carefully assess the impact on various economic activities and avoid significant fluctuations in policy implementation.

(2) Given that economic policy uncertainty has a selective effect on firms with different technological innovation capabilities, relevant government departments should work to maintain a policy environment for firms to engage in high-quality technological innovation in order to help them give full play to their innovation dynamics.

(3) Enterprises supported and protected by the government have inherent survival advantages, but if they rely too much on the government's patronage, they will only reduce their production efficiency and productivity, and the fundamental basis for them is to increase their innovation and improve their business strength.

References

[1] Baker SR,Bloom N(2013).Does Uncertainty Reduce Growth? Using Disasters as Natural Experiments . Cep Discussion Papers,no.3, p.34.

[2] Baum C, Caglayan M, Talavera O(2010). On the Sensitivity of Firms' Investment to Cash Flow and Uncertainty. Oxford Economic Papers, vol.62, p.286-306.

[3] Benjamin Born,Johannes Pfeifer(2014). Policy risk and the business cycle. Journal of Monetary Economics, p.68.

[4] Berger AN,O Guedhami,HH Kim,X Li(2011).Economic Policy Uncertainty and Bank Liquidity Creation.SSRN Working Papers.

[5] Bloom, and S.J.Davis,(2016). “Measuring Economic Policy Uncertainty”, Quarterly Journal of Economics, vol.131, p.1593-1636.

[6] Bloom N, Bond S, R eenen J V(2010). Uncertainty and Investment Dynamics. Review of Economic Studies, vol.74, no.2, p.391-415.

[7] Campello M, Graham J, Harvey C(2010). The Real Effects of Finan- cial Constraints: Evidence from a Financial Crisis. Journal of Financial Economics, vol.97, p.470-487.

[8] Christiano L J, Motto R, Rostagno M(2014). Risk Shocks. Amer- ican Economic Review, vol.104, no.1, p.27-39.

[9] Guiso L, Parigi G(1999). Investment and Demand Uncertainty. Quarterly Journal of Economics, vol.114, no.1, p.185-227.

[10] Gulen H. and M. Ion(2016). “Policy Uncertainty and Corporate Investment”, Review of Financial Studies, vol.29, no.3, p.523-564

[11] Hall B H, Mairesse J, Mohnen P(2010). Measuring the Returns to R&D . Nber Working Papers, vol.2, no.1, p.1033-1082.

[12] Julio, B. , and Y. Yook(2012). “Political Uncertainty and Corporate Investment Cycles”, Journal of Finance, vol.67, no.1, p.45-83.

[13] Kang, W. , K. Lee, and R.A. Ratti(2014). “Economic Policy Uncertainty and Firm-level Investment”, Journal of Macroeconomics, vol.39, p.42-53.

[14] Leahy JV, Whited TM(1996). The Effect of Uncertainty on Investment: Some Stylized Facts. Journal of Money Credit & Banking, vol.28, no.1, p.64-83.

[15] Pastor, L.,and P. Verones(2012). “Uncertainty about Government Policy and Stock Prices”, Journal of Finance, vol.67,no.4, p.1219-1264.

[16] Villaverde, J.F, P.G. Quintana, K. Kuester, and J. R. Ramírez(2015). “Fiscal Volatility Shocks and Economic Activity”, American Economic Review, vol.105, no.11, p.3352-3384.

[17] Wang, Y., C. R. Chen, and Y. S. Huang(2014). Economic Policy Uncertainty and Corporate Investment: Evidence from China. Pacific-Basin Finance Journal,vol. 26, no.3, p.227-243.

[18] [18] Gu Xiaming, Chen Yongmin, Pan Shiyuan (2018). Economic Policy Uncertainty and Innovation: An Empirical Analysis Based on Listed Companies in China. Economic Research, vol. 53, No. 2, p.109-123.

[19] Jin Xuejun, Zhong Yi, Wang Yizhong (2014). Macroeconomic Consequences of Policy Uncertainty. Economic Theory and Management, No. 2, p.17-26.

[20] Li Fengyu and Yang Mozhu (2015). Will Economic Policy Uncertainty Inhibit Enterprise Investment—— Empirical Study on the Uncertainty Index of China's Economic Policy. Financial Research, No. 04, p.115-129.

[21] Tian Lei, Lin Jianhao (2016). Does economic policy uncertainty have both output and inflation effects? Empirical Evidence from China. Nankai Economic Research, No. 2, p.3-24.

[22] Wang Yizhong, Song Min (2014). Macroeconomic Uncertainty, Capital Demand, and Corporate Investment. Economic Research, vol. 49, No. 02, p.4-17.