The Impact of Uncertainty on Firms' Outward Foreign Direct Investment

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Abstract. This study investigates the impact of policy uncertainty on Chinese firms' outward foreign direct investment (OFDI) from 2003 to 2023, focusing on the interaction between U.S. trade policy uncertainty (TPU) and China's economic policy uncertainty (EPU). Using a Poisson pseudo–maximum likelihood (PPML) estimation and incorporating both firm-level and host-country–level controls, the analysis reveals that dual policy uncertainty exerts a significant and robust effect on OFDI probability and scale. These findings contribute to the literature by elucidating the mechanisms through which multiple sources of policy uncertainty jointly shape cross-border investment strategies, offering new insights into risk management and global market reallocation under uncertain environments.

Keywords: Policy Uncertainty, Outward Foreign Direct Investment (OFDI), Trade Policy Uncertainty (TPU), Economic Policy Uncertainty (EPU).

1. Introduction

In recent years, the global economic landscape has undergone profound restructuring, with the instability of China–U.S. economic and trade relations emerging as a key variable in the international economic environment. Since the escalation of China–U.S. trade frictions in 2018, U.S. trade policy uncertainty (TPU) has risen sharply, while China's economic policy uncertainty (EPU) has also remained elevated under the dual pressures of external shocks and domestic structural transformation. Against this backdrop, policy uncertainty has not only reshaped the configuration of global industrial chains but has also exerted a profound influence on Chinese enterprises' outward foreign direct investment (OFDI) decisions.

Policy uncertainty, as a critical institutional variable, influences OFDI decisions through multiple channels. In the macroeconomic policy domain, uncertainty affects OFDI via risk expectations, financing constraints, and investment motivations. Empirical studies show that home-country economic policy uncertainty (EPU) may drive firms to internationalize as a means of hedging against domestic policy volatility, whereas host-country EPU tends to deter Chinese capital inflows by raising unemployment, interest rates, and perceived investment risks. Trade policy uncertainty (TPU) can compel firms to optimize performance management and risk control mechanisms, prompting strategic reconfigurations in internationalization.

2. Empirical Examination of the Impact of Policy Uncertainty on OFDI

2.1. Data Sources, Variable Definitions, and Model Construction

This study draws on data from multiple sources, including the List of Overseas Investment Enterprises (Institutions) issued by China's Ministry of Commerce, the Zephyr database, the FDIMarkets greenfield investment database, the Wind database, the China Stock Market & Accounting Research (CSMAR) database, the World Bank, and the United Nations General Assembly voting database. To ensure data reliability and consistency, the sample consists of Chinese A-share listed companies in Shanghai and Shenzhen. Due to data availability, the final sample includes 305 listed firms over the period 2009–2023.

The dependent variable, invest, represents the amount of outward foreign direct investment by Chinese enterprises. All values are log-transformed to reduce heteroscedasticity. The explanatory variable is the China–U.S. economic uncertainty index, incorporating both U.S. trade policy uncertainty (TPU) and the associated uncertainty in China's economic development (EPU). Following Feng et al. (2021), the annual index is calculated as the arithmetic mean of the monthly TPU and EPU indices, with the interaction term TPU × EPU capturing bilateral trade–economic uncertainty.

To investigate the impact of China–U.S. trade and economic policy uncertainty on Chinese enterprises' OFDI, the following baseline regression model is specified:

$$Z_{it} = \beta TPU_t \times EPU_t + \delta X_{it} + \tau V_{it} + \alpha_t + \alpha_i + \varepsilon_{it}$$

Here, TPU denotes the U.S. trade policy uncertainty index, EPU denotes China's economic policy uncertainty index, and $TPU \times EPU$ represents the bilateral trade–economic policy uncertainty index. The subscript i refers to firm, t denotes year. The dependent variable Z_{it} corresponds to $invest_{it}$, the amount of investment made by firm in RCEP countries in year.

2.2. Empirical Results and Analysis

2.2.1. Correlation Analysis

As shown in Table 1, the correlation coefficients are generally low, indicating no evidence of severe multicollinearity. To further verify this, a Variance Inflation Factor (VIF) test is performed. The results, presented in Table 2, show that both the maximum and average VIF values are below the conventional threshold of 10, confirming that all research variables pass the multicollinearity diagnostic.

Table 1. Pearson correlation coefficient matrix

	invest	ln_TPU	ln_EPU	Invest1	SOE	GDP	trade_openness	ln_share	ln_dependency
invest	1								
TPU	0.00594	1							
EPU	-0.00528	0.557	1						
Invest1	0.0531	-0.0522	-0.0887	1					
SOE	-0.000519	-0.0649	-0.111	-0.176	1				
GDP	0.0254	-0.134	-0.278	0.0884	0.0281	1			
trade_openness	-0.102	-0.0240	-0.0122	0.0314	-0.0477	0.133	1		
ln_share	-0.0284	0.0588	0.151	-0.0116	-0.198	-0.128	0.0751	1	
ln_dependency	-0.0490	0.0966	0.249	-0.00769	-0.0619	0.0523	-0.130	0.444	1

Table 2. VIF test

Variable	ln_TPU	ln_EPU	Invest1	SOE	GDP	trade_openness	ln_share	ln_dependency
VIF	1.79	2.12	1.05	1.09	1.17	1.08	1.24	1.33
1/VIF	0.559	0.472	0.952	0.915	0.855	0.927	0.803	0.750
Mean VIF	1.36							

2.2.2. Baseline Regression Analysis

This study employs the Poisson Pseudo–Maximum Likelihood (PPML) estimation method, controlling for year fixed effects and clustering robust standard errors at the firm level, to evaluate the impact of economic and trade policy uncertainty (TPU×EPU) on firms' OFDI. From the regression results, the interaction term for China–U.S. policy uncertainty (TPU×EPU) exhibits a consistently significant and positive effect across all model specifications, with coefficients ranging from 1.235 to 1.952.

Table 3. Basic Regression Results

	PPML				
	invest	invest	invest	invest	invest
TPU×EPU	1.235***	1.656***	2.050***	1.739***	1.952***
	(0.307)	(0.455)	(0.556)	(0.564)	(0.556)
Invest1		1.590***	1.847***	1.376**	1.918***
		(0.608)	(0.607)	(0.625)	(0.733)
SOE			2.843***	2.761***	2.972***
			(0.771)	(0.746)	(0.787)
GDP				0.221**	0.221**
				(0.0975)	(0.0961)
trade_openness					-0.00641*
					(0.00376)
_cons	-5.651**	-9.887**	-14.62***	-12.34**	-13.69**
	(2.831)	(4.258)	(5.348)	(5.324)	(5.343)
N	2852	2537	2537	2537	2497

2.2.3. Robustness Checks

The robustness of the empirical findings is assessed from four perspectives:

(1) Changing the estimation method: When the Poisson Pseudo–Maximum Likelihood estimator (PPML) is replaced with Ordinary Least Squares (OLS), the core variable TPU×EPU remains significantly and positively correlated at the 1% level, with no substantive changes in the direction or significance of the control variables.

(2) Accounting for special years: To eliminate the abnormal shock of the COVID-19 pandemic on the global investment pattern in 2020, this year's observations are excluded and the regression is re-estimated (column 3).

(3) Replacing the core explanatory variable: To further examine the robustness, the interaction term TPU×EPU is replaced by the single U.S. Trade Policy Uncertainty (TPU) index.

(4) Replacing the dependent variable: A binary choice model (Logit/Probit) is adopted to replace the continuous variable model, using firms' investment decision (is_invested).

Table 4. Robustness Checks

	(1)	(2)	(3)	(4)	(5)	(6)
	PPML	OLS	PPML	PPML	Logit	Probit
	invest	invest	invest	invest	is_invested	is_invested
TPU×EPU	1.952***	0.697***	2.155***		0.146***	0.0806***
	(0.556)	(0.155)	(0.546)		(0.0420)	(0.0231)
TPU				5.925***		
				(1.688)		
Invest1	1.918***	0.682***	2.443***	1.918***	0.537	0.294
	(0.733)	(0.262)	(0.763)	(0.733)	(0.349)	(0.195)
SOE	2.972***	0.0402	2.942***	2.972***	-0.123	-0.0637
	(0.787)	(0.0713)	(0.852)	(0.787)	(0.125)	(0.0674)
GDP	0.221**	0.0268**	0.0369	0.221**	0.0179	0.0101
	(0.0961)	(0.0119)	(0.0708)	(0.0961)	(0.0181)	(0.0100)
trade_openness	-0.00641*	-0.00108***	-0.00152	-0.00641*	-0.00150***	-0.000811***
	(0.00376)	(0.000225)	(0.00381)	(0.00376)	(0.000553)	(0.000295)
_cons	-13.69**	-5.380***	-15.97***	-17.65***	-3.167***	-1.827***
	(5.343)	(1.364)	(5.364)	(6.468)	(0.462)	(0.252)
N	2497	2606	2217	2497	2606	2606

2.2.4. Heterogeneity Analysis

Based on the subgroup regression results in Table 5, this study reveals systematic structural differences in the mechanism through which policy uncertainty (TPU×EPU) drives Chinese firms' OFDI. Ownership heterogeneity: Non–state-owned enterprises (NSOEs) exhibit high sensitivity to policy uncertainty, with elasticity values 26.6% higher than the baseline model, confirming that private capital accelerates internationalization to hedge against domestic policy risks.

Size heterogeneity: Small-scale firms display exceptional sensitivity, with policy elasticity 3.9 times that of large firms. In the small-firm sample, the SOE coefficient reaches 4.748, highlighting the resource compensation effect of state ownership under scale disadvantages.

Location choice heterogeneity: Policy uncertainty effects are significantly stronger for investments in developed countries (coefficient = 3.801), 106% higher than in less developed countries (coefficient = 1.841).

Additionally, in the manufacturing subsample, the coefficient of TPU×EPU reaches 2.659, markedly higher than the full-sample mean.

Table 5. Heterogeneity Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SOEs	Non-SOEs	Small Firms	Large Firms	Developed Countries	Less-Developed Countries	Manufacturing Sector
TPU×EPU	1.451	2.471***	5.793***	1.479***	3.801***	1.841***	2.659***
	(0.919)	(0.584)	(1.133)	(0.562)	(1.366)	(0.533)	(0.576)
Invest1	1.608	2.414**	-3.596	2.065**	1.988	3.636***	1.318
	(1.630)	(1.027)	(2.325)	(1.006)	(1.478)	(1.220)	(0.952)
SOE			4.748***	-0.352	3.371***	4.959***	1.826*
			(1.337)	(0.736)	(1.242)	(1.286)	(0.988)
GDP	-0.0316	0.234**	0.124	0.222**	0.0615	0.284***	0.289***
	(0.120)	(0.112)	(0.110)	(0.101)	(0.142)	(0.0987)	(0.112)
trade_openness	0.00350	-0.00774**	0.00909	-0.00478	0.00205	-0.00303	-0.00671
	(0.00804)	(0.00385)	(0.00785)	(0.00467)	(0.00198)	(0.0118)	(0.00434)
_cons	-8.604	-17.32***	-51.19***	-8.172	-33.59**	-14.24***	-19.71***
	(8.709)	(5.576)	(10.62)	(5.224)	(13.06)	(5.389)	(5.497)
N	814	1612	923	1170	1074	1410	1904

3. Summary

Drawing on empirical analysis of Chinese firms' OFDI to non-U.S. destinations from 2003 to 2023, this study incorporates U.S. trade policy uncertainty (TPU) and China's economic policy uncertainty (EPU) into a unified framework. By constructing an interaction term and testing the moderating roles of export dependency and platform dependency, it uncovers the systematic influence of dual policy uncertainty on OFDI. The interaction between TPU and EPU significantly suppresses both the probability and scale of Chinese firms' outward investment, indicating that the combined effect of dual policy uncertainty triggers systematic risk-avoidance behavior. This finding validates the "institutional arbitrage" mechanism in resource dependence theory, whereby multinational enterprises, under multiple uncertainty shocks, tend to adjust their global layout to reduce institutional risk exposure.

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