Economic Policy Uncertainty, Geopolitical Risk, and Corporate Currency Derivative Use

Yukihiro Yasuda
Hitotsubashi University

## １．Introduction

This study examines how economic uncertainty affects firms' risk management behavior in line with Yan and Yasuda (2022a, b). Specifically, building on the same underlying motivation as Yasuda (2026), we extend the existing literature by jointly employing the traditional Economic Policy Uncertainty (EPU) measures and the GPR index to investigate their relationship with Japanese firms' demand for currency derivatives. The EPU index is constructed from the frequency of newspaper articles containing terms related to the economy, policy, and uncertainty. The Economic Policy Uncertainty indices for Japan developed by Arbatli et al. (2022) include not only an overall index but also policy-specific indices for monetary, fiscal, trade, and exchange rate policies. Among these, trade and exchange rate policy uncertainty are primarily related to the use of currency derivatives under hedge accounting. In addition, since geopolitical tensions may influence exchange rates, trade conditions, and financial markets, they can also affect firms' hedging activities.

Geopolitical Risk (GPR) has increasingly been used as a key indicator of geopolitical uncertainty in recent empirical studies, particularly since the index was constructed by Caldara and Iacoviello (2022). Similar to the EPU index, the GPR index is constructed from newspaper articles using keyword-based text analysis. However, while the EPU index captures uncertainty related to economic policy, the GPR index measures risks associated with geopolitical tensions such as wars, terrorist attacks, and military conflicts. Previous research has established that geopolitical risk (GPR) significantly affects firm behavior such as cash holdings, investment, and risk management decisions, and alters optimal hedging strategies in financial markets (e.g., Ali et al, 2023).

Given the current global situation, interest in geopolitical risks is high, and Japanese companies cannot afford to ignore them. Figure 1 shows the trends in the EPU and GPR indicators for the analysis period of this paper. As shown in this figure, while the EPU indicator shows a relatively steady trend, the GPR exhibits significant spikes at each event, making it a spike-type indicator. Using these measures, we analyze how different dimensions of policy uncertainty and geopolitical risk are associated with firms' hedging behavior, focusing in particular on the use of currency derivatives under hedge accounting by Japanese firms.

Figure 1. Time Trend of EPU and GPR in Japan since 2020
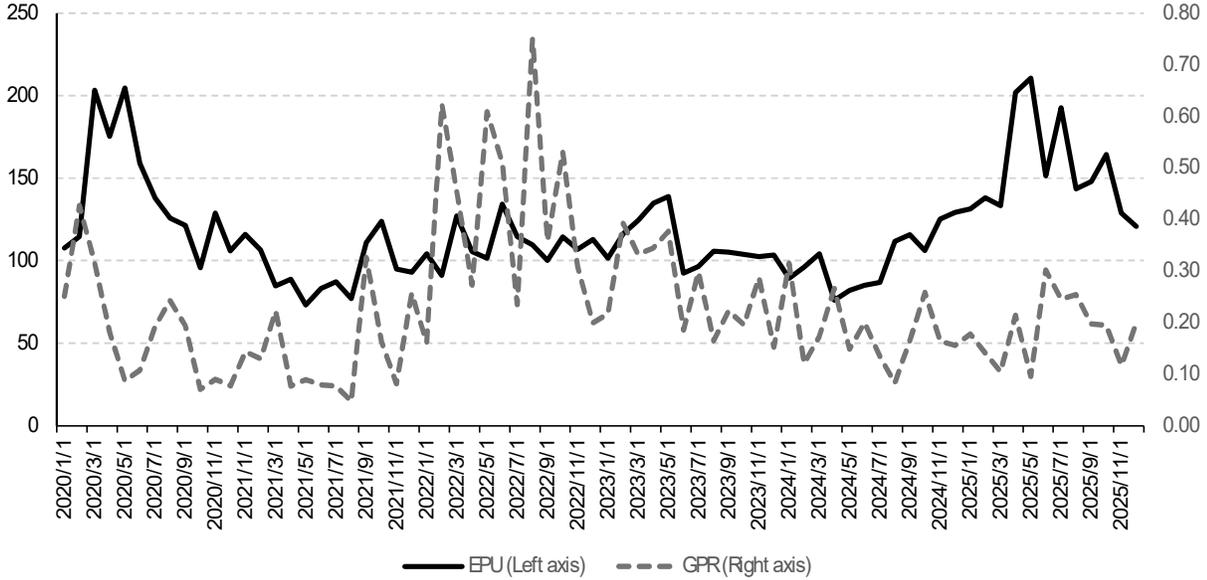
2．Empirical Analysis

2.1. Data and Methodology

Like Yasuda (2026), we gather data on Japanese listed firms in the Prime and Standard Markets of the Tokyo Stock Exchange from fiscal years 2001 to 2024. We focus on firms with a March fiscal year-end and exclude financial firms. We exclude firms with fiscal years shorter than 12 months and those that adopt IFRS accounting standards. We collect data on derivatives holdings from the same databases as Yasuda (2026). We use the Economic Policy Uncertainty (EPU) of Japan developed by Arbatli et al. (2022). To measure geopolitical uncertainty, we employ the Geopolitical Risk (GPR) index constructed by Caldara and Iacoviello (2022). Both indices are based on the frequency of newspaper articles containing keywords related to uncertainty. Monthly data are obtained from websites, and we convert them to an annual measure by averaging the monthly values within each fiscal year.

Based on the panel data set, we estimate the logit model for the demand of derivatives usage and the OLS model for the determinant of derivative amounts as follows:

$$Hedge\_dum_{i,t} = \alpha_1 + \alpha_2 EPU_{i,t-1} + \alpha_3 GPR_{i,t-1} + \alpha \cdot X_{i,t-1} + \varepsilon_{i,t} \tag{1}$$

$$Derivative\_at_{i,t} = \beta_1 \alpha_2 EPU_{i,t-1} + \alpha_3 GPR_{i,t-1} + \beta \cdot X_{i,t-1} + \varepsilon_{i,t} \tag{2}$$

The dependent variable in Equation (1) is CR_Hedge_dum, a dummy variable that equals 1 if a firm uses currency derivatives subject to hedge accounting and 0 otherwise. Regarding the left-hand side of equation (2), we use CR_Derivative_at, which is the contract amount of currency derivatives subject to hedge accounting, scaled by total assets. Standard errors are clustered at the firm level.

Regarding the EPU indexes, we calculate the natural logarithm of the 12-month moving average of each monthly EPU index (ln_epu, ln_fp_epu, ln_mp_epu, ln_tp_epu, ln_er_epu). GPR variable is also the natural logarithm of the 12-month moving average of each monthly GPR index (ln_gpr).

We include the control variables, denoted by *X*. Concretely, we include foreign exchange rate exposure constructed by Yasuda (2026). Firm size is measured as the natural logarithm of sales (ln_sales). We use the book-to-market ratio (simple_q) as a proxy for Tobin's Q, and the ratio of operating income to total assets (ROA) as a proxy for firm performance. We also include the ratio of foreign sales to total sales (foreign_sales). All explanatory variables are measured at the end of the previous fiscal year. In addition, industry dummy variables (Sector_dum) are included in all specifications. **Table 1** summarizes the descriptive statistics for our total sample firms used in the following analysis.

Table 1   Summary Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
CR_Hedge_dum	6,626	0.222	0.416	0.000	1.000
CR_Derivative_at	6,626	0.009	0.037	0.000	0.725
ln_epu	6,626	4.696	0.105	4.567	4.869
ln_fp_epu	6,626	4.533	0.166	4.322	4.805
ln_mp_epu	6,626	4.638	0.198	4.368	4.877
ln_tp_epu	6,626	4.370	0.238	4.217	4.826
ln_er_epu	6,626	4.152	0.333	3.843	4.700
ln_gpr	6,626	-1.278	0.374	-1.753	-0.792
ln_abs_ex	6,626	0.176	0.162	0.000	1.431
foreign_sales	6,626	0.171	0.245	0.000	1.000
ln_sales	6,626	10.807	1.641	5.063	16.356
roa	6,626	0.060	0.082	-1.395	2.188
simple_q	6,626	1.225	1.276	0.353	34.029

2.2.   Empirical Results

Table 2 represents the results on the relationship between firms' currency derivative demand and the EPU indices by category, as well as the GPR index. Rows 1-6 present the association between the EPU variables and currency-derivative demand. Row 1 shows that the coefficient is positive but statistically insignificant. Among the category-specific EPU indices, the coefficient of ln_mp_epu (monetary policy EPU) is negative and statistically significant. In addition, Row 5 shows that the coefficient of ln_er_epu, the exchange rate policy EPU index, is negative and statistically significant. These results show that higher policy uncertainty regarding exchange rate risk is associated with lower demand for currency derivatives.

Row 6 reports the coefficient on ln_gpr, which remains positive and statistically significant across most specifications. The result suggests that an increase in geopolitical risk prompts firms to increase their demand for currency derivatives for hedging.

This contrasting result between EPU and GPR suggests that different types of uncertainty affect corporate hedging behavior differently. Policy-related uncertainty may reduce the effectiveness or predictability of financial hedging strategies, consequently discouraging firms from using currency derivatives. In contrast, geopolitical shocks often generate immediate and observable exchange rate risks, which may strengthen firms' incentives to engage in defensive hedging.

Table 2   Currency Derivative Use and Policy Uncertainty and Geopolitical Risk

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
			CR_Hedge_dum			
	all sample					Manufacturing
ln_epu	0.005					
	(0.10)					
ln_fp_epu		0.008				
		(0.23)				
ln_mp_epu			-0.055**			
			(-2.26)			
ln_tp_epu				0.029		
				(1.40)		
ln_er_epu					-0.031**	-0.048**
					(-2.25)	(-2.25)
ln_gpr	0.022*	0.023*	0.008	0.027**	0.029**	0.047**
	(1.69)	(1.65)	(0.67)	(2.25)	(2.42)	(2.40)
ln_abs_ex	0.063**	0.062**	0.065**	0.055*	0.065**	0.154***
	(2.02)	(1.99)	(2.14)	(1.80)	(2.16)	(3.14)
foreign_sales	0.132***	0.132***	0.133***	0.134***	0.133***	-0.031
	(4.42)	(4.43)	(4.46)	(4.47)	(4.45)	(-0.91)
ln_sales	0.084***	0.084***	0.083***	0.083***	0.083***	0.111***
	(21.82)	(21.82)	(21.85)	(21.77)	(21.85)	(20.21)
roa	-0.308***	-0.308***	-0.303***	-0.300***	-0.303***	-0.411***
	(-6.11)	(-6.10)	(-6.04)	(-5.99)	(-6.04)	(-2.97)
simple_q	0.009*	0.009*	0.008*	0.009*	0.008*	-0.019
	(1.85)	(1.84)	(1.75)	(1.79)	(1.75)	(-1.59)
Constant	-0.703***	-0.714***	-0.442***	-0.797***	-0.541***	-0.645***
	(-3.03)	(-4.72)	(-3.89)	(-8.59)	(-7.30)	(-5.61)
Sector_dum	YES	YES	YES	YES	YES	YES
Observations	6,626	6,626	6,626	6,626	6,626	3,268
R-squared	0.211	0.211	0.211	0.211	0.211	0.172

The t-statistics are reported in parentheses. Standard errors are clustered at the firm level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 3 summarizes the results on the relationship between the extent of derivatives usage and the EPU indices by category, as well as the GPR index. Overall, the coefficients on the EPU variables are very similar to those reported in **Table 2**. Among them, Row 5 deserves particular attention. The coefficient on ln_er_epu remains negative and statistically significant. This result indicates that greater policy uncertainty about exchange rates is associated with lower use of currency derivatives. Row 6 reports the coefficient on ln_gpr, which remains positive but is only marginally statistically significant across most specifications. The result suggests that an increase in geopolitical risk may lead firms to increase the extent of their currency derivative use for hedging, although the effect appears weaker than that observed in Table 2. This difference between **Tables 2 and 3** may suggest that geopolitical risk primarily affects firms' decisions on whether to use currency derivatives, rather than the intensity of derivative usage. Once firms decide to hedge, the amount of derivatives used may depend more on firm-specific factors such as the scale of foreign operations or exposure to exchange rate fluctuations.

Table 3 Extent of Currency Derivative Use and Policy Uncertainty and Geopolitical Risk

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
			CR_Derivative_at			
			all sample			Manufacturing
ln_epu	-0.007					
	(-1.43)					
ln_fp_epu		-0.004				
		(-1.30)				
ln_mp_epu			-0.005**			
			(-2.48)			
ln_tp_epu				0.000		
				(0.07)		
ln_er_epu					-0.003**	-0.003**
					(-2.53)	(-2.06)
ln_gpr	-0.001	-0.001	-0.001	0.000	0.001	0.001
	(-0.52)	(-0.61)	(-0.78)	(0.23)	(0.87)	(0.65)
ln_abs_ex	0.006*	0.006*	0.005	0.005	0.005	0.007*
	(1.83)	(1.81)	(1.63)	(1.57)	(1.64)	(1.77)
foreign_sales	0.007*	0.007*	0.007*	0.007*	0.007*	-0.009**
	(1.82)	(1.83)	(1.88)	(1.86)	(1.88)	(-2.23)
ln_sales	0.002***	0.002***	0.002***	0.002***	0.002***	0.004***
	(7.31)	(7.30)	(7.21)	(7.22)	(7.22)	(8.01)
roa	-0.000	-0.000	0.001	0.000	0.001	0.003
	(-0.08)	(-0.07)	(0.19)	(0.09)	(0.19)	(0.26)
simple_q	0.000	0.000	0.000	0.000	0.000	-0.001
	(0.33)	(0.34)	(0.15)	(0.30)	(0.14)	(-0.75)
Constant	0.015	0.002	0.006	-0.016**	-0.003	-0.017*
	(0.69)	(0.16)	(0.63)	(-1.99)	(-0.46)	(-1.90)
Sector_dum	YES	YES	YES	YES	YES	YES
Observations	6,626	6,626	6,626	6,626	6,626	3,268
R-squared	0.151	0.151	0.151	0.151	0.151	0.065

 The t-statistics are reported in parentheses. Standard errors are clustered at the firm level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

3. Concluding Remarks

We empirically investigated how economic uncertainty affects Japanese firms' demand for currency derivatives for hedging. The results suggest that not all forms of uncertainty lead firms to increase financial hedging. While geopolitical risk tends to strengthen firms' incentives to hedge exchange rate fluctuations, policy-related uncertainty may instead weaken the effectiveness of financial hedging instruments. This distinction highlights the importance of differentiating between policy uncertainty and realized geopolitical shocks when analyzing corporate risk management behavior.

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