Economic Policy Uncertainty and Cost of Debt Financing in Indonesia

Nadya Komari[1]
Rita Juliana[2*]
[1,2]**Faculty of Economics and Business Pelita Harapan University, Indonesia**
**Correspondences*: rita.juliana@uph.edu

ABSTRACT

This study aims to see the effect of Economic Policy Uncertainty (EPU) to the cost of debt in Indonesia. This quantitative research sample used in this study includes a total of 4,312 observations collected from 453 listed firms on IDX from the period 2006 to 2020. Using fixed-effect panel data regression, our result shows that there is a positive relationship between the cost of debt and EPU, and the effect is even greater when a crisis occurs. With additional analysis conducted, our result show EPU has stronger impact on large firms' than small firms' cost of debt. However, when a crisis occurs, EPU has a higher effect on small firms samples than on large firms samples. Thus, it can be concluded if the crisis plays an important role in the research results.

Keywords: Cost Of Debt; Economic Policy Uncertainty; Crisis.

Ketidakpastian Kebijakan Ekonomi dan Biaya Modal Hutang di Indonesia

ABSTRAK

Penelitian ini bertujuan untuk melihat efek dari ketidakpastian ekonomi pada biaya modal hutang di Indonesia. Sampel yang digunakan pada penelitian kuantitatif ini mencakup total 4.312 observasi yang dikumpulkan dari 453 perusahaan yang terdaftar di BEI dari periode 2006 hingga 2020. Dengan menggunakan regresi fixed effect panel data, hasil penelitian ini menunjukkan bahwa ada hubungan positif antara biaya utang dan ketidakpastian kebijakan ekonomi, dan efek nya lebih besar saat krisis terjadi. Dengan melakukan analisis tambahan, hasil penelitian menunjukkan bahwa EPU memiliki pengaruh lebih kuat pada biaya utang perusahaan besar dibandingkan perusahaan kecil. Akan tetapi, ketika krisis terjadi, pengaruh ketidakpastian kebijakan ekonomi terhadap biaya utang lebih besar pada perusahaan kecil daripada perusahaan besar. Sehingga, dapat disimpulkan bahwa krisis memiliki peran penting dalam penelitian ini.

Kata Kunci: Biaya Utang; Ketidakpastian Kebijakan Ekonomi; Krisis.

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INTRODUCTION

The phenomenon of economic policy uncertainty has become one of the important issues in financial economics literature and has an impact on the whole world, both on macroeconomics and microeconomics scale. All policies made by governments around the world can influence the actions of individuals, groups, and organizations in dealing with these policy uncertainties. One of the key reasons for weakening global economic growth is believed to be caused by the increase of economic policy uncertainty (EPU) (Luk et al., 2020).

The increase of EPU can undermine macroeconomic performance. When there is uncertainty in economic policy or an unanticipated shock, it can cause a decline in real GDP, private consumption, and capital goods investment (Ghirelli et al., 2021). However, a different opinion come from Baker et al. (2016), Bloom (2014), and Brand et al. (2019), who argue that the decline in investment, consumption, and employment because of the effect of policy uncertainty could increase GDP, household income and preferential dispersion on firms' productivity. Moreover, the heightened economic uncertainty also plays an important role in firm's precautionary decision-making on recruiting employees, causing a greater response to unemployment, especially during a recession (Bloom, 2009) and (Caggiano et al., 2017). In addition, other empirical studies also show that policy uncertainties have an impact on increasing long-term inflation (Istrefi & Piloiu, 2014) and increasing interest rates (Ashraf, 2021).

Apart from macroeconomics, economic policy can also generate high uncertainty in the business environment and have an impact on firm-level (microeconomics) activities. High EPU can affect both financial markets and corporate behavior (Zhang et al., 2015). Uncertainty in economic policy has an important influence on the firm's investment policy decisions. When policy uncertainty is high, this will cause firms to decrease their investment expenditure due to the postpone of investment decision (Kang et al., 2014; Wang et al., 2014). Firms with higher return on investment and more internal financing will benefit from this situation. Furthermore, EPU also has an impact on the firm's decision to postpone employee recruitment because the firm needs to shrink aggregate supply in the short term (Bernanke, 1983) and (Ghirelli et al., 2021) and in such situation, the firm will choose to hold more cash as a precautionary action (Cao et al., 2013), (Demir & Ersan, 2017), (Phan et al., 2019), and (Zhang et al., 2015).

From all the previous research above, most of these papers explain the effect of policy uncertainty on the micro level variable partially through the cost of debt channel, which is one of the main sources of corporate funding. However, there is still lack of research study the effect of EPU to the cost of debt, especially in emerging market. This study aims to contribute to the literature by providing the empirical evidence of this relationship in Indonesia.

As we know, the cost of debt is part of the cost of capital and the impact of EPU on the cost of capital depends on the financing mix, which consists of the cost of debt and the cost of equity (Drobetz et al., 2018). The effect of EPU on the cost of debt has two main channels, namely information asymmetry and default risk. According to Zhang et al. (2015), the increase in policy uncertainty causes a drastic decrease the supply of loans. This situation leads to the emergence of more information asymmetry problem between borrowers and creditors. The increase

of information asymmetry problem causes an increase in agency cost, hence creditors will charge higher cost of debt (Jensen & Meckling, 1976), (Myers, 1977), (Myers & Majluf, 1984). In addition, default risk is another main channel that affects EPU on the cost of debt (Black & Scholes, 1973). Based on real options theory, firms choose to postpone their investment activities as a precautionary action when there is uncertainty in economic policy (Bernanke, 1980), (Bloom et al., 2007). When firms postpone the investment, it can cause high volatility in the firms' future cash flows which will increase the default risk and cause creditors to increase the firms' cost of debt (Zhang et al., 2015).

Furthermore, to deepen our research on the relationship between economic EPU and debt financing costs, the crisis is used as promising exogenous shocks for extended analysis. Crisis can increase policy uncertainty, and cause firms to experience a lot of financial constraints due to capital market conditions that do not operate efficiently and the lack of credit bank availability for the firm (Flannery et al., 2013). This study results are in line with the results of research developed by Bernanke (1983) and Zhang et al. (2015), which show that an increase in EPU could increase the cost of debt caused by the occurrence of information asymmetry between lenders and borrowers and the firm's default risk. Moreover, we also show that the effect of EPU on the cost of debt is even greater when a crisis occurs. Crisis causes more constraints and inefficiency in the capital market which results higher cost of debt due to heightened firm's cash flows volatility. In addition, economic policy uncertainty has a higher effect on the large firm sample than on the small firm sample. However, when a crisis occurs, the effect of economic policy uncertainty on the cost of debt is greater in small firms than large firms (Faulkender & Petersen, 2006).

According to Tran (2021), the positive relationship between uncertainty in economic policy and the cost of debt financing has two main factors that influence it. First, information asymmetry that occurs between the firm and creditors. This occurs when creditors feel they are experiencing information disadvantage, so they increase the cost of debt financing when they want to provide capital for the firms (Jensen & Meckling, 1976), (Myers, 1977), (Myers & Majluf, 1984). Information asymmetry becomes more severe under conditions high EPU, so the cost of debt is also increased by creditors (Zhang et al., 2015). Second, according to real options theory, firms usually postpone their investment projects when they face uncertainty (Bernanke, 1980; Bloom et al., 2007). With the high uncertainty of economic policy, the firm's investment is harmed, causing high volatility in the firm's future cash flows. As result it increases the risk of default, which causes an increase in the cost of debt. Further research that supports a positive relationship between the EPU and cost of debt can be seen from Bordo et al. (2016) and Gilchrist et al. (2014) which shows a positive effect between political uncertainty and the cost of financing corporate debt, as well as Waisman et al. (2015) which shows that the uncertainty of economic policy can reduce the availability of bank loans. So based on the explanation above, the first hypothesis can be formulated as.

H_1: Economic policy uncertainty positively affects the cost of debt.

Moreover, we will also further our analysis by utilizing the crisis as an exogenous macroeconomic shock (Jebran et al., 2019) and (Tran et al., 2017). According to Flannery et al. (2013), with the occurrence of the global financial

crisis, the performance of the capital market became less efficient, and the firm also experienced a shortage of bank credit. In addition, Adrian et al. (2018) argues that financial crisis produces high economic uncertainty as well and causes firms to tend to experience high volatility in their cash flows. Another study also shows that a firm's cash flow becomes more volatile when facing the Asian financial crisis (Lemmon & Lins, 2003). Based on the explanation above, the second hypothesis can be formulated as.

H_2: The effect of economic policy uncertainty to cost of debt is stronger during the crisis period.

RESEARCH METHOD

To examine the relationship between EPU and the cost of debt financing, we use fixed effect panel data regression. This quantitative research uses secondary data which we extract firm's financial report data from the S&P CAPITAL IQ database. The sample of this study is public listed companies in Indonesia Stock Exchange. The observation of the study includes from 2006 to 2020. For the uncertainty measurement, we utilized EPU index that developed by Ahir et al. (2018), which is available at www.policyuncertainty.com.

We follow Demir & Ersan (2017) and Gilchrist et al. (2014) to determine our sample selections and the following firm-years criteria are excluded from our samples: (1) Firm-years that have negative total assets, equity, liabilities and sales revenue; (2) Firm-years included in the financial sector and utility industry in accordance with the IDX Industrial Classification (IDX-IC); (3) Firm-years with incomplete information regarding our research variables. The research sample includes a total of 4,312 firm-years observations collected from 453 firms under IDX industrial Classification in the period 2006 to 2020. All financial variables are winsorized by 1% to prevent outlier effects.

In this empirical research model, we use the cost of debt as the dependent variable. Furthermore, the main independent variable of this research is economic policy uncertainty. In this study, there are 10 control variables that will be used in the empirical model. The dummy variable is used to control when the crisis period occurs, it is from 2008 to 2009 and 2020, while the control variables at the firm level are lagged values of operating cash flow, Tobin's Q, asset tangibility, financial leverage, and firm size. Meanwhile, the control variables at the country level include the lagged value of stock market volatility, inflation rate, GDP growth, and real interest rate. Lagged value is used to eliminate potential endogeneity caused by firm characteristics and the cost of debt itself. All variables' definitions are presented in Table 1. In investigating the relationship between economic policy uncertainty and corporate debt financing cost, the empirical model is as follows.

$$COD_{i,t} = \alpha + \beta_1 EPU_{t-1} + \beta_2 OCF_{i,t-1} + \beta_3 TBQ_{i,t-1} + \beta_4 LEV_{i,t-1} + \beta_5 TAN_{i,t-1} + \beta_6 SIZ_{i,t-1} + \beta_7 VOL_{t-1} + \beta_8 Gdp\_gro_{t-1} + \beta_9 Inflation_{t-1} + \beta_{10} Interest_{t-1} + \varepsilon \quad \ldots\ldots(1)$$

Meanwhile, to investigate whether economic policy uncertainty will be stronger during the crisis, an interaction between economic policy uncertainty and the financial crisis dummy is added to Eq. **Error! Reference source not found.**. The equation will be as follows.

$$COD_{i,t} = \alpha + \beta_1 EPU_{t-1} + \beta_2 EPU_{t-1} * CRI_t + \beta_3 CRI_t + \beta_4 OCF_{i,t-1} + \beta_5 TBQ_{i,t-1} + \beta_6 LEV_{i,t-1} + \beta_7 TAN_{i,t-1} + \beta_8 SIZ_{i,t-1} + \beta_9 VOL_{t-1} + \beta_{10} Gdp_{gro}{}_{t-1} + \beta_{11} Inflation_{t-1} + \beta_{12} Interest_{t-1} + \varepsilon \quad (2)$$

Table 1. Definitions of Research Variables

Variables	Variable names	Definitions
COD	Cost of debt	Interest expenses divided by average long-term and short-term debt
EPU	Economic policy uncertainty	The average value of twelve-monthly uncertainty index developed by Ahir et al. (2018) in a fiscal year. These indices are published at www.policyuncertainty.com
CRI	Financial crisis dummy	Assigned 1 if observations fall in the crisis period from 2008 to 2009 and 2020; and 0 otherwise
OCF	Operating cash flow	EBITDA after interest expenses, taxes and dividends divided by total assets
TBQ	Tobin's Q	Market value of equity plus book value of liabilities scaled by total assets
LEV	Financial leverage	Total debt to total assets
TAN	Asset tangibility	Property, plant, and equipment to total assets
SIZ	Firm size	Natural logarithm of firm's total assets in IDR
VOL	Stock market volatility	IDX Stock market volatility
Gdp_gro	GDP growth	Annual GDP growth rate published by World Bank
$Inflation$	Inflation rate	Annual inflation rate published by World Bank
$Interest$	Real interest rate	Annual real interest rate published by World Bank

Source: Research Data, 2022

RESULTS AND DISCUSSION

Table 2 presents a statistical analysis that provides an overview of the characteristics of each research variables used in the model. The descriptive statistics are used to check whether there are any oddities in the research data. All these variables are winsorized by 1% to prevent outlier effects. The cost of debt in Indonesia varies widely with an average of 0.083. The smallest cost of debt is 0 which indicates that there may be firms that do not have interest rate but still have small amount of debt as we can see from the leverage ratio, while the largest cost of debt is 0.311. Indonesia's uncertainty index data used in the research is based on the study of Ahir et al. (2018). In addition, the financial crisis dummy has a minimum of 0 which indicates that the observation did not occur during a crisis and maximum of 1 which indicates that the observation occurred during a crisis. Meanwhile, the operating cash flows of Indonesian firms are widely distributed, ranging from companies with no gross profit to companies with high gross profits.

On average, Indonesian firms have a market value that is always greater than the firm's book value, especially because Indonesia is a developing country which indicates that both small and large companies are still growing and have not yet reached a mature point. This reason is supported by an explanation that usually the market value is greater than the book value of the firm because the market value includes the profitability and prospects of the firm's growth in the

future. In this research, leverage which is total debt divided by total assets has an average of 0.515 with a minimum of 0.042 and a maximum of 2.393 which is more than 1, which means the firm's total debt is greater than total assets. Usually this happens because the book value of the firm's equity reaches a minus value so that the firm's total debt can be higher than its total assets.

Table 2. Definitions of Research Variables

Variables	Mean	SD	Min	p25	Median	p75	Max
COD	0.083	0.065	0	0.029	0.075	0.122	0.311
EU	0.136	0.088	0.017	0.07	0.112	0.2	0.322
CRI	0.169	0.375	0	0	0	0	1
OCF	0.048	0.069	-0.193	0.013	0.048	0.086	0.242
TBQ	1.613	1.672	0.304	0.838	1.085	1.731	12.037
LEV	0.515	0.326	0.042	0.315	0.494	0.643	2.393
TAN	0.667	0.467	0.002	0.328	0.612	0.94	2.361
SIZ	28.36	1.695	24.352	27.183	28.349	29.516	32.197
VOL	0.012	0.004	0.005	0.009	0.011	0.015	0.024
GDP growth	4.926	1.886	-2.02	5.007	5.07	6.014	6.345
Inflation	6.25	4.688	1.605	3.754	4.293	8.275	18.15
Interest	12.104	1.538	9.544	11.073	11.888	13.252	15.979

Source: Research Data, 2022

Table 3 shows a panel data regression result with model 1 which examines the effect of EPU on the cost of debt financing. We use Driscoll–Kraay robust standard errors for panel data to eliminate heteroscedasticity, autocorrelation, and cross dependence problems. Our results in line with Francis et al. (2014), Waisman et al. (2015) and Zhang et al. (2015) study, which show that EPU increase the cost of debt. This is caused by the occurrence of information asymmetry between lenders and borrowers. Heightened information asymmetry increase agency costs and cause creditors to charge higher costs of debt to the firm (Jensen & Meckling, 1976), (Myers, 1977), (Myers & Majluf, 1984). In addition, firms are more likely to postpone their investment activities and cause the firm's cash flow to become volatile. This condition can increase the firm's default risk and have an impact on increasing the firm's cost of debt (Bernanke, 1983) and (Black & Scholes, 1973).

We also can see that operating cash flow and Tobin's Q have a significant negative effect on the cost of debt, while financial leverage has a significant positive effect on the cost of debt. This result is in line with research conducted by Khaw et al. (2019), who show that a firm with high operating cash flow, high firm value, and low financial leverage, has the potential to have a lower risk of default. The low risk of default makes the firm have a low cost of debt as well. Meanwhile, asset tangibility and real interest rate are not significant to the cost of debt, which means that there is no impact of asset tangibility and real interest rate on cost of debt.

Additionally, firm's size is significantly positive on the cost of debt, this is in line with research developed by Tran (2021), which shows that large and small firms have differences in terms of reputation, systems, and connections between firms so that the effects are also different. Furthermore, stock market volatility and inflation also have a positive effect on the cost of debt. From this, we can conclude

that all macro variables are closely related with EPU and mostly affect the cost of debt in the form of default risk.

Table 3. Baseline Regression. EPU, Cost of Debt Financing, and The Crisis

COD_t	(1)	(2)
EPU_{t-1}	0.031**	-0.015***
	(0.015)	(0.003)
CRI_t		-0.015**
		(0.006)
$EPU_{t-1}*CRI_t$		0.121***
		(0.028)
OCF_{t-1}	-0.05***	-0.045**
	(0.018)	(0.018)
TBQ_{t-1}	-0.002***	-0.002***
	(0)	(0)
LEV_{t-1}	0.03***	0.03***
	(0.006)	(0.006)
TAN_{t-1}	0.002	0.002
	(0.005)	(0.005)
SIZ_{t-1}	0.016***	0.017***
	(0.002)	(0.002)
VOL_{t-1}	0.432**	0.086
	(0.175)	(0.144)
GDP_gro_{t-1}	-0.007**	-0.002*
	(0.003)	(0.001)
$Inflation_{t-1}$	0.002***	0.001***
	(0)	(0)
$Interest_{t-1}$	0.001	0.005***
	(0.001)	(0.001)
Intercept	-0.396***	-0.451***
	(0.066)	(0.067)
N	4312	4312
Prob > t	0.000	0.000
R-squared	0.0651	0.0704

Standard errors are in parenthese. *** p<.01, ** p<.05, * p<.1
Dependent variable is COD = cost of debt in year t. EPU = economic policy uncertainty; CRI = financial crisis dummy; OCF = operating cash flow; TBQ = Tobin's Q - firm value; LEV = financial leverage; TAN = asset tangibility; SIZ = firm size; VOL =stock market volatility; GDP gro = GDP growth.
Source: Research Data, 2022

While model 2 examines the effect of EPU on the cost of debt under the crisis period. The crisis periods used in this study are when the global financial crisis occurred in 2008 to 2009 and the COVID-19 pandemic in 2020. We use crisis at time t, which means that the crisis is an immediate shock, where the effect is directly illustrated by the condition of the firm at that time. The effect of EPU on the cost of debt during a crisis is significantly negative. Even though, if we see from the interaction between EPU and CRI, the effect on the cost of debt is significantly positive. Which means that when a crisis occurs, it increases policy uncertainty which is significantly positive for the firm's cost of debt and the effect of the interaction gives a higher effect for the cost of debt. This is supported by research

conducted by Flannery et al. (2013), they explain that if a crisis occurs, the firm will experience more constraints in carrying out the firm's operational activities, also supported by a capital market that does not operate efficiently and not many credit banks are willing to offer loans to the company. So, it affects the firm's cash flow and causes the higher the cost of debt offered.

Table 4. EPU, Cost of Debt Financing, and The Crisis (Small Vs. Large)

COD_t	(1)	(2)	(3)	(4)
EPU_{t-1}	0.03	0.034**	-0.005	-0.027*
	(0.023)	(0.014)	(0.018)	(0.015)
CRI_t			-0.026**	-0.007
			(0.011)	(0.01)
EPU_{t-1}*CRI_t			0.154***	0.109**
			(0.049)	(0.05)
OCF_{t-1}	-0.044	-0.074***	-0.041	-0.064***
	(0.027)	(0.014)	(0.027)	(0.013)
TBQ_{t-1}	0	-0.004***	0.001	-0.004***
	(0)	(0.001)	(0)	(0.001)
LEV_{t-1}	0.022***	0.043***	0.021***	0.042***
	(0.006)	(0.009)	(0.006)	(0.009)
TAN_{t-1}	-0.009**	0.027***	-0.009**	0.026**
	(0.004)	(0.01)	(0.004)	(0.01)
SIZ_{t-1}	0.018***	0.016***	0.018***	0.016***
	(0.002)	(0.004)	(0.002)	(0.004)
VOL_{t-1}	-0.143	1.052***	-0.425	0.599**
	(0.373)	(0.255)	(0.351)	(0.241)
GDP_gro_{t-1}	-0.005	-0.007	0	0
	(0.004)	(0.004)	(0.003)	(0.003)
$Inflation_{t-1}$	0.001**	0.002***	0	0.001**
	(0)	(0.001)	(0)	(0)
$Interest_{t-1}$	0.002**	0.002	0.005***	0.006***
	(0.001)	(0.002)	(0.001)	(0.001)
Intercept	-0.426***	-0.437***	-0.47***	-0.511***
	(0.074)	(0.14)	(0.076)	(0.15)
N	2105	2207	2105	2207
Prob > t	0.000	0.000	0.000	0.000
R-squared	0.0428	0.1199	0.0451	0.1318

Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1
Dependent variable is COD = cost of debt in year t. EPU = economic policy uncertainty; CRI = financial crisis dummy; OCF = operating cash flow; TBQ = Tobin's Q - firm value; LEV = financial leverage; TAN = asset tangibility; SIZ = firm size; VOL = stock market volatility; GDP gro = GDP growth.

Source: Research Data, 2022

Table 4 shows additional analysis with column 1 and 3 that examines the effect of EPU on cost of debt in small firms, while column 2 and 4 examines the effect of EPU on cost of debt in large firms. In small firms, there is no effect of EPU on the cost of debt. While for large firms, there is a significant effect of EPU on increasing the cost of debt. This is contrary to Tran (2021), which argues that the

larger the firms the less affected by economic uncertainty because large firms usually have a better reputation, control system, and relationships between firms compared to small firms. Indonesia is a developing country and it's possible that large firms in Indonesia are still growing so they are still affected by policy uncertainty. In addition, column 3 and 4 contains additional variables crisis and interaction between crisis and EPU in small firms and large firms. With the presence of a crisis in policy uncertainty, the cost of debt for small firms has become significantly positive. While the interaction between the crisis and EPU is higher for small firms samples than large firms samples. Because when there is policy uncertainty, investors will choose to invest in large firms where creditors will also choose to lend their money to firms that still have cash flow income, so that the company's cost of debt decreases (Faulkender & Petersen, 2006).

CONCLUSION

Our study finds that economic policy uncertainty (EPU) increases Indonesian firm's cost of debt. There are 2 main channels that influence the relationship between policy uncertainty and the cost of debt, namely information asymmetry and default risk. Information asymmetry that occurs between borrowers and creditors, also default risk that occurs due to firms that take precautionary actions in making investment decisions causes increase in the firm's cost of debt. The effect of policy uncertainty on the cost of debt has a greater impact when a crisis occurs. In addition, our additional analysis shows that the EPU has a higher effect on large firms' samples than on small firms samples. However, when a crisis occurs, the effect of EPU on the cost of debt is greater in small firms than large firms, which can be concluded if the crisis plays an important role in the research results.

The limitation of this study is that there are very few studies that discuss the relationship between economic uncertainty and the cost of debt, so there are not many sources of research on the two variables that can be used as references. In addition, we use firms in Indonesia in our study and our study results are different with similar study in developed countries, thus it's harder for us to find adjustment and theories to support our results. Moreover, we believe that cross-countries study could contribute better to the literature by comparing firms in developing and developed countries because they have different characteristics.

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