Global Economic Policy Uncertainty and Corporate Investment: Empirical Evidence from Vietnam

Minh Man CAO[1]

Abstract

The Economic Policy Uncertainty Index is an important indicator that influences the corporate financial and investment behavior of companies. In this study, the corporate investment behavior from 2018 to 2020 of 354 non-financial firms listed in Ho Chi Minh Stock Exchange is analyzed to determine how businesses respond to changes in the Global EPU index and to determine how Leverage, Cash flow, Tobin's Q, Size, and Sales Growth affect business investment. In addition, the research also examined how corporate investment differs between state-owned companies and non-state-owned companies. The data was hand collected and analyzed by Pooled OLS Regression and Fixed-Effect Model through STATA software to determine the relationship between corporate investment and explanatory variables. The results of the study indicate that the correlation between corporate investment and the global EPU index is inversely proportional. This study also proves that the increase of leverage ratio is a factor that helps business investment growth.

Keywords: *Economic Policy Uncertainty, Corporate Investment Behavior, State-Owned Companies, Non-State Owned Companies, Viet Nam.*

INTRODUCTION

Vietnam is a developing economy and significantly influenced by the government's policies, which prioritizes development of an efficient economy in the shortest time. In the last ten years, the Vietnamese economy has shown clear growth. It witnessed a significant increase in GDP from 115 billion USD in 2010 to 226 billion USD in 2019 as well as the economic growth of 6% on average throughout the 10-year period (World Development Indicators, 2020). There are more than six hundred thousand enterprises operating in Vietnam, and the rate of newly established enterprises is about 5% annually (The General Statistic Office of Vietnam, 2019). With the above figures, it is easy to see that Vietnam is a small market, but the number of enterprises is quite large and the competition among enterprises is extremely high. Business investment is considered one of the optimal solutions for businesses to grow and increase profits. However, investment requires some knowledge about the market and risks that small and medium companies in Vietnam have not yet acquired.

Business investment helps businesses participate in financially profitable projects, improve the productivities of assets, machinery, labor, and consolidate corporate financial position to prepare for long-term development; it is especially important in manufacturing businesses. In addition, the positive net present value project helps businesses improve indicators such as ROA, ROE, P/E, and Payout ratio which attract investors to invest in the company's capital or fund. With these assets, the company has sustainable financial resources to develop in the future.

However, during the investment process, a business needs to pay attention to uncertainty from the market. In Vietnam, economic policies are introduced and tested every year to boost the economy (e.g.: taxes, preferential policies for special industries, tightening policies or easing production in specific industries). Policy changes have a direct impact on corporate investments due to changes in indicators such as corporate tax, required return, and cost of debt or equity. Thus, businesses face the problem of investment uncertainty when the state issues or changes policies. This uncertainty is called Economic Policy Uncertainty (EPU).

In the election year or in the years that the Vietnamese government announces that they will change the corporate law, tax, labor law, and other laws related to businesses, corporations in Vietnam will face problems

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[1] International University - Vietnam National University Hcmc; Quarter 6, Linh Trung Ward, Thu Duc City, Hcmc, Vietnam, E-mail: cmman@hcmiu.edu.vn

when the level of economic policy uncertainty increases. As a result, firms will adjust their investments significantly in a variety of ways to minimize the effect of policy uncertainty. This study will determine the tendency of Vietnamese firms to react when the degree of policy-related uncertainty increases noticeably and propose several reasons for that trend.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Economic Policy Uncertainty and Corporate Investment

Several studies in the past examined the reaction of firm capital investment to changes in economic policy uncertainty, and the results seem to agree. Generally, a significant negative relationship was found between economic policy uncertainty and corporate investment. Wang and Huang (2014) found a negative correlation between firm investment and policy uncertainty in China. They also found that when enterprises have high rates of return on equity investment, internal finance relying, and are not a state-owned enterprise (SOEs), EPU will have less of an effect. Gulen and Ion (2016) found that when the uncertainty of future policy and regulatory increases, corporations start to decrease their capital investment. Their study also supports the theory that firms with greater level of investment irreversibility (measured by capital intensity ratio) are more likely to be affected by changes in policy uncertainty. The investment irreversibility makes it more difficult to reverse an investment; therefore, firms tend to postpone their investments when there is high economic policy uncertainty. It is also said that Australian firms delay investment to capture more return on future investments, and EPU can distract investing opportunities based on investment irreversibility (Xikai et al., 2020). In India, economic policy uncertainty has a negative correlation with GDP as well as fixed investment with the figures of 0.56% and 1.36%, respectively (Bhagat et al., 2013). Since Thailand has yet to develop the EPU index, Thai researchers Ponlaem et al. (2021) used EPU index from the U.S., Japan, and China to show that the increase of International EPU index has an impact on and slow down Thailand's economic activities.

In Vietnam, the global economic policy uncertainty inevitably has a negative effect on the economy due to its external-trade structure (Womack, 2009). Also, it was illustrated that the cash-flow, fixed capital intensity, business risk, leverage ratio, and company's size play important roles as the determinants of corporate investment decisions in Vietnam (Nguyen et al., 2016). This supports the assumption that EPU indirectly affect firm's investment by directly influencing the above factors, leading to decision changes of top investment manager. However, the EPU index developed by Baker et al. only measures 20 countries, and Vietnam is not one of them. Therefore, studies on the relationship between economic policy index and corporate investment in Vietnam have not been conducted.

According to Durnev (2012), policy uncertainty during election years has a huge impact on corporate investment with the reduction of 40% as opposed to non-election years. This decline occurred due to concerns about new policies and the market becoming less informative during the election years. In addition, noisy signals for managers have been observed, especially in the case when election results are less certain. Julio (2012) introduced a study claiming that based on the firm's perspective; an election can end up with unexpected outcomes. Then, enterprises are willing to tighten the investment and wait too invest until the uncertainty is eliminated.

Most studies on the relationship between economic policy uncertainty and corporate investments were conducted in developed economies such as China (Feng et al., 2020), the U.S. (Akron et al., 2020), or Australia (Xikai et al., 2020). Government-related phenomena such as election, market control, tax system, and investment incentive/tariff can vary. Thus, this study can contribute to the literature by examining whether the effect of economic policy uncertainty on corporate investments in Vietnam is the same or different from what was found in developed countries.

State Ownership and The Impact of Economic Policy Uncertainty on Corporate Investment

Previous studies showed that SOEs are more affected by economic policy uncertainty compared to non-SOEs or the nature of non-SOEs minimizes the effect of EPU on corporate investment (Wang and Huang, 2014).

In Vietnam, SOEs dominate the economy with 30% GDP contribution and high cost of operation due to a sophisticated system of management (Hai, 2016). Vietnamese SOEs are influenced by political ideology and institutions that force them to change their corporate governance (Phuong and Vu, 2020), which possibly include corporate investment. The state's political influence on SOE prioritizes political interest but not firm's efficiency. Therefore, it is assumed that SOEs in Vietnam will be more affected when political and social policies change than non-SOEs. However, there has not been any research that really proves the relationship between SOE investment and economic policy uncertainty index. This study's goal is to investigate this relationship.

Hypothesis Development

Previous studies have reasonably indicated the nature of the relationship between corporate investment and economic policy uncertainty. However, most studies have been conducted in strong and already mature economies. This study proposes that the Vietnamese economy is developing and dramatically affected by government-related policy. Hence, the first hypothesis is as follows:

Hypothesis 1: Firm investments tend to decline as the level of economic policy uncertainty rises, and vice versa.

In order to get promoted, managers in SOEs are loyal and follow the new policies from the government. Whenever the government makes an effort to control the economy in a specific way, the decisions of SOEs' managers are adjusted accordingly. Hence, the second hypothesis is as follows:

Hypothesis 2: Compared to non-SOEs, SOEs' investments are more influenced by economic policy uncertainty.

DATA AND METHODOLOGY

Data Collection

The data is collected from 354 companies listed in the Ho Chi Minh Stock Exchange (HOSE), excluding financial firms (e.g.: banks, insurance firms, investment funds, and securities companies) as well as firms with missing data. Audited financial statements provided by Vietstock Finance and Cafef.vn from 2018 to 2020 are downloaded to hand collect the necessary information. The final data set includes 1005 firm-year observations. In terms of the EPU index, the monthly economic policy uncertainty index is calculated by Baker et al. (2106) and can be downloaded from https://www.policyuncertainty.com/. Since there's no system to estimate the EPU index in Vietnam, the Global EPU index was used as a substitution because Vietnamese firms are more or less affected by the uncertainty of the world economy. There are two Global EPU indexes, one is the current-price GDP-weighted average national index, the other is the PPP-adjusted GDP-weighted average national index. The annual index was calculated by taking the average monthly indexes over twelve months, a common approach in previous studies.

The objective of this study is to examine the relationship between corporate investment and economic policy uncertainty in Vietnam. To analyze and encode the data, STATA - econometric software was used as a tool to run the analysis.

RESEARCH METHODOLOGY

Measuring The Global Economic Policy Uncertainty (EPU) Index

One of the main concerns in using the Global EPU index is that it might not truly reflect the uncertainty of Vietnamese economic policy. However, as the effect of internationalization and globalization is more pronounced, especially in the business and economics area, Vietnamese companies are more or less affected by global uncertainty.

Another issue is that the EPU index may be confounded by other sources of general economic uncertainty. First, it is possible that the EPU index is closely associated with other macroeconomic uncertainties. The instability events, such as recessions, conflicts, financial crises, leading to policy uncertainty can also theoretically drive global economic uncertainty. It is also possible that companies, when confronted with policy uncertainties,

will also face uncertainty in other areas of their sector, such as market demand or external finance. Second, the concern about the EPU index capturing general economic uncertainty in its construction is still worth considering, even though Baker et al. (2016) have made a lot of efforts to minimize this possible error of measurement. Therefore, time fixed effects were used to control for unobservable but possibly omitted economic uncertainty sources.

Variables Definition

In terms of regression, corporate investment was as the dependent variable and economic policy uncertainty was the main explanatory variable. The control variables include Tobin's Q, cash flow, firm's size, leverage ratio, and sales growth.

Corporate investment is measured as the ratio between capital expenditures and the firm's total assets. Capital expenditures (CAPEX) is calculated as the sum of cash spent for fixed, intangible, and other long-term assets in the statement of cash flow. By observing the monthly Global Economic Policy Uncertainty index provided by Baker et al. (2016), the geometric mean method was used to encode the monthly EPU index into the annual index. Tobin's Q was computed as the sum of market value of the trade and non-trade shares and the total debt over the book value of the firm's total assets. Cash flow is equal to the operating cash flow divided by total assets, and the firm's size is based on the natural logarithm of the firm's total assets. The ratio between the firm's total debt and total assets is considered the leverage ratio. Sales growth was calculated as the percentage change in sales this year compared to the previous year. As for the ownership-classification variable (Statedum), it has the value of 1 if the firm is wholly or partially owned by the government (i.e.: an SOE). Otherwise, Statedum value of 0 means that the firm is a non-SOE.

Research Model

The following research models were used to test two hypotheses developed in Chapter 2.

$$Inv_{i,t} = \alpha + \beta_1\, GlobalEPU_t + \beta_2\, TobinQ_{i,t} + \beta_3\, Cf_{i,t} + \beta_4\, Size_{i,t} + \beta_5\, Leverage_{i,t} + \beta_6\, Salesgrowth_{i,t} + \varepsilon_{i,t} \qquad (1)$$

$$Inv_{i,t} = \alpha + \beta_1\, GlobalEPU_t + \beta_2\, GlobalEPU_t \; x \; Statedum_{i,t} + \beta_3\, TobinQ_{i,t} + \beta_4\, Cf_{i,t} + \beta_5\, Size_{i,t} + \beta_6\, Leverage_{i,t} + \beta_7\, Salesgrowth_{i,t} + \varepsilon_{i,t} \qquad (2)$$

where: *the subscripts i and t indicate firm i and year t, respectively*

Table 1. Variable Measurements

Variable	Indicator	Formula/Collect
Dependent	Corporate Investment	Inv: Corporate investment scaled by total assets. Inv = Capital expenditure / Total assets
Explanatory	Global Economic Policy Uncertainty	The annual Global EPU index: Global EPU = Average of twelve monthly Global EPU indexes from https://www.policyuncertainty.com/ (Baker et al., 2016). Two indexes were used: GlobalEPU1 based on current-price GDP and GlobalEPU2 based on PPP-adjusted GDP
	Tobin's Q	A proxy of growth opportunities. Tobin's Q = (Market value of equity + Book value of assets − Book value of equity) / Book value of assets
	Cash flow	Operating cash flow scaled by total assets Cf = Cash flow from operating activities / Total assets
	Firm's Size	Size = Natural logarithm of total assets
	Leverage	Leverage = (Long-term debt + Short-term debt) / Total assets
	Sales Growth	Sales growth = (Sales$_t$ − Sales$_{t-1}$) / Sales$_{t-1}$)
	Statedum	A dummy variable indicating firm with or without state ownership. Statedum equals 1 for SOEs and 0 for non-SOEs.

To determine the most appropriate test for the model, the data set is structured as panel data and there should be some processes for analysis before application of the main regression model. Generally, the Pooled Ordinary Least Square and Fixed-Effect Model were used to support data analysis for the regression models.

Pooled Ordinary Least Square (Pooled OLS) is based on normal OLS's criterion that the data set must not include unique characteristics of individuals and universal effect over time. However, Pooled-OLS method might cause the existence of heterogeneity because of the measurement effect by pooling all the observations. To eliminate the effect, the Fixed-Effect Model (FEM) was applied. When using FEM, unique characteristics of individuals still exist but will not vary across the time period. Additionally, with this model, the intercept of each corporate is stable but changes across firms.

Among explanatory variables, EPU is considered an exogenous factor while other factors are endogenous to corporate investment. Therefore, it is necessary to address the endogeneity issue to avoid potential incorrect signs of coefficients (Ketokivi and McIntosh, 2017) or potential wrong inferences of causal effects. For panel data, to address the potential endogeneity issue caused by omitted variables, the Fixed-Effect Model and the Pooled-OLS regression were used.

DATA ANALYSIS

Descriptive Statistics

Table 2. Descriptive Statistics

Variables	N	Mean	Median	Min	Max	Std. Dev.
Corporate Investment	1005	.048	.02	0	3.646	.142
Global EPU	1005	255.044	256.058	189.348	319.9	53.13
Adjusted Global EPU	1005	263.174	268.066	193.751	327.796	54.658
Tobin Q	1005	1.202	1.013	.074	12.413	.836
Cash flow	1005	.073	.048	-1.727	14.089	.464
Firm's size	1005	14.492	14.322	11.398	19.188	1.393
Leverage	1005	.225	.202	0	.723	.176
Sales Growth	1005	.103	.043	-24.163	10.838	1.104
Statedum	1005	.354	0	0	1	.479

*This table presents the descriptive statistics of variables in the final data set. Definitions of variables are stated in Section 3.2.2

The variables in the table are classified into two types: 1/ dependent variable (corporate investment variable) and 2/ explanatory variables (the remaining variables). Based on the data from 354 non-financial companies listed on Ho Chi Minh Stock Exchange, Table 2 provides sample size, mean, median, maximum value, minimum value, and standard deviation of each variable.

Considering the Corporate Investment variable, businesses spend an average of 4.8% of the company's total assets on business investments. Between 2018 and 2020, the firms in the study spent a maximum of 364.6% and a minimum of 0% of the company's total assets on investment. The standard deviation was significantly higher than the mean value, which demonstrated that there was a large difference in investment from one company to another or from one sector to another. The difference can be explained by the impact of the COVID-19 pandemic on different industries. Businesses that have good adaptability and digital transformation or businesses that produce necessary goods will be less affected than sectors such as tourism, aviation, and the luxury-goods industry.

The annual Global Economic Policy Uncertainty Indexes from 2018 to 2020 were calculated by the average of twelve monthly Global EPUs of each year. EPU value fluctuated from approximately 190 to 320 with an average value of approximately 260. The fluctuation of this index was caused by political changes in the world during the period from 2018 to 2020 (e.g.: BREXIT, the US presidential election, the crisis in the Middle East, and especially the COVID-19 global pandemic).

As for the Tobin Q, this ratio represents the comparison of book value and market value of equity. The lowest and highest Tobin Q values in this study were 0.074 and 12,413, respectively. However, the correlation between companies is not too signification when the value of the standard deviation is much lower than the mean value. It can be concluded that the big difference between the max and min values is only one or a few special companies out of a total of 354 companies included in this study. Thus, the firms surveyed in this study largely have a slightly higher equity value with a mean book value of over 1.2.

In terms of cash flow variable, this research used operating cash flow to calculate total firm's assets. A total of 1005 samples were observed with the mean value of 0.073. The low mean value of the ratio can be explained by the fact that there were both positive and negative values of operating cash flow among the observations. With the max and min values of 14.089 and -1.727, respectively, and the high standard deviation compared to the mean value, businesses utilize cash flow of operation differently from reinvesting in the company to pay dividend to the shareholders.

By measuring the natural logarithm of total assets, the mean value of the surveyed firms was approximately 14.492. The data fluctuated within a narrow range of 11.4 and 19.2. In addition, this variable had a significantly small standard deviation of approximately 1.39. Thus, there was a small gap between firm's sizes. The firm-size data was evenly distributed, as proven by the approximate equality of mean value and the average of two extremes. Hence, the survey covered a large range of company size.

The descriptive statistics table also provided information on leverage. It is clear that on average, businesses in this study allocate about 22.5% of the total assets by the debt and 77.5% of equity. Based on the max and min columns, several firms ignore the strategy of using debt in their firm while others raised the debt to equity ratio to 300% with the level of debt being 72.3% of total assets. Despite the tax-shield advantage of debt, many businesses in this study only used a low level of debt. This may be attributed to risk aversion behavior and/or stakeholders who did not know the advantage of debt. Nevertheless, many firms distributed a considerably high rate of debt in the ratio, which exceed the optimal debt limit and increase their bankruptcy risk.

The sales growth index of the companies in this study was quite complex. The mean value is only approximately 10%, which means the average sales growth of 354 was low (equal to the revenue growth of a mature company). In addition, the standard deviation of this variable (approximately 110.4%) is much higher than the mean value. This proved that the growth of sales among the companies varied widely. This difference is completely explainable. Companies operate in many different fields with distinct buying behavior and influencing factors. Throughout the COVID-19 pandemic, some industries still maintained their revenue growth while other industries (e.g.: aviation, tourism, and luxurious stuff) suffered heavy losses. That is the reason the sales growth index had a huge range (1080.38% and -2416.3%).

The statedum variable (1 for SOE and 0 for non SOE) had the mean value of 0.354, which show that the majority of companies in this study were non-SOEs.

Correlation Among Variables

Table 3. Pairwise Correlations among variables

Variables	Corporate Investment	Global EPU	Adjusted Global EPU	Tobin's Q	Cash Flow	Firm's Size	Leverage	Sales growth	Statedum
Corporate Investment	1.000								
Global EPU	-0.055*	1.000							
Adjusted Global EPU	-0.055*	0.999***	1.000						
Tobin's Q	-0.012	0.021	0.018	1.000					
Cash Flow	-0.003	-0.021	-0.021	0.048	1.000				
Firm's Size	0.026	0.017	0.017	0.082***	0.008	1.000			
Leverage	0.107***	-0.019	-0.019	-0.155***	-0.008	0.267***	1.000		
Sales growth	0.025	-0.033	-0.032	0.009	-0.008	0.028	0.058*	1.000	
Statedum	-0.041	-0.012	-0.012	0.151***	0.040	-0.033	-0.156***	-0.076**	1.000

The level of significance is represented by the number of stars (*) written after the correlation coefficient.

***: significant at the level of 1%

**: significant at the level of 5%

*: significant at the level of 10%

Table 3 provides the correlation coefficients among variables. At first glance, it is clear that the correlation coefficients of corporate investment and global EPU, adjusted global EPU, Tobin's q, cash flow, and statedum are negative while the remaining correlation coefficient of corporate investment are positive.

The relationship between corporate investment and the two EPU indices was negative with the absolute value of 0.055. This shows that these two variables are inversely related and supports the original hypothesis that when EPU increases corporate investment will decrease. This correlation coefficient is also significant at the level of 10%, which has the statistical value and reference. In addition, the global EPU and adjusted global EPU are correlated at 0.999 and significant at the level of 1%. It is proven that these two metrics are perfectly correlated so in the next regression model only the adjusted global EPU was used.

In terms of Tobin's Q, the correlation coefficient between the Tobin's Q and corporate investment is -0.012, which is different from the expectation since the higher Tobin's Q demonstrates the higher chance to invest. However, this figure is not significant at any level so it cannot be used as a statistical reference. In contrast, with the same trend of insignificant value, the relationship between cash flow and business investment still follows the assumption when it has a value of -0.003. This trend is expected because if businesses use cash to invest back into the company, the operating cash flow can be declined or even negative. Moreover, both firm's size and sales growth variables are positively correlated to corporate investment, which means a more dominant-size or a higher sales-growth firm saw greater investment.

As significant at 1% and correlation value of 0.107, leverage and corporate investment data positively move together and have a strong statistical value with highest level of significance. This relationship is entirely predictable based on the tax advantages of debt shield. When companies raise percent leverage up to a certain level, they will benefit from the share price increased by signaling to the outside investors and cost deduction thanks to the tax shield. They can mobilize capital for reinvestment without issuing shares, from which business investment also increased.

All the variable's correlations have absolute values less than 0.7. Hence, multicollinearity will not be a problem in the regression model.

T-test

This table provides information about corporate investment in the surveyed companies: number of observations, mean value of corporate investment in a year, standard deviation, and confidence interval.

Table 4. Corporate investments classified by year.

Group	Obs.	Mean	Str. Err.	Std. Dev.	[95% Conf.	Interval]
2018	333	.056995	.011334	.206826	.0346995	.0792905
2019	340	.049496	.005535	.098734	.0389631	.060028
2020	332	.0376775	.048335	.0880712	.0281691	.0471858

Table 5. Corporate investment in low vs. high global economic policy uncertainty period

	Diff (p-value)
Difference in corporate investment (2019 – 2020)	.0118181* (0.0511)
Difference in corporate investment (2018 – 2020)	.0139317* (0.0589)
Difference in corporate investment (2018 – 2019)	.0074995 (0.2736)

The difference was calculated by subtracting means of corporate investment in a low Global EPU year from that of a high Global EPU year. The level of significance is represented by the number of stars (*) written after the diff value.

***: significant at the level of 1%

**: significant at the level of 5%

*: significant at the level of 10%

Table 4 provides information on the average value of corporate investment over each year from 2018 to 2020 based on observations ranging from 332 to 340. To compare the change in corporate investment from year to

year, table 5 calculated the difference between mean corporate investments in higher-EPU year and lower-EPU year with the value of Global EPU from 2018, 2019, and 2020 being 193.7, 268, and 327.8, respectively.

Considering the data comparison between 2019 and 2020, the difference of corporate investment showed a positive result, which proves the assumption that higher EPU is correlated with lower level of investment. Both years had high levels of global EPU since several political events happened in the U.S, Europe, Middle West (e.g.: the 2020 US presidential election and COVID-19 pandemic). The impact of the COVID-19 pandemic is especially global and significantly affects economic, social and political issues. As a result, the global EPU index in 2020 is much higher, and the mean value of investment decreased by nearly 1.18% compared to 2019. The difference had a p-value of 5.11%, which means that investment in 2020 is significantly lower than that in 2019.

The same trend is also observed in the difference in value between 2018 and 2020. 2018 was arguably the final year when the EPU index was stable at the level under 200 before rising significantly in 2019 and 2020. This illustrates the reason why the difference between 2018 and 2020 is positive – even higher than the difference between 2019 and 2020 – at 0.0139317 and significant T-test result at 10%.

Data for 2018 and 2019 still yield positive results, which proves that corporate investment in 2018 is higher than 2019 when Global EPU in 2019 is 38% greater than that in 2018. However, since the global impact of COVID-19 was felt around the end of December 2019, businesses have not yet reacted with noticeably business investment changes. Thus, the result of the T-test between 2018 and 2019 is insignificant.

Regression Results

Model 1

Pooled OLS

Table 6. Pooled OLS regression results for model 1

Corporate Investment	Coefficient (t)	P-value
Adjusted Global EPU	-.000136 * (-1.67)	0.096
Tobin's Q	.0009254 (0.17)	0.865
Cash flow	-.0011259 (-0.12)	0.907
Firm size	-.0002681 (-0.08)	0.936
Leverage	.0862981*** (3.22)	0.001
Sales growth	.002186 (0.54)	0.589
Constant	.0670679 (1.31)	1.31
F-Test	2.48	
Number of observations	1005	
R-Square	0.0147	
Adjusted R-Square	0.0088	

The level of significance is represented by the number of stars (*) written after the coefficient.

***: significant at the level of 1%

**: significant at the level of 5%

*: significant at the level of 10%

Based on 1005 observations from 354 non-financial companies listed on the HOSE, the adjusted R-square of this model is about 1%, which means that approximately 1% of corporate investment variable was influenced by the explanatory variables. This index is low and suggests that the explanatory variables are not the main factors affecting the change in the dependent variable. The F-Test result is quite small (2.48), and the p-value is 0.02. Inferred, it will have at least one explanatory variable that may impact the dependent variable.

Regarding the results of the Pooled OLS regression model, there are six explanatory variables, two of which give significant results. The results show that the adjusted global EPU variable has statistical value and has a negative effect on business investment. With a coefficient of -0.000136 and significant at 10%, this result supports hypothesis 1 that as the global EPU increases firms will decrease corporate investment. Similarly, leverage ratio also has a significant effect on corporate investment with a coefficient of 0.086 and significant at

1%. Thus, corporate leverage percentage has a noticeable effect on corporate investment among the companies surveyed.

Although not giving statistically significant results with p-values greater than 10%, the other explanatory variables have coefficient results consistent with the correlation coefficient and literature review. Specifically, the variables Tobin's Q and Sales Growth have a positive coefficient. This means that when the company is overvalued, there are many investment opportunities, the revenue growth rate is high, and companies will increase business investment. The fact that these coefficients are not significant may be due to the volatility of the Vietnamese stock market in recent years and the effects of the COVID-19 pandemic; thus, revenue growth will also be influenced accordingly. Cash flow variable is not an exception. Although the regression results are not statistically valid, it still shows that cash flow and business investment have an inverse relationship as shown in the correlation coefficient table. When firms decide to invest in businesses, the company's cash flows will decrease. However, there is one variable completely contrary to the results of other studies and correlation coefficient: firm size. The model results show that firm size and investment have a negative coefficient with the value of -0.0002681, which means that the larger the firm the lower the corporate investment between 2018 and 2020.

Fixed-Effect Model

Table 7. Fixed-Effect Regression result for model 1.

Corporate Investment	Coefficient (t)	P-value
Adjusted Global EPU	-.0001048(-1.25)	0.211
Tobin's Q	-.0043491(-0.34)	0.731
Cash flow	-.0074169(-0.64)	0.521
Firm size	-.0535276*(-1.72)	0.086
Leverage	.1757076*(1.88)	0.061
Sales growth	.0014031(0.30)	0.768
Constant	.8174712*(1.85)	0.064
F-Test	1.17	
Number of observations	1005	
R-Square overall	0.0006	

The level of significance is represented by the number of stars (*) written after the coefficient.

***: significant at the level of 1%

**: significant at the level of 5%

*: significant at the level of 10%

As for the Fixed-Effect Model, the model's F value is exactly 1.17 and the overall R-Square value is 0.6%. These two results show that the reliability of this model is not good and only 0.6% of the change of the dependent variable is due to the influence of the explanatory variables.

In addition, the relationship between adjusted global EPU and corporate investment in this model remains inversely valid, which strongly suggests that when the global EPU index changes corporate investment will change in the opposite direction. However, this result is not statistically significant because the p-value is greater than 10%. The cash flow and sales growth variables show a similar trend as in the Pooled OLS model. As explained above, when businesses decide to reinvest, the cash flow in the business will decrease or even have a negative value because the reinvestment requires cash. Thus, the corporate investment and cash flow have a negative correlation. High sales growth creates an opportunity for the company to develop and helps easily increase business investment. Both variables have p-values greater than 10%, so the effect on the dependent variable cannot be verified.

Notably, the firm size variable has a negative coefficient, which means that corporate investment is inversely proportional to the size of the firm. This coefficient is significant at 10% so this result has statistical and explanatory value. Similarly, the coefficient of leverage and corporate investment is also significant at 10% with a value of about 0.176.

Model 2

Pooled OLS

Table 8. Pooled OLS regression results for model 2

Corporate Investment	Coefficient (t)	P-value
Adjusted Global EPU	-.0001296 (-1.57)	0.116
Interaction	-.0000204 (-0.57)	0.565
Tobin's Q	.0013211 (0.810)	0.810
Cash flow	-.0009334 (-0.10)	0.923
Firm size	-.0002849 (-0.09)	0.932
Leverage	.0843299*** (3.12)	0.002
Sales growth	.0020391 (0.50)	0.615
Constant	.0674946 (1.32)	0.189
F-Test	2.17	
Number of observations	1005	
R-Square	0.0150	
Adjusted R-Square	0.0081	

Interaction is equal to adjusted global EPU x Statedum.

The level of significance is represented by the number of stars (*) written after the coefficient

***: significant at the level of 1%

**: significant at the level of 5%

*: significant at the level of 10%

In this model, the adjusted R-Square and F are roughly similar to that of model 1 with the value of 0.81% and 2.17, respectively. These two values represent the reliability of the model as 2.17 and 0.81% of the change in the dependent variable caused by the explanatory variables.

Considering each variable, the relationship between corporate investment and global economic policy uncertainty is still inversely proportional. However, with a p-value of 0.116, this result is insignificant and has no statistical value. In terms of the Interaction variable, the negative coefficient indicates that the effect of Global EPU index on corporate investments is more negative for SOEs. The result is consistent with hypothesis 2 that SOEs are more negatively affected by EPU than non-SOEs. However, the coefficient value is very small and not statistically significant, implying that there might be no significant difference between SOEs and non-SOEs in terms of the effect of EPU on corporate investments.

Similar to the Pooled OLS results of Model 1, the coefficients of Tobin's Q, Sales Growth, and Leverage ratio are all positive. As explained in the previous sections, Tobin's Q and Sales Growth represent the investment ability as well as the good development of a business. When these two variables increase, it will signal that a company is growing favorably and is ready to reinvest in the business. Meanwhile, an increase in the Leverage ratio means that the company uses more debt in its asset structure. The benefits of tax shield and signaling are indisputable. Therefore, the increased leverage ratio will facilitate business investment. However, Tobin's Q and Sales Growth cannot be considered a statistical reference as the p-value is greater than 10% while the Leverage ratio is significant at 1% and completely statistically valid. In addition, the firm size and cash flow variables give negative results, which are similar to the results of model 1 and are interpreted similarly.

Fixed-Effect Model

Table 9. Fixed-Effect regression results for model 2

Corporate Investment	Coefficient (t)	P-value
Adjusted Global EPU	-.0001574 (-1.49)	0.136
Interaction	.0001396 (0.82)	0.414
Tobin's Q	-.0043526 (-0.34)	0.730
Cash flow	-.007496 (-0.65)	0.516
Firm size	-.0493991 (-1.57)	0.117
Leverage	.1785781* (1.91)	0.057

Sales growth	.0012425 (0.26)	0.794
Constant	.7579165* (1.70)	0.090
F-Test		1.47
Number of observations		1005
R-Square overall		0.0004

Interaction is equal to adjusted global EPU x Statedum.

The level of significance is represented by the number of stars (*) written after the coefficient.

***: significant at the level of 1%

**: significant at the level of 5%

*: significant at the level of 10%

With the FEM regression model, the reliability of the model demonstrated by F is 1.47. Only 0.4% of the explanatory variables have an impact on the dependent variable. Almost every coefficient gives the same result as in the previous model, except for Interaction and Tobin's Q variables.

Specifically, the inverse relationships include adjusted global EPU, Tobin's Q, Cash flow, and Firm Size. The correlations between the four variables and corporate investment are all negative with p-values greater than 10%. For the adjusted global EPU, Cash flow, and Firm Size variables, the consistently in the opposite direction to corporate investment in the four models applied in the study. In contrast, Tobin's Q variable shows inconsistency in two methods, Pooled OLS and FEM. However, all four of these results have no statistical and reference value.

The positive coefficient on the interaction variable shows that SOEs are less adversely affected by Global EPU index, although this finding does not support hypothesis 2, the coefficient is not statistically different from 0.

Finally, Sales Growth and Leverage ratio are still two variables that are proportional to business investment with the explanation mentioned above. The result of the relationship between sales growth and the dependent variable is not statistically significant when the p-value is almost 0.80 while leverage ratio remains significant through four regression models with p-value always less than 0.10.

CONCLUSIONS

Overall, this study was conducted to analyze the relationship between corporate investment and the global economic policy uncertainty index in Vietnam with data collected from 2018 to 2020 of 354 non-financial companies listed on the Ho Chi Minh Stock Exchange. Several conclusions about corporate investment and explanatory variables will be drawn from the results in Chapter 4. From there, this study will recommend certain investment strategies for companies when there is a change in the global EPU.

Previous studies around the world on the relationship between corporate investment and global EPU have shown that they are inversely related. With the sample of non-financial firms in Vietnam, four results from both models support this trend, one of which is statistically significant. By comparing the average values of corporate investment in a year with low EPU and a year with high EPU, a disparity is observed. This result supports hypothesis 1 that firms will reduce investment as global economic policy uncertainty increases, and vice versa. Also, the outcome of the first hypothesis fully supports prior studies and conclusion of Wang and Huang (2014), Gulen and Ion (2016), Bhagat et al. (2021), and Ponlaem (2021). However, the reliability of this result is still not high and further research is needed. As a recommendation, in the context of high EPU, businesses should maintain low investment to reinvest when EPU returns to a stable level. This behavior helps companies capitalize on waiting and reduces the investment risk from policies, laws, tax systems, etc.

Hypothesis 2 stated that investment of SOEs is be more impacted by changes in global economic policy uncertainty. Based on the results from model 2 in Chapter 4 and Correlation Coefficient among variables, when corporate investment changes due to global economic policy uncertainty, an SOE investment will change more than that of a non-SOE. This is consistent with the prior studies by Wang and Huang (2014) and Phuong and Vu (2020). However, these results cannot be used to support/overturn hypothesis 2 as they have no statistical

and reference value. To draw a recommendation, SOEs should pay attention to risks related to policy changes and global political fluctuations before making investment decisions since they are greatly affected by the government and any change in policy will affect them first as explained in Chapter 2.

Considering the control variables in the model, most of the variables showed a relationship with business investment as expected. Sales Growth, Tobin's Q, and Leverage metrics are directly proportional to corporate investment. Therefore, when these indicators increase, conditions and signs for business investment will develop accordingly. Among the three variables mentioned above, Sales Growth and Tobin's Q demonstrate a reasonable correlation to the company's investment. This supports the past research of Abel and Eberly (2011) about Tobin's Q as well as the study of Odalo el at. (2016) about sales growth. However, the figures cannot be concluded as a factor affecting investment because the coefficient is not statistically significant. In contrast, Leverage ratio is proven to have a direct and strong influence on corporate investment when all four results of the two models are statistically valid. This figure for leverage ratio contradicts the prior studies of Odit and Chittoo (2008) and Vo (2018), which propose an inverse relationship between debt ratio and corporate investment. Business entities in Vietnam should take full advantage of the increased leverage ratio in the company's asset structure. Myers (1984) shows that if a company can fully utilize the advantage of tax shield, then it will have many advantages in reinvesting. In the Vietnamese market, as companies have not yet reached their optimal leverage ratio, corporate investment will increase as percentage of debt rises. However, Myers (1984) also pointed out that the structure of the debt exceeds the optimal; the relationship between investment and enterprise Leverage is inversely proportional.

The Firm Size variable was not as predicted. The coefficient results are opposite when the outcomes are tested using Pooled OLS and FEM so it is impossible to draw a conclusion whether the result supports or contradicts Gala and Julio (2016). However, none of the results have any statistical or reference value. In contrast, variable cash flow produces consistent results and negatively affects business investment when small or negative cash flow will hinder the company's ability to reinvest. The outcome of this variable also contradicts the finding of Abel and Eberly (2011). It is hard to evaluate this relationship. Further research is needed to draw conclusions since the results of the cash flow variable have no reference value.

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