Kurdish Studies
June 2024
Volume: 12, No: 5, pp. 88-97
ISSN: 2051-4883 (Print) | ISSN 2051-4891 (Online)
www.KurdishStudies.net

DOI: 10.53555/ks.v12i5.3178

Exploring Impacts of Market Forces and Economic Policy Uncertainty on Investment Behavior: A Case Study of Pakistan

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Abstract
This study examines the impact of economic policy uncertainty (EPU) on corporate investment in Pakistani firms, incorporating market competition as a moderating factor. Utilizing a panel regression model with fixed effects, we analyze data from 5,124 firm-year observations. The results reveal a significant negative relationship between EPU and corporate investment, with coefficients of −0.061 and −0.068 in the two regression models, indicating that a 1% increase in EPU leads to a 0.061% and 0.068% decrease in corporate investment, respectively. Furthermore, the interaction term between EPU and the sales-based Herfindahl-Hirschman Index (SHHI) is also significant and negative (-0.036), suggesting that the adverse effects of EPU on investment are more pronounced in highly competitive markets. Our findings are consistent with established economic theories, including the pecking order theory and the trade-off theory of capital structure. Control variables such as return on assets (ROA), leverage (LEVERG), and Tobin's Q (TOBQ) also demonstrate significant relationships with corporate investment, aligning with existing literature. This study contributes to the literature by providing empirical evidence from a developing country context, highlighting the role of market competition in moderating the effects of policy uncertainty on corporate investment, and validating key economic theories in the Pakistani corporate sector.

JEL Classification: C23, D40, E22, G31, Q43

Keywords: Economic Policy Uncertainty (EPU), Corporate Investment, Market Competition, Pakistan, Panel Regression, Fixed Effects, Herfindahl-Hirschman Index (HHI), Pecking Order Theory, Trade-Off Theory.

1 Introduction

Economic policy uncertainty (EPU) has garnered substantial attention in recent literature due to its profound impact on corporate investment decisions. Uncertainty in economic policies can significantly affect a firm's strategic choices, especially in markets characterized by high volatility and competition. Prior studies have highlighted the adverse effects of uncertainty on investment behavior, suggesting that higher uncertainty levels can lead to reduced investment activities as firms adopt a more cautious approach (Bloom et al., 2007; Gulen and Ion, 2016). This study aims to explore the specific impact of EPU on corporate investment within the context of Pakistani firms, incorporating the role of market competition as a moderating factor.

Drawing from the real options theory expounded by Dixit and Pindyck (1994), we acknowledge that companies generally balance the decision to postpone investment against the possibility of losing out on immediate prospects. We hypothesise that a key element influencing business investment is the widespread ambiguity around economic policies (Fuss et al., 2008; Dang et al., 2023). The function of competition in the product market is central to our analysis. According to earlier studies (e.g., Laksmana and Yang, 2015), corporations may be compelled to make large investments in order to gain a competitive edge. Other research, however, suggests a more cautious strategy, where businesses in markets with intense competition might postpone investments in order to mitigate the risks brought on by ambiguous regulatory settings (Gilje et al., 2016; Abdoh and Maghyereh, 2020; Chen et al., 2020b). We aim to investigate these opposing theories in the Pakistani setting, where businesses are especially vulnerable to sudden changes in government policies.

In order to assess the influence of EPU on business investment choices, our study makes use of the EPU Index, which was recently unveiled by Choudhary et al. (2020). Our work uses a comprehensive panel dataset of 298 firms from 2010 to 2022, including 5,124 firm-year observations, to analyze the investment habits of enterprises in Pakistan. Corporate investment is calculated as the amount of money spent on long-term assets, including fixed and intangible assets, as a percentage of total assets from the prior year. This methodology is consistent with studies such as those conducted by Chen et al. (2020b). We use the Herfindahl-Hirschman Index (HHI), a commonly

used metric in market competition investigations, to evaluate market competition. Sales and asset-based HHI are the two primary forms utilized, as stated by Jiang et al. (2015); Gupta and Krishnamurti (2018); Chen et al. (2020b). Our study's findings contribute to a better understanding of the interactions between corporate investment, market rivalry, and EPU in Pakistan's financial markets. We observed a substantial negative correlation between higher EPU and business investment. This is consistent with the research of Bloom et al. (2007), which found that because of the risks involved in making irreversible investments, businesses may decide to postpone making investments when there is a lot of uncertainty. Furthermore, our research suggests that market rivalry exacerbates the detrimental consequences of uncertainty on investment. This finding is consistent with the theoretical viewpoints put forth by Vives (2008), who contended that more competition would worsen the negative consequences of uncertainty and cause businesses to be less willing to invest.

This study makes several significant contributions to the literature on corporate investment and economic policy uncertainty, each of which enhances our understanding of how these factors interplay in the context of Pakistani firms. First, by presenting actual data from Pakistan-a developing nation whose corporate sector dynamics have not received much attention in the literature-this study closes a significant gap in the field. Prior research on the relationship between business investment and economic policy uncertainty has mostly concentrated on industrialized nations (Bloom et al., 2007; Gulen and Ion, 2016). This study offers fresh perspectives on the impact of uncertain economic policies on company investment choices in developing economies by analyzing Pakistani companies. The results show a strong inverse link between corporate investment and EPU, underscoring how vulnerable businesses in developing nations are to changes in policy. This is especially important for company executives and legislators in similar rising economies, as stable policies can be very important in attracting corporate investment.

Second, this study provides a deeper view of how competitive forces affect the link between EPU and corporate investment by taking market competitiveness into account as a moderating factor. The substantial interaction term between EPU and SHHI indicates that the adverse effect of EPU on corporate investment is particularly pronounced in highly competitive marketplaces, according to the data. This result aligns with theoretical viewpoints that contend businesses in competitive settings are less likely to invest when uncertain and more risk averse (Vives, 2008).

This contribution is consistent with recent empirical research, as demonstrated by Maghyereh and Abdoh (2020), which also emphasize the role that competition plays in compounding the negative effects of uncertainty on investment.

In conclusion, our study fills the gap in the literature on uncertainty and competition by providing fresh empirical data on how market rivalry affects Pakistani enterprises' investment decisions in the face of uncertainty.

The remainder of the paper is structured as follows: An overview of important literature is given in Section 2. A description of the dataset and the techniques we used is provided in Section 3. The principal findings are discussed in Section 4. In the end, the research is concluded in Section 5.

2 Review of the Literature and Formulation of Hypotheses

2.1 Investment Strategies under Uncertain Environment

Real options theory suggests that the irreversibility of investment projects or sunk costs forces corporations to carefully consider the profit differentials between present and future investments in the context of the relationship between corporate investment and uncertainty. Elevated levels of uncertainty increase the value of delaying investment because they improve the return on waiting for future investment. As a result, companies typically reduce their present investment spending (Pindyck, 1986). Studies like Caballero and Pindyck (1996); Campbell (2002); Tong and Li (2011); Chen et al. (2020a); Xie et al. (2024) among others, provide empirical evidence in favor of this claim at the business and industry levels.

Strategic real option analysis tends to concentrate on how industry dynamics affect when to make investments, especially in highly competitive and unpredictable environments. According to this branch of research, companies without exclusive rights to growth possibilities may be vulnerable to predation risks, in which the advantages of delaying expenditures are outweighed by competitors' fear of snatching up investment chances. According to Grenadier (2002), monopolistic control over a project provides a major option to postpone investment, but in competitive marketplaces, this value is drastically reduced. Studies such as Lambrecht and Perraudin (2003), which examine the strategic dynamics of option exercise in competitive contexts, emphasize this issue. A variety of findings from recent research further emphasize how intricate the connection is between investment, competitiveness, and uncertainty. As an illustration, Vives (2008) shows that although competition can encourage businesses to develop and innovate, too much competition can also discourage investment by lowering expected returns. This dual character implies that the overall impact of competition on investment is unclear and probably changes depending on the circumstances. Similarly, an inverted-U relationship between competition and innovation is revealed by Aghion et al. (2005), suggesting that while moderate levels of competition can encourage

investment and innovation, competition may have negative effects beyond a certain point. This finding is significant because it raises the potential that the degree of market uncertainty firms experience may have an impact on the impact of competition.

Moreover, Bloom et al. (2007) describe how uncertainty might cause corporations to spend more aggressively as a strategic response to future uncertainties or paralysis investment decisions owing to higher risk. Depending on the type and degree of competition and uncertainty, these impacts may be enhanced or lessened by its existence. According to Ghosal and Loungani (2000), whose research looks at how market competition and economic uncertainty interact, firms may respond more cautiously in highly uncertain situations if competition is fierce since new investments carry greater risk. On the other hand, in less uncertain environments, competition may incentivize businesses to make investments by seizing new opportunities. Uncertainty has an adverse effect on investment patterns, according to research by Abdoh and Maghyereh (2020), especially in competitive industries where businesses tend to reduce their investments more than those in less competitive sectors during uncertain times. This example demonstrates how, in unpredictable circumstances, competitive pressures can deteriorate investment returns. In the similar context, Olalere and Mukuddem-Petersen (2023) examine how corporate investments and company value are impacted by competition in the product market, with a focus on the moderating effect of economic policy uncertainty. The data from 1,971 publicly traded firms in the BRIC countries - Brazil, Russia, India, and China - between 2009 and 2020 is examined in this study. They find that in these nations, market competition has a major impact on firms' investments as well as market valuations.

2.2 Theoretical Model and Hypothesis Development

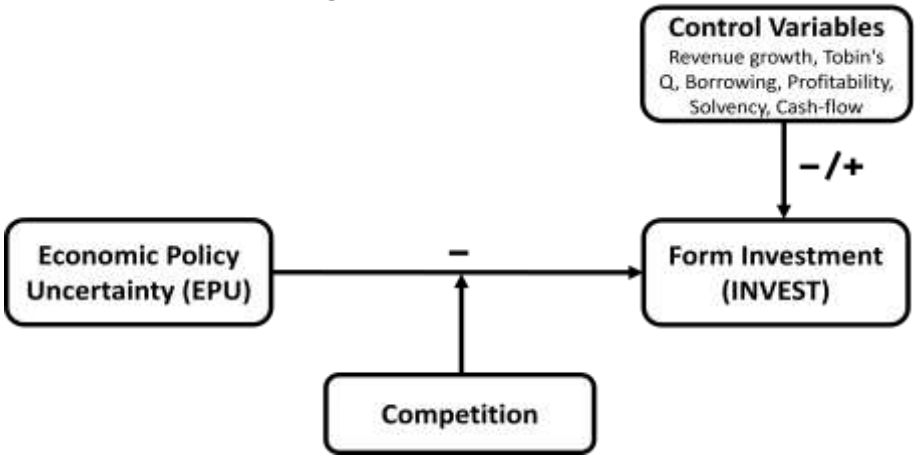
The complex interactions between market competitiveness, corporate investment, and uncertainty - which constitute the foundation of this section - have inconsistent evidence, according to the insights gleaned from the literature. Our research takes into account the conflicting data found in recent studies and acknowledges that the interaction effects between these variables may have a favorable or negative impact on corporate investment behaviors. Because of the variations in the ways that businesses react to market conditions, strategic choices, and industry-specific factors, there is a great deal of complexity in the way that businesses respond to competitive pressures and uncertainties. For our investigation, we specifically suggest the following hypothesis:

Hypothesis 1: *Corporate investment (INVEST) will be significantly impacted by how EPU and market competition interact.*

The purpose of this hypothesis is to investigate the conditional impacts of competition on investment in the face of uncertainty, thereby advancing our knowledge of how businesses plan in intricately variable markets. This strategy fills in knowledge gaps about the dynamic and occasionally conflicting effects of competition and uncertainty on corporate investment patterns, in addition to being consistent with current empirical findings.

The theoretical model presented in Figure 1 illustrates how corporate investment decisions interact with EPU in the context of Pakistan. The idea presented in the foundational work by Dixit and Pindyck (1994) suggests that uncertainty might delay investment because of the option value of waiting. This theory is especially relevant to energy-related enterprises, as they are subject to significant swings in energy policy and market conditions. Furthermore, the competitive dynamics of product markets add another level of complexity to investment decisions, according to Hartman (1972), which suggests that the threat of new entrants can either encourage incumbents to make an investment as a proactive measure or discourage them because of lower returns in a highly competitive environment.

Figure 1: Theoretical Model



Note: This figure depicts the study's theoretical framework, which is based on works that have previously been published.

3 Sample and Methodology

3.1 Data

In this analysis, we use an annual unbalanced panel dataset sourced from the State Bank of Pakistan's publication "Balance Sheet Analysis of Non-financial Firms (BSANFFs) of Pakistan." Our sample includes 298 non-financial companies listed on the Pakistan Stock Exchange (PSE) from 2010 to 2022. To ensure data accuracy, we applied several exclusion criteria. We excluded companies in the financial sector, observations with incomplete data or missing total assets, enterprises listed for less than a year, and organizations involved in special treatments or transactions. We opted for an unbalanced panel dataset to account for changes in business status over time. Additionally, to reduce the impact of statistical outliers, we adjusted continuous variables at the 1% and 99% levels. Our final dataset comprises 5,124 firm-year observations from 298 different firms.

3.2 Main Variables

3.2.1 Economic Policy Uncertainty Index (EPU)

The primary variable under investigation in this study is economic policy uncertainty (EPU), which is commonly quantified using the EPU index. Baker et al. (2016) has provided a methodology for developing an EPU index that gauges news-based coverage of policy-related uncertainty. Multiple authors use this process to produce EPU indices that are unique to each country. Since the study is focused on Pakistan, we chose the EPU index of Pakistan, constructed by Choudhary et al. (2020). Since we collect our EPU data monthly, we employ a weighted averaging technique akin to that of Gulen and Ion (2016); Jing et al. (2023) to transform our monthly data on EPU into an annual measure. The EPU value for year t is calculated annually as follows:

$$Annual\ EPU_t = \frac{\sum_{i=0}^{11} (12-i)\ x\ EPU_{t-i}}{\sum_{i=0}^{11} (12-i)} \quad (1)$$

where the monthly EPU value i months before to month t is represented by EPU_{t-i}. The most recent month's weight ($i = 0$) is 12, and the month eleven months prior ($i = 11$) is 1 due to a linear drop in weights. These weights are added together to provide the denominator, which guarantees a normalized average.[1]

By using this methodological approach, we are able to combine the EPU data for the full year into a single statistic, which highlights the most recent and pertinent changes in energy uncertainty by giving the recent months more weight. This weighted average technique, which is a modification of Gulen and Ion (2016), provides a useful means of converting high-frequency data into an annual format for thorough examination.

3.2.2 Corporate Investment

We define corporate investment as the money spent on developing and purchasing tangible and intangible assets as well as other long-term assets, as shown in the cash flow statement, in accordance with previous research (e.g., Chen et al., 2020b). This investment is is divided by the the total assets of the firm to better compare different companies. We make this measure, which we will refer to as INVEST from here on, our dependent variable.

3.2.3 Competition

The Herfindahl–Hirschman Index (HHI) is the one we use to gauge market competitiveness. One popular method of assessing competition in the product market used in current research is the Sales Herfindahl–Hirschman Index (SHHI) (e.g., Chen et al., 2020b). The market share of each company's sales in the industry is squared, and the squared figures are then added up to determine the index. The following equation can be used to numerically represent the SHHI:

$$SHHI_{j,t} = \sum_{i=1}^{N_j} S_{i,j,t}^2 \quad (2)$$

$S_{i,j,t}$ denotes the market share of company i in terms of sales in industry j for year t in Equation (1). A higher HHI index indicates a more concentrated sector and indicates that businesses operate in a less competitive product market. The HHI metric has a range of zero to one.[1]

3.2.4 Control Variables

We incorporate the following firm-level variables as controls, drawing from earlier research (e.g., Jiang et al., 2018): revenue growth, growth opportunities measured as Tobin's Q, borrowing capability, investment return on total assets, actual borrowing, short-term solvency, flow of funds, size of business, and costs associated with administration. See Table 1 for more explanation of these variables.

[1] We also employ the alternative metric, the Asset Herfindahl–Hirschman Index (AHHI), in accordance with Chen et al. (2020b), and obtain consistent findings.

Table 1: Description of Variables

Type of Variable	Symbol	Description
Dependent Variable		
Company Investment	INVEST	The cash flow statement's recorded expenditures for building and acquiring fixed assets, intangible assets, and other long-term assets are adjusted in accordance with the total assets by the end of the last year.
Independent [Main]		
Economic Policy Uncertainty Index	EPU	Obtained from Choudhary et al. (2020) that is based on textual analysis.
Market Competitiveness		
Sales-based competition	SHHA	Calculated by summing the values obtained from computing the square of each publicly traded company's market share.
Independent [Control]		
Financial Leverage	LEVERG	Defined as the total debt divided by total assets.
Operating Cash-flows	OCFlow	Determined through the division of total assets by net cash flow from operating operations.
Return-on-assets	ROA	Determined by taking the net profit and dividing it by the average total assets.
Administration-related expenses	ADMINEX	Determined as the administrative expenses to gross sales.
Growth Opportunities	TOBQ	Stated as the ratio of market-value to total-assets.
Growth in Revenue	RGR	Determined by subtracting the revenue in year $t-1$ from the revenue in year t, then adjusting the result by dividing by the sales in year $t-1$.
Short-term Solvency	STSOL	Determined by adding up all cash holdings and financial assets that can be traded, then dividing the amount by the total asset value.
Borrowing capability	BCAP	Calculated by taking the fixed asset value and dividing it by the total asset value.
Company Size	COMSIZE	The natural logarithm of the company's total assets for a specific year.

3.3 Descriptive Statistics

The Table 2 presents an overview of the variables used in the study, revealing key insights into the data distribution and underlying trends. Corporate investment (INVEST) shows a relatively low mean of 0.075 with considerable variability (standard deviation of 0.081), indicating significant differences in investment levels across firms. The economic policy uncertainty index (EPU) exhibits a mean of 21.160 and a standard deviation of 5.840, highlighting notable fluctuations in economic policy perceptions. The sales-based Herfindahl-Hirschman Index (SHHA), with a mean of 0.045 and low variability (standard deviation of 0.020), suggests that market concentration is relatively stable among firms.

Return on assets (ROA) averages 0.056, indicating modest profitability, while administrative expenses (ADMINEX) have a mean of 0.116, pointing to a substantial portion of resources being allocated to administrative costs. Revenue growth rate (RGR) displays high variability (standard deviation of 0.396), reflecting diverse growth experiences among firms. Leverage (LEVERG), with a mean of 0.493, suggests that firms rely moderately on debt financing. Tobin's Q (TOBQQ) has a mean of 2.834, indicating that firms generally have market values exceeding their asset replacement costs, yet the high standard deviation (2.421) signals significant variation in market valuation. Operating cash flow (OCFLOW) shows a mean of 0.051, suggesting limited cash flow generation, while stock solution (STSOL) and business capital (BCAP) display moderate means of 0.237 and 0.263, respectively, indicating varying levels of financial stability and resource allocation. Lastly, company size (COMSIZE) has a high mean of 11.999, underscoring the presence of large firms in the dataset.

Overall, the table highlights significant disparities in financial metrics and market conditions across firms, suggesting diverse strategies and performance outcomes. This variability is crucial for understanding the broader

economic and competitive landscape, informing the study's analysis of the impact of economic policy uncertainty on corporate investment.

Table 2: Summary Statistics of Variables

This table summarizes the variables used in the study. "Variable" names each variable. "Mean" is the average value, "St.dev" is the standard deviation, and the 25%, 50%, and 75% values represent the quartiles. "Obsv." is the number of observations. INVEST is corporate investment, EPU is the economic policy uncertainty index from Choudhary et al. (2020), and SHHI is the squared and summed sales shares of firms. Control variables are also included. Refer to Table 1 for details.

Variable	Mean	St. dev	25%	50%	75%	Obs.
INVEST	0.075	0.081	0.020	0.048	0.100	5,124
EPU	4.681	0.263	4.342	4.796	4.962	5,124
SHHA	0.045	0.020	0.025	0.047	0.062	5,124
ROA	0.056	0.068	0.021	0.051	0.091	5,124
ADMINEX	0.116	0.095	0.056	0.094	0.141	5,124
RGR	0.198	0.396	-0.010	0.143	0.329	5,124
LEVERG	0.493	0.250	0.292	0.483	0.682	5,124
TOBQQ	2.834	2.421	1.195	2.124	3.666	5,124
OCFLOW	0.051	0.087	0.003	0.049	0.101	5,124
STSOL	0.237	0.175	0.113	0.183	0.309	5,124
BCAP	0.263	0.194	0.112	0.224	0.377	5,124
COMSIZE	11.999	0.610	10.554	11.937	12.672	5,124

3.4 Regression Model

Building on prior research that explores the the uncertainty-investment links, we utilize the following regression analysis:

$$INVEST_{i,t} = \beta_0 + \beta_1 \, log\, log\, (EPU_{t-1}) + \beta_2 \, log\, log\, (EPU_{t-1}) \; x \, SHHI_{j,t} + \beta CVAR_{i,t-1} + \xi_t + u_i + \varepsilon_{i,t} \quad \textbf{(2)}$$

The $INVEST_{i,t}$ indicates the firm investment made by firm i in year t in Equation (2). The uncertainty index associated to Pakistan's economic policy is denoted by EPU_{t-1}. According to the standard procedures used in earlier research, $SHHI_{j,t}$ is specified as a dummy variable indicating the degree of competition in industry j in year t (e.g., Gupta and Krishnamurti, 2018). A vector of control variables is represented by $CVAR_{i,t-1}$. ξ_t represents the year fixed effects that is useful in reducing the impact of country-specific variables, while the firm-fixed effect is indicated by u_i. Lastly, the unobservable exogenous error part is denoted by $\varepsilon_{i,t}$. The current literature (e.g., Jiang et al., 2018; Chen et al., 2020b) supports using one-period lagged control variables with investment being measured contemporaneously. See Table 1 for a comprehensive definition and explanation of the control variables in this equation.[2]

We employ robust standard-errors to account for heteroscedasticity, which ensures the validity of our estimates even when there is non-constant error variance between data. We additionally cluster our standard errors at the firm level, taking into account the possibility of within-firm correlation in our panel dataset. This adjustment is crucial because it takes into consideration the possibility that corporate outcomes and behaviors within the same firm throughout time are not totally independent. By doing this, we want to increase the robustness of our results and offer more accurate and trustworthy inference in our statistical analyses.

4 Results and Discussion

The Influence of EPU on Firm Investment Strategies

We employ a panel regression model for our empirical research in this paper. Note that we use the Hausman (1978) test to confirm the suitability of the panel regression model with fixed effects for our empirical investigation. Although the comprehensive test results are not displayed here, they are available upon request. With two specifications, the regression results are shown in

[2] Note that we utilize the lagged EPU, as per Meng et al. (2023).

Table 3. Model (1) provides information about the causal relationship between investment and EPU, as well as control factors, without taking the effect of competition into account. Equation (1) describes how Model (2) combines the EPU, control variables, and competition as measured by sales-based HHI.

Table 3: Regression analysis: EPU, Competition, and Investment
The table presents the estimated impact of the economic policy uncertainty (EPU) index from Choudhary et al. (2020) on corporate investment in Pakistani firms. Each column refers to a certain regression model, and every line reflects a distinct variable. Model (1) evaluates the EPU-Investment relationship without accounting for competition. Model (2) includes the EPU index, control variables, and competition measured by sales-based HHI. The p-values, shown in square brackets below the coefficients, indicate the statistical significance of each variable. The presence of firm and time fixed effects is indicated by "Yes" under the 'Firm FE' and 'Time FE' columns. The number of observations (No. of obs.) represents the sample size for each regression model. The adjusted R^2 shows the proportion of variance in corporate investment accounted for by the independent variables. Significance levels are denoted as *** for 1%, ** for 5%, and * for 10%.

Variable	(1)	(2)
EPU	−0.061***	−0.068***
	[0.000]	[0.000]
EPU × SHHI		−0.036*** [0.000]
SHHI	0.001	0.001
	[0.401]	[0.383]
ROA	0.109***	0.108***
	[0.000]	[0.000]
ADMINEX	0.036*	0.035*
	[0.043]	[0.044]
RGR	0.001	0.001
	[0.655]	[0.618]
LEVERG	−0.047***	−0.048***
	[0.000]	[0.000]
TOBQ	0.008***	0.009***
	[0.000]	[0.000]
OCFLOW	0.047***	0.048***
	[0.000]	[0.000]
STSOL	0.012**	0.013**
	[0.033]	[0.034]
BCAP	−0.140***	−0.141***
	[0.000]	[0.000]
COMSIZE	0.005*	0.006*
	[0.089]	[0.091]
Constant	−0.095***	−0.097***
	[0.000]	[0.000]
Firm FE/Time FE	Yes/Yes	Yes/Yes
No. of obs.	5,124	5,124
Adjusted R^2	0.199	0.215

The results indicate a significant inverse relationship between EPU and firm investment. In Model (1), the coefficient for EPU is −0.061, while in Model (2), it is −0.068, both highly significant at the 1% level. This suggests that a 1% increase in EPU is associated with a 0.061% to 0.068% decrease in corporate investment among Pakistani firms, controlling for other variables. The results of earlier research in the field are in line with our findings. According to Bloom et al. (2007), for instance, higher levels of uncertainty may discourage investment because they carry higher risks and may result in additional expenses when making irreversible investments in unpredictable circumstances. In addition, Gulen and Ion (2016) demonstrated a robust negative correlation between policy uncertainty and corporate investment, implying that policy uncertainties in the public sector, can inhibit corporate investment by causing delays as a result of irreversible investment.

In our analysis, the results of Model (2) of Table 3 highlight in particular the interaction among EPU, corporate investment (INVEST), and market competitiveness (as gauged by SHHI). The results are essential for comprehending how Pakistani strategic corporate decisions are impacted by outside factors connected to economic policy. At the 1% level, the EPU coefficient is still significant (−0.059) and indicates a continuing negative relationship between rises in EPU and decreases in corporate investment. Additionally negative (−0.036) and significant at the 1% level is the interaction term between EPU and SHHI (EPU × SHHI), suggesting that the adverse impacts of uncertainty on investment are amplified in more competitive marketplaces. This validates the theoretical viewpoint presented by Vives (2008), who proposed that in highly competitive settings, firms may be less inclined to make new investments when there is a great deal of uncertainty because they are afraid, they would not be able to recover their costs. Further supporting our observation of the negative interaction between EPU and SHHI on corporate investment is Khan et al. (2020), which finds that uncertainties like firm-specific, market-based, and economic policy negatively influence investment, with a more pronounced effect in competitive sectors. Our findings that competition can intensify the investment-dampening effect of uncertainty are supported by Abdoh and Maghyereh (2020), which consistently finds that businesses in competitive industries cut their investments more in response to growing uncertainty.

It is noteworthy that the coefficient for SHHI alone (0.001) does not reach significance, suggesting that market competition does not directly influence business investment. This is consistent with the contradictory results seen in the literature about the direct effect of competition on investment. As an example, Aghion et al. (2005) indicates that the link between investment and competition may not be linear and may rely on other moderating factors such as the degree of uncertainty or dynamics unique to a given sector. Several academic publications offer useful insights to further explicate the complex relationship between market competitiveness and business investment, as revealed by our research. For example, according to Fr´esard and Valta (2012), when competition rises, businesses often boost cash buffers and cut capital expenditures. This strengthens the findings of our study that the Sales Herfindahl-Hirschman Index (SHHI) has no substantial impact on investment. It also raises the possibility that the influence of competition on investment is conditional or mediated by external economic shocks or particular industries. Furthermore, Jian and Zhao (2012) examine the relationship between investment efficiency and a competitive market. According to their findings, fierce market rivalry can improve investment efficiency by stifling the desire to make excessive investments. This conclusion is especially important because it may help to explain why the direct effect of competition, as determined by SHHI, did not significantly affect investment decisions in our study. It may also imply that while the impact of competition on investment may not always be obvious, it may nevertheless result in more effective investment choices.

As we continue to explore the dynamic relationship between the EPU and Corporate Investment (INVEST), our empirical models provide fascinating insights into the roles that particular firm-level factors play in this relationship. The coefficients of each factor provide an explanation that either supports or contradicts conventional economic theories. For example, the coefficient for ROA is positive and significant at the 1% level in both models (0.109 and 0.108), indicating that more profitable firms are likely to invest more. This result is consistent with the pecking order theory, which posits that internal funding avenues are a primary channel for investment (Myers and Majluf, 1984). In contrast, in the presence of other factors, the revenue growth (RGR) did not demonstrate a statistically significant impact on investment. This may suggest that the choice of investments are not exclusively influenced by current revenue or that the other variables in the model account for the impact of revenue growth, rather than diminishing the significance of revenue growth as a measure of a company's performance. This may be consistent with viewpoints that consider more immediate financial indicators to have a greater direct impact on investment than revenue growth (Dechow et al., 1998; Chen et al., 2020b).

The Administrative Expenses (ADMINEX) variable is positive and significant at the 5% level, suggesting that higher administrative expenses are related to higher investments. This might reflect the role of administrative capacity in supporting investment activities (Barney, 1991). The coefficient of leverage (LEVERG), which is negative, sticks out. The trade-off theory of capital structure is supported by the negative correlation between leverage and investment, which also serves to reinforce the risk-averse behavior of companies with substantial borrowing. Because of increased financing costs and possible financial difficulties, companies with larger debt levels may find it more difficult to make new investments (Modigliani and Miller, 1958). Additionally, the model's borrowing capability (BCAP) displays a negative coefficient. From an economic perspective, this would indicate that a sizable amount of their fixed asset holdings may have a smaller borrowing capabilities since lending agents might be hesitant to give out more credit because of the perceived increased risk.

Given the positive coefficient for Tobin's Q (TOBQ), it suggests that businesses are more inclined to invest when their market valuation surpasses the cost of replacing their assets. Economic theory supports this relationship, indicating that a greater TOBQ value signifies growth potential that is primed for investment (Tobin, 1969).

Additionally, the pecking order theory, which posits that businesses prefer to use internal financing for investments whenever possible, aligns with a positive coefficient for cash flow. This internal financing capability allows firms to avoid external borrowing, which can incur additional costs or signaling issues, and is facilitated by robust cash flow (Myers and Majluf, 1984). Moreover, both company size (COMSIZE) and short-term solvency (STSOL) display positive coefficients. This implies that businesses with ample liquid assets can make timely investments, reducing their dependence on external funding and mitigating the effects of market frictions. The beneficial impact of liquidity on investment is anticipated (Opler et al., 1999). Larger firms are typically more inclined to invest, as indicated by the positive coefficient for company size (Rajan and Zingales, 1995). This tendency can be attributed to their better access to capital markets and the advantages of economies of scale, which can decrease investment costs and make larger investments more feasible.

Overall, these findings offer robust evidence that EPU significantly deters corporate investment in Pakistani firms, with the effect being more pronounced in competitive markets. The findings align well with established economic theories and empirical studies, contributing to an improved awareness of the way competition and uncertainty work together to affect business investment choices.

5 Conclusion

In conclusion, our study sheds light on the intricate dynamics between economic policy uncertainty, market competition, and corporate investment in Pakistani firms. Through rigorous regression analysis, we have uncovered significant insights into how these factors interact and influence investment decisions. Our research indicates that the degree of market rivalry has a moderating effect on the significant influence that economic policy uncertainty has on business investment. Compared to businesses functioning in less competitive situations, firms experiencing higher levels of competitiveness may display different reactions to shifts in the uncertainties surrounding economic policy. This emphasizes how crucial it is to take market dynamics into account when assessing how policy uncertainty affects investor behavior.

Moreover, beyond the uncertainty of economic policy and competition, our research reveals numerous important factors that influence corporate investment. In Pakistani enterprises, factors like operating cash flow, business capital, leverage, return on assets, and Tobin's Q are important determinants of investment decisions. In order to encourage investment and boost economic growth, policymakers and corporate executives must comprehend how these elements interact. Our methodology takes unobserved heterogeneity and temporal fluctuations into account, adding to the dependability of our findings, by integrating company and time fixed effects. The strong conclusions we have drawn highlight the importance of these results for stakeholders, investors, and regulators navigating Pakistan's complicated corporate investment market.

Overall, our research adds to the body of knowledge by presenting empirical data on the factors influencing corporate investment in the face of market rivalry and unclear economic policy. Subsequent investigations into the complex relationships shown by this study may provide insightful information for improving investment plans and promoting economic growth in Pakistan and other regions.

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