"Economic policy uncertainty and corporate investment: The moderating effect of corporate social responsibility"

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ECONOMIC POLICY UNCERTAINTY AND CORPORATE INVESTMENT: THE MODERATING EFFECT OF CORPORATE SOCIAL RESPONSIBILITY

Abstract

Economic policy uncertainty has a profound impact on firms' investment decisions, mainly in terms of increased risk and uncertainty for firms when planning future investments. This study aims to explore the impact of corporate economic policy uncertainty on corporate investment, as well as how corporate social responsibility disclosure moderates the relationship between economic policy uncertainty (EPU) and corporate investment. The analysis uses a sample of Chinese listed companies from 2010 to 2022, including 33,791 observations. The study uses ordinary least squares (OLS) regression with clustered standard errors. The basic and robust regression empirical results show that economic policy uncertainty has a negative impact on corporate investment. However, corporate social responsibility plays an important moderating role between them. The two-stage least squares method (2SLS) is used to solve the endogeneity problem of reverse causation. The heterogeneity results show that economic policy uncertainty significantly dampens business investment, while corporate social responsibility (CSR) is effective in mitigating this negative effect, especially among non-state-owned and low-cash-flow firms, where this moderating effect is more pronounced. The study concludes that as corporate social responsibility disclosure enhances information transparency and investor confidence, companies should prioritize CSR programs that ultimately help companies remain competitive and attractive to investors in volatile markets. Meanwhile, this also highlights the strategic importance of CSR in mitigating external risks, such as those presented through volatile economic policies.

Keywords	investment risks, information disclosure, transparency, Chinese listed company, cashflow, state-owned enterprises, high-quality, information asymmetry
JEL Classification	G31, G38, D81

INTRODUCTION

In recent years, the growth rate of fixed asset investment in China has shown a slowing trend. One of the main reasons for this is that China is in the process of transitioning from high-speed growth to high-quality growth. To promote economic structural transformation and high-quality development, the Chinese government has continuously adjusted its policies to respond to changes in the economic environment. In an increasingly complex and uncertain economic environment, the impact of economic policy uncertainty (EPU) on corporate investment decisions has become the focus of academic and business attention (Chen et al., 2020; Jing et al., 2023; Jumah et al., 2023; Zhang et al., 2024). Frequent policy changes and uncertainty in government decisions may inhibit corporate investment enthusiasm, delay capital investment, and thus affect economic growth. This uncertainty makes companies more cautious in their investment behavior, especially when facing major policy transitions (such as tax adjustments, chang-

es in trade policies, environmental protection regulations, etc.). In the process, companies face not only short-term economic fluctuations but also the uncertainty brought about by the medium- and long-term policy environment. For example, when governments undertake major tax reforms or implement new trade protection measures, corporate assessments of project viability and confidence in long-term investment are generally severely shaken (Chen et al., 2023; Görg & Labonte, 2012).

However, as a long-term strategy, corporate social responsibility (CSR) may be able to alleviate the negative impact of EPU on corporate investment to a certain extent. Companies with high-quality social responsibility practices usually have stronger external reputations, more stable stakeholder relationships, and better risk management capabilities, which enable them to respond to external challenges more calmly in an environment of increasing uncertainty (Kuzey et al., 2024). Research on the impact of EPU on business investment has been fruitful, however, the role of CSR as a moderating variable in this framework has not been fully explored. Most existing studies focus on the direct effect of CSR or the unidirectional effect of EPU on corporate investment, ignoring the possible interaction between the two. This study attempts to fill this gap. It can further reveal how CSR can help firms mitigate investment risks in a highly uncertain policy environment, thus promoting sustainable development under complex economic conditions.

1. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Economic Policy Uncertainty (EPU) has been widely recognized as an important factor influencing firms' investment decisions. As a result of policy uncertainty, firms face a riskier future economic environment, which may delay or reduce their investments. Corporate Social Responsibility (CSR) is seen as a social and environmental obligation that companies fulfill in addition to their economic interests and is increasingly becoming a key part of corporate strategy and operations. Based on this, the study explores the moderating role of CSR on firms' investment behavior under economic policy uncertainty, i.e. whether and how CSR can mitigate or amplify the impact of policy uncertainty on firms' investment.

Uncertainty comes from a problem in the financial world (Ekmekcioglu, 2013). Previous literature defines economic policy uncertainty as the impact on firms due to changes in government policy, such as fiscal unpredictability, which leads to greater volatility in firm development (Abel, 1983). Companies may postpone investment risks due to increased market uncertainty. According to Haddow et al. (2013), government policy uncertainty peaked in 2008 due to the global economic crisis. Policy uncertainty delays the possibility of economic recovery from recession because individuals and businesses postpone decisions regarding consumer spending and investment. There are many factors that affect economic policy uncertainty. Some are short-term factors that are often sudden and unpredictable, and their impact may be temporary, but they may trigger market fluctuations and policy adjustments in the short term, such as exchange rates. Exchange rate fluctuations directly impact the import and export costs of multinational companies, overseas investment returns, etc. The government may introduce foreign exchange intervention policies or capital control measures in the short term, which will cause companies to face additional uncertainties when dealing with international business (Dhakal et al., 2010). Long-term factors are often more far-reaching. For example, the impact of technological progress on economic and industrial structure is often long-term, and the uncertainty of its policies will affect the research and development expenditure of enterprises in the long run (Goeschl & Perino, 2009). Therefore, time is a key factor in understanding economic uncertainty. This requires a comprehensive perspective on measuring corporate policy uncertainty. Stock prices and stock yields are regarded as the earliest indicators of economic policy uncertainty (Al-Thaqeb & Algharabali, 2019). However, this indicator only includes market uncertainty. Other different measurements have been proposed by different countries in recent years. Countries such as the

United States use an accident index that focuses on sentiment and an economic uncertainty index to measure economic uncertainty (Scotti, 2016). Jurado et al. (2015) propose adopting econometric indicators to measure economic policy uncertainty. However, these indicators are somewhat one-sided. In search of a more effective way to measure, Baker et al. (2016) establish a new EPU index, which is created by the appearance of keywords such as economy and policy in the newspaper.

The EPU context affects corporate investment in two ways. On one hand, businesses grapple with ambiguous policies, making it challenging for them to formulate clear plans, leading them to exercise greater caution when selecting investments. For instance, EPU has been found to adversely impact investment policies in hospitality companies, as evidenced by research conducted between 2001 and 2018 on a sample of 305 U.S. hotel enterprises (Akron et al., 2020). Additionally, policy uncertainty can negatively affect enterprises' trade credit, resulting in decreased accounts payable, receivable, and net credit (D'Mello & Toscano, 2020). On the other hand, economic policy uncertainty has an impact on firm investment. Liu and Zhang (2020) confirm through quasi-natural experiments that economic policy uncertainty significantly discourages real investment. Risks associated with policies can influence how a business decides to finance its operations (Lee et al., 2021). Financing and credit constraints can affect company investment, restricting the expansion and growth of larger firms, thereby impacting the overall development of the economy. Economic policy uncertainty significantly hinders real investment (Liu & Zhang, 2020), leading corporations to adopt a more conservative approach, resulting in reduced investments in production and workforce expansion (Al-Thaqeb & Algharabali, 2019). Uncertainty in regulatory regimes may impede employment and investment due to companies' reluctance to make critical decisions (Born & Pfeifer, 2014). Sahinoz and Erdogan Cosar (2018) reaffirm that policy uncertainty negatively impacts Turkey's economic growth, consumption, and investment, with investment experiencing a larger decrease compared to production and consumption. Gholipour (2019), confirmed that prolonged uncertainty in economic policies can harm companies' long-term investments in fixed assets.

As economic policies undergo modifications, Chinese enterprises face increased uncertainty. Firms' information transparency is especially critical at this time in light of stakeholder expectations. Modigliani and Miller (1963) emphasize that both investors and management have equal access to symmetric information regarding a company's prospects. However, managers often possess more information than non-investing stakeholders and outside stockholders. Modern society expects businesses to integrate social responsibility into their business plans (Lantos, 2001). Increased corporate social responsibility (CSR) efforts lead to greater market confidence in profit information (Park & Ha, 2020). Corporate social responsibility (CSR) disclosure enhances transparency in the financial section, typically serving as a proxy for non-financial disclosure (Nair et al., 2019). According to stakeholder theory, enterprises should not only satisfy the interests of shareholders but also care about the needs of other stakeholders, including employees, customers, communities, and governments (Barić, 2017). Enterprises can enhance their relationships with these stakeholders by fulfilling their social responsibilities, and improve their social capital and reputation, thus creating a more stable external environment for the enterprise (Ajayi & Mmutle, 2021; Kumari et al., 2021). Such good social relations and reputation can help enterprises obtain resources and support more easily when facing uncertainties and reduce business risks.

Corporate social responsibility (CSR) plays an important role in corporate investment decisions. According to Du and Yu (2021), the primary objective of a CSR report is to effectively communicate information to the market regarding the expected future performance of CSR initiatives and their associated value. Consequently, corporations should prioritize disclosure of information about social responsibility to enhance their investment decisions. Meanwhile, there is a strong argument that shareholder wealth maximization is fraught with issues related to moral hazard, externalities, and monopoly power (Freeman, 2010). This perspective underscores the importance of managing multiple stakeholders as an ongoing effort to balance the objectives and relationships of various stakeholders to address these issues (Sundaram & Inkpen, 2004). Economic policy uncertainty

(EPU) constitutes a significant risk factor influencing macroeconomic conditions and numerous business decisions (Athari & Bahreini, 2023; Feng et al., 2023; Vural-Yavaş, 2020). Businesses prioritize enhancing their corporate social responsibility (CSR) endeavors amidst heightened uncertainty, as it effectively conveys a favorable message to their stakeholders (Yuan et al., 2022). Companies promote trust and transparency by sharing information about their CSR commitments with stakeholders. In an unpredictable economic climate, shareholders can better assess long-term value and risk by gaining a broader understanding of a company's business strategy through social responsibility disclosure.

This study uses corporate social responsibility as a moderating variable to examine the relationship between economic policy uncertainty and corporate investment. Also, this interaction between economic policy uncertainty, corporate social responsibility, and their influence on firm investment provides the major theme of this study. Based on the above, the following assumptions are proposed:

H1: *Economic policy uncertainty has a detrimental impact on corporate investment.*

H2: *Corporate social responsibility serves as a constructive moderating factor in the correlation between economic policy uncertainty and corporate investment.*

2. METHODOLOGY

The study focuses on companies listed on the Chinese stock market from 2010 to 2022., and selects samples based on specific criteria: (1) Exclusion of the financial industry due to substantial disparities in financial reporting practices between financial and non-financial sectors. (2) Removal of ST (special treatment) due to abnormal financial conditions. (3) Elimination of firms with missing data. The final study included 33791 samples. The research obtained data on Economic policy uncertainty from a website, while additional financial information was gathered from the China Stock Market Research Database (CSMR). All variable values are truncated at the 1% and 99% significance levels.

For the dependent variable, this study employs the percentage of expenditure on long assets, which is proxied for corporate investments based on previous studies (Duchin et al., 2010). In addition, an alternative dependent variable, *Invest2,* which is proxied for firm investment, has been introduced to enhance the reliability of the findings. Following the study by Chen et al. (2011), *Invest2* is calculated as a percentage of net investment in long assets.

$$Invest1_{i,t} = \frac{\text{Intangible assets, fixed assets, and other long-term assets}}{\text{The total assets at the beginning of the period}}. \quad (1)$$

As an independent variable, the economic policy uncertainty (EPU) index of China is employed, and it is constructed based on the frequency of specific phrases in newspaper articles, and uses natural language processing algorithms to identify relevant terms for policy-making. The study used the economic policy uncertainty metric introduced by Baker et al. (2016) to gauge news articles about China's uncertain economic policies. The team examined the South China Morning Post and calculated a monthly index based on the proportion of articles addressing these issues. Since our study uses annual data, the study computed the average index across all twelve months of the year. Such an index can be sourced from the Economic Policy Uncertainty website. To eliminate the differences in the scales of the variables, the annual data are divided by 100 and then used in the empirical analysis. In addition, Davis et al. (2019) established an economic uncertainty index by analyzing the frequency of occurrence of economic, uncertainty and related words based on China Daily and Guangzhou Daily. This study uses this method as a robustness test.

$$EPU_t = \frac{\sum_{t=1}^{n} EPU_t}{n} \bigg/ 100. \quad (2)$$

CSR disclosure serves as a moderating variable. According to Tiezhen Yuan et al. (2022), this study obtains CSR from the China Stock Market Research Database. The CSR assessment criteria in this database cover eight areas, including suppliers' rights, shareholders' interests, and environ-

mental protection. Companies implement each subcategory, assigning a value of one, otherwise zero.

This study utilizes OLS regression with cluster standard errors and draws upon the model proposed by Petersen (2008). Unlike previous research focusing solely on the direct impact of economic policy uncertainty (EPU) on corporate investment, this study diverges by exploring the moderating influence of social responsibility on business investment amidst economic policy uncertainty, as depicted in Equations (1) and (2).

$$Invest1_{i,t} = \beta_0 EPU1_t + \beta_1 Size_{i,t} \quad (3)$$
$$+ \beta_2 Lev_{i,t} + \beta_3 Growth_{i,t} + \beta_4 Cashfolw_{i,t}$$
$$+ \beta_5 Board_{i,t} + \beta_6 Indep_{i,t} + \beta_7 Dul_{i,t}$$
$$+ \beta_8 TOP1_{i,t} + \beta_9 SOE_{i,t} + \beta_{10} Big_{i,t}$$
$$+ \sum Year + \sum Industry + \varepsilon_{i,t}.$$

$$Invest1_{i,t} = \delta_0 EPU1_t + \delta_1 CSR_{i,t} \quad (4)$$
$$+ \delta_2 EPU1_t \cdot CSR_{i,t} + \delta_3 Size_{i,t} + \delta_4 Lev_{i,t}$$
$$+ \delta_5 Growth_{i,t} + \delta_6 Cashflow_{i,t}$$
$$+ \delta_7 Board_{i,t} + \delta_8 Indep_{i,t} + \delta_9 Dul_{i,t}$$
$$+ \delta_{10} TOP1_{i,t} + \delta_{11} SOE_{i,t} + \delta_{12} Big_{i,t}$$
$$+ \sum year + \sum Industry + \mu_{i,t}.$$

$Invest1_{i,t}$ is defined as the amount allocated to long-term assets (like intangibles, fixed assets, etc.) divided by the total amount of assets at the beginning of the period. $EPU1_{i,t}$ represents mainland China's economic policy uncertainty index. $CSR_{i,t}$ is the corporate social responsibility score. $EPU1_t \times CSR_{i,t}$ is the interaction term that shows how corporate social responsibility moderates economic policy uncertainty on business investment. The control variables align with those outlined in Table 1. Based on prior literature on corporate investment and economic policy uncertainty (Cui et al., 2021; Kang et al., 2014; Liu & Zhang, 2020; Ullah et al., 2021), this study follows the subsequent variables as control variables, *Size, Lev, Cashflow, Board, Indep, Dual, TOP1, SOE,* and *Big4*. Lev is defined as the proportion of debt to equity, while *Size* is the natural logarithm of total assets. *Cashflow* represents the net cash flow from

operating activities and the proportion of total assets of the station. *Indep* means independent directors divided by the number of directors. *TOP1* represents the ownership percentage held by the largest shareholder. *Finally*, Dual, SOE, and Big4 are used as dummy variables to indicate whether the chairman and general manager hold two positions, whether the company is state-owned, and whether it is audited by one of *Big* 4 accounting firms, respectively.

3. RESULTS

The overall descriptive statistics are presented in Table 1, where *Invest1* (corporate investment) is the dependent variable. The variable ranges from 0 to 0.519, with an average value of 0.061, indicating significant differences among the companies in terms of the scale of their investments. The average value of EPU1 is 4.284, indicating a relatively high level of economic policy uncertainty (EPU) over the observation period. The lowest and highest possible levels of EPU1 are 0.989 and 7.919, respectively. As expected, the uncertainties surrounding China's economic strategy have fluctuated considerably over the last decade. The mean value of corporate Social Responsibility (CSR) is 4.642, with a minimum value of 0 and a maximum value of 8, which reflects a relatively wide distribution of CSR fulfillment, with the majority of firms concentrating their CSR performance at the intermediate level.

Table 1. Descriptive statistics

Source: Data processed by Stata statistics 17.

Variable	Obs.	Mean	Std. dev.	Min.	Max.
Invest1	33791	.061	.066	0	.519
EPU1	33791	4.284	2.439	.989	7.919
CSR	33791	4.642	2.675	0	8
Size	33791	22.257	1.298	19.585	26.452
Lev	33791	.429	.204	.027	.908
Cashflow	33791	.047	.069	−.222	.267
Board	33791	2.124	.197	1.609	2.708
Indep	33791	37.584	5.379	27.27	60
Dual	33791	.276	.447	0	1
TOP1	33791	34.496	14.771	8.02	75.843
SOE	33791	.364	.481	0	1
Big4	33791	.061	.24	0	1

Table 2. Pearson correlation

Variable	Invest1	EPU1	CSR	Size	Lev	Cashflow	Board	Indep	Dual	TOP1	SOE	Big4
Invest1	1											
EPU1	−0.082***	1										
CSR	−0.019***	0.304***	1									
Size	−0.034***	0.128***	0.277***	1								
Lev	−0.062***	−0.029***	0.046***	0.497***	1							
Cashflow	0.136***	0.096***	0.095***	0.068***	−0.171***	1						
Board	0.006	−0.117***	0.023***	0.252***	0.143***	0.036***	1					
Indep	−0.002	0.051***	0.021***	0.009	−0.007	−0.006	−0.537***	1				
Dual	0.084***	0.070***	0.009	−0.177***	−0.134***	−0.012**	−0.182***	0.109***	1			
TOP1	0.035***	−0.085***	−0.001	0.200***	0.049***	0.091***	0.031***	0.039***	−0.055***	1		
SOE	−0.120***	−0.112***	0.021***	0.351***	0.283***	−0.004	0.279***	−0.060***	−0.307***	0.220***	1	
Big4	−0.001	0.016**	0.099***	0.340***	0.099***	0.075***	0.080***	0.039***	−0.063***	0.143***	0.136***	1

Note: ***, **, and * stand for significance levels at 1%, 5%, and 10%, respectively.

A correlation matrix is displayed in Table 2 for the variables used in Equations (1) and (2). As expected, the correlation coefficient between EPU1 and Invest demonstrates a statistically significant negative association (−0.082, significant at the 1 percent level of significance), indicating an inverse relationship between EPU1 and corporate investment.

Table 3. Effect of EPU1 on corporate investment

Variable	(1) Invest1	(2) Invest1	(3) Invest1	(4) Invest1
EPU1	−0.0042*** (−10.72)	−0.0055*** (−14.01)	−0.0042*** (−10.83)	−0.0055*** (−13.34)
Size		0.0032*** (8.80)		0.0032*** (4.83)
Lev		0.0058** (2.79)		0,0058* (1.72)
Cashflow		0.1041*** (19.83)		0,1041*** (14.15)
Board		0.0019 (0.84)		0,0019 (0.50)
Indep		0.0001 (0.69)		0.0001 (0.43)
Dual		0.0087*** (10.32)		0.0087*** (6.48)
TOP1		0.0002*** (6.18)		0.0002*** (3.48)
SOE		−0.0210*** (−26.57)		−0.0210*** (−14.47)
Big4		−0.0023* (−1.65)		−0.0023 (−0.88)
_cons	0.1008*** (22.77)	0.0285*** (3.09)	0.1008*** (12.20)	0.0260 (1.55)
N	33791	33791	33791	33791
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Cluster at id	no	no	yes	yes
r²	0.0832	0.1212	0.0832	0.1212

Note: ***, **, and * stand for significance levels at 1%, 5%, and 10%, respectively.

Table 3 displays an examination of the foundational regression, illustrating the influence of economic policy uncertainty on corporate investment. Section 2 delineates the empirical Equation 1, whereas Section 2 also elucidates the definitions of the intricate variables. Table 3 presents the regression results for Equation 1 with fixed effects for industry and year. The study calculated the regression results without any control variables in the first column, while adding the control variables in the second column. As noted in Columns (1) and (2), the coefficients associated with EPU1 and Invest1 exhibit statistical significance, with all coefficients demonstrating a negative correlation. Higher economic policy uncertainty trends to lower corporate investment, while EPU1 influences business investment. This can be explained statistically by a one-point increase in EPU1 resulting in a 0.0042-point decrease in Invest1. A coefficient of 0.0042 indicates that when EPU1 increases by one standard deviation (2.439), corporate investment will decrease by 0.01 (0.0042×2.439). When both column 3 and column 4 include individual robust clustering, the effect of EPU1 on investment is consistently negative and highly significant, with a coefficient of about −0.0042 and 0.0055, respectively. This suggests that an increase in economic policy uncertainty (EPU1) significantly dampens firms' investment behavior. Overall, these results suggest that EPU has a considerable economic impact and a statistically significant impact on corporate investment. These results support Hypothesis 1. In instances where enterprises encounter economic policy uncertainty, their inclination to invest in assets diminishes. EPU correlates with a reduction in corporate investment.

Table 4. The moderating effect of CSR on the relationship between EPU1 and corporate investment

Variable	(1)	(2)	(3)	(4)
	Invest1	Invest1	Invest1	Invest1
EPU1	−0.0051*** (−11.31)	−0.0061*** (−13.80)	−0.0050*** (−10.49)	−0.0061*** (−12.46)
CSR	−0.0002 (−0.72)	−0.0004 (−1.43)	−0.0002 (−0.51)	−0.0004 (−1.03)
EPU1*CSR	0.0002*** (2.99)	0.0001*** (2.71)	0.0002** (2.24)	0.0001*** (2.05)
Size		0.0031*** (8.22)		0.0031*** (4.55)
Lev		0.0061*** (2.95)		0.0061* (1.82)
Cashflow		0.1041*** (10.79)		0.1041*** (14.12)
Board		0.0019 (0.85)		0.0019 (0.50)
Indep		0.0001 (0.69)		0.0001 (0.42)
Dual		0.0087*** (10.30)		0.0087*** (6.47)
TOP1		0.0002*** (6.26)		0.0002*** (3.52)
SOE		−0.0210*** (−26.57)		−0.0210*** (−14.48)
Big4		−0.0023* (−1.66)		−0.0023 (−0.89)
_cons	0.1019*** (22.84)	0.0293*** (3.07)	0.1019*** (12.41)	0.0293* (1.72)
N	33791	33791	33791	33791
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Cluster at id	no	no	yes	yes
r²	0.0836	0.1214	0.0836	0.1214

Note: ***, **, and * stand for significance levels at 1%, 5%, and 10%, respectively.

The regression findings in Table 4 are derived from the Equation (2) estimation, which aimed to evaluate the moderated impact of social responsibility disclosure amidst EPU and corporate investment. As indicated in the initial and subsequent columns, the regression findings are delineated without control variables in the former case, and with control variables in the latter.

The results demonstrate that EPU1 has a significant negative impact on investment and CSR is also negatively correlated. However, the positive significant coefficient of EPU1×CSR indicates that CSR has a moderating effect on the negative relationship between economic policy uncertainty and investments, providing support for Hypothesis 2.

Specifically, the negative impact of economic policy uncertainty on investment is partially offset when CSR is high, suggesting that firms with high levels of CSR are better able to cope with external uncertainty and mitigate the adverse effects.

Table 5. Robustness test outcome

Variable	(1)	(2)	(3)	(4)
	Invest1	Invest1	Invest2	Invest2
EPU1			−0.0052*** (−12.93)	−0.0059*** (−12.11)
EPU1*CSR				0.0001** (2.09)
CSR		−0.0006 (−1.33)		−0.0004 (−1.02)
EPU2	−0.0166*** (−13.34)	−0.0183*** (−13.68)		
EPU2*CSR		0.0004*** (2.18)		
Size	0.0032** (4.83)	0.0031*** (4.55)	0.0038*** (5.82)	0.0037*** (5.52)
Lev	0.0058* (1.72)	0.0061* (1.82)	0.0020 (0.60)	0.0024 (0.70)
Cashflow	0.1041*** (14.15)	0.1041*** (14.12)	0.1059*** (14.47)	0.1058*** (14.43)
Board	0.0019 (0.50)	0.0019 (0.50)	0.0022 (0.58)	0.0022 (0.58)
Indep	0.0001 (0.43)	0.0001 (0.42)	0.0000 (0.20)	0.0000 (0.20)
Dual	0.0087*** (6.48)	0.0087*** (6.47)	0.0092*** (6.89)	0.0092*** (6.88)
TOP1	0.0002** (3.48)	0.0002*** (3.53)	0.0002*** (3.80)	0.0002*** (3.85)
SOE	−0.0210*** (−14.47)	−0.0210*** (−14.48)	−0.0216*** (−14.98)	−0.0216*** (−14.99)
Big4	−0.0023 (−0.88)	−0.0023 (−0.89)	−0.0031 (−1.24)	−0.0031 (−1.25)
_cons	0.0390* (2.34)	0.0434** (2.55)	0.0064 (0.38)	0.0099 (0.59)
N	33791	33791	33791	33791
Industry	yes	yes	Yes	Yes
Year	yes	yes	Yes	Yes
r²	0.1212	0.1214	0.1213	0.1215

Note: ***, **, and * stand for significance levels at 1%, 5%, and 10%, respectively.

Using an alternative measure of Invest1, the results in Table 5 remain consistent and robust, confirming Hypotheses 1 and 2. According to Davis et al. (2019), this study uses its economic policy uncertainty Index for robust regression. Meanwhile, this study replaced the original corporate investment by Wu and Wang (2021) with the annual change in net fixed assets divided by total assets at the beginning of the year. Subsequently, using this new corporate investment measure, this study

evaluated the primary regression. Table 5 summarizes the findings from this analysis. Notably, the coefficients for EPU1 and EPU1×CSR are statistically significant, providing strong support for Hypotheses 1 and 2.

Table 6. Endeogeneity test

Variable	(1) EPU1	(2) Invest1
EPUG	0.0316** (769.05)	
EPU1		−0.0024*** (−11.03)
Size	0.1208*** (27.37)	−0.0014 (2.12)
Lev	−0.1798*** (−6.64)	0.0096*** (2.84)
Cashflow	0.7579*** (9.17)	0.1001*** (13.55)
Board	−0.4646*** (−16.13)	0.0081** (2.15)
Indep	−0.0038*** (−3.76)	0.0001 (0.78)
Dual	0.0438*** (4.10)	0.0084*** (6.19)
TOP1	−0.0035*** (−11.65)	0.0002*** (4.55)
SOE	−0.1122*** (−11.89)	−0,0191*** (−13.23)
Big4	−0.0851*** (−4.36)	−0.0004 (0.15)
_cons	−3.7559*** (−32.94)	0.0252 (1.52)
N	33791	33791
Industry	yes	yes
Year	no	no
Kleibergen−Paap rk LM	1.8e+04 [0.000]	
Kleibergen−Paap rk	1.6e+05 [16.38]	
r²	0.7952	0.0973

Note: ***, **, and * stand for significance levels at 1%, 5%, and 10%, respectively.

Although Table 3 demonstrates a negative correlation between EPU1 and corporate investment, the EPU1 variable may be endogenous, which could invalidate the existence of a causal relationship (corporate investment on EPU1). However, omitting variables and the potential for reverse causality might introduce bias into the study's results. This study employs a two-step linear regression approach (2SLS) to address potential endogeneity concerns.

Table 6 presents the findings from a Two-Stage Least Squares (2SLS) regression analysis, utilized for the estimation of instrumental variables and

to mitigate concerns about causality. This table displays the study's results, using the global economic policy uncertainty index (EPUG) for all companies as an instrumental variable. The Kleibergen-Paap rk LM statistic is 1.8e+04 with a p-value of 0.0000, indicating a significant correlation between the instrumental and endogenous explanatory variables. The Kleibergen-Paap rk Wald F-statistic is 1.6e+04, which is significantly higher than all the thresholds provided by Stock-Yogo, explicitly ruling out the weak instrumentation problem. Together, these results suggest that the instrumental variables used are strong enough to ensure that the 2SLS model estimates are robust and reliable.

Table 7. Heterogeneity test regression results

Variable	(1) N−SOE	(2) SOE	(3) Lowcashflow	(4) Highcashflow
EPU1	−0.0069*** (−9.35)	−0.0055*** (−8.19)	−0.0061*** (−9.67)	−0.0062*** (−8.49)
CSR	−0.0013** (−2.54)	−0.0011** (2.15)	−0.0004 (−0.83)	−0.0004 (−0.78)
EPU1*CSR	0.0003*** (3.26)	−0.0000 (−1.36)	0.0002** (2.08)	0.0001 (1.14)
Size	0.0045*** (4.74)	0.0021** (2.17)	0.0031*** (4.23)	0.0030*** (3.13)
Lev	0.0084* (1.90)	0.0032 (0.65)	0.0046 (1.25)	0.0087* (1.78)
Cashflow	0.0963*** (10.36)	0.1137*** (9.94)	0.0904*** (7.89)	0.0655*** (4.25)
Board	−0.0017 (−0.32)	0.0095* (1.90)	0.0031 (0.75)	−0.0001 (−0.01)
Indep	0.0002 (1.08)	−0.0001 (−0.75)	−0.0000 (−0.22)	0.0001 (0.76)
Dual	0.0092*** (6.04)	0.0014 (0.53)	0.0096*** (6.27)	0.0076*** (4.18)
TOP1	0.0003*** (5.35)	−0.0001* (−1.85)	0.0002*** (3.85)	0.0001** (2.04)
SOE	0.000 (.)	0.000 (.)	−0.0210*** (−13.83)	−0.0213*** (−10.21)
Big4	−0.0008 (−0.21)	−0.0015 (−0.46)	−0.0019 (−0.60)	−0.0026 (−0.81)
_cons	0. 0115 (0.44)	0.0127 (0.58)	0.0198 (1.05)	0.0494** (2.04)
N	21492	12299	16798	16993
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
r²	0.1083	0.1504	0.1315	0.0950

Note: ***, **, and * stand for significance levels at 1%, 5%, and 10%, respectively.

This study further conducted a heterogeneous analysis of this moderating effect. On the one hand, as mentioned by Hadlock (1998), invest-

ment is influenced by a company's ownership composition. Hence, the study conducts a heterogeneity test to examine whether corporate social responsibility plays a moderating role between EPU and corporate investment. According to the nature of enterprises whether state-owned or not is divided into two groups, the results of the group test are shown in Table 7. According to the results in columns (1) and (2), the moderating effect of CSR is significantly positive in non-state-owned enterprises, whereas the moderating effect is not significant in state-owned enterprises. Non-state-owned enterprises are more market-driven in their operations and decisions, and thus more sensitive to economic policy uncertainty. This is mainly because non-state-owned enterprises are more market-driven in their operations and decisions, and thus more sensitive to economic policy uncertainty. On the other hand, according to the study by Gilchrist and Himmelberg (1995), investment is more sensitive to cash flow in enterprises facing external funding limitations. Therefore, we categorize the company's cash flow into two groups: high cash flow and low cash flow. This study finds that social responsibility disclosure positively moderates both EPU and firms' investment levels in the low cash flow groups. Columns 3–4 of Table 7 display the results from regressing the moderating effect of corporate social responsibility between EPU and corporate investment by different control variables. The findings suggest corporate social responsibility disclosure has a positive relationship with EPU1 and corporate investment in low cash samples. Low-cash-flow firms face the problem of insufficient funds for investment when economic policy uncertainty is high. CSR, however, helps to strengthen the linkages between firms and external stakeholders, improve the investment environment, and reduce the impact of uncertainty on investment. These results further support Hypothesis 2, but there are certain differences among companies with different characteristics.

4. DISCUSSION

The findings in Table 3 and the robustness regression in Table 5 from Hypothesis 1 align with the perspective of Chen et al. (2019), indicating that EPU has a detrimental influence on business investment. As economic policy uncertainty increases, enterprises face uncertainties in future tax policies, trade policies, and changes in the regulatory environment. This uncertainty may cause the management to become more cautious in making major investment decisions, potentially postponing or reducing investments to avoid adverse consequences. Additionally, the results concerning economic policy uncertainty corroborate prior scholarly works, indicating that heightened EPU can exacerbate information asymmetry between firms and investors (Liu & Zhang, 2020).

Both the basic regression in Table 4 and the robustness regression in Table 5 used to support Hypothesis 2 show that CSR moderates between economic policy uncertainty and investment efficiency. This is consistent with previous literature (Liu & Zhang, 2020; Taghian et al., 2015). Liu and Zhang (2020) argue that companies often delay or reduce investment to avoid risk with increased policy uncertainty. However, companies with good CSR practices can reduce the negative impact of policy changes on their decision-making by enhancing their external reputation and stabilizing stakeholder relationships (Taghian et al., 2015). On the one hand, CSR can enhance the enterprise's anti-risk ability and improve the stability of financing channels; on the other hand, CSR improves the transparency of the enterprise and reduces the internal and external pressure faced by the management in the decision-making process.

A further analysis of heterogeneity in Table 7 revealed that a positive moderating effect of corporate social responsibility can be observed both in state-owned enterprises and non-state-owned enterprises, and the moderating effect is greater in non-state-owned enterprises. This is consistent with (Li & Zhang, 2010). State-owned enterprises are constrained and guided by government policies to some extent. Their CSR behaviors may be more in response to government requirements rather than out of an inherent sense of social responsibility. Therefore, when economic uncertainty increases, state-owned CSR will not significantly affect its investment behavior. Private companies with a focus on social responsibility tend to be more reliant on the capital and trust of external investors, which means that social responsibility disclosure is of particular importance for improving the investment efficiency of such enterprises. This is similar to previous studies (Khalid et al., 2021). Additionally, social responsibility disclosures play a

regulatory role in both low and high-cash-flow companies, with the role of social responsibility disclosure being more significant in low-cash companies. This suggests that investors may pay more attention to long-term sustainability and transparency of management in low-cash flow companies. Corporate social responsibility disclosure can serve as a signaling mechanism for demonstrating a company's commitment to the market (Zhang et al., 2022), which will be effective in attracting and sustaining investment in the current economic climate.

The study employs a comprehensive aggregate CSR measure to investigate the moderating role of CSR in the influence of economic policy uncertainty on business investment behavior, without examining the detailed practices within each CSR dimension. Future research endeavors can enhance the evaluation of CSR and delve into the various dimensions influencing the impact of uncertainties in economic policy on enterprises' investment behaviors. These efforts aim to offer more nuanced management strategies and policy recommendations, extending analyses to different countries and regions to increase the generalizability of the studies and develop a more global perspective, ultimately resulting in a more effective response to the issues encountered by multinational corporations.

CONCLUSION

This study investigated the relationship between economic policy uncertainty (EPU), corporate social responsibility (CSR) disclosure, and corporate investment, using data from Chinese listed companies between 2010 and 2022. The results confirm that EPU negatively impacts corporate investment, creating significant challenges for firms operating in uncertain environments. However, CSR disclosure plays a constructive moderating role, mitigating the adverse effects of EPU and fostering a more favorable environment for corporate investment. Notably, the moderating effect of CSR is significantly positive in non-state-owned enterprises, while it is not significant in state-owned enterprises. This distinction underscores the differing dynamics of CSR's role across corporate ownership structures. Furthermore, the findings reveal that CSR disclosure has a positive association with EPU and corporate investment in low-cash-flow firms, suggesting that CSR serves as an important mechanism for enhancing corporate resilience in financially constrained contexts.

This study also provides theoretical and practical contributions. Theoretically, in contrast to previous studies focusing on the impact of policy uncertainty on economic growth or macro volatility, this paper focuses on the micro-firm level and reveals how economic policy uncertainty inhibits business investment. Meanwhile, this study expands the study of the moderating effect of CSR and introduces CSR into the research framework of the relationship between EPU and corporate investment, which provides a new theoretical perspective on the value of CSR in enterprise risk management. In terms of practice, this study clarifies the variability of the mechanism of CSR's influence on corporate investment in EPU in different contexts, which provides empirical evidence for the subsequent formulation of targeted policies.

AUTHOR CONTRIBUTIONS

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