Economic Policy Uncertainty and Corporate Investment Dynamics: Evidence from Listed Chinese Firms

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Abstract

This study examines the relationship between economic policy uncertainty (EPU) and corporate investment by employing the two-step system generalized method of moments approach and panel data from 4619 listed firms in China spanning 2003–2022. We comprehensively analyze EPU's impact on various timelines of investment and show non-linear dynamics within the EPU–investment nexus. Our findings suggest that EPU negatively affects total and short-term investments, but positively influences long-term investment. Total and short-term investments demonstrate a U-shaped association with EPU, while long-term investment follows an inverted U-shaped pattern. Additionally, we explore the effects of ownership and capital structures. Ownership concentration and institutional ownership amplify the negative impact of EPU on total and short-term investment but alleviate it for long-term investment. State ownership exacerbates the adverse effects on total and short-term investments, with no significant impact on long-term investment. We find that increased debt financing and equity financing intensify the adverse impact of EPU on total and short-term investments, while not significantly affecting long-term investment. This study offers policy implications based on investment horizon, ownership structure, and financial leverage, guiding policymakers and corporate decision-makers.

Keywords: Economic policy uncertainty, Corporate investment, Ownership structure, Capital structure

Abbreviations: EPU: Economic policy uncertainty; INV: Total investment; LINV: Long-term investment; SINV: Short-term investment; TOP1SHARE and TOP10SHARE: Ownership concentration; INSTSHARE: Institutional shareholding; STATEOWN: State ownership; DtoE: Debt-to-Equity ratio; DR: Debt ratio; ER: Equity ratio; TQ: Tobin's q; ROA: Return on assets; SOEs: State-owned enterprises; non-SOEs: Non-state-owned enterprises; GMM: Generalized method of moments; CSMAR: China Stock Market & Accounting Research

1. Introduction

Recent exogenous shocks, including political instability, geopolitical risks, economic policy shifts, and global pandemics (Baker, Bloom, and Davis 2016), have raised global concerns about economic policy uncertainty (EPU). EPU has emerged as a pivotal factor driving economic recessions (Bloom 2009), prompting several responses at the firm level. The impact of EPU on corporate investment decisions has gained attention in applied economics. Mounting uncertainty discourages firms from hiring and investing (Bloom 2014). Fluctuations in policy uncertainty reverberate throughout business environments (Wang, Chen, and Huang 2014), influencing investors' future earnings expectations (Gulen and Ion 2016; Julio and Yook 2012) and significantly shaping corporate investment.

Current literature discusses how policy uncertainty affects firm-level investment through various theoretical arguments. The Oi–Hartman–Abel effect suggests that enterprises can adjust their investment scales according to market changes (Abel and Blanchard 1988; Hartman 1972; Oi 1961), implying a positive impact of EPU on corporate investment. Conversely, real options theory views corporate investment opportunities as 'real options', with greater uncertainty increasing the option value of waiting for investment opportunities (Bernanke 1983; Julio and Yook 2012), leading firms to be cautious and postpone investment to mitigate potential significant losses. Therefore, the interaction between increased EPU with irreversible investment (Abel and Eberly 1994; Bachmann and Bayer 2013; Bloom et al. 2018; Bloom 2009; Pindyck 1993) prompts firms to adopt a 'wait-and-see' approach, dampening current investment (McDonald and Siegel 1986; Pindyck 1988; Titman 1985). Financing constraint theory (Arellano, Bai, and Kehoe 2019; Christiano, Motto, and Rostagno 2014) provides an additional influencing mechanism. Uncertainty increases transaction costs and intensifies information asymmetry between borrowers and lenders (Fazzari et al. 1988), leading to agency and/or moral hazard issues (Gilchrist, Sim, and Zakrajšek 2014), which can affect the cost of

capital and credit availability. When financial market frictions worsen, heightened uncertainty and risk increase the cost of borrowing through debt or equity because investors demand compensation for the extra uncertainty. This results in negative impacts on investment (Bernanke 1983; Handley and Limão 2015; Kellogg 2014).

However, existing empirical research has not reached a consensus on the impact of EPU on corporate investment. Moreover, prior studies have primarily used long-term investment as a proxy, with limited exploration of other types because of potential issues such as the overidentification problem. Additionally, few studies have explored the non-linear dynamics within the EPU–investment relationship.

This study addresses these gaps by exploring the dynamic relationships between EPU and total, short-term, and long-term investments. We measure EPU using the news-based indices developed by Baker, Bloom, and Davis (2016) owing to its continuity and time variability. We obtain firm-level data from the China Stock Market & Accounting Research (CSMAR) database, incorporating control variables including Tobin's q, return on assets (ROA), and cash flow. This study makes a three-fold contribution. First, it employs a dynamic system generalized method of moments (GMM) approach to address autocorrelation and overidentification problems. Second, it offers original empirical evidence for the diverse non-linear associations between EPU and total, short-term, and long-term investments, thus providing recommendations regarding investment horizons. Third, it examines the influencing mechanisms of the ownership structure and capital structures, providing fresh insights into the potential mechanisms through which EPU spreads.

The subsequent sections of this article are structured as follows. Section 2 presents the literature review and discusses the development of the hypotheses. Section 3 outlines the research design and methodology. Section 4 presents and discusses this study's empirical results. Finally, Section 5 provides the conclusions and implications.

2. Literature review and hypothesis development

While scholars hold varying perspectives of the impact of EPU on corporate investment, numerous empirical studies have consistently yielded negative results. Gulen and Ion (2016) found that policy uncertainty curbs corporate capital investment owing to investment irreversibility. Uncertainty can affect expected corporate returns and jeopardize projected cash flows (Francis, Hasan, and Zhu 2021), leading to a high waiting option value (Julio and Yook 2012). This prompts firms to postpone investments and reallocate capital. Based on the above discussion, we propose the first hypothesis.

Hypothesis 1: EPU negatively affects corporate investment.

Several studies have demonstrated a non-linear relationship between EPU and investment. Sarkar (2000) employed a real options model to demonstrate that a moderate increase in uncertainty can positively affect investment probability, suggesting a potential non-monotonic relationship between EPU and investment. Based on Sarkar's (2000) model, Bo and Lensin (2005) adopted the system GMM approach and found an inverted U-shaped relationship between uncertainty and total investment for Dutch firms. Low levels of uncertainty promote investment growth, while high levels have a negative impact. First, uncertainty increases the investment threshold, resulting in a negative EPU–investment relationship. Second, high uncertainty increases the probability of the investment threshold being reached. Conversely, Chen, Lee, and Zeng (2019) found the presence of a U-shaped relationship between EPU and total, long-term, and short-term investments for US firms.

Lund (2005) offered an additional theoretical perspective, suggesting that potential non-linearities hinge on the difference between the predicted net present values of projects and requisite values essential for firms to initiate investments. Moreover, Bahmani-Oskooee and Maki-Nayeri (2019) identified non-linearities across all Group of Seven countries. Similarly,

Lin and Li (2022) discovered a non-linear relationship between EPU and the strategic investment of renewable energy firms in China. Therefore, we propose the following hypothesis:

Hypothesis 2: A non-linear relationship exists between EPU and corporate investment.

Prior studies exploring the EPU–investment nexus have predominantly focused on long-term investment, neglecting EPU's impact on short-term investment. The sensitivity of short-term investment returns to fluctuations in the economic cycle differs from that of long-term investments. Therefore, increased EPU may cause different changes in short-term and long-term investments. Byeongju (2002) found that increased policy uncertainty raises expected costs, reducing long-term investment. Aghion et al. (2010) indicated that uncertainty shapes the cyclical composition of investment through credit constraints. When credit constraints are tight, cyclicality in economic growth rates can intensify. Tighter credit constraints increase the vulnerability of long-term investments to liquidity shocks, thereby reducing the likelihood of making such investment. This preference for long-term investments weakens during economic downturns when financial difficulties are anticipated. Accordingly, we propose the following hypothesis:

Hypothesis 3: EPU positively affects short-term investment, and negatively affects long-term investment.

Existing literature has investigated factors such as risk aversion (Aizenman and Marion 1999; Perrin and Weill 2023), governance quality (Farooq et al. 2022), and chief executive officer characteristics (Jiang and Liu 2020); however, few studies have examined differences in the ownership and capital structures. These dimensions are closely interrelated with the capital availability and cost of capital. Hence, we shift our focus to ownership concentration, ownership composition, state ownership, and leverage ratio in the context of the EPU–investment relationship.

2.1 Ownership structure and corporate investment

Ownership structures are becoming increasingly relevant to corporate investment. Listed Chinese firms exhibit relatively concentrated ownership structures and the decreased participation of institutional shareholders (Figure 1). Increasing managerial ownership plays a positive role in solving agency problems, as it can align managers' interests with those of shareholders (Jensen and Meckling 1976). Scholars have highlighted how dominant shareholders can effectively monitor management (Shleifer and Vishny 1997; Zeckhauser and Pound 1990). However, concentrated ownership can exacerbate conflicts of interest, with controlling shareholders potentially exploiting minor shareholders by draining the company's resources (Barclay and Holderness 1989; Bebchuk 1999), causing suboptimal investment outcomes (Haddad and Hornuf 2019). Decentralization leads to irrational investment and decreased investment efficiency (Gao et al. 2019). Nonetheless, although diffused ownership can intensify agency problems, it can also produce compensating benefits that offset those problems (Demsetz and Villalonga 2001). Therefore, we propose the following hypothesis:

Hypothesis 4: An increase in ownership concentration strengthens the negative impact of EPU on corporate investment.

Firms with institutional shareholders benefit from reduced information asymmetry (Leland and Pyle 1977), leveraging their complementary resources and expertise to allow them to make prudent investment decisions. Gao et al. (2019) contended that decentralized ownership structures can lead to lower investment efficiency, potentially resulting in smaller reductions in investment. Gedajlovic, Yoshikawa, and Hashimoto (2005) found that financial institutions' shareholding positively correlates with corporate investment. Jumah, Younas, and Al-Faryan (2023) concluded that corporate diversification significantly mitigates EPU's adverse effect on investment by relaxing financial constraints. Hoang, Nguyen, and Nguyen (2023) also reported a positive impact of EPU on start-up investment and highlighted the incremental impact of

institutional investors on this positive connection by promoting venture capital. Hence, we propose the following hypothesis:

Hypothesis 5: An increase in the institutional shareholding ratio mitigates the negative impact of EPU on corporate investment.

In the context of Chinese firms, the adverse impact of EPU on corporate investment exhibits notable variations across ownership structures. Wang, Chen, and Huang (2014) found that this negative effect can be alleviated in non-state-owned enterprises (non-SOEs). However, state-owned enterprises (SOEs) may be granted advantages and privileges by the government (Kowalski et al. 2013). Additionally, the close political affiliations maintained by executives of Chinese SOEs significantly impede investment efficiency compared with non-SOEs (Chen et al. 2011). Furthermore, state ownership generally hampers investment, while concurrently playing a stabilizing role in mitigating investment declines during financial crises (Jaslowitzer, Megginson, and Rapp 2016). Consequently, SOEs may exhibit a milder response to EPU than non-SOEs. Hence, we propose the following hypothesis:

Hypothesis 6: State ownership mitigates the negative impact of EPU on corporate investment.

2.2 Capital structure and corporate investment

The financing channel is vital in corporate investment as the availability and reliability of capital sources are essential. In China, banks have historically dominated corporate financing but reliance on bank loans is diversifying, as shown in Figure 2. Financial leverage is essential to understanding firms' capital structures and investment-related decisions. Financial leveraging involves using borrowed capital (debt) to finance operations or investments in order to enhance shareholder value (Brigham and Houston 2019). Higher financial leverage ratio indicates greater indebtedness and increased financial risk. Research on the link between leverage and investment remains inconclusive. Financial leverage enhances investment

irreversibility through interest tax shields (Ozdagli 2012) but can also negatively affect investment by restricting overinvestment (Aivazian, Ge, and Qiu 2005; Vo 2019). Debt financing, as a crucial tool for leveraging debt, may reduce corporate investment while enhancing shareholders' investment portfolios because of the tax avoidance benefits of debt (John and Senbet 1998). Conversely, some theories support the capital structure irrelevance proposition (Auerbach and King 1983; Modigliani and Miller 1958).

Numerous studies reveal firms' heterogeneous responses to uncertainty based on their capital sources and financial conditions. However, limited research examines the moderating effect of leverage in the context of EPU. Wang, Chen, and Huang (2014) found that increased EPU can mitigate its negative impact on non-SOEs with higher returns on invested capital and higher internal financing. Policy uncertainty significantly affects capital investment for firms heavily reliant on government spending and with high irreversible investment (Gulen and Ion 2016). Dejuán and Ghirelli (2018) found that firms with higher financial vulnerability experience significantly greater reductions in investments than their Spanish counterparts. EPU negatively affects investment in the US hospitality industry, particularly for firms with lower capital expenditure ratios (Akron et al. 2020). Sahoo and Bishnoi (2023) found that highly leveraged Indian firms experience investment rate deceleration and that this leverage-induced impact becomes stronger during periods of tightening monetary policy. Hence, we propose the following hypothesis:

Hypothesis 7: An increase in financial leverage intensifies the negative impact of EPU on corporate investment.

3. Research design and methodology

3.1 Data

To explore the impact of EPU on corporate investment and systematically investigate the

effects of the ownership and capital structures, we use annual corporate data containing all A-share listed Chinese firms from the CSMAR database spanning 2003–2022. We exclude financial and insurance companies as well as those with irregular financial conditions or missing data to ensure the validity of our data. Our dataset includes 48,987 data points for 4619 listed Chinese firms, offering a substantial sample size and an extended study period. Additionally, we apply winsorization to mitigate the outlier effects by replacing values beyond the 1% and 99% quantiles with their respective quantile values.

3.2 Variable specification

3.2.1 Total investment

We express total investment (INV) as the ratio of total cash outflows from investing activities to total assets.

3.2.2 Long-term investment

We measure long-term investment (LINV) by the ratio of the cash paid for the purchase and construction of fixed assets, intangible assets, and other long-term assets to total assets.

3.2.3 Short-term investment

We measure short-term investment (SINV) by the ratio of the cash paid by firms for equity and debt investments, including the cash paid for trading financial assets, held-to-maturity investments, and available-for-sale financial assets other than cash equivalents acquired by enterprises, as well as surcharges such as commissions and fees paid to total assets.

3.2.4 Economic policy uncertainty

We employ the average value of the monthly Economic Policy Uncertainty Index[1] developed by Baker, Bloom, and Davis (2016, 2023) to measure EPU.

[1] The Economic Poliyc Uncertainty Index in China is obtained through data collected from the *South China Morning Post* and calculated using the methodology developed by Baker, Bloom, and Davis (2016).

3.2.5 Ownership concentration

Ownership concentration is measured by the ratio of the top shareholder's shareholding to total shares (TOP1SHARE), and ratio of the top 10 shareholders' shareholdings to the total shares (TOP10SHARE).

3.2.6 Institutional shareholding

We express institutional shareholding (INSTSHARE) as the proportion of shares held by institutional investors to total shares.

3.2.7 State ownership

State ownership (STATEOWN) is a dummy variable set to determine whether a firm is state-owned or not. If the listed company is state-owned, STATEOWN is coded 1 and 0 otherwise.

3.2.8 Financial leverage

We adopt the debt-to-equity ratio (DtoE), debt ratio (DR), and equity ratio (ER) to comprehensively measure financial leverage.

3.2.9 Other control variables

We control for three other financial variables that influence corporate investment: Tobin's q (TQ), defined as the ratio of market value plus debt to total assets, CASHFLOW (i.e., the net cash flow from operating activities during the current period), and ROA.

3.3 Empirical model

To test our research hypotheses, we employ regression equations inspired by Bo and Lensin (2005) and Chen, Lee, and Zeng's (2019) dynamic models. In these models, *i* and *t* represent the company and year, respectively; I signifies corporate investment, proxied by INV, SINV and LINV; and α_i is the unobserved firm-specific panel effect, which is orthogonal to the disturbance term ε_(*i*,*t*). To explore potential non-linearities, these models incorporate both a linear and a quadratic version of EPU.

$$I_{i,t} = \alpha_i + \beta_1 I_{i,t-1} + \beta_2 EPU_t + \beta_3 EPU_t^2 + \beta_4 TOP1SHARE_i + \beta_5 TOP10SHARE_i + \beta_6 INSTSHARE_i + \beta_7 STATEOWN_{i,t} + \beta_8 DtoE_{i,t} + \beta_9 DR_{i,t} + \beta_{10} ER_{i,t} + \beta_{11} ROA_{i,t} + \beta_{12} CASHFLOW_{i,t} + + \beta_{13} TQ_{i,t} + \varepsilon_{i,t}$$ Model (1)

$$I_{i,t} = \alpha_i + \beta_1 I_{i,t-1} + \beta_2 EPU_t + \beta_3 EPU_t \times moderate\ variable + \beta_4 EPU_t^2 + \beta_5 TOP1SHARE_i + \beta_6 TOP10SHARE_i + \beta_7 INSTSHARE_i + \beta_8 STATEOWN_{i,t} + \beta_9 DtoE_{i,t} + \beta_{10} DR_{i,t} + \beta_{11} ER_{i,t} + \beta_{12} ROA_{i,t} + \beta_{13} CASHFLOW_{i,t} + + \beta_{14} TQ_{i,t} + \varepsilon_{i,t}$$ Model (2)

Model (1) is the basic regression model for testing Hypotheses 1, 2, and 3, the impact of EPU on corporate investment, controlling for the ownership concentration ratio, the institutional shareholding ratio, financial leverage, Tobin's q, ROA, and cash flow. Model (2) extends Model (1) by introducing interaction terms with EPU, thus examining Hypotheses 4, 5, 6, and 7.

3.4 Methodology

In this study, we employ advanced econometric techniques to address endogeneity issues and ensure the consistency of our estimates. Static panel data techniques, particularly fixed effects estimators, require strict exogeneity assumptions, which can lead to inconsistent estimates. To overcome this limitation, we employ the two-step system GMM estimation framework developed by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998), which uses instrumental variables to generate consistent and efficient estimates while accounting for potential heteroscedasticity. The system GMM approach contains both levels and first-difference equations, thus addressing challenges associated with weak instrumentation and overidentification that can occur in the difference GMM approach.

Specifically, we implement the forward orthogonal deviation technique proposed by

Arellano and Bover (1995). Instead of subtracting the previous observation from the contemporaneous observations of a variable, this approach subtracts the average of all the future available observations of a variable (Roodman 2009). This technique makes the unobserved time-invariant individual-specific effects orthogonal to the lagged variable observations rather than eliminating the individual-specific effect, thus yielding valid instruments.

Our study extends prior research and seeks to overcome some of the limitations present in previous studies. While Chen, Lee, and Zeng (2019) used the one-step system GMM procedure developed by Arellano and Bond (1991), we select the two-step GMM procedure, known for its robustness while dealing with weak instruments and yielding more efficient estimates. Moreover, Chen, Lee, and Zeng (2019) employed the Sargan test for overidentifying restrictions. While this test is not adversely affected by weak instruments, it may produce less robust results. Contrastingly, our study uses the Hansen test to examine the validity of the selected instruments, thereby increasing the reliability of our findings.

To address the endogeneity of certain variables, we employ the US EPU index and year as instrumental variables in the level equations. Additionally, we use lagged levels with a minimum lag of three periods as valid GMM instrumental variables in the system GMM conditions to capture the dynamic relationships in the model. Estimation consistency depends on the absence of a second-order serial correlation in the disturbance terms and instrument validity (Arellano and Bond 1991). We verify this using the AR(2) test to ensure the disturbance terms in our regressions do not exhibit second-order serial correlation. This approach addresses endogeneity bias and potential autocorrelation issues, enhancing estimation robustness. Additionally, dynamic panel GMM estimators have been validated for use in 'large N, small T' panel data settings (Arellano and Bond 1991; Blundell and Bond 1998), which aligns with our study's data characteristics.

4. Results and discussion

4.1 Descriptive statistics

Table 1 shows the summary statistics of the variables. The SD of SINV significantly exceeds that of LINV, while the SD of LINV is nearly equal to that of INV, indicating greater volatility in short-term investment over the sample period. The SD of EPU presents substantial fluctuations from 2003 to 2022, ranging from 64.96 to 791.9. TOP1SHARE and TOP10SHARE exhibit relatively high concentration levels, with means exceeding 34%. INSTSHARE also displays a high mean and SD, reflecting notable shifts in institutional investors over the two decades. The high mean value of DtoE indicates higher financial leverage and potential risk.

Table 2 presents the correlation coefficients. EPU is significantly correlated with most of the variables, except Tobin's q. Except for the correlations between SINV and ER as well as between SINV and INV, the remaining coefficients are relatively low, suggesting no multicollinearity issues.

4.2 Empirical analysis

We first analyze the influence of EPU on corporate investment. We employ dynamic panel data estimation, specifically the two-step system GMM technique. The results of the Hansen test of overidentification restrictions and Arellano–Bond test for AR(2) in first differences validate our selected instruments and indicate no autocorrelation issues in our analysis.

Table 3 shows EPU's effects on total, long-term, and short-term investments. Our findings reveal a statistically significant negative impact on INV, confirming Hypothesis 1. This result empirically supports arguments proposed by real options theory (Bernanke 1983; Handley and Limão 2015; Kellogg 2014) and financing constraints theory (Fazzari et al. 1988), aligning with the findings of Gulen and Ion (2016) and Wang, Chen, and Huang (2014). Moreover, EPU

negatively affects SINV at the 5% significance level, providing evidence consistent with the findings of Chen, Lee, and Zeng (2019). Conversely, EPU exhibits a statistically significant positive impact on LINV at the 5% significance level, empirically supporting the arguments by Bo and Lensin (2005) and Wu et al. (2020). Hence, Hypothesis 3 is not supported.

Consistent with Hypothesis 2, our findings reveal a non-linear relationship between EPU and investment. In Column 1 of Table 3, the significantly negative coefficients of EPU and significantly positive coefficients of the quadratic term of EPU suggest the presence of a U-shaped relationship between EPU and INV. This suggests that low levels of EPU negatively affect INV, while higher levels of EPU increase it. Similarly, in Column 3 of Table 2, we observe a U-shaped relationship between EPU and SINV. These non-linearities align with Chen, Lee, and Zeng's (2019) findings.

Conversely, in Column 2 of Table 3, the non-linear association between EPU and LINV presents an inverted U-shaped curve, aligning with the findings of Bo and Lensin (2005). At lower levels of EPU, an increase in EPU corresponds to an increase in long-term investment. However, higher levels of EPU trigger a reduction in long-term investment.

Table 4 presents the results for Model (2) after incorporating the interaction terms between the ownership concentration ratios and EPU, denoted as EPU_TOP1SHARE and EPU_TOP10SHARE. Columns 1 and 4 of Table 4 indicate that an increase in the ownership concentration ratio intensifies the adverse impact of EPU on total investment.

Columns 3 and 6 of Table 4 suggest that firms with higher ownership concentration ratios tend to reduce SINV in response to EPU, supporting Hypothesis 4. These findings align with theories on ownership's impact on monitoring management (Shleifer and Vishny 1997; Zeckhauser and Pound 1990) and alleviating agency problems (Jensen and Meckling 1976), as evidenced by Pindado and de la Torre (2006). Concentrated ownership enhances the monitoring effect of major shareholders and restrains risk-seeking investments. This effect is further

compounded when EPU is high, leading to greater investment restraints.

Conversely, Columns 2 and 5 of Table 4 suggest that the increased ownership concentration ratio weakens the negative impact of EPU on LINV. This result coincides with the arguments of private benefits: the conflict of interest between management and shareholders or between controlling shareholders and minority shareholders (Barclay and Holderness 1989; Bebchuk 1999). Managers may not be vigilant enough to perceive potential risk, thus inducing ignorance and profusion when adjusting their long-term investments.

Concurrently, we observe U-shaped non-linear relationships between INV and EPU, as well as between SINV and EPU in firms with high ownership concentration. The non-linear relationship between EPU and the LINV in firms with a high TOP1SHARE forms an inverted U-shaped curve. However, the LINV of firms with a high TOP10SHARE responds positively to EPU, while not exhibiting a significant response to EPU when EPU reaches high levels.

Table 5 presents the results for Model (2), which includes the interaction term between INSTSHARE and EPU (EPU_INSTSHARE). Columns 1 and 3 of Table 5 indicate that firms with higher institutional shareholdings experience a greater decrease in both INV and SINV in response to EPU. Conversely, firms with higher institutional shareholdings display a more modest decrease in LINV owing to EPU, supporting Hypothesis 5. This outcome empirically supports the notion that institutional ownership helps reduce irrational investment, lower investment efficiency (Gao et al. 2019), and mitigate financial frictions (Jumah, Younas, and Al-Faryan 2023).

Furthermore, the significantly positive coefficients of the interaction between squared EPU and institutional shareholding (EPU2_INSTSHARE) imply that the relationships between EPU and INV as well as between EPU and SINV exhibit non-linear U-shaped patterns. However, the association between EPU and LINV exhibits an inverted U-shaped curve.

Table 6 presents the results for Model (2) after incorporating the interaction term between

STATEOWN and EPU (EPU_STATEOWN). Columns 1 and 3 of Table 6 suggest that state ownership exacerbates the negative impact of EPU on both INV and SINV. These results support the findings of Wang, Chen, and Huang (2014), indicating that SOEs experience a more pronounced decrease in investment because of EPU. Notably, in Column 2 of Table 6, we do not observe a significant impact of state ownership on the effect of EPU on LINV. Therefore, Hypothesis 6 is rejected.

A plausible explanation is that an increase in the proportion of state ownership may exert a stronger supervisory effect on managers, thereby enhancing corporate investment efficiency. Additionally, state-controlled banks and state bank lending are significantly more responsive to monetary policy (Morck, Yavuz, and Yeung 2013), making those SOEs reliant on state bank lending more susceptible to the effects of EPU. Moreover, the strong political connections within SOEs may facilitate easier access to government subsidies, potentially causing a greater decline in investment when faced with EPU.

Furthermore, the significantly positive coefficients of EPU2_ STATEOWN suggest that the relationships between EPU and INV as well as between EPU and SINV, follow non-linear U-shaped patterns. However, as EPU reaches high levels, SOEs experience a greater negative impact of EPU on LINV.

Tables 7, 8, and 9 present the results after adding the interaction terms between the leverage ratios and EPU, revealing the moderating effects of various capital resources and structures. Table 7 reveals that higher debt-to-equity ratios correspond to greater reductions in INV and SINV owing to EPU, with no significant effect on LINV. This suggests that increased financial leverage magnifies EPU's adverse impact on INV and SINV. Similarly, Table 8 reveals the moderating role of the debt ratio, demonstrating that higher debt financing leads to larger declines in INV and SINV in response to EPU, without affecting LINV significantly. This finding indicates the exacerbating effect of debt financing on EPU-induced investment

reduction, supporting its effects on enhancing investment irreversibility (Ozdagli 2012) and reducing corporate investment (John and Senbet 1998). Table 9 indicates that higher equity ratios increase the reductions in INV and SINV owing to EPU, while LINV remains relatively stable. This underscores how greater reliance on equity financing amplifies EPU's negative impact on INV and SINV.

In summary, our findings suggest that higher financial leverage leads to more substantial declines in investment, consistent with the findings of Dejuán and Ghirelli (2018) and Sahoo and Bishnoi (2023). Furthermore, across Tables 7, 8, and 9, we observe U-shaped non-linear relationships between EPU and both total and short-term investments.

5. Conclusion

This study employs the two-step system GMM method to examine the impact of EPU on corporate investment using panel data from 4619 listed Chinese firms spanning 2003–2022. It addresses a literature gap by presenting distinct results compared with prior research. We identify the significant negative effect of EPU on both total and short-term investments, but a significantly positive impact on long-term investment. Furthermore, we uncover distinct non-linear patterns in the EPU–investment relationships. The associations between EPU and total investment as well as between EPU and short-term investment, form U-shaped curves. Conversely, the relationship between EPU and long-term investment exhibits an inverted U-shaped curve. These non-linearities suggest that the effect of EPU on investment varies by the specific investment horizon, with low and high levels of EPU leading to contrasting outcomes. Consequently, firms should consider investment duration when making decisions in the face of EPU. Under relatively low uncertainty, long-term investment strategies focusing on projects with extended payback periods and strategic growth are encouraged over those expecting short-term gains.

Our study provides novel insights into the EPU–investment nexus, investigating how ownership concentration, institutional ownership, state ownership, and financial leverage interact with corporate investment. We find that increased ownership concentration and institutional shareholdings intensify the negative impact of EPU on total and short-term investments but mitigate its impact on long-term investment. Additionally, state ownership strengthens the adverse impact on total and short-term investments without significantly affecting long-term investment. Moreover, we find that higher debt financing and equity financing worsen the negative impact of EPU on total and short-term investments, without significantly affecting long-term investment. Firms should prudently manage their financial structures during periods of high EPU. Reducing debt levels and diversifying financing sources may be advisable.

For firms with a high ownership concentration, high institutional and state shareholding, and high debt and equity financing, significant non-linear relationships exist with EPU for total and short-term investments. Accordingly, we recommend firms tailor their risk management strategies based on their ownership structure, financial leverage, and investment horizons. Policymakers should understand the dynamics of the EPU–investment nexus and design appropriate policies to promote investment amid uncertainty.

This study may have limitations in that it does not account for variables such as firm size and industry type, which could influence the EPU–investment relationship, particularly given the variation in EPU impact between industries. Identifying these trends is essential for informing policymakers. Future research could aim to incorporate a more comprehensive set of variables to achieve a holistic understanding of this relationship.

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Appendix

Figure 1 exhibits that the shareholding of the largest shareholder in Chinese firms remained over 30% from 2003 to 2022, while the shareholding of the top 10 shareholders remained over 55%. The institutional shareholding ratio has been decreasing while stabilizing at over 40%. The high state ownership before 2005 suggests the dominant position of state-owned shares. The separation of non-tradable and tradable shares, combined with a lack of relevant legislation, exacerbates the situation (Huang, Shen, and Sun 2011; Yeh et al. 2009). The proportion of state-owned shares declined after the share structure split reform in 2005.

Figure 2 suggests the decreased dependence on bank loans and stable demand for equity financing among listed Chinese firms. Furthermore, bond financing has experienced an evident growth since 2015 owing to the implementation of the corporate bond policy (China Securities Regulatory Commission 2015).

Economic Policy Uncertainty and Corporate Investment Dynamics: Evidence from Chinese Listed Firms

Tables

Table 1. Summary statistics

Variable	Mean	SD	Min	Max	Obs.
INV	21.226	30.919	0.012	202.937	48987
LINV	5.133	5.077	0.009	34.792	48987
SINV	16.040	30.710	0.000	198.047	48987
EPU	375.236	255.715	64.962	791.874	48987
TOP1SHARE	34.956	15.264	8.020	79.590	48987
TOP10SHARE	58.896	15.387	20.000	91.880	48987
INSTSHARE	47.677	24.888	0.121	106.736	48987
STATEOWN	0.409	0.492	0.000	1.000	48987
DtoE	143.953	225.835	-817.075	2280.321	48987
DR	44.470	23.058	3.059	321.484	48987
ER	52.879	23.724	-221.484	96.748	48987
ROA	3.348	7.394	-67.854	24.655	48987
CASHFLOW	4.627	7.429	-28.394	35.859	48987
TQ	2.146	1.560	0.837	18.887	48987

Observations are from 4619 listed Chinese firms; EPU: Economic policy uncertainty; INV: Total investment; LINV: Long-term investment; SINV: Short-term investment; TOP1SHARE and TOP10SHARE: Ownership concentration ratios; INSTSHARE: Institutional shareholding ratio; STATEOWN: State ownership; DtoE: Debt-to-Equity ratio; DR: Debt ratio; ER: Equity ratio; ROA: Return on assets; CASHFLOW: Cash flow; TQ: Tobin's q

Table 2. Coefficient coefficient matrix

	INV	LINV	SINV	EPU	TOP1SHARE	TOP10SHARE	INSTSHARE	STATEOWN	DtoE	DR	ER	ROA	CASH	Tobinq
INV	1													
LINV	0.120***	1												
SINV	0.985***	-0.049***	1											
EPU	0.246***	-0.106***	0.265***	1										
TOP1SHARE	-0.022***	0.075***	-0.034***	-0.132***	1									
TOP10SHARE	0.133***	0.131***	0.112***	0.019***	0.614***	1								
INSTSHARE	-0.110***	0.051***	-0.119***	-0.186***	0.491***	0.478***	1							
STATEOWN	-0.233***	-0.056***	-0.225***	-0.221***	0.256***	-0.014***	0.423***	1						
DtoE	-0.131***	-0.127***	-0.111***	-0.043***	-0.015***	-0.061***	0.136***	0.169***	1					
DR	-0.305***	-0.102***	-0.291***	-0.109***	0.002	-0.135***	0.191***	0.258***	0.612***	1				
ER	0.314***	0.097***	0.300***	0.120***	-0.008*	0.146***	-0.205***	-0.281***	-0.606***	-0.985***	1			
ROA	0.159***	0.155***	0.135***	-0.018***	0.135***	0.227***	0.101***	-0.064***	-0.222***	-0.388***	0.373***	1		
CASHFLOW	0.100***	0.179***	0.071***	0.042***	0.104***	0.110***	0.116***	0.019***	-0.105***	-0.151***	0.138***	0.341***	1	
TQ	0.074***	-0.031***	0.079***	0. 000	-0.154***	-0.136***	-0.086***	-0.166***	-0.133***	-0.150***	0.153***	0.067***	0.060***	1

*, **, and ***: Statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 3. Impact of economic policy uncertainty on corporate investment

Variable	(1) INV	(2) LINV	(3) SINV
L.INV	0.640***		
	(5.446)		
L.LINV		0.510	
		(1.226)	
L.SINV			0.660***
			(5.954)
EPU	-0.020**	0.007**	-0.019**
	(-2.487)	(2.238)	(-2.437)
logEPU2	4.245***	-1.340*	4.174***
	(3.029)	(-1.952)	(2.958)
TOP1SHARE	0.383	-0.538	0.626
	(0.368)	(-1.536)	(0.655)
TOP10SHARE	-0.302	0.325*	-0.396
	(-0.561)	(1.751)	(-0.806)
INSTSHARE	-0.005	-0.082	-0.033
	(-0.036)	(-0.907)	(-0.240)
STATEOWN	27.754	11.165*	22.345
	(1.404)	(1.805)	(1.219)
DtoE	0.025	-0.010	0.028
	(0.587)	(-0.653)	(0.729)
DR	10.904***	1.233**	10.564***
	(2.940)	(1.966)	(2.791)
ER	11.149***	1.055	10.715***
	(3.134)	(1.626)	(2.946)
CASHFLOW	-0.012	-0.223	-0.003
	(-0.023)	(-0.576)	(-0.006)
ROA	1.110*	0.522***	1.035
	(1.679)	(3.003)	(1.598)
TQ	-1.324	-0.081	-0.847
	(-1.133)	(-0.151)	(-0.748)
Constant	-1,117.444***	-95.533	-1,081.612***
	(-3.140)	(-1.588)	(-2.972)
Number of firms	4,619	4,619	4,619
Hansen test (p-value)	0.209	0.159	0.436
AR(2) test (p-value)	0.928	0.210	0.894

t-statistics are in parentheses. logEPU2 is the logarithmic value of the squared EPU. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. The null hypothesis of the Hansen test is that the instrumental variables used are valid and do not suffer from endogeneity issues. AR(2) test denotes the Arellano-Bond test for the second-order autocorrelation in first differences.

Table 4. Moderating effect of ownership concentration

Variable	(1) INV	(2) LINV	(3) SINV	(4) INV	(5) LINV	(6) SINV
L.INV	0.6389***			0.6215***		
	(5.585)			(5.227)		
L.LINV		0.2554			0.4434	
		(0.381)			(0.686)	
L.SINV			0.6494***			0.6337***
			(6.036)			(5.665)
EPU_TOP1SHARE	-0.0006**	0.0002**	-0.0006**			
	(-2.428)	(2.339)	(-2.423)			
EPU2_TOP1SHARE	0.1271***	-0.0476*	0.1272***			
	(3.065)	(-1.817)	(3.068)			
EPU_TOP10SHARE				-0.0003**	0.0001**	-0.0003**
				(-2.330)	(2.103)	(-2.388)
EPU2_TOP10SHARE				0.0769***	-0.0268	0.0775***
				(2.984)	(-1.428)	(3.017)
TOP1SHARE	-0.7176	-0.1230	-0.4740	0.5658	-0.5680	0.7935
	(-0.679)	(-0.387)	(-0.479)	(0.523)	(-1.354)	(0.814)
TOP10SHARE	-0.3701	0.3800*	-0.4669	-1.1390*	0.6067	-1.2302**
	(-0.678)	(1.723)	(-0.936)	(-1.760)	(1.427)	(-2.102)
INSTSHARE	0.0350	-0.1283	0.0103	0.0126	-0.0951	-0.0114
	(0.253)	(-0.974)	(0.078)	(0.087)	(-0.727)	(-0.084)
STATEOWN	24.4681	13.9472	18.9255	26.3987	12.0700	20.5161
	(1.270)	(1.622)	(1.058)	(1.326)	(1.268)	(1.120)
DtoE	0.0202	-0.0057	0.0226	0.0193	-0.0104	0.0228
	(0.472)	(-0.334)	(0.594)	(0.434)	(-0.598)	(0.584)
DR	9.9160***	1.2842**	9.5839***	10.5012***	1.2791*	10.0121***
	(2.893)	(2.026)	(2.767)	(3.023)	(1.857)	(2.899)
ER	10.2425***	1.1731*	9.8267***	10.8179***	1.1072	10.2556***
	(3.097)	(1.736)	(2.939)	(3.238)	(1.458)	(3.084)
CASHFLOW	-0.0387	-0.0518	-0.0355	-0.1080	-0.2098	-0.0794
	(-0.079)	(-0.101)	(-0.078)	(-0.211)	(-0.413)	(-0.169)
ROA	0.8807	0.5175***	0.7934	0.9721	0.5301***	0.8518
	(1.536)	(3.086)	(1.403)	(1.628)	(3.120)	(1.474)
TQ	-1.3892	-0.3010	-0.9048	-1.2649	-0.1010	-0.8156
	(-1.216)	(-0.399)	(-0.823)	(-1.076)	(-0.142)	(-0.729)
Constant	-983.5372***	-116.9490*	-949.5031***	-1,040.5462***	-113.0069	-991.8198***
	(-2.971)	(-1.833)	(-2.837)	(-3.107)	(-1.594)	(-2.977)
Number of firms	4,619	4,619	4,619	4,619	4,619	4,619
Hansen test (p-value)	0.219	0.167	0.486	0.291	0.193	0.541
AR(2) test (p-value)	0.876	0.310	0.934	0.977	0.352	0.959

t-statistics are in parentheses. EPU_TOP1SHARE is the interaction term between EPU and the top shareholder's shareholding ratio. EPU2_TOP1SHARE is the interaction term between squared EPU and the top shareholder's shareholding ratio. EPU_TOP10SHARE is the interaction term between EPU and the top 10 shareholders' shareholding ratio. EPU2_TOP10SHARE is the interaction term between squared EPU and the top 10 shareholders' shareholding ratio. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. The null hypothesis of the Hansen test is that the instrumental variables used are valid and do not suffer from endogeneity issues. AR(2) test denotes the Arellano-Bond test for the second-order autocorrelation in first differences.

Table 5. Moderating effect of institutional shareholding

Variable	(1) INV	(2) LINV	(3) SINV
L.INV	0.6532***		
	(6.102)		
L.LINV		0.3313	
		(0.553)	
L.SINV			0.6640***
			(6.513)
EPU_INSTSHARE	-0.0005***	0.0001**	-0.0004**
	(-2.780)	(2.065)	(-2.570)
EPU2_INSTSHARE	0.0932***	-0.0285**	0.0912***
	(3.377)	(-2.155)	(3.225)
TOP1SHARE	0.3375	-0.5397*	0.6461
	(0.334)	(-1.668)	(0.676)
TOP10SHARE	-0.3098	0.3477*	-0.4447
	(-0.577)	(1.917)	(-0.875)
INSTSHARE	-0.8093***	0.1642	-0.8203***
	(-2.986)	(1.641)	(-3.001)
STATEOWN	22.1806	12.5828*	16.9125
	(1.237)	(1.844)	(0.984)
DtoE	0.0206	-0.0072	0.0224
	(0.514)	(-0.409)	(0.612)
DR	9.1812***	1.1709**	9.2151***
	(2.765)	(1.965)	(2.643)
ER	9.5068***	1.0482*	9.4403***
	(2.963)	(1.804)	(2.808)
CASHFLOW	0.1261	-0.1016	0.0996
	(0.275)	(-0.207)	(0.229)
ROA	0.7947	0.4955***	0.7662
	(1.453)	(2.645)	(1.363)
TQ	-1.5853	-0.2779	-1.0232
	(-1.466)	(-0.387)	(-0.955)
Constant	-910.7672***	-105.2300*	-911.6363***
	(-2.840)	(-1.850)	(-2.710)
Number of firms	4,619	4,619	4,619
Hansen test (p-value)	0.166	0.106	0.467
AR(2) test (p-value)	0.755	0.284	0.87

t-statistics are in parentheses. EPU_INSTSHARE is the interaction term between EPU and the institutional shareholding ratio. EPU2_INSTSHARE is the interaction term between squared EPU and the institutional shareholding ratio. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. The null hypothesis of the Hansen test is that the instrumental variables used are valid and do not suffer from endogeneity issues. AR(2) test denotes the Arellano-Bond test for the second-order autocorrelation in first differences.

Table 6. Moderating effect of state ownership

Variable	(1) INV	(2) LINV	(3) SINV
L.INV	0.7617***		
	(9.720)		
L.LINV		0.4786***	
		(8.209)	
L.SINV			0.6746***
			(7.659)
EPU_STATEOWN	-0.0485*	0.0060	-0.0650***
	(-1.852)	(1.131)	(-4.288)
EPU2_STATEOWN	8.6814**	-1.6202**	10.8480***
	(2.454)	(-2.114)	(4.616)
TOP1SHARE	-0.0420	-0.6007**	0.1005
	(-0.040)	(-2.156)	(0.128)
TOP10SHARE	-0.1451	0.3594**	-0.1221
	(-0.254)	(2.211)	(-0.282)
INSTSHARE	0.0434	-0.0650	0.0338
	(0.335)	(-0.781)	(0.345)
STATEOWN	-53.7444	27.2595**	-82.4522***
	(-1.232)	(2.542)	(-3.056)
DtoE	-0.0041	-0.0070	0.0151
	(-0.103)	(-0.647)	(0.530)
DR	9.9269*	0.1942	6.4888*
	(1.793)	(0.261)	(1.915)
ER	9.8009*	0.1711	6.7538**
	(1.880)	(0.247)	(2.074)
CASHFLOW	-0.0600	-0.0627	0.2882
	(-0.116)	(-0.322)	(0.794)
ROA	1.2710	0.2800*	0.4534
	(1.439)	(1.789)	(0.853)
TQ	-1.4650	-0.4357**	-1.4559*
	(-1.334)	(-2.092)	(-1.661)
Constant	-956.2829*	-15.4646	-645.3333**
	(-1.822)	(-0.221)	(-1.981)
Number of firms	4,619	4,619	4,619
Hansen test (p-value)	0.435	0.134	0.34
AR(2) test (p-value)	0.96	0.137	0.74

t-statistics are in parentheses. EPU_STATEOWN is the interaction term between EPU and state ownership. EPU2_STATEOWN is the interaction term between squared EPU and state ownership. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. The null hypothesis of the Hansen test is that the instrumental variables used are valid and do not suffer from endogeneity issues. AR(2) test denotes the Arellano-Bond test for the second-order autocorrelation in first differences.

Table 7. Moderating effect of the debt-to-equity ratio

Variable	(1) INV	(2) LINV	(3) SINV
L.INV	0.7060***		
	(5.303)		
L.LINV		0.4787***	
		(3.745)	
L.SINV			0.7193***
			(7.439)
EPU_DtoE	-0.0001*	0.0000	-0.0001***
	(-1.950)	(1.273)	(-2.937)
EPU2_DtoE	0.0232*	-0.0090	0.0248***
	(1.901)	(-1.514)	(3.152)
TOP1SHARE	0.1815	-0.7032*	0.3155
	(0.134)	(-1.664)	(0.364)
TOP10SHARE	-0.2246	0.3909*	-0.2639
	(-0.321)	(1.766)	(-0.580)
INSTSHARE	-0.0208	-0.0586	0.0147
	(-0.117)	(-0.585)	(0.129)
STATEOWN	25.1153	10.9418	17.0576
	(0.996)	(1.518)	(1.085)
DtoE	-0.1650	0.0839	-0.1969**
	(-1.264)	(1.334)	(-2.315)
DR	10.0052*	1.0632	8.0691**
	(1.781)	(0.532)	(2.047)
ER	10.3258*	0.9188	8.3178**
	(1.927)	(0.524)	(2.194)
CASHFLOW	0.3319	-0.0414	0.1425
	(0.564)	(-0.163)	(0.345)
ROA	0.9180	0.4733	0.6951
	(1.023)	(1.146)	(1.170)
TQ	-1.9593	-0.2723	-1.1939
	(-1.493)	(-0.681)	(-1.207)
Constant	-993.1500*	-93.7310	-801.2620**
	(-1.847)	(-0.516)	(-2.111)
Number of firms	4,619	4,619	4,619
Hansen test (p-value)	0.140	0.215	0.152
AR(2) test (p-value)	0.841	0.149	0.638

t-statistics are in parentheses. EPU_DtoE is the interaction term between EPU and the debt-to-equity ratio. EPU2_DtoE is the interaction term between squared EPU and the debt-to-equity ratio. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. The null hypothesis of the Hansen test is that the instrumental variables used are valid and do not suffer from endogeneity issues. AR(2) test denotes the Arellano-Bond test for the second-order autocorrelation in first differences.

Table 8. Moderating effect of the debt ratio

Variable	(1) INV	(2) LINV	(3) SINV
L.INV	0.6977***		
	(4.894)		
L.LINV		0.5741***	
		(5.694)	
L.SINV			0.6711***
			(6.378)
EPU_DR	-0.0005**	-0.0000	-0.0005***
	(-2.140)	(-0.412)	(-2.928)
EPU2_DR	0.0976**	0.0013	0.0949***
	(2.304)	(0.193)	(3.279)
TOP1SHARE	1.0191	-0.2361	0.7715
	(0.737)	(-1.000)	(0.847)
TOP10SHARE	-0.6184	0.1802	-0.4661
	(-0.868)	(1.368)	(-0.988)
INSTSHARE	-0.0211	-0.0504	0.0085
	(-0.109)	(-0.668)	(0.068)
STATEOWN	14.5269	8.7589	13.5440
	(0.614)	(1.604)	(0.858)
DtoE	0.0515	-0.0150	0.0337
	(0.935)	(-1.222)	(0.956)
DR	9.1381*	-0.9291	8.0294**
	(1.766)	(-1.308)	(2.239)
ER	10.3020**	-0.7740	9.1408***
	(2.104)	(-1.171)	(2.646)
CASHFLOW	0.2875	-0.2037	0.1180
	(0.461)	(-0.993)	(0.270)
ROA	1.0406	-0.0102	0.7924
	(1.174)	(-0.097)	(1.346)
TQ	-1.6925	-0.6877***	-0.9986
	(-1.220)	(-2.617)	(-0.975)
Constant	-997.1730**	85.1809	-885.0904**
	(-2.026)	(1.284)	(-2.558)
Number of firms	4,619	4,619	4,619
Hansen test (p-value)	0.266	0.2	0.282
AR(2) test (p-value)	0.862	0.438	0.824

t-statistics are in parentheses. EPU_DR is the interaction term between EPU and the debt ratio. EPU2_DR is the interaction term between squared EPU and the debt ratio. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. The null hypothesis of the Hansen test is that the instrumental variables used are valid and do not suffer from endogeneity issues. AR(2) test denotes the Arellano-Bond test for the second-order autocorrelation in first differences.

Table 9. Moderating effect of the equity ratio

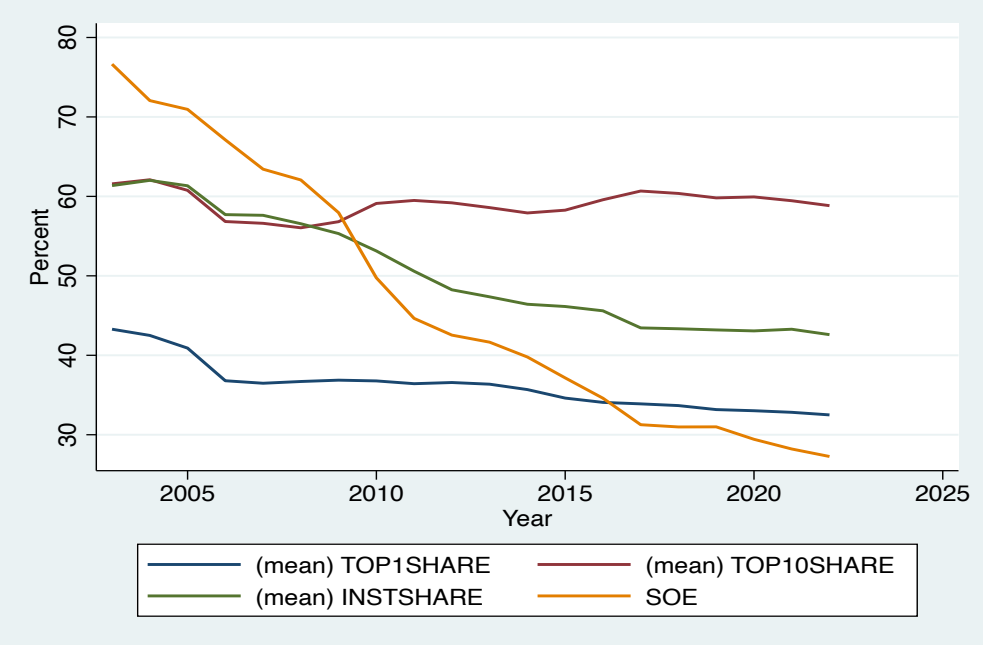
Variable	(1) INV	(2) LINV	(3) SINV
L.INV	0.6085***		
	(2.577)		
L.LINV		1.3293***	
		(3.373)	
L.SINV			0.6459***
			(5.822)
EPU_ER	-0.0004***	-0.0000	-0.0004**
	(-2.668)	(-0.381)	(-2.475)
EPU2_ER	0.0909***	0.0113	0.0816***
	(2.981)	(0.782)	(3.058)
TOP1SHARE	-0.4679	-0.3443	0.8766
	(-0.315)	(-1.018)	(0.950)
TOP10SHARE	0.6498	0.2206	-0.5005
	(0.736)	(1.196)	(-1.055)
INSTSHARE	-0.3410	-0.0139	-0.0304
	(-0.865)	(-0.184)	(-0.226)
STATEOWN	30.1984	5.3166	17.1017
	(1.173)	(1.024)	(1.023)
DtoE	-0.0455	-0.0222	0.0451
	(-0.896)	(-1.295)	(1.195)
DR	-0.7797	-0.8565	9.6136***
	(-0.206)	(-0.917)	(2.993)
ER	-1.1790	-1.0727	9.1373***
	(-0.322)	(-1.000)	(2.894)
CASHFLOW	-0.7525	-0.5656	0.0165
	(-0.749)	(-1.341)	(0.036)
ROA	0.1237	0.1048	0.8532
	(0.188)	(0.780)	(1.499)
TQ	-1.9821	0.0240	-0.5853
	(-1.486)	(0.047)	(-0.522)
Constant	56.1138	89.4727	-960.7104***
	(0.156)	(0.963)	(-3.074)
Number of firms	4,619	4,619	4,619
Hansen test (p-value)	0.107	0.698	0.380
AR(2) test (p-value)	0.405	0.552	0.879

t-statistics are in parentheses. EPU_ER is the interaction term between EPU and the equity ratio. EPU2_ER is the interaction term between squared EPU and the equity ratio. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. The null hypothesis of the Hansen test is that the instrumental variables used are valid and do not suffer from endogeneity issues. AR(2) test denotes the Arellano-Bond test for the second-order autocorrelation in first differences.

Economic Policy Uncertainty and Corporate Investment Dynamics: Evidence from Chinese Listed Firms

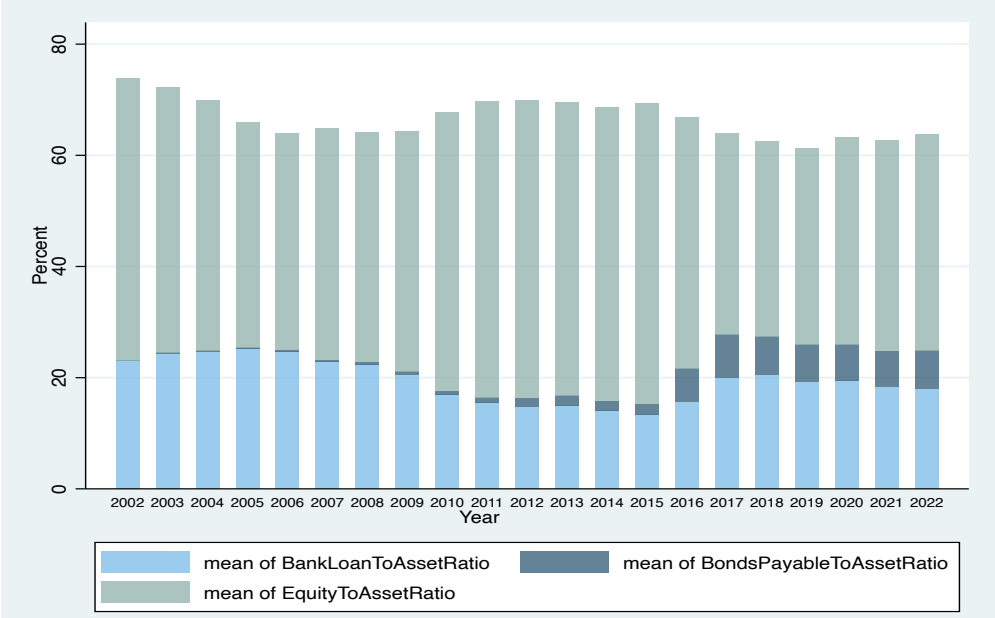
Figures

Figure 1. Ownership structure of listed Chinese firms



Source: Author's artwork based on CSMAR data

Figure 2. Capital structure of listed Chinese firms



Source: Author's artwork based on CSMAR data