4. WHAT CAUSES THE INFLUENCE OF BANK CHANNEL TOWARDS CORPORATE INVESTMENT: LIQUIDITY OR ECONOMIC POLICY UNCERTAINTY?

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Abstract

Given the bank-led financial system and unique financial environment in China, the majority of companies depend on external financing, particularly through bank credit, to acquire funds for investment activities. This paper investigates whether the influence on bank credit channels stems from liquidity, economic policy uncertainty, or both, through an empirical study involving a sample of 517 companies listed on the Shanghai and Shenzhen A-share main boards. The study reveals that corporate investment expenditures through bank credit channels are significantly inhibited by economic policy uncertainty. Simultaneously, corporate investment is affected differently by the bank liquidity crisis resulting from non-economic policy uncertainty, owing to various government actions. The empirical results obtained through the threshold panel models further demonstrate that the effects of uncertainty and liquidity on investment vary across different industries, ownership structures, and growth opportunities. Our findings contribute to the discourse on promoting corporate investment, bolstering bank liquidity, and enhancing economic policy stability in the intricate economic environment of emerging economies.

Keywords: economic policy uncertainty; liquidity; bank credit; corporate investment; threshold panel model

JEL Classification: G32, D80, E22, E60

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1. Introduction

Following the global financial crisis in 2008, various measures were actively adopted by governments to regulate the market and prevent excessive economic recessions. In response to the global financial crisis and the bank's "money shortage" in 2013, active fiscal and monetary policies were adopted by the Chinese government to stimulate the economy, stepping up its regulations and controls. Coping with the financial crisis and the liquidity crisis, shocks of high economic policy uncertainty and bank liquidity were also brought to corporations' investment by these policies. Commercial banks, enterprises, and residents are inevitably affected by macroeconomic policies, and the high level of uncertainty brought about by changes in policies and regulations has been widely studied in academia; in this paper, we seek to explore whether economic policy uncertainty has an impact on business investment and what the effect of the impact is like.

Considering that commercial banks represent a crucial source of investment and financing channels for business investment in emerging economies, the high level of liquidity of commercial banks inevitably impacts the size of loans that can be disbursed. Taking into account the changes in economic policy brought about by sudden event shocks, changes in the level of bank liquidity may inevitably have a complex effect on the scale of business investment.

What is the relationship between the level of economic policy uncertainty and the level of commercial bank liquidity in emerging economies? What role does bank liquidity play in influencing the level of business investment? What is the complex relationship between economic policy uncertainty, bank liquidity, and the level of business investment? By analyzing economic policy uncertainty and bank liquidity, we aim to investigate the factors influencing the bank credit channel and its impact on corporate investment. It's important to note that the data used in the paper is only up to 2019 to avoid the impact of COVID-19.

Figure 1 illustrates the trend of China's economic policy index and corporate investment ratio spanning from 2004 to 2019. Overall, EPU exhibited a rising trend, while corporate investment exhibited a declining trend. Following the financial crisis in 2008, accompanied by an upsurge in economic policy uncertainty, the investment ratio experienced a slight decline, followed by a subsequent pickup. Subsequent to the money shortage in 2013, characterized by lower economic policy uncertainty compared to 2010-2012, the investment ratio remained low. These observations suggest the presence of a relationship between uncertainty and corporate investment.

Undoubtedly, corporate investment plays a crucial role in both the development and the value of corporations. Research has demonstrated that investment decisions are consistently influenced by the external economic environment, leading corporations to encounter challenges in making sound decisions due to economic policy uncertainty. Numerous studies have focused on investigating the influence of uncertainty on investment behaviors, yielding a mix of results, both positive and negative. Hartman (1972) and Abel (1983) documented that a higher level of uncertainty has a significant positive impact on the marginal revenue of corporate capital, thus promoting corporate investment. Li and Yang (2013) studied the relationship between economic policy uncertainty and corporate investment, reporting that higher economic uncertainty significantly inhibits corporate investment. Zheng (2016) verified that there is an inverse U-shaped nonlinear relationship between uncertainty and corporate investment using Chinese industry corporate data and the fixed effect model.

A few scholars were also interested in the influence channels of uncertainty on corporate investment. From the perspective of channels, Kang *et al.* (2014) found that economic policy uncertainty affects corporate investment decisions through the mutual relationship of economic policy shock and stock fluctuation when studying American manufacturing companies. Gu *et al.* (2017) identified and verified the existence of the bank credit channel effects using a threshold

panel regression model. In a subsequent study, Gu *et al.* (2018) studied how economic policy uncertainty influences the corporate investment of firms with different external demands through bank credit. The results show that the effects of economic policy uncertainty on corporate investment are evident, and they are more significant for firms with low external demand than for those with high external demand.

The Trend of China's Economic Policy Uncertainty Index and Chinese listed Companies' Investment Ratio
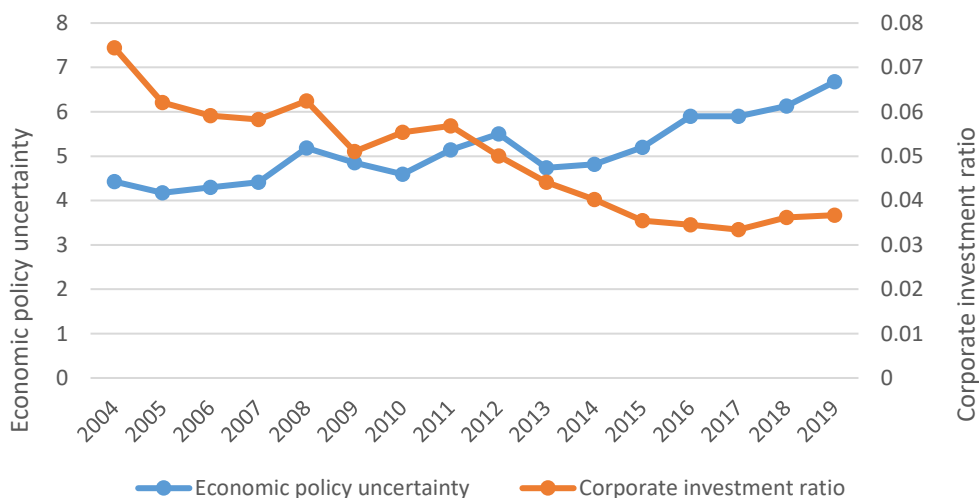
In addition to economic policy uncertainty, a bank liquidity crisis is another important factor that affects bank credit. Due to a liquidity crisis, banks cannot obtain enough funds in a timely manner at a reasonable cost to pay off expired debts and meet normal business demands. Mabrouk *et al.* (2017) used a fixed-effect model and difference-in-difference methodology to study the effects of liquidity shock on bank lending behaviors and its influence on bank loans at French banks during the global financial crisis between 2008 and 2009. The results show that the deposits channel plays an important role in the transmission of liquidity shocks, and French banks significantly reduced lending, possibly due to deposit actions. In recent years, Chinese banks have been repeatedly affected by liquidity crises. Due to the global financial crisis, Chinese financial institutions faced fund shortages and credit contractions. The recovery of bank credits was hindered, and corporate investment fell sharply. Subsequently, Chinese banks experienced tight liquidity in June 2013, which led to credit contractions and improved the banks' bargaining power, significantly influencing corporate financing requirements.

Additionally, various scholars have conducted research on firm heterogeneity. Baum (2004) and Talavera (2012) concluded that economic policy uncertainty affects the credit rationing of commercial banks. Furthermore, uncertainty affects banks with varying profit abilities and scales differently. It is believed by Gu *et al.* (2017) that the investment impacts of greater uncertainty

through bank credit channels are observed in firms with limited growth opportunities, substantial financing constraints, low external demand, and minimal ownership concentration.

In summary, numerous researchers have studied the impact of economic uncertainty on corporate investment through various channels. Several researchers have focused on the influence of liquidity on bank credit channels. However, few researchers have considered whether liquidity affects corporate investment through bank credit channels, leading to a lack of systematic analysis of the causes of investment through bank credit. This paper aims, based on panel data models, to reveal the mutual relationship between economic policy uncertainty and liquidity, verify the causes of investment through bank credit channels, and analyze the diverse influences of uncertainty shock and liquidity crisis through bank credit channels from the perspective of heterogeneity.

This paper contributes to the literature in three ways. Firstly, it examines the combined influence of liquidity and economic policy uncertainty as potential factors affecting corporate investment through bank credit channels. Through empirical data analysis, it endeavors to discern the significant implications of these factors on investments, thereby enriching the literature on economic policy uncertainty analysis. Secondly, it refines the analysis results by considering firm heterogeneity, encompassing variations among companies with different industry characteristics, ownership structures, growth opportunities, and financing constraints. Thirdly, the empirical study is conducted on Chinese bank firms, heavily reliant on banks for financing resources. This provides a valuable opportunity to explore the relationship between firms' investments and bank channels, offering another perspective on the literature concerning emerging economies.

The rest of this paper is organized into five sections. Following the introduction, the second section provides a mechanical analysis of uncertainty and liquidity on corporate investments. The third section outlines the design of empirical models. Empirical results and analysis are presented in section four, while the final two sections discuss and draw conclusions.

2. Background and Hypothesis

2.1 *The Existing Analysis of Economic Policy Uncertainty and Liquidity on Investment*

The higher economic policy uncertainty increases corporate financing costs, leading enterprises to be more cautious in their investment decisions and to reduce investment expenditures. In the Chinese financial environment, bank credit is undoubtedly the primary channel for corporate external financing, affecting investments. A strong relationship can increase bank credit for corporations and effectively alleviate information asymmetry between shareholders and creditors, thereby improving the acquisition of funds for corporate investment (Zhao et al., 2014).

According to the liquidity creation theory, commercial banks exponentially expanded their credit by accepting deposits and issuing on-balance sheet loans, or by circumventing regulatory controls through off-balance sheet arrangements, thereby ensuring a consistent flow of liquidity into the market (Diamond, Dybvig, 1983). Typically, as banks' liquidity levels increase, the size of their loans to firms expands, and consequently, the size of investments made by firms also increases, indicating that banks' liquidity positively contributes to firms' investments. Imbierowicz *et al.* (2014) concluded that as a commercial bank generates more liquidity, it bears a higher liquidity risk. Sun *et al.* (2014) argue that an increase in liquidity risk among joint-stock commercial banks and local commercial banks can impel banks to reduce liquidity creation. Economic policy uncertainty significantly inhibits bank liquidity creation, implying that bank liquidity may inhibit corporate investment, as indicated by an empirical analysis of commercial banks (Tian et al., 2020).

The impact of economic policy uncertainty on corporate investment can be understood through the perspectives of the Expectations Theory and the Risk Aversion Theory. Uncertainty in the economic environment complicates the prediction of future earnings, potentially leading firms to postpone or reduce investments until the policy landscape becomes more transparent (Bloom, 2014). Simultaneously, in an effort to mitigate heightened investment risks, firms may decrease the scale and intensity of their investments to protect against potential losses in revenues, costs, and taxes due to policy shifts (Baker, 2016). Furthermore, Carrière-Swalow and Céspedes (2013), examining the connection from the perspective of financial frictions and credit constraints, have found that the responsiveness of investment and consumption to uncertainty shocks is influenced by the condition of financial markets. This finding supports the existence of a financial friction channel, indicating that the greater the financial friction, the more pronounced the inhibitory effect of economic policy uncertainty on corporate investment.

Economic policy uncertainty directly shapes corporate investment decisions through the Expectations Theory and the Risk Aversion Theory. In the face of uncertainty, firms may adopt more conservative investment strategies, with the potential exacerbating impact of financial market friction. These theories provide profound insights into how economic policy uncertainty affects corporate investment and inform the formulation of pertinent policies.

Nevertheless, high economic policy uncertainty increases the degree of information asymmetry between corporations and banks, thereby limiting the possibility of obtaining bank loans. Studies by Baum (2009) and Talavera et al (2012) demonstrate that this rising uncertainty prompts banks to increase current interest rates, thus complicating bank credit allocations. High economic policy uncertainty makes it difficult for banks to estimate future liquidity needs, leading them to prevent a possible liquidity crisis by reducing the amount of credit to maintain their own financial stability. Consequently, the improvement of economic policy uncertainty may affect corporate investment through bank credit channels.

Additionally, the global financial crisis in 2008 and the bank liquidity crisis triggered by the "money shortage" in China in 2013 led to a tightening of credit within the bank industry. Due to regulated rates and financial market defects in China, most enterprises rely on bank credit for financing, making the bank credit channel the primary means for transmitting Chinese monetary policy. The financial crisis shock significantly reduced bank loan sales for companies (Jin, 2016). As a result, bank liquidity may impact corporate investment through bank credit channels.

Hypothesis1: Economic policy uncertainty has a negative effect on corporate investment through bank credit channels, but bank liquidity has a positive effect on it.

Hypothesis2: Considering the bank liquidity, corporate investment is significantly affected by economic policy uncertainty.

2.2 The Effect Analysis of Economic Policy Uncertainty and Liquidity on Investment

Bank liquidity risk is among the most critical risks for the banking industry, particularly in China. Commercial banks ensure sufficient liquidity to meet daily obligations and address emergencies, thereby preventing capital constraints and averting liquidity crises. Maintaining adequate liquidity is essential for the normal operation of commercial banks and constitutes a primary objective of liquidity management (Xu, 2015). However, liquidity risk management in Chinese banks is imperfect, leading to ongoing liquidity shortages within the banking industry. The causes of bank liquidity risks may stem from various factors. Chen (2014) examines the causes of liquidity risk from the perspectives of short-term fund supply and demand, suggesting that varying fund demands at different stages correspond to distinct liquidity requirements.

Additionally, the erroneous expectations of individual banks can also impact the industry's liquidity, while high economic policy uncertainty will make it difficult to assess future liquidity.

Furthermore, Zhu's (2016) study postulates that bank industry liquidity is influenced not only by microeconomic factors but also by national economic policies, financial market developments, the macroeconomic environment, and other factors. Consequently, economic policy uncertainty will impact bank liquidity to a certain extent.

Economic policy uncertainty could prompt the tightening of credit standards by banks and financial institutions, making it more challenging for businesses to secure financing. Such credit constraints can limit firms' investment ability, particularly for those reliant on external financing. Faulkender and Wang (2006) also noted that in times of heightened environmental uncertainty, companies tend to hold more cash as a precautionary measure. This behavior reduces the funds accessible for investment, consequently restraining investment activities.

Additionally, specific liquidity crises are invariably influenced by particular events, such as the global financial crisis in 2008 and the "money shortage" in 2013, which are not attributable to economic policy uncertainty. Thus, through event analysis of liquidity crises, this paper aims to distinguish the effects of these two factors and identify them through empirical study.

Hypothesis 3: Bank liquidity will be diminished by economic policy uncertainty.

Hypothesis 4: Economic policy uncertainty continues to significantly impact corporate investment subsequent to liquidity crisis events resulting from non-economic policy uncertainty.

3. Measures of variable and Database Description

3.1 Sample Source and Variable Definition

This paper uses 517 companies and 8272 panel data totally. Besides, all continuous variables of corporate aspects are winsorized to minimize the influence of outliers. The sample period starts from 2004 to 2019. This paper filters the samples such as ST, *ST, and PT companies, financial listed companies, and IPO companies during this period. The data is retrieved from the annual financial statements of selected companies listed on the A-shares of China's Shanghai and Shenzhen stock markets from financial databases like iFind and CSMAR.

This paper choose Corporate investment expenditures (I) as the dependent variable. Capital expenditures are used to measure corporate investment by following the researches of Han (2015), Li and Yang (2013). In addition, economic policy uncertainty index (Epu), bank credit (Credit) and liquidity ratio (LR) are the main explanatory variables, other variables are the control variables.

Table 1. Variable Definitions

	Variable	Implication	Computing Method
Dependent variable	*I*	Current new investment	Cash paid by enterprises for the purchase and construction of fixed assets, intangible assets and other long-term assets plus cash paid for the purchase and disposal of subsidiaries and other business units and then minus the amount of cash recovered from disposal of fixed assets, intangible assets and other long-term assets.
Explanatory variables	*Epu*	Economic policy uncertainty	The natural logarithm of the arithmetic average of monthly economic policy uncertainty index from 2004 to 2019 is taken as the economic policy uncertainty index of the year.

	Variable	Implication	Computing Method
	Credit	Bank credit	Bank credit is measured as the sum of long-terms and short-term loans divided by the total assets at the end of the fiscal year.
	LR	Liquidity ratio	The liquidity ratio of listed banks (*liquidity assets/liquidity liabilities*100%*) takes the weighted average of total assets.
Control variables	*Q*	Tobin's q	*Q= (Total market value + total debt)/total assets*
	CF	Cash Flow	Cash flow is computed as the net operating cash flow divided by the total assets.
	Lev	Leverage ratio	Leverage is expressed as the debt asset ratio.
	Size	Corporate size	The natural logarithm of the current total assets.
	Npl	Non-performing loan ratio	It refers to the ratio of non-performing loan balance to loan balances. *Npl=(Sub-prime loans + doubtful loans+ loss loans)/the total loans.*
	Lna	Bank asset size	the natural logarithm of the total bank assets.
	Lnlo	Loan size	the natural logarithm of the total loans.
	GM2	Currency growth rate	Currency and quasi-currency growth rates are from the National Bureau of Statistics.

3.2 Descriptive Analysis

Table 2 displays the descriptive statistical results of each 1% winsorized variable. Specifically concerning corporate investment, the median, maximum, and minimum values reveal substantial disparities in investment levels across various listed companies. The economic policy uncertainty ranges between 4.174 and 6.674. Furthermore, a substantial credit gap suggests potential disparities between enterprises in terms of bank credit capacity and development opportunities. The most significant disparity is observed in Tobin'q. Additionally, owing to the supportive policies of the Chinese government, there exists a considerable disparity in enterprise scale. According to Lin and Li (2004), state-owned enterprises, in comparison to non-state-owned enterprises, are more intricately linked with the government and exert a more substantial influence on the market economy, resulting in their relatively larger scales. Regarding LR, a discernible disparity in the liquidity ratio is evident across different years. Significant differences exist between the bank's asset size and loan size, primarily attributable to their distinct primary businesses and target customer groups. The significant difference in non-performing loan ratios suggests that banks with lower non-performing loan ratios prioritize their own risk management. Conversely, banks with high non-performing loan ratios exhibit inadequacies in risk management. According to the correlation results, all coefficients are well below 0.70, indicating the absence of a high degree of multicollinearity in the models.

Table 2. Descriptive Statistics

Variable	Mean	SD	Min	Max	Median
I	0.049	0.057	-0.356	0.759	0.034
Epu	5.120	0.705	4.174	6.674	4.994
Credit	0.215	0.129	0.001	0.548	0.216
Q	1.422	0.930	0.832	7.179	1.422
CF	0.049	0.069	-0.156	0.258	0.048
Lev	0.542	0.549	0.078	0.863	0.548
Size	13.384	1.278	10.844	16.850	13.250
LR	0.428	0.174	0.254	0.826	0.447
Npl	0.022	0041	0.003	0.439	0.014
Lnlo	17.955	1.850	13.503	21.240	18.028
Lna	18.673	1.796	14.368	21.826	18.776
GM2	0.146	0.050	0.070	0.285	0.137

4. Empirical methodology

4.1 *The Effect of Economic Policy Uncertainty and Liquidity on Financing, and The Effect of Economic Policy Uncertainty on Bank Liquidity*

Following panel regression models are used to identify whether causes of bank credit channel influence are liquidity, economic policy uncertainty, or both. This paper initially employed economic policy uncertainty and liquidity ratio indexes to assess their impact on corporate investment and the nature of this impact. Subsequently, the paper verified hypothesis 1 and hypothesis 2. The model 1 is specified as:

$$I_{i,t} = U_i + a_1 Q_{i,t-1} + a_2 CF_{i,t-1} + a_3 Epu_{t-1} + a_4 Credit_{i,t-1} + a_5 LR_{t-1} + a_6 Lev_{i,t-1} + a_7 Size_{i,t-1} +$$
$$F_1 * Epu_{t-1} * Credit_{i,t-1} + F_2 * LR_{t-1} * Credit_{i,t-1} + F_3 * Epu_{t-1} * LR_{t-1} * Credit_{i,t-1} + e_{i,t} \tag{1}$$

Where: subscript i,t respectively indicate the company and year. $\varepsilon_{i,t}$ is the error term. *I* is corporate investment as the dependent variable. Explanatory variables: *Epu_{i,t-1}* is economic policy uncertainty index in the previous period, and *Credit_{i,t-1}* denotes bank credit in the last period, *LR_{t-1}* is the bank liquidity ratio in the previous. *Epu_{t-1} *Credit_{i,t-1}, LR_{t-1} *Credit_{i,t-1}* and *Epu_{t-1} *LR_{t-1} *Credit_{i,t-1}* are the interaction terms. Control variables: *Q_{i,t-1}* is growth opportunities of an enterprise, *CF_{i,t-1}* denotes cash flow in the prior period, *Lev_{i,t-1}* is the leverage ratio in the previous period, *Size_{i,t-1}* is the firm size in the last period.

Besides, in order to verify hypothesis 3, liquidity ratio index is used as the dependent variable, economic policy uncertainty index is used as the explanatory variable, and control variables are selected by referring to Fang and Li (2017). The model 2 is specified as:

$$LR_{i,t} = u_i + a_1 Npl_{i,t-1} + a_2 Lna_{i,t-1} + a_3 Epu_{t-1} + a_4 Lnlo_{i,t-1} + a_5 GM2_{t-1} + e_{i,t} \quad (2)$$

Where: subscript i, t respectively indicate the bank and year. $Npl_{i,t-1}$ is the non-performing loan ratio in the last period, $Lna_{i,t-1}$ presents the asset size in the previous period, $Lnlo_{i,t-1}$ donates the loan size in the prior period, $GM2_{t-1}$ is the currency growth rate in the last period. These are all control variables.

Based on the regression results of model 1 in table 3, the significance of the three interactions indicates that economic policy uncertainty has a significant impact on corporate investment through bank credit channels. Both liquidity and the interaction of liquidity and credit have a negative effect on corporate investment. This result contradicts Hypothesis 1.

Theoretically, these factors should positively promote corporate investment. There are two possible reasons for this: first, the sample data itself may have issues such as endogeneity; second, high economic policy uncertainty inhibits liquidity creation, which may restrain banks' credit lines and subsequently corporate investment. We will further investigate the underlying cause of this result. The coefficient of bank credit is significantly positive in table 3, indicating that an increase in available bank credit for enterprises leads to an increase in enterprise investment expenditure. This aligns with theoretical research. The coefficient of the interaction between economic policy uncertainty and corporate bank credit is significantly negative, indicating that economic policy uncertainty significantly inhibits corporate investment through bank credit channels. The coefficient of the interaction between economic policy uncertainty and bank liquidity as well as corporate bank credit is significantly positive, consistent with hypothesis 2. This result indicates that bank liquidity has a stronger influence on bank credit, despite the decline in bank liquidity due to economic policy uncertainty.

From the regression results of model 2 in table 4, the significance of the coefficient of Epu indicates that economic policy uncertainty will weaken bank liquidity, thus verifying hypothesis 3. The higher the economic policy uncertainty, the lower the bank liquidity ratio will be, making it more likely for the bank to face a liquidity crisis. This finding demonstrates that bank liquidity is indeed affected by economic policy uncertainty, subsequently impacting corporate investment.

This implies that an increase in policy uncertainty within an economy leads to a reduction in corporate investment activities and a decline in investment levels. Additionally, it impacts the level of bank liquidity. We posit that this could be attributed, on one hand, to the heightened uncertainty leading banks and financial institutions to tighten credit standards and constrict credit channels to businesses, making it more difficult for firms to secure financing. Such credit constraints can limit the investment capacity of companies, particularly those reliant on external financing (Faulkender and Wang, 2006). On the other hand, the financial friction between banks and corporations is exacerbated, intensifying the information asymmetry and suppressing the release of liquidity through bank credit channels, resulting in a decrease in the amount of loans available to businesses (Stein, 2012).

Table 3. **Regression results of model 1**

Variable	Coefficient
Qi.t-1	0.004*** (5.54)
CFi,t-1	0.031*** (3.77)
Epui,t-1	-0.002

Variable	Coefficient
	(- 1.06)
Crediti,t-1	0.470*** (2.98)
LRt-1	-0.020 (-0.69)
Levi,t-1	-0.042*** (-6.43)
Sizei,t-1	-0.005*** (-5.41)
Eput-1*Crediti,t-1	-0. 103*** (-3. 11)
LRt-1 *Crediti,t-1	-0.471* (- 1.70)
Eput-1 *LRt-1*Crediti,t-1	0. 159*** (2.31)

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

Table 4. Regression results of model

Variable	Coefficient
Npli,t-1	-1.147*** (-4.60)
Lnai,t-1	-0.146* (-1.67)
Eput-1	-0.070*** (2.70)
Lnloi,t-1	0.111 (1. 13)
GM2i,t-1	-0.567** (-2.46)

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

4.2 The Impact of Specific Events on The Liquidity Crisis

In order to verify the hypothesis 4, this paper adds a dummy variable Event and an interaction term into the model. The model 3 is specified as:

$$I_{i,t} = u_i + a_1 Q_{i,t-1} + a_2 CF_{i,t-1} + a_3 Epu_{t-1} + a_4 Credit_{i,t-1} + a_5 Lev_{i,t-1} + a_6 Size_{i,t-1}$$
$$+ a_7 Event + F_1 * Epu_{t-1} * Credit_{i,t-1} + F_2 * Epu_{t-1} * Credit_{i,t-1} * Event + e_{i,t}$$
(3)

Where: Event is a dummy variable. For liquidity crisis event in 2008, using data from 2004 to 2013, Event takes the value 1 if it is between 2009 and 2013, and 0 otherwise. Similarly, for

liquidity crisis event in 2013, using data from 2009 to 2018, Event takes the value 1 if it is between 2013 and 2018, and 0 otherwise. *Epu*$_{t-1}$ *Credit*$_{i,t-1}$ * Event is the interaction term.

This model is employed to conduct event analysis for liquidity events in 2008 and 2013. The effect of economic policy uncertainty on investment through bank credit without the liquidity event is indicated by the coefficient of the first interaction, while the coefficient of the second interaction demonstrates the additional effect resulting from the liquidity crisis event. Combining these two coefficients enables the analysis of the effect of economic policy uncertainty on corporate investment through the bank credit channel following liquidity crisis events.

From the preceding sections, it can be concluded that economic policy uncertainty weakens bank liquidity. Therefore, model 3 incorporates the liquidity crisis event caused by non-economic policy uncertainty to investigate whether economic policy uncertainty and liquidity continue to influence corporate investment after these events. The liquidity crisis events are represented by the dummy variable named Event in the preceding sections. Furthermore, a comparison of the results of the 2008 event and the 2013 event is conducted to assess their consistency.

Based on the results of the 2008 event in table 5, there is a positive correlation between corporate bank credit and investment, indicating that varying amounts of corporate bank credit influence enterprises' investment behaviors. The interaction between economic policy uncertainty and corporate investment is negatively correlated with investment, indicating that economic policy uncertainty significantly hinders the positive influence on bank credit channels toward corporate investment. The 2013 event exhibits similarity in these two aspects.

Brunnermeier and Pedersen (2009) found that market liquidity and funding liquidity are distinct. During financial crises, a decrease in funding liquidity can constrain banks' lending capabilities, subsequently impacting corporate investment behavior. Bloom (2014) discussed how economic policy uncertainty increases the uncertainty of future earnings for businesses, leading to the postponement or reduction of investments. This is in line with the finding that economic policy uncertainty inhibits investment through bank credit channels, as observed in the aforementioned phenomenon.

Following the 2008 event, the coefficient of the last interaction is 0.018, indicating that the effect of economic policy uncertainty on the bank credit channel toward investment ranges from -0.204 to -0.186. Similarly, subsequent to the 2013 event, the effect of economic policy uncertainty on the bank credit channel toward investment ranges from -0.023 to -0.026. This also indicates that the occurrence of the 2013 liquidity crisis event significantly impacts investment, further inhibiting corporate investment. This consistency aligns with Hypotheses 3 and 4.

Subsequent to the financial crisis of 2008, the Chinese government's 4 trillion yuan investment plan rapidly stimulated the market and economy, promoting corporate investment, a finding that aligns with Hypothesis 4. This implies that government policy responses can serve as a means to mitigate the adverse impact of economic policy uncertainty on corporate investment. The liquidity crisis event of 2013 demonstrates that even subsequent to liquidity crises caused by non-policy factors, economic policy uncertainty continues to have a significant impact on corporate investment through bank credit channels. This finding aligns with the research by Mabrouk *et al.* (2017), who concluded that bank liquidity shocks have a notable impact on bank lending behavior.

Table 5. **Regression Results of Model3 in the 2008 and 2013 Events**

Variable	Coefficient of 2008 event	Coefficient of 2013 event
$Q_{i,t-1}$	0.005*** (5.34)	0.005*** (8.45)

Variable	Coefficient of 2008 event	Coefficient of 2013 event
$CF_{i,t-1}$	0.019 (1.47)	0.029*** (3.55)
$Epu_{i,t-1}$	-0.039** (2.22)	-0.004** (-2.35)
$Credit_{i,t-1}$	0.875*** (3.00)	0.110*** (3.28)
$Lev_{i,t-1}$	-0.062*** (-4.79)	-0.045*** (-6.98)
$Size_{i,t-1}$	0.001 (0.31)	0.001 (0.63)
Event	-0.020* (-1.68)	-0.012*** (-5.53)
$Epu_{t-1}*Credit_{i,t-1}$	-0.204*** (-3.02)	-0.023*** (-3.47)
$Epu_{t-1}*Credit_{i,t-1}* Event$	0.018* (1.91)	-0.003* (-1.65)

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

From the perspective of Stein (2012), bank credit is not only a source of funding for corporate investment but also a key factor in financial stability. The availability of bank credit directly affects business investment decisions, which corresponds with the positive correlation between bank credit and corporate investment observed in the aforementioned phenomenon.

Based on the research by Gulen and Ion (2013), businesses may adjust their investment strategies in the face of economic policy uncertainty to adapt to the changing economic environment. This explains why there are differences in corporate investment behavior following the liquidity crises of 2008 and 2013.

4.3 Endogeneity and Robustness Test

(1) Endogeneity Test.

The majority of control variables in these panel regression models consist of first-order lag variables. The economic policy uncertainty and liquidity indexes function as macro-level indicators. According to Wang *et al.* (2014) and Gu *et al.* (2018), economic policy uncertainty may not be entirely independent, noting the close relationship between China's economic policy uncertainty and that of the U.S. Consequently, by employing the instrumental variable method, this study chooses to use U.S. economic policy uncertainty instead of China's economic policy uncertainty to address and assess endogeneity problems.

The results of the Durbin-Wu-Hausman test in table 6 indicate a significantly negative residual term at the 1% level, suggesting the endogeneity of model 1. Additionally, confirmation has been made that neither model 2 nor model 3 exhibits endogeneity. The regression results of two variables demonstrate a significant correlation between U.S. economic policy uncertainty and that of China. Consequently, the first-order lag of U.S. economic policy uncertainty can be utilized as an instrumental variable. When this instrumental variable is employed in model 1, the results indicate the significance of all interaction coefficients. Consequently, it is concluded that liquidity

is linked to endogenous problems, and the positive cross-term coefficient of liquidity and credit is effectively addressed through the use of instrumental variables.

Moreover, the positive coefficient of credit indicates varying effects of bank credit on corporate investment. The significantly negative coefficient of the interaction term between economic policy uncertainty and credit indicates a substantial inhibition of the positive effect of bank credit on corporate investment by economic policy uncertainty. This finding is highly consistent with hypothesis 2, and the control variables remain significant.

(2) Robustness Analysis

The paper primarily adopts Xie's (2013) method for measuring bank credit. However, within the balance sheet, long-term loans due within one year are reclassified as non-current liabilities due within one year. Consequently, in this section, credit is recalculated by incorporating the term "non-current liabilities due within one year" to conduct robustness tests. Additionally, U.S. Economic Policy Uncertainty is utilized as a substitute for Chinese Economic Policy Uncertainty.

Upon reviewing the results of columns (4, 5) in table 6, no significant disparities between the previous and robustness results are observed. This indicates that the model test results we previously obtained are robust and compelling.

Table 6. **Results of Endogeneity Test and Robustness Test**

	Endogeneity test			Robustness test		
	1	2	3	4	5	
	DWH test	China's and U.S. Epu	model1 (using IV)	model 1	model 3	
					2008event	2013event
$Q_{i,t-1}$	0.004*** (6.91)	0.264*** (33.16)	0.004*** (6.03)	0.004*** (5.42)	0.004*** (5.75)	0.005*** (7.99)
$CF_{i,t-1}$	0.030*** (3.72)	-0.640*** (-6.92)	0.033*** (4.06)	0.028*** (3.37)	0.029*** (3.50)	0.027*** (-4.65)
Epu_{t-1}	-0.003 (-1.31)	/	/	/	/	/
$AEpu_{t-1}$	/	0.175*** (8.69)	0.155*** (2.16)	-0.003 (-1.31)	-0.010*** (-8.16)	-0.013*** (-10.24)
$Credit_{i,t-1}$	-0.340*** (-2.69)	-0.703*** (-8.83)	0.766*** (4.70)	0.425*** (3.01)	-0.038** (-2.49)	-0.044*** (-2.89)
LR_{t-1}	0.012 (0.05)	5.630*** (37.53)	0.017 (1.11)	0.010 (0.35)	/	/
$Lev_{i,t-1}$	-0.042*** (-6.48)	-0.229*** (-1.61)	-0.043*** (-6.57)	-0.033*** (-4.87)	-0.039*** (-5.81)	-0.035*** (-5.35)
$Size_{i,t-1}$	-0.051*** (-5.31)	0.630*** (71.13)	-0.006*** (-6.45)	-0.006*** (-5.74)	-0.005*** (-5.16)	-0.013*** (-4.06)
Event	/	/	/	/	0.009*** (4.05)	-0.010*** (-4.61)
$Epu_{t-1}*Credit_{i,t-1}$	-0.064** (-2.50)	/	-0.176*** (-5.16)	-0.094*** (-3.22)	-0.006* (1.94)	-0.005* (1.78)
$LR_{t-1}*Credit_{i,t-1}$	-0.474 (-1.72)	/	0.383*** (4.39)	0.680** (2.24)	/	/
$Epu_{t-1}*LR_{t-1}*Credit_{i,t-1}$	0.084 (1.62)	/	0.269*** (3.80)	0.147** (2.45)	/	/
$Epu_{t-1}*Credit_{i,t-1}*$ Event	/	/	/	/	-0.002* (18.10)	-0.004*** (-2.75)

	Endogeneity test			Robustness test		
	1	2	3	4	5	
	DWH test	China's and U.S. Epu	model1 (using IV)	model 1	model 3	
					2008event	2013event
C	0.144*** (10.98)	-6.681*** (-47.47)				
$r_{i,t}$	-0.007*** (-2.95)	/				
F		1644.81				
R^2		0.613				

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

4.4 Heterogeneity Analysis

According to previous analyses, economic policy uncertainty and liquidity both influence the bank credit channel toward corporate investment. However, this effect is also influenced by other factors and exhibits heterogeneity across different enterprises. Wang *et al.* (2014) find that this effect varies among enterprises with different economic cycles, ownership structures, industrial properties, and financing constraints. Shu *et al.* (2013) document that changes in the external economic environment make significant differences in corporate investment across different industries. Therefore, building upon the bank credit channels, this paper proceeds to investigate the effects of uncertainty and liquidity on corporate investment across various industries, ownership structures, growth opportunities, and financing constraints.

(1) Industrial property Analysis.

The capital structure of an enterprise is linked to its industry, and this association significantly varies across different industries. As reported by Shu *et al.* (2013), the external economic environment has varying implications for corporate investment across manufacturing and non-manufacturing firms. Wang *et al.* (2014) find that macroeconomic uncertainty affects corporate investment in manufacturing firms through long-term capital and liquidity demand channels. However, there is no significant effect of macroeconomic uncertainty on non-manufacturing firms. Therefore, the effect of economic policy uncertainty and liquidity on the bank credit channel toward corporate investment may exhibit heterogeneity across different industries.

The paper initially classifies all samples into two categories, manufacturing and non-manufacturing, based on the SFC's industry segmentation, and then performs the panel regression analysis for each category. Based on the results in table 6, the coefficients of credit and interactions are all significant in manufacturing. In terms of credit, as enterprises obtain more loans, they increase investment in manufacturing. Regarding the interactions, it shows that economic policy uncertainty and liquidity both inhibit the influence of bank credit on corporate investment in manufacturing. These findings are consistent with previous results; however, they are not significant in non-manufacturing.

(2) Ownership Structures Analysis

Within the Chinese financial environment, state-owned enterprises and non-state-owned enterprises consistently receive differing treatment across numerous aspects. For example, state-owned enterprises can secure bank loans at lower interest rates than non-state-owned enterprises due to their ownership structures. Researchers have examined the heterogeneity between state-owned enterprises and non-state-owned enterprises. Wang and Song (2014) find that increased economic policy uncertainty hampers the positive impact of long-term funds on investments for state-owned enterprises. They also find that economic policy uncertainty primarily

influences investment in non-state-owned enterprises through external channels. Consequently, this paper proceeds to investigate the impact of economic policy uncertainty on the bank credit channels for corporate investment in both state-owned and non-state-owned enterprises.

A dummy variable State is added into model. It takes the value 1 if it is a state-owned enterprise and 0 otherwise. Then the expanding model 4 is as following:

$$I_{i,t} = u_i + a_1 Q_{i,t-1} + a_2 CF_{i,t-1} + a_3 Epu_{t-1} + a_4 Credit_{i,t-1} + a_5 LR_{t-1} + a_6 Lev_{i,t-1} + a_7 Size_{i,t-1} + F_1 * Epu_{t-1}$$
$$* Credit_{i,t-1} + F_2 * LR_{t-1} * Credit_{i,t-1} + F_3 * Epu_{t-1} * LR_{t-1} * Credit_{i,t-1} + F_4 * Epu_{t-1} * Credit_{i,t-1} * State$$
$$+ F_5 * LR_{t-1} * Credit_{i,t-1} * State + F_6 * Epu_{t-1} * LR_{t-1} * Credit_{i,t-1} * State + e_{i,t}$$

(4)

According to the results, the inhibiting effect on state-owned enterprises has been weakened. This effect entails economic policy uncertainty inhibiting the positive impact of bank credit on corporate investment. Based on the coefficients, the inhibiting effect ranges from -0.180 to -0.165. Consequently, state-owned enterprises mitigate this inhibiting effect. In comparison to state-owned enterprises, non-state-owned enterprises further amplify this inhibiting effect.

Undeniably, the investment behaviors of state-owned enterprises tend to align with national strategic objectives in China. When confronted with economic policy uncertainty, they limit the negative impact on their investments through bank credit channels to ensure the sustainability of national strategies. Meanwhile, they receive preferential treatment in bank loans for investment. Consequently, the inhibiting effect of economic policy uncertainty on bank credit channels towards corporate investment is weakened. For non-state-owned enterprises, there is less support from national policies, leading them to rely more on self-investment. As a result, they are more sensitive to the economic environment and market fluctuations, where economic policy uncertainty has a larger influence on their investment through the bank credit channel.

(3) Growth Opportunities Factors Analysis.

This paper employs Tobin's q to indicate the growth potential of an enterprise. A larger Tobin's q will lead the capital market to recognize its potential for development, indicating a brighter future for the enterprise. In the presence of fewer external financing constraints, a greater growth opportunity fosters corporate investment. According to Smith and Watts (1992), growth opportunity is influenced by external factors. Baker (1993) suggests that varying growth opportunities result in heterogeneity in corporate investment. Consequently, differences may exist in the impact of economic policy uncertainty and liquidity on corporate investment, contingent upon varying growth opportunities.

Enterprises experiencing higher growth rates tend to be more optimistic about the future. As a result, they may consider increased investment, even in adverse external environments resulting from economic policy uncertainty and liquidity changes. Enterprises with limited growth opportunities face a higher investment risk due to diminished recognition. Additionally, the disorder in the external environment, caused by liquidity and uncertainty, leads to their avoidance of investment (Wang and Song, 2014). Consequently, uncertainty and liquidity may exert a relatively greater impact on corporate investment with limited growth opportunities, particularly through bank credit channels.

For Tobin's q, if it is simply divided according to median or mean value, it is easily to generate larger errors in this artificial way and it cannot get ideal results. So this paper uses a threshold panel model proposed by Hansen (1999) to divide samples. If there is a threshold effect, it can get the specific threshold and study the effect of economic policy uncertainty and liquidity on corporate investment through bank credit channels. The threshold panel model 5 used here is given as follows and the $I(\cdot)$ refers to the indicator function.

$$I_{i,t} = u_i + a_1 Q_{i,t-1} + a_2 CF_{i,t-1} + a_3 Epu_{t-1} + a_4 Credit_{i,t-1} + a_5 LR_{t-1} + a_6 Lev_{i,t-1} + a_7 Size_{i,t-1} + F_1 * Epu_{t-1}$$

$$*Credit_{i,t-1} * I(Lev_{i,t-1} \leq y) + F_2 * Epu_{t-1} * Credit_{i,t-1} * I(Lev_{i,t-1} \geq y) + F_3 * Epu_{t-1} * LR_{t-1} * I \qquad (5)$$

$$(Lev_{i,t-1} \leq y) + F_4 * Epu_{t-1} * LR_{t-1} * I(Lev_{i,t-1} \geq y) + F_5 * Epu_{t-1} * Credit_{i,t-1} * LR_{t-1} * I(Lev_{i,t-1} \leq$$

$$y) + F_6 * Epu_{t-1} * Credit_{i,t-1} * LR_{t-1} * I(Lev_{i,t-1} \geq y) + e_{i,t}$$

Based on the results of model 5 in table 7, the interactions are all insignificant, regardless of whether enterprises have large or small growth opportunities (higher or lower than the threshold value), except for a slight influence of economic policy uncertainty and credit on corporate investment through the bank credit channel. In comparison to enterprises with large growth opportunities, enterprises with smaller growth opportunities experience a reduced impact of economic policy uncertainty and bank liquidity on corporate investment through the bank credit channel.

(4) Financing Constraints Factors Analysis.

This paper still uses the threshold panel model 6 to test companies of different financing constrains degrees. The model is specified as:

$$I_{i,t} = u_i + a_1 Q_{i,t-1} + a_2 CF_{i,t-1} + a_3 Epu_{t-1} + a_4 Credit_{i,t-1} + a_5 LR_{t-1} + a_6 Lev_{i,t-1} + a_7 Size_{i,t-1} + F_1 *$$

$$Epu_{t-1} * Credit_{i,t-1} * I(Q_{i,t-1} \leq y) + F_2 * Epu_{t-1} * Credit_{i,t-1} * I(Q_{i,t-1} \geq y) + F_3 * Epu_{t-1} * \qquad (6)$$

$$LR_{t-1} * I(Q_{i,t-1} \leq y) + F_4 * Epu_{t-1} * LR_{t-1} * I(Q_{i,t-1} \geq y) + F_5 * Epu_{t-1} * Credit_{i,t-1} * LR_{t-1} *$$

$$I(Q_{i,t-1} \leq y) + F_6 * Epu_{t-1} * Credit_{i,t-1} * LR_{t-1} * I(Q_{i,t-1} \geq y) + e_{i,t}$$

According to corporate financial theory, financing constraints affect corporate investment. Li and Yang (2013) find that increased economic policy uncertainty worsens the external environment, making it challenging for enterprises to survive. Furthermore, a decrease in liquidity will limit bank credit, subsequently affecting investment. However, Rao and Jiang (2013) find that enterprises with lower financial constraints can utilize alternative financing channels instead of bank credit channels when confronted with economic policy uncertainty and a liquidity crisis. Therefore, economic policy uncertainty and liquidity may exert varying influences on investment through bank credit channels for enterprises with different financing constraints.

Based on the results of model 6 in table 7, the interactions are all significant, regardless of the level of financing constraint, indicating that both economic policy uncertainty and liquidity influence corporate investment through the bank credit channel.

In comparison to enterprises with higher financing constraints, economic policy uncertainty and liquidity have a reduced impact on corporate investment through the bank credit channel in enterprises with lower financing constraints.

Table 7. Regression Results of Firm Heterogeneity

Variable	manufactu-ring(I=1)	non-manu-facturing(I=1)	SOE or non-SOE	different growth opportunities	different financing constraints
	1	2	3	4	5
$Q_{i,t-1}$	0.004*** (4.82)	0.004*** (3.19)	0.004*** (6.07)	0.004*** (6.01)	0.005*** (6.51)
$CF_{i,t-1}$	0.034*** (2.95)	0.029** (2.43)	0.033*** (3.99)	0.031*** (3.83)	0.032*** (3.97)

Variable	manufacturing(I=1)	non-manufacturing(I=1)	SOE or non-SOE		different growth opportunities		different financing constraints	
	1	2	3		4		5	
Epu_{t-1}	-0.004 (-1.54)	0.001 (0.31)	0.013*** (5.13)		0.013*** (5.95)		0.014*** (6.76)	
$Credit_{i,t-1}$	0.599** (2.94)	0.340 (1.39)	0.735*** (4.48)		0.549*** (3.30)		0.784*** (4.82)	
LR_{t-1}	-0.018 (-0.50)	-0.017 (-0.37)	-0.028 (-1.13)		-0.034 (1.37)		-0.021 (-0.82)	
$Lev_{i,t-1}$	-0.057*** (-6.48)	-0.029*** (-2.89)	-0.044*** (-6.66)		-0.045*** (-6.91)		-0.034*** (-4.90)	
$Size_{i,t-1}$	-0.006*** (-4.84)	-0.004*** (-3.14)	-0.006*** (-6.34)		-0.005*** (-6.06)		-0.005*** (-5.83)	
$Epu_{t-1} * Credit_{i,t-1} * I$	-0.119*** (-2.78)	-0.086* (-1.66)	$Epu_{t-1}*Credit_{i,t-1}$: -0.18*** (-5.26)	$I(Q_{i,t-1} \geq \gamma)$	-0.147*** (-4.30)	$I(Lev_{i,t-1} \geq \gamma)$	-1.78*** (-5.22)	
			$Epu_{t-1}*Credit_{i,t-1}*State$: 0.015* (1.65)	$I(Q_{i,t-1} \leq \gamma)$	-0.121*** (-3.38)	$I(Lev_{i,t-1} \leq \gamma)$	-0.183*** (-5.23)	
$LR_{t-1} * Credit_{i,t-1} * I$	-1.053** (-2.41)	-0.299 (-0.57)	$LR_{t-1}*Credit_{i,t-1}$: -1.051*** (-3.04)	$I(Q_{i,t-1} \geq \gamma)$	-0.697* (-1.96)	$I(Lev_{i,t-1} \geq \gamma)$	-1,223*** (-2.78)	
			$LR_{t-1}*Credit_{i,t-1}*State$: 0.069 (0.56)	$I(Q_{i,t-1} \leq \gamma)$	-0.650* (-1.85)	$I(Lev_{i,t-1} \leq \gamma)$	-0.960*** (-3.54)	
$Epu_{t-1} * LR_{t-1} * Credit_{i,t-1} * I$	0.212** (2.40)	0.095 (0.88)	$Epu_{t-1}*LR_{t-1}*Credit_{i,t-1}$: 0.279*** (3.93)	$I(Q_{i,t-1} \geq \gamma)$	0.215*** (3.03)	$I(Lev_{i,t-1} \geq \gamma)$	0.285*** (3.50)	
			$Epu_{t-1}*LR_{t-1}*Credit_{i,t-1}*State$: -0.043 (-1.19)	$I(Q_{i,t-1} \leq \gamma)$	0.160** (2.16)	$I(Lev_{i,t-1} \leq \gamma)$	0.254*** (4.03)	

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

5. Discussion

In this study, it is observed that heightened economic policy uncertainty leads to a reduction in both bank liquidity and business investment. Conversely, an increase in bank liquidity is found to stimulate business investment. Furthermore, the study indicates that even in the presence of liquidity shocks unrelated to economic policy uncertainty, the latter still exerts a depressive influence on business investment through commercial bank liquidity.

The endogeneity of the model is tested using U.S. economic policy uncertainty as an instrumental variable. The endogeneity problem is addressed by lagging U.S. economic policy uncertainty by one period. Subsequently, the bank credit variable is re-measured by incorporating the term "non-current liabilities due within one year" into the bank credit indicator, and it is observed that the empirical results remain robust.

Previous research by Ashraf *et al.* (2019) discusses the relationship between economic policy uncertainty and total bank loans and interest rates, among other factors, using data from 17 countries, thereby enhancing our comprehension. Additionally, Kong *et al.* (2022) refine firms' investment to include R&D investment and green investment, explaining from the perspective of macroeconomic policy uncertainty that macro EPU inhibits the scale and efficiency of firms' investment while exacerbating the risk of firms' overinvestment or underinvestment. Tian *et al.* (2022) explores the impact of EPU on firms' innovation and identifies the mediating role of bank loans in the transmission process, thus aiding in a better understanding of the influencing factors of corporate innovation in this paper.

This paper innovatively unites economic policy uncertainty, bank liquidity, and enterprise investment. It considers not only the direct effect of economic policy uncertainty on bank liquidity and enterprise investment, but also the intermediary role of bank lending in the impact of economic uncertainty on enterprise investment. Furthermore, it incorporates the macroeconomic context under the impact of sudden events, comprehensively constructing a complex relationship between the three.

Following this, the paper additionally delves into exploring the impact of heterogeneity using a threshold panel model. This model reveals variations in the impact of economic policy uncertainty and bank liquidity through the bank credit channel on the investment of firms with different industry natures, growth opportunities, and levels of financing constraints. Our findings on heterogeneity enhance the realism of the previous study and render the drawn conclusions more realistic and reliable.

Nevertheless, our study still has shortcomings. We were unable to obtain more accurate measures of bank liquidity to gauge the amount of funds available in bank lending activities, the potential loans available to enterprises, and the efficiency of liquidity transmission, which could enhance our understanding of the impact paths and mechanisms between bank liquidity and enterprise investment. Additionally, this paper uses the investment scale of enterprise fixed assets to measure the level of investment, while it does not account for ESG investment and emerging intangible assets investment programs due to data limitations.

6. Conclusion

In this paper, the relationship between economic policy uncertainty and bank liquidity concerning business investment is examined. Initially, it is hypothesized that an increase in economic policy uncertainty suppresses the level of business investment, while an increase in business liquidity promotes it. Additionally, it is hypothesized that economic policy uncertainty dampens the relationship on the level of commercial bank liquidity.

Using data from 517 firms spanning the period 2004-2019, the hypotheses are tested, and an investigation is conducted on how economic policy uncertainty significantly influences the level of firm investment through changes in bank liquidity subsequent to a liquidity crisis caused by non-economic factors. These hypotheses are later examined and elucidated in the preceding sections.

The paper demonstrates that economic policy uncertainty significantly inhibits corporate investment expenditures through bank credit channels and weakens bank liquidity. During the two liquidity crisis events in 2008 and 2013, both economic policy uncertainty and bank liquidity affected corporate investment through bank credit channels. Upon separating the bank liquidity effects using liquidity crisis event analysis, economic policy uncertainty still exhibits a significant negative effect on corporate investment through bank credit channels. Furthermore, the threshold regression results indicate that economic policy uncertainty and bank liquidity have varying impacts on corporate investment concerning different industry characteristics, ownership structures, growth opportunities, and financial constraints through bank credit channels.

The results of this paper imply that, theoretically, macroeconomic policy uncertainty has a direct effect on both the level of bank liquidity and business investment, and further indirectly influences the level of business investment through its impact on bank liquidity.

In real economic activities, the credibility and stability of economic policies play a crucial role in determining the levels of commercial bank liquidity and corporate investment, particularly in emerging markets like the Chinese market. Enterprises are directly impacted by the credibility and transparency of economic policies, influencing their investment strategies and expectations. Simultaneously, bank credit stands as the primary source of funds for investment activities of Chinese enterprises, and the liquidity level of banks will significantly impact corporate investment through the bank credit channel. The enhancement of banks' awareness of liquidity risk management and the improvement of their internal liquidity crisis early warning mechanism will ensure the stability of external capital mobilization and the orderly promotion of investment activities.

This article discusses two liquidity crises in a separate study, and the overlapping effect between the two events can be analyzed in future research to further explore the long-term continuity effect of liquidity crises on corporate investment. Furthermore, the intensity of corporate investment choices and the focus of investment direction are also worthy topics of study, including ESG investment and over/under-investment issues. Their relationships and influence paths with economic policy uncertainty and bank liquidity levels can be further investigated in the future.

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