Monetary Policy Uncertainty and Corporate Cash Holdings: Evidence from China*

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Abstract

This paper empirically explores the effect of monetary policy uncertainty on corporate cash holdings in China. We find robust evidence that monetary policy uncertainty is positively related to corporate cash holdings. The firms' precautionary behavior in cash holdings is chiefly attributed to the increase in financial frictions rather than the reduction in corporate investments. The promoting effect of monetary policy uncertainty on cash holdings is more pronounced among firms with more severe financial constraints, firms with higher dependence on external finance, firms with worse access to bank financing, and non-SOEs, and during the period of monetary policy tightening. Our study suggests that firms hold more cash to cushion potential liquidity shortfalls induced by the increase in monetary policy uncertainty.

Keywords: Monetary Policy Uncertainty, Cash Holdings, Financial Friction, Real Option
JEL: E52, G31, G32, G34

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1. Introduction

Uncertainty appears to increase drastically after major economic shocks (Bloom, 2009), such as the global financial crisis and the COVID-19 pandemic. The sharp recessions in the global economy generated from uncertainty have promoted the application of several tools of monetary policy to guide the expectations of the market (Sinha, 2016), which makes uncertainty become the defining characteristic of the monetary policy landscape (Greenspan, 2003). While monetary policy could help offset the uncertainty for the public to some degree, some of the uncertainty can be created by central banks themselves. Evolving into another source of macroeconomic variability (Kobayashi, 2004), the uncertainty about monetary policy could negatively affect the transmission of monetary policy and the real economy (De Pooter et al., 2021), which in turn erodes the potency of monetary policy.

While the emerging literature has made significant efforts to demonstrate that monetary policy uncertainty could shock the macroeconomy, such as the severe drop in economic activities (Creal and Wu, 2017; Fernández-Villaverde et al., 2011; Mumtaz and Zanetti, 2013), the dramatic surge in volatility of inflation and unemployment (Herro and Murray, 2013), and the weakened reaction of the market to monetary policy (Kurov and Stan, 2018; Tillmann, 2020), there remains a new concern about how firms strategically "navigate the turbulent waters". Given that monetary policy uncertainty might impair both financing and investment, it is imperative to study how firms allocate capital to tackle with monetary policy uncertainty. In this paper, we investigate the role of monetary policy uncertainty in capital allocation from the perspective of corporate cash holdings, which, sitting at the heart of a firm's policies, takes on an essential role in corporate finance theories (Harford, 1999).

According to the existing literature, monetary policy uncertainty could affect corporate cash holdings through two potential channels, namely the financial-friction theory and the real-option theory. The former focuses on the effects on corporate financing. Firms tend to hold more cash reserves when monetary policy uncertainty increases the financing cost (Harford et al., 2014). The latter addresses the motive of firms to delay investments in response to the rise in monetary policy uncertainty (Gulen and Ion, 2015). These two channels both suggest that monetary policy uncertainty could promote corporate cash holdings.

To explore the influence of monetary policy uncertainty, we first construct

the unpredictability-based monetary policy uncertainty index (MPU index) in China following Jurado et al. (2015) and Wang et al. (2019). With a sample of Chinese-listed non-financial firms from 2007 Q1 to 2021 Q4, our baseline regression documents that corporate cash holdings increase substantially under higher level of monetary policy uncertainty index. What we find suggests that the uncertainty regarding monetary policy dominates monetary policy itself with respect to the promoting effect on corporate cash holdings. Our findings are robust to alternative measures of the main variables of interest, controlling high-degree fixed effects, sub-sample analyses and controlling the text-based uncertainty index in China (Baker et al., 2016; Huang and Luk, 2020).

We further examine the two channels through which monetary policy uncertainty could affect corporate cash holdings. Firstly, we investigate the effect of monetary policy uncertainty on the value of cash (Faulkender and Wang, 2006; Dittmar and Mahrt-Smith, 2007). The empirical results show that monetary policy uncertainty increases the value of cash and support the financial friction theory, since the cash held by the firm would help preempt the investment opportunities when refinancing risk rises due to monetary policy uncertainty. Secondly, we consider the impact of monetary policy uncertainty on the financing costs. We provide empirical evidence for the financial-friction theory that monetary policy uncertainty significantly increase the cost of debt (Pittman and Fortin, 2004) and the investment-to-cash-flow sensitivity (Fazzari et al., 1988).

We also consider the real-option channel. We explore the effect of monetary policy uncertainty on corporate investments and find that monetary policy uncertainty has no impact on corporate investments, which indicates that the increase in cash holdings during the period of heightened monetary policy uncertainty might not be driven by the reduction in investments. We also find the promoting effect of monetary policy uncertainty on the sum of change of cash and change of investments. What we find suggests that monetary policy uncertainty increases cash holdings regardless of the change in investments, and thus the real-option theory is not supported. Although none of these tests can perfectly rule out the real-option channel when taken individually, they all confirm our main conclusion.

We then investigate the heterogeneity in the explanation of the positive relation between monetary policy uncertainty and cash holdings. Consistent with the financial-friction predictions, the adjustment of cash holdings in response to monetary policy uncertainty is more likely to be stronger among

firms with more severe financial constraints or higher dependence on external finance. Additionally, the increase in cash holdings is more pronounced for non-SOEs and firms with worse access to bank financing, as well as during the period of monetary policy tightening.

We focus on monetary policy uncertainty in China for three primary reasons. First, China is the second-largest economy in the world and continuously opening up its financial market, where monetary policy plays a crucial role in macro-economy and financial stability. Therefore, the uncertainty about monetary policy has important implications given China's prominent position in the world economy. Second, different from the developed countries, the multiple monetary goals and monetary instruments (Chen et al., 2018; Zhang, 2009) make it difficult to predict the key elements of the formulation and implementation of monetary policy in China, which amplifies the effect of monetary policy uncertainty. Third, the underdeveloped Chinese stock market, coupled with the absence of a mature bond market (Allen et al., 2005; Ayyagari et al., 2010; Wang et al., 2020), has resulted that many Chinese firms rely heavily on bank financing (Zou and Adams, 2008). Monetary policy uncertainty could directly influence the transmission of monetary policy to the financial markets and make the markets more vulnerable to uncertainty shocks.

This paper is related to several strands of literature. First, this paper relates to the enormous literature on the micro-effect of monetary policy. According to the well-established credit channel of monetary policy (Bernanke and Blinder, 1988, 1992; Bernanke and Gertler, 1989, 1995), monetary policy shocks have an effect on the external finance premium in credit markets and potentially influence firm-level decision making. A considerable amount of literature has documented that monetary policy shocks lead to changes in corporate policies, such as the investment and financing (Acharya et al., 2019; Bougheas et al., 2006; Ciccarelli et al., 2015; Drechsler et al., 2018; Ehrmann and Fratzscher, 2004; Ellingsen and Söderström, 2001; Mojon et al., 2002; Ottonello and Winberry, 2020; Sharpe and Suarez, 2021). Our paper, which emphasizes the uncertainty in the transmission mechanism of monetary policy, unveils that monetary policy uncertainty could increase the financing costs and enhance the firm's precautionary propensity, which, in turn, reinforces the credit channel theory of monetary policy.

Second, this paper relates to the emerging literature on monetary policy uncertainty. Since the global financial crisis, the uncertainty about monetary policy has received much attention. The extant literature mainly utilizes

derivative-based measures, such as implied volatility computed from interest rate derivatives (Bauer et al., 2021; Chadwick, 2019; Gürkaynak et al., 2007; Kaminska and Roberts-Sklar, 2018; Kurov and Stan, 2018; Mueller et al., 2017), text-based measures, such as the textual analysis of newspapers (Baker et al., 2016; Chen and Tillmann, 2021; Huang and Luk, 2020; Husted et al., 2020; Tillmann, 2020), or unpredictability-based measures, such as the unpredictable components of a broad set of economic variables (Huang et al., 2018; Jurado et al., 2015; Li et al., 2020; Meinen and Roehe, 2017; Rossi and Sekhposyan, 2015), to proxy monetary policy uncertainty and predominantly explores the negative impacts of monetary policy uncertainty at the macro level, such as the decline in economic outputs, the increase in economic fluctuations and the spillover effects on the international markets (Aor et al., 2021; Chen and Tillmann, 2021; Creal and Wu, 2017; De Pooter et al., 2021; Kurov and Stan, 2018; Lakdawala, 2021; Sinha, 2016; Xiang and Li, 2022). We construct monetary policy uncertainty using the framework of Jurado et al. (2015) and Wang et al. (2019) to avoid the problem that text-based measures might not be strongly correlated with the latent stochastic process of uncertainty (Jurado et al., 2015). This paper contributes to the literature by advancing our understandings of how the rise of monetary policy uncertainty affects the firm's capital allocation from the perspective of corporate cash holdings, which provides micro-level evidence for the influence of monetary policy uncertainty.

Third, this paper has implications for the literature on corporate cash holdings. Building on the well-established corporate cash holdings literature which offers three explanations why firms hold cash, i.e., precautionary motive, free cash flow theory, and foreign tax rate differentials (Bates et al., 2009; De Simone et al., 2019; Faulkender et al., 2019; Foley et al., 2007; Graham and Leary, 2018; Harford et al., 2017; Jensen, 1986; Opler et al., 1999), a buoyant literature tries to highlight the role of uncertainty in corporate precautionary behaviors (Demir and Ersan, 2017; Duong et al., 2020; Goodell et al., 2021; Phan et al., 2019; Su et al., 2020) given that aggregate policy uncertainty is largely outside the control of a firm and cannot be easily hedged through derivatives or financial contracting (Duong et al., 2020). We complement the existing literature on the macro-level determinants of corporate cash holdings. We also contribute to the literature on the relation between uncertainty and cash holdings by exploring the effect of monetary policy uncertainty as a different category of uncertainty rather than economic policy uncertainty, in which vein we could shed light on the mechanisms behind the

uncertainty more precisely. Our findings suggest that monetary policy uncertainty mainly affects the financing side of the firms, which is different from the generally negative effects on the economy of economic policy uncertainty (Gulen and Ion, 2015; Baker et al., 2016).

The remainder of this paper is organized as follows. We develop the hypotheses in Section 2 and describe our data and methodology in Section 3. In Section 4, we present the empirical results, including our baseline results, the robustness checks, the mechanisms through which monetary policy uncertainty could affect corporate cash holdings and the heterogeneity of the main results. We conclude in Section 5.

2. Hypothesis development

2.1. Does MPU increase corporate cash holdings?

The extant literature suggests that monetary policy uncertainty could affect corporate cash holdings through two channels: the financial friction theory and real option theory. The financial-friction theory conjectures that the rise in financing costs to compensate investors for heightened monetary policy uncertainty aggravates refinancing risk (Arellano et al., 2016; Berger et al., 2022; Francis et al., 2014; Gilchrist et al., 2014), which in turn encourages the firm to increase cash holdings to finance its activities and investments (Keynes, 1936). In addition, the real-option theory postulates that monetary policy uncertainty could incentivize firms to delay investments and hold cash. This is because, if investment projects are (even partially) irreversible, monetary policy uncertainty could increase the real-option value of waiting until some of the uncertainty resolves (Abel and Eberly, 1996; Bernanke, 1983; Bloom, 2009; Dixit and Pindyck, 1994; Gulen and Ion, 2015; Husted et al., 2020).

In a word, monetary policy uncertainty could increase the firm's propensity to hold cash for precautionary savings. This motive, derived from Keynes (1936), is described as that the firm, aiming at undertaking worthwhile projects in time, can use the cash to finance its activities and investments if other sources of funding are not available or are excessively costly (Bates et al., 2009; Graham and Leary, 2018; Opler et al., 1999). Hence, we propose the following hypothesis:

Hypothesis 1: Ceteris paribus, monetary policy uncertainty could increase corporate cash holdings.

2.2. Does the financial-friction channel work?

In order to differentiate these two channels, we first investigate the effect of monetary policy uncertainty on the value of cash. According to Faulkender and Wang (2006) and Dittmar and Mahrt-Smith (2007), the logic of this test rests on the idea of the long-term event study—to estimate the effect of a firm event on the stock return—in which the event is the unexpected change of cash holdings conditional on monetary policy uncertainty. The marginal value of cash depends upon the likely use of the funds (Faulkender and Wang, 2006). Within the financial-friction channel, if monetary policy uncertainty increases refinancing risk and incentivizes the firm to hold more liquidity, cash holdings could help preempt investment opportunities and enhance the value of cash. Within the real-option channel, if monetary policy uncertainty raises the risk of investments and forces the firm to delay, which is harmful to the firm value, the increase in cash holdings is the result of the delay of investments. Hence, monetary policy uncertainty would reduce the value of cash through the real-option channel. This test on the value of cash may help us, to a large extent, discriminate between the two mechanisms. Accordingly, we make the following competing hypotheses:

Hypothesis 2a: If the financial-friction channel holds, monetary policy uncertainty could increase the value of cash.

Hypothesis 2b: If the real-option channel holds, monetary policy uncertainty could decrease the value of cash.

We then examine the effect of monetary policy uncertainty on corporate financing cost to verify the financial-friction channel from the aspects of cost of debt and the investment-to-cash-flow sensitivity. Since many Chinese firms rely heavily on bank financing (Zou and Adams, 2008) which is directly influenced by monetary policy, we conjecture that monetary policy uncertainty should drive up the cost of debt if the financial friction theory holds. Besides, the increase in financing frictions induced by monetary policy uncertainty would make external financing more expensive so that firms might have problems investing in valuable projects due to insufficient internal funds. We predict that the investment-to-cash-flow sensitivity, which is used by finance literature to measure the financial constraints faced by the firms (Fazzari et al., 1988), would be enhanced by monetary policy uncertainty. Therefore, we hypothesize the following:

Hypothesis 3: If the financial-friction channel holds, monetary policy uncertainty could increase corporate financing cost.

2.3. Does the real-option channel work?

To investigate the role of real-option channel in the promoting effect on corporate cash holdings of monetary policy uncertainty, we first consider the direct impact of monetary policy uncertainty on corporate investments. The theoretical analysis predicts that monetary policy uncertainty would make the firms more willing to delay investments. In this case, the increase in cash holdings during the period of heightened monetary policy uncertainty might be attributed to the reduction in investments rather the increased financial frictions. Hence we should observe a significant negative relationship between monetary policy uncertainty and corporate investments (Husted et al., 2020). We also consider the effect of monetary policy uncertainty on the sum of change of cash and change of investments. The underlying logic is that if the increase in cash is attributed to the reduction in investments, the sum of change of cash and change of investments will be approximately equal to zero, which means that the effect of monetary policy uncertainty might not be statistically significant. Based on these arguments, we make the following hypotheses:

Hypothesis 4: If the real-option channel holds, monetary policy uncertainty could decrease corporate investments.

3. Data and methodology

3.1. Data sources and sampling

To implement the empirical tests, we obtain firm-level data from the CSMAR database, and macro-level data from CEIC database and Wind database. We use the quarterly data of Chinese-listed non-financial firms from 2007Q1 to 2021Q4 as the research sample. We start with 2007Q1, the first quarter Chinese-listed firms applied a new set of accounting standards to ensure comparability among the accounting variables. Following Gulen and Ion (2015), we exclude firm-quarters with missing values on the accounting variables used in the empirical analysis and exclude firms with observations for less than three years. We follow Faulkender and Wang (2006) and Bates et al. (2009) and impose an additional requirement that the market value of equity should be positive. We also exclude firms designated as "special treatment" (ST or ST-plus) by the stock exchange since these firms face trading and financial restrictions (Peng et al., 2011; Titman et al., 2022). To eliminate the impact of outliers, we winsorize all the continuous variables at the 1% and 99% level. We end up with a total of 124,988 firm-quarter

observations. The variables used in the empirical analysis are defined in the following subsections.

3.2. Empirical methodology

To investigate the relationship between monetary policy uncertainty and corporate cash holdings, we employ the following econometric framework:

$$Cash_{i,t+1} = \beta_0 + \beta_1 MPU_t + \gamma Controls_{i,t} + \lambda Macro_t + \upsilon_t + \mu_i + \epsilon_{i,t}, \quad (1)$$

where i, t are subscripts for firm and quarter respectively. $Cash$ is the corporate cash holdings, and MPU is monetary policy uncertainty in China. $Controls$ is the battery of firm-level control variables, and $Macro$ is a set of macroeconomic variables. The variable definitions are described in section 3.3. υ_t and μ_i are time and firm fixed effects. The time fixed effects contain a set of year dummies for calendar-year-specific effects and a set of quarter dummies for seasonal effects. The firm fixed effects control for time-invariant unobservable firm-specific characteristics[1]. Unless otherwise specified, the standard errors are clustered at firm level in all regressions. The main coefficient of interest is β_1. If β_1 is significant and positive, we conjecture that monetary policy uncertainty has a significant promoting effect on corporate cash holdings.

3.3. Variable construction

3.3.1. Monetary policy uncertainty index

Following Jurado et al. (2015) and Wang et al. (2019), we use monetary policy and macroeconomic indicators to measure monetary policy uncertainty in China. The whole process of the construction can be simply divided into two steps. The first step is to estimate the uncertainty about one individual factor. The second step is to aggregate all the uncertainties about the individual factor according to one certain weighting scheme. In the first step, we define $h-$period-ahead uncertainty of monetary policy indicator $y_{j,t}$, denoted by $MPU_{h,j,t}$, to be the conditional volatility of the purely unforecastable component of the future value of the series. Specifically,

$$MPU_{h,j,t} \equiv \sqrt{E\left[\left(y_{j,t+h} - E\left[y_{j,t+h}|I_t\right]\right)^2 |I_t\right]}, \quad (2)$$

[1]In untabulated analysis, we obtain qualitatively similar results when we use industry fixed effects instead of firm fixed effects.

where the expectation $E(\cdot|I_t)$ is taken with respect to information I_t available to economic agents at time t. In the second step, the monetary policy uncertainty index can then be constructed by aggregating individual uncertainty at each date using aggregation weights w_j:

$$MPU_{h,t} \equiv plim_{N\to\infty} \sum_{j=1}^{N} w_j MPU_{h,j,t} \equiv E_w \left[MPU_{h,j,t}\right]. \tag{3}$$

We use equally-weighted average and the first principal component derived from principal component analysis to aggregate individual monetary policy uncertainties according to Jurado et al. (2015), respectively[2]. Table A1 presents the 14 indicators related to monetary policy and 30 other indicators used as latent common factors following Wang et al. (2019). We retrieve monthly data from January 2007 to December 2021 and estimate monthly monetary policy uncertainty for three h-period-ahead horizons: h =1, 3, and 12 months. Then the quarterly economic policy uncertainty index, i.e. the key independent variable utilized in the empirical analysis, is calculated as the average value of the monetary policy uncertainty index in three months for each quarter.

We also consider other measures of monetary policy uncertainty index based on the text-analysis method described in Baker et al. (2016), such as Huang and Luk (2020) and Chen and Tillmann (2021). Huang and Luk (2020) construct the China EPU ($EPU_{H\&L}$) and MPU ($MPU_{H\&L}$) index using 10 mainland Chinese newspapers, while Chen and Tillmann (2021) construct an index of monetary policy uncertainty about the policy of the PBOC ($MPU_{C\&T}$) in China based on international newspapers including the *South China Morning Post* and *The Financial Times*. In addition to the different media sources, another difference between the construction of $MPU_{H\&L}$ and $MPU_{C\&T}$ is the scope of keywords used to filter related articles. $MPU_{C\&T}$, which focuses on the keywords about "PBOC", is more narrowly defined than $MPU_{H\&L}$. Since we can only obtain the data of Huang and Luk (2020), we will compare our MPU measure with $MPU_{H\&L}$ and use $MPU_{H\&L}$ for robustness in Section 4.3.2.

[2]We use the equally-weighted average to construct monetary policy uncertainty index since the measure of average uncertainty does not impose any structure on the individual uncertainties and beyond the assumptions on the latent volatility process (Jurado et al., 2015).

[Insert Table A1 around here.]

3.3.2. Cash holdings

Following Bates et al. (2009), we measure corporate cash holdings ($Cash$) as the ratio of cash scaled by total assets. Based on Opler et al. (1999), we deflate cash holdings by the book value of net assets (where net assets equal total assets minus cash) to construst $Cash'$. Besides, we construct $Cash''$ as the logarithm of $Cash'$ to alleviate the impact of outliers (Bates et al., 2009). We will use $Cash$ in the main context and the others for robustness checks.

3.3.3. Control variables

Following the previous studies, we include a battery of firm-specific variables to control for the influence of firm characteristics that determine the normal level of cash holdings: firm size ($Size$) is the natural logarithm of total assets; Age is the natural logarithm of number of years since the firm was listed plus one; $Invest$ is the capital expenditures on fixed assets, intangible assets and other long-term assets scaled by total assets; net working capital (NWC) is the difference between working capital and cash and short-term investments scaled by total assets; leverage (Lev) is the total liabilities scaled by total assets; MB is the Market-to-Book ratio, which is calculated as the stock market capitalization divided by book equity; operating cash flow (OCF) is net operating cash flow scaled by total assets. We also add the corporate governance variables to control for the potential effect of agency conflicts on cash holdings: $Independ$ is the proportion of independent directors on the board; the board size ($Board$) is the logarithm of the number of directors on the board plus one; $Dual$ is a dummy variable indicating whether the same person occupies the post of the chairman and the chief executive officer.

Since we cannot include the calendar-quarter time fixed effects in our specifications to avoid the absorption of all the explanatory power of the monetary policy uncertainty variable, we control for possible confounding macroeconomic forces explicitly following Gulen and Ion (2015) and Duong et al. (2020). We include GDP growth (GDP), consumer confidence index (CCI), volatility of stock returns ($Retsd$), and volatility of the firms' earnings growth ($Profitsd$) to account for the influence of investment opportunities and economic cycle. We also include year-on-year M2 growth ($M2$) and one-month inter-bank offered rate ($ILR1$) which are proxied as monetary policy into the control variables to distinguish the effect of monetary policy

uncertainty and the effect of monetary policy itself. We also provide further robustness checks to control for unobservable missing variables in Section 4.3.

4. Empirical results

4.1. Descriptive statistics

Table 1 shows the descriptive statistics for macro-level and firm-level variables. Based on firm-level data, the average cash holdings of Chinese-listed non-financial firms are about 16.9% of total assets, 24.3% of net assets during the sample period. For an average firm, the logarithm of total assets is 8.350, the logarithm of firm age is 2.850, the capital expenditures scaled by total assets is 5.1%, the net working capital scaled by total assets is 5.2%, the total liabilities scaled by total assets is 19.0%, the market-to-book ratio is 4.122, the net operating cash flow scaled by total assets is 4.6%, the proportion of independent directors on the board is 37.4%, the logarithm of the number of directors on the board is 2.256.

[Insert Table 1 around here.]

Figure 1 plots $MPU_{h,t}$ over time for h =1, 3, and 12. CSA and PCA represent the monetary policy uncertainty aggregated by simple average and principal component analysis methods, respectively. It is worth noting that the monetary policy uncertainty aggregated by CSA and PCA are relatively close, and the indexes for h =1, 3, and 12 months increase sequentially since the longer the forecast time, the greater the accumulated uncertainty. In addition, there are several peaks in the time series of monetary policy uncertainty in China. At the end of 2008, monetary policy uncertainty rose sharply due to the adverse impact of the global financial crisis. The lagged impact of economic stimulus plan caused the increase in monetary policy uncertainty around the year 2011. Monetary policy uncertainty rose again because of Chinese stock market turbulence in 2015. Overall, monetary policy uncertainty in China fluctuates considerably during the sample period, which provides enough variation for our empirical study.

Table A2 presents the correlation matrix. This matrix reports that monetary policy uncertainty is positively correlated with corporate cash holdings, which is consistent with the idea that monetary policy uncertainty could increase the firms' propensity to hold cash. These correlations underscore the importance of examining the association in a multivariate setting.

[Insert Table A2 around here.]

[Insert Figure 1 around here.]

4.2. Baseline results

Table 2 presents the baseline regression results. We utilize six measures of monetary policy uncertainty as the independent variables in columns (1) to (6) respectively. These measures are MPU_1^{csa}, MPU_3^{csa}, MPU_{12}^{csa}, MPU_1^{pca}, MPU_3^{pca} and MPU_{12}^{pca}. We include all the control variables and fixed effects in the regressions. For all results, the coefficients on MPU are positive and statistically significant at the 1% level. In the untabulated tests, we drop the control variables and fixed effects and the coefficients on MPU remain significantly positive. The baseline results indicate that monetary policy uncertainty has a statistically significant promoting effect on corporate cash holdings. We use column (2) to evaluate the economic significance. The coefficient on MPU_3^{csa} is 0.017, which implies that a one-standard-deviation increase in MPU_3^{csa} corresponds to a 1% ($\approx 0.017 \times 0.108/0.169$) increase in cash holdings of the sample mean.

We briefly look into the influence of the control variables. We find that corporate cash holdings are negatively related to firm size and firm age (Opler et al., 1999; Chen et al., 2012). Consistent with Bates et al. (2009), the increase in capital expenditures could reduce the level of cash holdings. We find a substitution relationship between corporate cash holdings and net working capital from the baseline results. Besides, the results show that for firms with a higher level of leverage, corporate cash holdings will decrease since they need to utilize the cash to pay off the debt (Chen et al., 2012). Furthermore, corporate cash holdings could be negatively affected by the Market-to-Book ratio because the higher profitability firms' cash holdings will be turned into investments. In contrast, the operating cash flow will raise the level of cash holdings because the larger operating cash flow encourages firms to convert part of it into cash reserves. However, we do not find evidence that board size or board independence could significantly influence corporate cash holdings, while firms with CEO duality hold more cash. The coefficients of GDP, CCI, and $Retsd$ are significant and negative, indicating that the higher the economic growth, consumer confidence index and volatility of stock returns, the lower the corporate cash holdings level. The coefficients of $Profitsd$ are not significant. In addition, the coefficients of year-on-year M2 growth ($M2$) and one-month interbank offered rate ($ILR1$) are statistically insignificant, which implies that the uncertainty regarding monetary policy is

vastly more significant than monetary policy itself in determining cash levels of firms.

[Insert Table 2 around here.]

4.3. Robustness checks

4.3.1. Alternative model specifications

In this section, in order to be more confident in our results, we assess the robustness of our results against several alternative model specifications that will be summarized here. Table 3 presents the results of the robustness checks. For simplicity, we only report the results of MPU for $h = 3$ since our sample is based on quarterly data. The results of using MPU for $h = 1, 12$ are still robust in the unreported tables. Panel A and B present the results of MPU_3^{csa} and MPU_3^{pca}, respectively.

First, we replace the firm, year, and quarter fixed effects in the baseline regression with firm×year and firm×quarter fixed effects to mitigate the concern caused by firm-level time-variant unobservable factors. The empirical results in column (1) are consistent with the previous ones. We also control for firm×year and firm×quarter fixed effects in other columns. The results remain the same.

Second, we re-estimate the baseline regression using alternative specifications of cash holdings. In column (2) and (3), we use $Cash'$ and $Cash''$ as alternative dependent variables. All the results remain broadly unchanged.

Third, given the significantly adverse effect of COVID-19 on the whole economy (Baker et al., 2020) and corporate behaviors (Gao et al., 2022), we drop the observations from 2020Q1 to 2021Q4 and report the results in column (4). Moreover, in order to mitigate the concern that the significant increase in cash holdings could relate to a black swan event, such as the financial crisis and the stock market crash, we drop the observations in 2008, 2009 and 2015 in column (5). The sample re-selection does not affect our baseline results.

4.3.2. The text-based measure of uncertainty

In this section, we will address the concern that the effect of monetary policy uncertainty might be affected by or related to (at least partially) other measures of uncertainty. First, we standardize the text-based economic policy uncertainty and monetary policy uncertainty of Huang and Luk (2020) and our monetary policy uncertainty and plot them in one figure (Figure 2). What we can read from the figure is that our unpredictability-based monetary

policy uncertainty is apparently different from the text-based measures in terms of trends and volatility, which suggests that our measure contains different information than the text-based measures. We regard MPU_3^{csa} as one representation of our monetary policy uncertainty. The results of using other forms of MPU are similar in the unreported figures.

[Insert Figure 2 around here.]

Second, we report the correlation matrix of the measures of uncertainty in Table A2. The results show that the correlation coefficients between our unpredictability-based measures of MPU and $MPU_{H\&L}$ are larger than 0.5, which indicates that these two measures are focusing on the similar topics. The correlation between $MPU_{H\&L}$ and $EPU_{H\&L}$ in China is 0.621, while the correlation coefficients between our measures of MPU and $EPU_{H\&L}$ are less than 0.13. This difference might come from the not strong enough correlation between the text-based measures and the latent stochastic process of uncertainty (Jurado et al., 2015), which is one of the advantages that unpredictability-based measures have. These results indicate that our measures of MPU are partially similar to the text-based MPU but different from the text-based EPU, which provides some evidence that MPU and EPU might capture the different dimensions of uncertainty.

Third, we add $MPU_{H\&L}$, $EPU_{H\&L}$, and EPU_{Baker} into control variables, respectively. We report the results in column (6) to (8) in Table 3. We can see that the adding of $MPU_{H\&L}$, $EPU_{H\&L}$, and EPU_{Baker} does not affect the significance of coefficients of our measure of MPU. The results also support that the unpredictability-based measure of MPU might contain different information from the text-based measures of MPU. This, at least, suggests that the unpredictability-based measure of monetary policy uncertainty cannot be totally replaced by the text-based measures of uncertainty.

Finally, we use the $MPU_{H\&L}$ based on Huang and Luk (2020) as an alternative to the unpredictability-based measure to do robustness checks and report the results in Table A3. The results indicate that our findings are robust after addressing the alternative measures of monetary policy uncertainty.

[Insert Table A3 around here.]
[Insert Table 3 around here.]

4.4. Mechanisms

The theoretical analysis shows that monetary policy uncertainty may lead to an increase in corporate cash holdings through the deterioration of the

financing environment or the increase in real-option value. Therefore, we analyze the two channels through which monetary policy uncertainty could promote corporate cash holdings, i.e. the financial-friction theory and the real-option theory.

4.4.1. Financial-friction channel

First, we investigate the effect of monetary policy uncertainty on the value of cash.To implement this test, we construct the following regression model following Faulkender and Wang (2006) and Dittmar and Mahrt-Smith (2007):

$$\begin{aligned} FExret_{i,t} =& \beta_0 + \beta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_2 MPU_t \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_3 MPU_t + \beta_4 \frac{\Delta E_{i,t}}{M_{i,t-1}} \\ &+ \beta_5 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \beta_6 \frac{\Delta Capex_{i,t}}{M_{i,t-1}} + \beta_7 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \beta_8 \frac{\Delta D_{i,t}}{M_{i,t-1}} + \beta_9 \frac{C_{i,t-1}}{M_{i,t-1}} \\ &+ \beta_{10} L_{i,t} + \beta_{11} \frac{NF_{i,t}}{M_{i,t-1}} + \beta_{12} \frac{C_{i,t-1}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_{13} L_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} \\ &+ \upsilon_t + \mu_i + \epsilon_{i,t}, \end{aligned} \tag{4}$$

where $\Delta X_{i,t}$ indicates the first-order difference in X from quarter $t-1$ to t. The value of cash is measured as the excess stock return in the following four quarters ($FExret$), where the benchmark return is the value-weighted return based on market capitalization within each of the 25 benchmark portfolios formed independently based on size and book-to-market ratio (Fama and French, 1993; Faulkender and Wang, 2006; Dittmar and Mahrt-Smith, 2007). M is the market value of equity, C is corporate cash holdings, E is earnings before interest and tax, NA is the net assets, which is the difference between total assets and cash, $Capex$ is the capital expenditures, I is the interest expenditure, D is the common dividends, L is the market leverage and NF is the net external financing.

The main coefficient of interest is β_2. If β_2 is significant and positive, we can predict that monetary policy uncertainty enhances the value of cash and the financial-friction theory holds. If β_2 is significant and negative, we can predict that monetary policy uncertainty reduces the value of cash and the real-option theory holds.

Table 4 presents the results of the value of cash. For all results, the coefficients on $MPU \times \frac{\Delta C}{M}$ are positive and significant at the 1% level. We use column (2) to evaluate the economic significance. The magnitude of β_2 is 0.254,

which implies that a increase in MPU_3^{csa} from its 25th percentile (0.286) to the 75th percentile (0.435) would increase the value of cash by 0.038. The empirical results indicate that monetary policy uncertainty increases the market value of cash holdings, which supports the financial-friction theory.

[Insert Table 4 around here.]

Second, we consider the impact of monetary policy uncertainty on the cost of debt to verify the financial-friction channel. We use the financial expense scaled by the average of long-term liabilities and short-term liabilities (Pittman and Fortin, 2004) to measure cost of debt rather than using corporate credit spread due to the limited access to the data. We construct the following regression model:

$$Cost_{i,t+1} = \beta_0 + \beta_1 MPU_t + \gamma Controls_{i,t} + \lambda Macro_t + \upsilon_t + \mu_i + \epsilon_{i,t}, \quad (5)$$

the main coefficient of interest is β_1. A positive β_1 would indicate that the increase in monetary policy uncertainty deteriorates the external financing environment and leads to an increase in the cost of debt. Table 5 shows the results of cost of debt. For all results, the coefficients on MPU are positive and statistically significant at the 1% level, which supports the financial-friction theory.

[Insert Table 5 around here.]

Third, we examine the effect of monetary policy uncertainty on the investment-to-cash-flow sensitivity. Following Custódio and Metzger (2014) and Hu and Liu (2015), we construct the following regression model:

$$\begin{aligned} Invest_{i,t+1} =& \beta_0 + \beta_1 MPU_t + \beta_2 MPU_t \times OCF_{i,t} + \beta_3 OCF_{i,t} + \gamma Controls_{i,t} \\ &+ \lambda Macro_t + \upsilon_t + \mu_i + \epsilon_{i,t}, \end{aligned} \quad (6)$$

where $Invest$ is the capital expenditures on fixed assets, intangible assets and other long-term assets scaled by total assets, OCF is net operating cash flow scaled by total assets. The main coefficient of interest is β_2. A positive β_2 would indicate that an increase in monetary policy uncertainty does lead to an increasing investment-cash flow sensitivity, which means that financial constraints increase. Table 6 reports the results of investment-cash flow sensitivity. For all results, the coefficients on $MPU \times OCF$ are positive and statistically significant. The results show that monetary policy uncertainty increases the financial frictions, since the investments in the context of monetary policy uncertainty are more sensitive to internal cash flow, which supports the financial-friction theory.

[Insert Table 6 around here.]

4.4.2. Real-option channel

We further explore the real-option channel in this section. First, we consider the direct impact of monetary policy uncertainty on corporate investments. The theoretical analysis predicts that monetary policy uncertainty would make firms more willing to delay investments. In this case, the increase in cash holdings during the period of heightened monetary policy uncertainty might be attributed to the reduction in investments rather than the increased financial frictions. If the baseline results are mainly driven by the real-option channel, we should observe a significant negative relationship between monetary policy uncertainty and corporate investments (Husted et al., 2020). We construct the following regression model to implement this test:

$$Invest_{i,t+1} = \beta_0 + \beta_1 MPU_t + \gamma Controls_{i,t} + \lambda Macro_t + \upsilon_t + \mu_i + \epsilon_{i,t}, \quad (7)$$

the main coefficient of interest is β_1. An insignificant β_1 would indicate that the increase in monetary policy uncertainty doesn't contribute to the decline in corporate investments. Table 7 presents the results of corporate investments. For all results, the coefficients on MPU are not statistically significant at the 10% level. The empirical results show that monetary policy uncertainty has no impact on corporate investments, which does not support the real-option theory.

[Insert Table 7 around here.]

Second, we examine the effect of monetary policy uncertainty on the sum of changes in cash and in investments. Following Duong et al. (2020), we regress the change in cash ($\Delta Cash$), the change in investments ($\Delta Invest$), and the sum of the change in cash and in investments ($\Delta Cash + \Delta Invest$) on the monetary policy uncertainty index. Table 7 tabulates the results. The coefficients on MPU are positively statistically significant at the 1% level in regressions of $\Delta Cash$ and $\Delta Cash + \Delta Invest$, but are not statistically significant at the 10% level in regressions of $\Delta Invest$. What we find suggests that monetary policy uncertainty increases cash holdings regardless of the change in investments, which indicates that the real-option theory is not supported.

[Insert Table 8 around here.]

4.5. Heterogeneity analyses

In the previous sections, we have shown that firms' precautionary behavior in cash holdings is mostly attributed to the increase in financial frictions

rather than the reduction in corporate investments. We further utilize cross-sectional heterogeneity tests to confirm the financial-friction theory.

4.5.1. Finance constraints

First, we investigate how the effect of monetary policy uncertainty on corporate cash holdings varies cross-sectionally with firm-specific characteristics that capture financial constraints. We construct a regression model as follows:

$$\begin{aligned} Cash_{i,t+1} =& \beta_0 + \beta_1 MPU_t + \beta_2 MPU_t \times FC_{i,t} + \beta_3 FC_{i,t} + \gamma Controls_{i,t} \\ &+ \lambda Macro_t + \upsilon_t + \mu_i + \epsilon_{i,t}, \end{aligned} \tag{8}$$

where $FC_{i,t}$ is the proxy for financial constraints. We construct two firm-specific indexes of the severity of financial constraints, i.e. SA (Hadlock and Pierce, 2010) and Tangibility (Almeida and Campello, 2007), to explore the effect of financial constraints. A higher SA index or a lower tangibility indicates more severe financial constraints. In this section, we use the dummy variables indicating firms with higher SA index ($High_{SA}$) and tangibility ($High_{Tangibility}$) as the proxy for financial constraints. Based on financial-friction theory, we expect β_2 to be positive when financial constraints are measured as SA index and to be negative when financial constraints are measured as tangibility, which indicates that the positive impact of monetary policy uncertainty on cash holdings is stronger for firms with more severe financial constraints.

Table 9 reports the results of the moderation effect of financial constraints. We find that monetary policy uncertainty has a greater promoting effect on cash holdings for firms with tighter financial constraints, which provides evidence for the financial-friction theory. Using the value of SA and tangibility as the proxy for financial constraints does not affect our results.

[Insert Table 9 around here.]

4.5.2. External financing dependence

Second, we examine the cross-sectional variation in the effect of monetary policy uncertainty on corporate cash holdings with different dependence on external financing. We predict that firms with higher external finance dependence would be more vulnerable to monetary policy uncertainty. We replace the proxy for financial constraints (FC) in equation (8) with $High_{EFD}$, which is a dummy variable indicating firms with higher external finance dependence based on industry-level external finance dependence following Hsu

et al. (2014). We expect β_2 to be positive, which indicates that the positive impact of monetary policy uncertainty on cash holdings is stronger for firms with higher external finance dependence.

Table 10 column (1) and (3) report the results of the moderation effect of external finance dependence. We find that monetary policy uncertainty has a greater promoting effect on cash holdings for firms with higher external finance dependence, which also supports the financial-friction theory.

[Insert Table 10 around here.]

4.5.3. Ownership type

Third, to examine the cross-sectional variation in the effect of monetary policy uncertainty on corporate cash holdings between state-owned firms (SOEs) and private firms (non-SOEs), we replace the proxy for financial constraints (FC) in equation (8) with SOE. SOE is an indicator variable equal to one if the controlling shareholder is a state-owned enterprise or government agency, in which case we refer to the firm as an SOE; otherwise, we refer to it as a private (non-SOE) firm (Chen et al., 2012). Given that most of the banks in China are state-owned, they have better channels for obtaining credit information of SOEs and might win the perks generated by loans, excluding the ideological preferences (Berger et al., 2009; Bonin et al., 2005; Hasan et al., 2009). Moreover, the SOEs are generally less risky due to the soft budget constraint (Lin and Tan, 1999; Dong and Putterman, 2003; Kornai et al., 2003). Therefore, better access to bank loans shields the SOEs from fluctuations in uncertainty and decreases their precautionary behavior (Brandt and Li, 2003; Favara et al., 2021). We expect β_2 to be negative, which indicates that the positive impact of monetary policy uncertainty on cash holdings is weaker for SOEs.

Table 10 column (2) and (4) report the results of the moderation effect of ownership type. We find that monetary policy uncertainty has a weaker promoting effect on cash holdings for SOEs, supporting the financial-friction theory.

4.5.4. Bank lending

We further examine the cross-sectional variation in the effect of monetary policy uncertainty on corporate cash holdings with different levels of bank lending. We predict that firms with higher level of bank lending would be less vulnerable to monetary policy uncertainty, because they have better access to bank financing. We replace the proxy for financial constraints (FC) in

equation (8) with $High_{BK}$, which is a dummy variable indicating firms with higher bank loan-to-asset ratio, which is calculated as the total bank loan divided by total asset[3]. We expect β_2 to be negative, which indicates that the positive impact of monetary policy uncertainty on cash holdings is weaker for firms with better access to bank financing.

Table 11 reports the results of the moderation effect of bank loan. We find that monetary policy uncertainty has a weaker promoting effect on cash holdings for firms with better access to bank financing, supporting the financial-friction theory. These results, combined with the findings from Fu and Luo (2021) that monetary policy uncertainty has a negative effect on bank leverage, also indicates one characteristic of monetary policy uncertainty: Monetary policy uncertainty does increase the financial frictions in the financial system. This might be one possible difference between monetary policy uncertainty and the general economic policy uncertainty which could affect the entire economy.

[Insert Table 11 around here.]

4.5.5. Monetary policy shocks

Finally, we examine how the effect of monetary policy uncertainty on corporate cash holdings varies during different monetary policy periods. We focus on the differences between periods of monetary policy tightening and easing. We use the differences between the real values and predicted values of $M2$ and $ILR1$, where the predicted values of $M2$ and $ILR1$ are calculated during the construction of monetary policy uncertainty, to proxy the monetary policy shocks. Higher unanticipated M2 growth indicates the periods of monetary policy easing while higher unanticipated interbank offered rate growth indicates the periods of monetary policy tightening. We replace the proxy for financial constraints (FC) in equation (8) with $High_{M2}$ and $High_{ILR1}$, which are dummy variables indicating periods with higher unanticipated M2 growth and interbank offered rate. We expect β_2 of $MPU \times High_{M2}$ to be negative and β_2 of $MPU \times High_{ILR1}$ to be positive, which indicates that the positive impact of monetary policy uncertainty on cash holdings is stronger during the periods of monetary policy tightening.

Table 12 reports the results of the moderation effect of monetary policy

[3]The bank lending data is obtained from the Chinese Research Data Services Platform (CNRDS) database.

shocks. We find that monetary policy uncertainty has a stronger promoting effect on cash holdings during the periods of monetary policy tightening, supporting the financial-friction theory.

[Insert Table 12 around here.]

5. Conclusion

In this paper, we investigate the micro effect of monetary policy uncertainty on corporate cash holdings. We construct one measure about monetary policy uncertainty based on Jurado et al. (2015) and Wang et al. (2019). Using a sample of Chinese-listed nonfinancial firms from 2007Q1 to 2021Q4, we examine the relation between monetary policy uncertainty and corporate cash holdings. We document that monetary policy uncertainty increases the precautionary propensity of the firms to hold cash. The empirical results also suggest that the uncertainty regarding monetary policy is vastly more significant than monetary policy itself in determining cash levels of firms. Our results are robust to the alternative specifications of the models and including text-based uncertainty index according to Baker et al. (2016) and Huang and Luk (2020).

We also find that monetary policy uncertainty increases the value of cash and the financing costs of firms while having no influence on corporate investments. This indicates that the increase in cash holdings during the period of heightened monetary policy uncertainty could mostly be attributed to the increase in financial frictions rather than the reduction in corporate investments. The heterogeneity analyses, which further support the financial-friction theory, show that the effect of monetary policy uncertainty on cash holdings is stronger for non-SOEs and firms with more severe financial constraints or higher dependence on external finance or worse access to bank financing. The increase in cash holdings is more pronounced during the period of monetary policy tightening.

Our paper unveils that monetary policy uncertainty could increase the financing costs and enhance the firm's precautionary propensity, which, in turn, reinforces the credit channel theory of monetary policy. What we find also provides micro-level evidence for the influence of monetary policy uncertainty. Furthermore, our paper differs from the extant papers by utilizing unpredictability-based measures instead of text-based measures. The focus on the uncertainty about monetary policy rather than the general economic

policy helps shed light on the mechanisms behind the uncertainty more precisely.

Finally and more broadly, this paper furthers the understanding of the development of Chinese financial markets. A majority of the literature demonstrates the unique institutional settings in China (Allen et al., 2005; Jiang et al., 2010; Ayyagari et al., 2010; Chen et al., 2018; Allen et al., 2019). Different from well-developed countries with fully fledged financial markets, the mechanisms through which monetary policy uncertainty influences the firm-level responses are mainly financial-friction channel rather than both financial-friction channel and real-option channel as seen in U.S. (Husted et al., 2020). This paper delivers extra insights into the role of monetary policy uncertainty in a transitioning economy and may motivate studies in countries with various constitutional structures, legal systems, and fiscal and monetary policies.

References

Abel, A.B., Eberly, J.C., 1996. Optimal investment with costly reversibility. The Review of Economic Studies 63, 581–593. doi:10.2307/2297794.

Acharya, V.V., Eisert, T., Eufinger, C., Hirsch, C., 2019. Whatever it takes: The real effects of unconventional monetary policy. The Review of Financial Studies 32, 3366–3411. doi:10.1093/rfs/hhz005.

Allen, F., Qian, J., Qian, M., 2005. Law, finance, and economic growth in China. Journal of Financial Economics 77, 57–116. doi:10.1016/j.jfineco.2004.06.010.

Allen, F., Qian, Y., Tu, G., Yu, F., 2019. Entrusted loans: A close look at China's shadow banking system. Journal of Financial Economics 133, 18–41. doi:10.1016/j.jfineco.2019.01.006.

Almeida, H., Campello, M., 2007. Financial constraints, asset tangibility, and corporate investment. The Review of Financial Studies 20, 1429–1460. doi:10.1093/rfs/hhm019.

Aor, R.L., Salisu, A.A., Okpe, I.J., 2021. The effects of U.S. monetary policy uncertainty shock on international equity markets. Annals of Financial Economics 16, 1–14. doi:10.1142/S2010495221500184.

Arellano, C., Bai, Y., Kehoe, P.J., 2016. Financial Frictions and Fluctuations in Volatility. Working Paper 22990. National Bureau of Economic Research. doi:10.3386/w22990.

Ayyagari, M., Demirgüç-Kunt, A., Maksimovic, V., 2010. Formal versus informal finance: Evidence from China. The Review of Financial Studies 23, 3048–3097. doi:10.1093/rfs/hhq030.

Baker, S.R., Bloom, N., Davis, S.J., 2016. Measuring economic policy uncertainty. The Quarterly Journal of Economics 131, 1593–1636. doi:10.1093/qje/qjw024.

Baker, S.R., Bloom, N., Davis, S.J., Kost, K., Sammon, M., Viratyosin, T., 2020. The unprecedented stock market reaction to covid-19. The Review of Asset Pricing Studies 10, 742–758. doi:10.1093/rapstu/raaa008.

Bates, T.W., Kahle, K.M., Stulz, R.M., 2009. Why do U.S. firms hold so much more cash than they used to? The Journal of Finance 64, 1985–2021. doi:10.1111/j.1540-6261.2009.01492.x.

Bauer, M.D., Lakdawala, A., Mueller, P., 2021. Market-based monetary policy uncertainty. The Economic Journal 132, 1290–1308. doi:10.1093/ej/ueab086.

Berger, A.N., Guedhami, O., Kim, H.H., Li, X., 2022. Economic policy uncertainty and bank liquidity hoarding. Journal of Financial Intermediation 49, 100893. doi:10.1016/j.jfi.2020.100893.

Berger, A.N., Hasan, I., Zhou, M., 2009. Bank ownership and efficiency in China: What will happen in the world's largest nation? Journal of Banking & Finance 33, 113–130. doi:10.1016/j.jbankfin.2007.05.016.

Bernanke, B.S., 1983. Irreversibility, uncertainty, and cyclical investment. The Quarterly Journal of Economics 98, 85–106. doi:10.2307/1885568.

Bernanke, B.S., Blinder, A.S., 1988. Credit, Money, and Aggregate Demand. Working Paper 2534. National Bureau of Economic Research. doi:10.3386/w2534.

Bernanke, B.S., Blinder, A.S., 1992. The federal funds rate and the channels of monetary transmission. American Economic Review 82, 901–921.

Bernanke, B.S., Gertler, M., 1989. Agency costs, net worth, and business fluctuations. American Economic Review 79, 14–31.

Bernanke, B.S., Gertler, M., 1995. Inside the black box: The credit channel of monetary policy transmission. Journal of Economic Perspectives 9, 27–48. doi:10.1257/jep.9.4.27.

Bloom, N., 2009. The impact of uncertainty shocks. Econometrica 77, 623–685. doi:10.3982/ECTA6248.

Bonin, J.P., Hasan, I., Wachtel, P., 2005. Bank performance, efficiency and ownership in transition countries. Journal of Banking & Finance 29, 31–53. doi:10.1016/j.jbankfin.2004.06.015.

Bougheas, S., Mizen, P., Yalcin, C., 2006. Access to external finance: Theory and evidence on the impact of monetary policy and firm-specific characteristics. Journal of Banking & Finance 30, 199–227. doi:10.1016/j.jbankfin.2005.01.002.

Brandt, L., Li, H., 2003. Bank discrimination in transition economies: Ideology, information, or incentives? Journal of Comparative Economics 31, 387–413. doi:10.1016/S0147-5967(03)00080-5.

Chadwick, M.G., 2019. Dependence of the "fragile five" and "troubled ten" emerging market financial systems on US monetary policy and monetary policy uncertainty. Research in International Business and Finance 49, 251–268. doi:10.1016/j.ribaf.2019.04.002.

Chen, H., Tillmann, P., 2021. Monetary policy uncertainty in China. Journal of International Money and Finance 110, 102309. doi:10.1016/j.jimonfin.2020.102309.

Chen, K., Ren, J., Zha, T., 2018. The nexus of monetary policy and shadow banking in China. American Economic Review 108, 3891–3936. doi:10.1257/aer.20170133.

Chen, Q., Chen, X., Schipper, K., Xu, Y., Xue, J., 2012. The sensitivity of corporate cash holdings to corporate governance. The Review of Financial Studies 25, 3610–3644. doi:10.1093/rfs/hhs099.

Ciccarelli, M., Maddaloni, A., Peydró, J.L., 2015. Trusting the bankers: A new look at the credit channel of monetary policy. Review of Economic Dynamics 18, 979–1002. doi:10.1016/j.red.2014.11.002.

Creal, D.D., Wu, J.C., 2017. Monetary policy uncertainty and economic fluctuations. International Economic Review 58, 1317–1354. doi:10.1111/iere.12253.

Custódio, C., Metzger, D., 2014. Financial expert CEOs: CEO's work experience and firm's financial policies. Journal of Financial Economics 114, 125–154. doi:10.1016/j.jfineco.2014.06.002.

De Pooter, M., Favara, G., Modugno, M., Wu, J., 2021. Monetary policy uncertainty and monetary policy surprises. Journal of International Money and Finance 112, 102323. doi:10.1016/j.jimonfin.2020.102323.

De Simone, L., Piotroski, J.D., Tomy, R.E., 2019. Repatriation taxes and foreign cash holdings: The impact of anticipated tax reform. The Review of Financial Studies 32, 3105–3143. doi:10.1093/rfs/hhy124.

Demir, E., Ersan, O., 2017. Economic policy uncertainty and cash holdings: Evidence from BRIC countries. Emerging Markets Review 33, 189–200. doi:10.1016/j.ememar.2017.08.001.

Dittmar, A., Mahrt-Smith, J., 2007. Corporate governance and the value of cash holdings. Journal of Financial Economics 83, 599–634. doi:10.1016/j.jfineco.2005.12.006.

Dixit, R.K., Pindyck, R.S., 1994. Investment under Uncertainty. Princeton University Press. doi:10.1515/9781400830176.

Dong, X.Y., Putterman, L., 2003. Soft budget constraints, social burdens, and labor redundancy in China's state industry. Journal of Comparative Economics 31, 110–133. doi:10.1016/S0147-5967(02)00012-4.

Drechsler, I., Savov, A., Schnabl, P., 2018. A model of monetary policy and risk premia: A model of monetary policy and risk premia. The Journal of Finance 73, 317–373. doi:10.1111/jofi.12539.

Duong, H.N., Nguyen, J.H., Nguyen, M., Rhee, S.G., 2020. Navigating through economic policy uncertainty: The role of corporate cash holdings.

Journal of Corporate Finance 62, 101607. doi:10.1016/j.jcorpfin.2020.101607.

Ehrmann, M., Fratzscher, M., 2004. Taking stock: Monetary policy transmission to equity markets. Journal of Money, Credit, and Banking 36, 719–737. doi:10.1353/mcb.2004.0063.

Ellingsen, T., Söderström, U., 2001. Monetary policy and market interest rates. American Economic Review 91, 1594–1607. doi:10.1257/aer.91.5.1594.

Fama, E.F., French, K.R., 1993. Common risk factors in the returns on stocks and bonds. Journal of Financial Economics 33, 3–56. doi:10.1016/0304-405X(93)90023-5.

Faulkender, M.W., Hankins, K.W., Petersen, M.A., 2019. Understanding the rise in corporate cash: Precautionary savings or foreign taxes. The Review of Financial Studies 32, 3299–3334. doi:10.1093/rfs/hhz003.

Faulkender, M.W., Wang, R., 2006. Corporate financial policy and the value of cash. The Journal of Finance 61, 1957–1990. doi:10.1111/j.1540-6261.2006.00894.x.

Favara, G., Gao, J., Giannetti, M., 2021. Uncertainty, access to debt, and firm precautionary behavior. Journal of Financial Economics 141, 436–453. doi:10.1016/j.jfineco.2021.04.010.

Fazzari, S.M., Hubbard, R.G., Petersen, B.C., Blinder, A.S., Poterba, J.M., 1988. Financing constraints and corporate investment. Brookings Papers on Economic Activity 1988, 141–206. doi:10.2307/2534426.

Fernández-Villaverde, J., Guerrón-Quintana, P., Rubio-Ramírez, J.F., Uribe, M., 2011. Risk matters: The real effects of volatility shocks. American Economic Review 101, 2530–2561. doi:10.1257/aer.101.6.2530.

Foley, C.F., Hartzell, J.C., Titman, S., Twite, G., 2007. Why do firms hold so much cash? A tax-based explanation. Journal of Financial Economics 86, 579–607. doi:10.1016/j.jfineco.2006.11.006.

Francis, B.B., Hasan, I., Zhu, Y., 2014. Political uncertainty and bank loan contracting. Journal of Empirical Finance 29, 281–286. doi:10.1016/j.jempfin.2014.08.004.

Fu, B., Luo, D., 2021. Monetary policy uncertainty and bank leverage: Evidence from china. Economics Letters 203, 109866. doi:10.1016/j.econlet.2021.109866.

Gao, H., Wen, H., Wang, X., 2022. Pandemic effect on corporate financial asset holdings: Precautionary or return-chasing? Research in International Business and Finance 62, 101750. doi:10.1016/j.ribaf.2022.101750.

Gilchrist, S., Sim, J.W., Zakrajšek, E., 2014. Uncertainty, Financial Frictions, and Investment Dynamics. Working Paper 20038. National Bureau of Economic Research. doi:10.3386/w20038.

Goodell, J.W., Goyal, A., Urquhart, A., 2021. Uncertainty of uncertainty and firm cash holdings. Journal of Financial Stability 56, 100922. doi:10.1016/j.jfs.2021.100922.

Graham, J.R., Leary, M.T., 2018. The evolution of corporate cash. The Review of Financial Studies 31, 4288–4344. doi:10.1093/rfs/hhy075.

Greenspan, A., 2003. Opening remarks at "monetary policy under uncertainty". symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming. URL: https://www.federalreserve.gov/boarddocs/speeches/2003/20030829/default.htm.

Gulen, H., Ion, M., 2015. Policy uncertainty and corporate investment. The Review of Financial Studies 29, 523–564. doi:10.1093/rfs/hhv050.

Gürkaynak, R.S., Sack, B.P., Swanson, E.T., 2007. Market-based measures of monetary policy expectations. Journal of Business & Economic Statistics 25, 201–212. doi:10.1198/073500106000000387.

Hadlock, C.J., Pierce, J.R., 2010. New evidence on measuring financial constraints: Moving beyond the KZ index. The Review of Financial Studies 23, 1909–1940. doi:10.1093/rfs/hhq009.

Harford, J., 1999. Corporate cash reserves and acquisitions. The Journal of Finance 54, 1969–1997. doi:10.1111/0022-1082.00179.

Harford, J., Klasa, S., Maxwell, W.F., 2014. Refinancing risk and cash holdings: Refinancing risk and cash holdings. The Journal of Finance 69, 975–1012. doi:10.1111/jofi.12133.

Harford, J., Wang, C., Zhang, K., 2017. Foreign cash: Taxes, internal capital markets, and agency problems. The Review of Financial Studies 30, 1490–1538. doi:10.1093/rfs/hhw109.

Hasan, I., Wachtel, P., Zhou, M., 2009. Institutional development, financial deepening and economic growth: Evidence from China. Journal of Banking & Finance 33, 157–170. doi:10.1016/j.jbankfin.2007.11.016.

Herro, N., Murray, J., 2013. Dynamics of monetary policy uncertainty and the impact on the macroeconomy. Economics Bulletin 33, 257–270. doi:10.2139/ssrn.1815462.

Hsu, P.H., Tian, X., Xu, Y., 2014. Financial development and innovation: Cross-country evidence. Journal of Financial Economics 112, 116–135. doi:10.1016/j.jfineco.2013.12.002.

Hu, C., Liu, Y.J., 2015. Valuing diversity: CEOs' career experiences and corporate investment. Journal of Corporate Finance 30, 11–31. doi:10.1016/j.jcorpfin.2014.08.001.

Huang, Y., Luk, P., 2020. Measuring economic policy uncertainty in China. China Economic Review 59, 101367. doi:10.1016/j.chieco.2019.101367.

Huang, Z., Tong, C., Qiu, H., Shen, Y., 2018. The spillover of macroeconomic uncertainty between the U.S. and China. Economics Letters 171, 123–127. doi:10.1016/j.econlet.2018.07.018.

Husted, L., Rogers, J., Sun, B., 2020. Monetary policy uncertainty. Journal of Monetary Economics 115, 20–36. doi:10.1016/j.jmoneco.2019.07.009.

Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. American Economic Review 76, 323–329.

Jiang, G., Lee, C.M., Yue, H., 2010. Tunneling through intercorporate loans: The China experience. Journal of Financial Economics 98, 1–20. doi:10.1016/j.jfineco.2010.05.002.

Jurado, K., Ludvigson, S.C., Ng, S., 2015. Measuring uncertainty. American Economic Review 105, 1177–1216. doi:10.1257/aer.20131193.

Kaminska, I., Roberts-Sklar, M., 2018. Volatility in equity markets and monetary policy rate uncertainty. Journal of Empirical Finance 45, 68–83. doi:10.1016/j.jempfin.2017.09.008.

Keynes, J.M., 1936. The General Theory of Employment, Interest, and Money. 3rd ed., Macmillan Cambridge University Press, London.

Kobayashi, T., 2004. Monetary policy uncertainty and interest rate targeting. Journal of Macroeconomics 26, 725–735. doi:10.1016/j.jmacro.2003.06.004.

Kornai, J., Maskin, E., Roland, G., 2003. Understanding the soft budget constraint. Journal of Economic Literature 41, 1095–1136. doi:10.1257/jel.41.4.1095.

Kurov, A., Stan, R., 2018. Monetary policy uncertainty and the market reaction to macroeconomic news. Journal of Banking & Finance 86, 127–142. doi:10.1016/j.jbankfin.2017.09.005.

Lakdawala, A., 2021. The international spillover effects of US monetary policy uncertainty. Journal of International Economics 133, 103525. doi:10.1016/j.jinteco.2021.103525.

Li, L., Tang, Y., Xiang, J., 2020. Measuring China's monetary policy uncertainty and its impact on the real economy. Emerging Markets Review 44, 100714. doi:10.1016/j.ememar.2020.100714.

Lin, J.Y., Tan, G., 1999. Policy burdens, accountability, and the soft budget constraint. American Economic Review 89, 426–431. doi:10.1257/aer.89.2.426.

Meinen, P., Roehe, O., 2017. On measuring uncertainty and its impact on investment: Cross-country evidence from the Euro area. European Economic Review 92, 161–179. doi:10.1016/j.euroecorev.2016.12.002.

Mojon, B., Smets, F., Vermeulen, P., 2002. Investment and monetary policy in the Euro area. Journal of Banking & Finance 26, 2111–2129. doi:10.1016/S0378-4266(02)00202-9.

Mueller, P., Tahbaz-Salehi, A., Vedolin, A., 2017. Exchange rates and monetary policy uncertainty: Exchange rates and monetary policy uncertainty. The Journal of Finance 72, 1213–1252. doi:10.1111/jofi.12499.

Mumtaz, H., Zanetti, F., 2013. The impact of the volatility of monetary policy shocks. Journal of Money, Credit and Banking 45, 535–558. doi:10.1111/jmcb.12015.

Opler, T., Pinkowitz, L., Williamson, R., 1999. The determinants and implications of corporate cash holdings. Journal of Financial Economics 52, 3–46. doi:10.1016/S0304-405X(99)00003-3.

Ottonello, P., Winberry, T., 2020. Financial heterogeneity and the investment channel of monetary policy. Econometrica 88, 2473–2502. doi:10.3982/ECTA15949.

Peng, W.Q., Wei, K.J., Yang, Z., 2011. Tunneling or propping: Evidence from connected transactions in china. Journal of Corporate Finance 17, 306–325. doi:10.1016/j.jcorpfin.2010.08.002.

Phan, H.V., Nguyen, N.H., Nguyen, H.T., Hegde, S., 2019. Policy uncertainty and firm cash holdings. Journal of Business Research 95, 71–82. doi:10.1016/j.jbusres.2018.10.001.

Pittman, J.A., Fortin, S., 2004. Auditor choice and the cost of debt capital for newly public firms. Journal of Accounting and Economics 37, 113–136. doi:10.1016/j.jacceco.2003.06.005.

Rossi, B., Sekhposyan, T., 2015. Macroeconomic uncertainty indices based on nowcast and forecast error distributions. American Economic Review 105, 650–655. doi:10.1257/aer.p20151124.

Sharpe, S.A., Suarez, G.A., 2021. Why isn't business investment more sensitive to interest rates? evidence from surveys. Management Science 67, 720–741. doi:10.1287/mnsc.2019.3473.

Sinha, A., 2016. Monetary policy uncertainty and investor expectations. Journal of Macroeconomics 47, 188–199. doi:10.1016/j.jmacro.2015.12.001.

Su, X., Zhou, S., Xue, R., Tian, J., 2020. Does economic policy uncertainty raise corporate precautionary cash holdings? evidence from China. Accounting & Finance 60, 4567–4592. doi:10.1111/acfi.12674.

Tillmann, P., 2020. Monetary policy uncertainty and the response of the yield curve to policy shocks. Journal of Money, Credit and Banking 52, 803–833. doi:10.1111/jmcb.12657.

Titman, S., Wei, C., Zhao, B., 2022. Corporate actions and the manipulation of retail investors in china: An analysis of stock splits. Journal of Financial Economics 145, 762–787. doi:10.1016/j.jfineco.2021.09.018.

Wang, B., Li, L., Hao, D., 2019. Monetary policy uncertainty, default risks and macroeconomic fluctuations. Economic Research Journal (in Chinese) 54, 119–134.

Wang, H., Luo, T., Tian, G.G., Yan, H., 2020. How does bank ownership affect firm investment? Evidence from China. Journal of Banking & Finance 113, 105741. doi:10.1016/j.jbankfin.2020.105741.

Xiang, J., Li, L., 2022. Monetary policy uncertainty, debt financing cost and real economic activities: Evidence from China. International Review of Economics & Finance 80, 1025–1044. doi:10.1016/j.iref.2022.03.006.

Zhang, W., 2009. China's monetary policy: Quantity versus price rules. Journal of Macroeconomics 31, 473–484. doi:10.1016/j.jmacro.2008.09.003.

Zou, H., Adams, M.B., 2008. Debt capacity, cost of debt, and corporate insurance. Journal of Financial and Quantitative Analysis 43, 433–466. doi:10.1017/S0022109000003586.

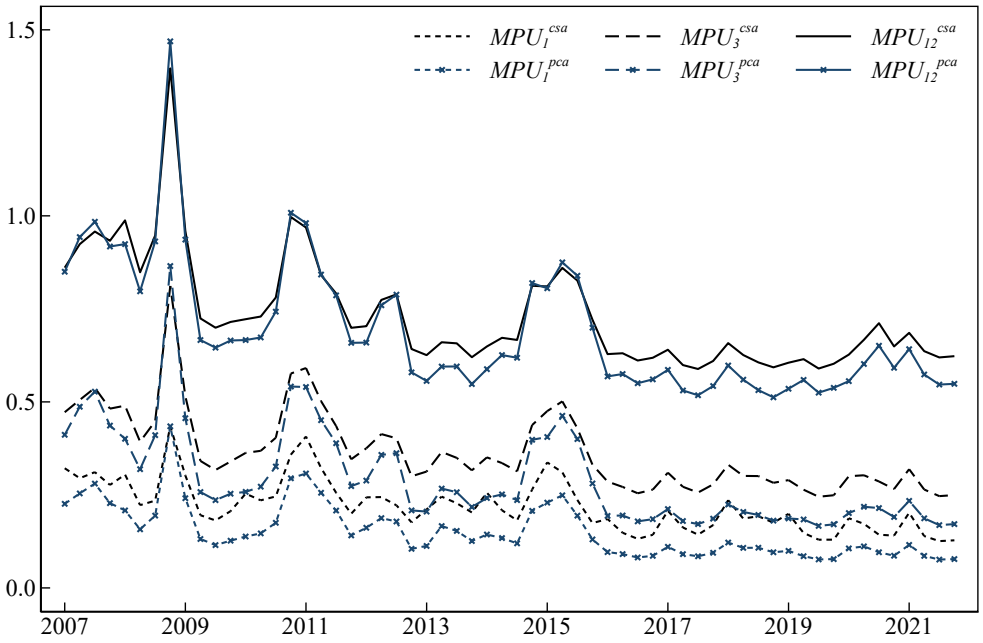

Figure 1: Monetary Policy Uncertainty in China

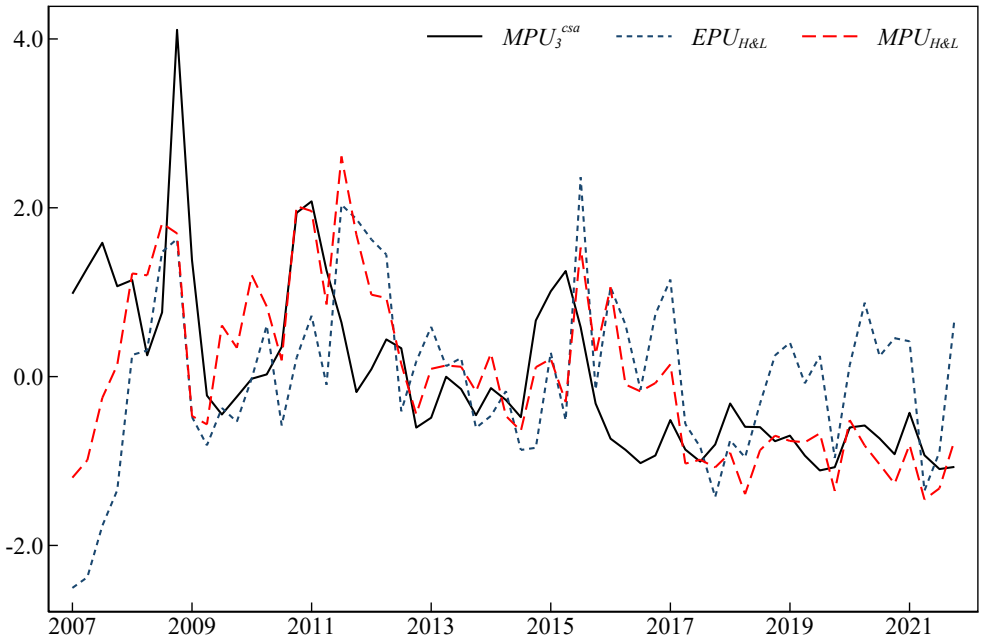

Figure 2: Monetary Policy Uncertainty and Economic Policy Uncertainty in China

Table 1: Descriptive Statistics

Variable	Obs.	Mean	Std.	Min	P25	P50	P75	Max
Panel A: Country-level variables								
MPU_1^{csa}	59	0.222	0.070	0.126	0.174	0.207	0.256	0.434
MPU_3^{csa}	59	0.368	0.108	0.245	0.286	0.336	0.435	0.812
MPU_{12}^{csa}	59	0.735	0.149	0.588	0.626	0.686	0.812	1.396
MPU_1^{pca}	59	0.153	0.072	0.076	0.096	0.130	0.194	0.434
MPU_3^{pca}	59	0.295	0.132	0.167	0.195	0.251	0.398	0.865
MPU_{12}^{pca}	59	0.695	0.178	0.512	0.560	0.642	0.805	1.469
$EPU_{H\&L}$	59	1.387	0.238	0.796	1.246	1.385	1.529	1.949
$MPU_{H\&L}$	59	1.334	0.538	0.547	0.895	1.277	1.773	2.724
EPU_{Baker}	59	3.005	2.396	0.644	1.111	2.049	4.615	8.658
GDP	59	0.118	0.059	-0.055	0.077	0.102	0.179	0.239
CCI	59	1.100	0.082	0.983	1.035	1.075	1.180	1.252
$Retsd$	59	0.186	0.036	0.129	0.160	0.177	0.209	0.281
$Profitsd$	59	1.262	0.910	0.464	0.690	0.867	1.602	4.559
$M2$	59	14.203	5.142	8.022	10.130	13.556	17.383	29.177
$ILR1$	59	3.031	0.818	1.010	2.482	3.146	3.464	4.701
Panel B: Firm-level variables								
$Cash$	124988	0.169	0.124	0.000	0.083	0.135	0.217	0.853
$Cash'$	124988	0.243	0.290	0.000	0.090	0.156	0.277	5.657
$Cash''$	124988	0.199	0.179	0.000	0.087	0.145	0.245	1.896
$Cost$	124988	0.015	0.096	-1.350	-0.001	0.030	0.059	0.271
$Invest$	124988	0.051	0.050	-0.009	0.015	0.036	0.072	0.309
$FExret$	124988	0.088	0.419	-1.827	-0.181	0.060	0.335	2.582
$Size$	124988	8.350	1.345	4.450	7.397	8.156	9.083	13.597
Age	124988	2.850	0.349	1.386	2.639	2.890	3.091	3.611
$Invest$	124988	0.051	0.050	-0.009	0.015	0.036	0.072	0.309
NWC	124988	0.052	0.217	-2.953	-0.089	0.048	0.191	0.730
Lev	124988	0.190	0.163	0.000	0.040	0.165	0.304	0.868
MB	124988	4.122	3.363	0.765	2.383	3.283	4.700	60.101
OCF	124988	0.046	0.075	-0.342	0.005	0.046	0.089	0.380
$Independ$	124988	0.374	0.054	0.222	0.333	0.333	0.429	0.600
$Board$	124988	2.256	0.181	1.792	2.079	2.303	2.303	2.890
$Dual$	124988	0.249	0.432	0.000	0.000	0.000	0.000	1.000

This table presents the descriptive statistics for the key variables in this paper. Panel A presents the descriptive statistics for country-level variables. Panel B presents the descriptive statistics for firm-level variables. Variable definitions are provided in Section 3.3.

Table 2: Monetary policy uncertainty and corporate cash holdings: baseline results

	CSA			PCA		
	(1)	(2)	(3)	(4)	(5)	(6)
MPU_1	0.020***			0.024***		
	(0.006)			(0.005)		
MPU_3		0.017***			0.013***	
		(0.004)			(0.003)	
MPU_{12}			0.014***			0.011***
			(0.003)			(0.002)
Size	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Age	-0.202***	-0.202***	-0.202***	-0.202***	-0.202***	-0.202***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Invest	-0.092***	-0.092***	-0.092***	-0.092***	-0.092***	-0.092***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
NWC	-0.092***	-0.092***	-0.092***	-0.092***	-0.092***	-0.092***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Lev	-0.197***	-0.197***	-0.197***	-0.197***	-0.197***	-0.197***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
MB	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OCF	0.095***	0.095***	0.095***	0.095***	0.095***	0.095***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Independ	-0.015	-0.015	-0.015	-0.015	-0.015	-0.015
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Board	0.002	0.002	0.002	0.002	0.002	0.002
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Dual	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
GDP	-0.013*	-0.011	-0.013*	-0.010	-0.010	-0.012
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
CCI	-0.072***	-0.068***	-0.066***	-0.069***	-0.069***	-0.068***
	(0.008)	(0.009)	(0.009)	(0.009)	(0.008)	(0.009)
Retsd	-0.053***	-0.054***	-0.056***	-0.055***	-0.057***	-0.058***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Profitsd	0.001*	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
M2	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
*ILR*1	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R^2	0.565	0.565	0.565	0.565	0.565	0.565
Observations	124988	124988	124988	124988	124988	124988

This table presents the coefficient estimates from regressions of corporate cash holdings on monetary policy uncertainty and controls. The dependent variable is $Cash_{i,t+1}$, defined as the ratio of cash to total assets for firm i in quarter $t+1$. Columns (1) to (6) present the results of using MPU_1^{csa}, MPU_3^{csa}, MPU_{12}^{csa}, MPU_1^{pca}, MPU_3^{pca}, and MPU_{12}^{pca} as proxies for monetary policy uncertainty, respectively. Control variables include firm size, firm age, investment, net working capital, leverage, Market-to-Book ratio, operating cash flows, board independence, board size, CEO duality, and six macroeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). Variable definitions are provided in Section 3.3. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table 3: Monetary policy uncertainty and corporate cash holdings: robustness tests

	(1) FE	(2) $Cash'$	(3) $Cash''$	(4) 2007-2019	(5) Recession	(6) $EPU_{H\&L}$	(7) $MPU_{H\&L}$	(8) EPU_{Baker}
Panel A: CSA								
MPU_3	0.019***	0.047***	0.028***	0.015***	0.020***	0.019***	0.019***	0.020***
	(0.003)	(0.006)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
$EPU_{H\&L}$						0.000		
						(0.001)		
$MPU_{H\&L}$							-0.000	
							(0.001)	
EPU_{Baker}								0.001**
								(0.000)
$Adj.R^2$	0.869	0.878	0.876	0.872	0.871	0.869	0.869	0.869
Panel B: PCA								
MPU_3	0.015***	0.037***	0.022***	0.010***	0.016***	0.015***	0.015***	0.016***
	(0.002)	(0.005)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
$EPU_{H\&L}$						0.000		
						(0.001)		
$MPU_{H\&L}$							-0.000	
							(0.001)	
EPU_{Baker}								0.001**
								(0.000)
$Adj.R^2$	0.869	0.878	0.876	0.872	0.871	0.869	0.869	0.869
Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm × Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	121621	121621	121621	109193	101275	121621	121621	121621

This table presents the robustness results from regressions of corporate cash holdings on monetary policy uncertainty and controls. The dependent variable is $Cash'_{i,t+1}$ in column (2), is $Cash''_{i,t+1}$ in column (3), and is$Cash_{i,t+1}$ in other columns. Panel A and B present the results of using MPU_3^{csa} and MPU_3^{pca} as proxies for monetary policy uncertainty, respectively. Control variables include firm size, firm age, investment, net working capital, leverage, Market-to-Book ratio, operating cash flows, board independence, board size, CEO duality, and six macroeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). The coefficient estimates for the control variables are not reported for brevity. Variable definitions are provided in Section 3.3. In all regressions, firm×year and firm×quarter fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table 4: Monetary policy uncertainty and the value of cash

	CSA			PCA		
	(1)	(2)	(3)	(4)	(5)	(6)
$\frac{\Delta C_t}{M_{t-1}}$	0.036*	0.016	-0.018	0.053***	0.056***	0.026
	(0.022)	(0.021)	(0.029)	(0.015)	(0.015)	(0.023)
$MPU_1 \times \frac{\Delta C_t}{M_{t-1}}$	0.322***			0.362***		
	(0.107)			(0.094)		
MPU_1	-0.218***			0.002		
	(0.027)			(0.094)		
$MPU_3 \times \frac{\Delta C_t}{M_{t-1}}$		0.254***			0.174***	
		(0.061)			(0.048)	
MPU_3		0.011			0.086***	
		(0.017)			(0.014)	
$MPU_{12} \times \frac{\Delta C_t}{M_{t-1}}$			0.173***			0.118***
			(0.042)			(0.035)
MPU_{12}			-0.005			0.045***
			(0.014)			(0.011)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
$Adj.R^2$	0.342	0.342	0.342	0.342	0.342	0.342
Observations	117737	117737	117737	117737	117737	117737

This table presents the coefficient estimates from regressions of the value of cash on monetary policy uncertainty and other explanatory variables, following Faulkender and Wang (2006) and Dittmar and Mahrt-Smith (2007). The dependent variable is $FExret$, defined as the excess stock return in the next four quarters, where the benchmark return is the value-weighted return based on market capitalization within each of the 25 benchmark portfolios formed based on size and book-to-market ratio. Columns (1) to (6) present the results of using MPU_1^{csa}, MPU_3^{csa}, MPU_{12}^{csa}, MPU_1^{pca}, MPU_3^{pca}, and MPU_{12}^{pca} as proxies for monetary policy uncertainty, respectively. Control variables are defined in Section 3.3. The coefficient estimates for the control variables are not reported for brevity. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table 5: Monetary policy uncertainty and the cost of debt

	CSA			PCA		
	(1)	(2)	(3)	(4)	(5)	(6)
MPU_1	0.042***			0.043***		
	(0.005)			(0.005)		
MPU_3		0.030***			0.025***	
		(0.003)			(0.002)	
MPU_{12}			0.028***			0.022***
			(0.002)			(0.002)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
$Adj.R^2$	0.600	0.600	0.600	0.600	0.600	0.600
Observations	124988	124988	124988	124988	124988	124988

This table presents the coefficient estimates from regressions of the cost of debt on monetary policy uncertainty and controls. The dependent variable is $Cost_{i,t+1}$, defined as financial expense scaled by average of long-term liabilities and short-term liabilities (Pittman and Fortin, 2004) for firm i in quarter $t+1$. Columns (1) to (6) present the results of using MPU_1^{csa}, MPU_3^{csa}, MPU_{12}^{csa}, MPU_1^{pca}, MPU_3^{pca}, and MPU_{12}^{pca} as proxies for monetary policy uncertainty, respectively. Control variables include firm size, firm age, investment, net working capital, leverage, Market-to-Book ratio, operating cash flows, board independence, board size, CEO duality, and six macroeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). The coefficient estimates for the control variables are not reported for brevity. Variable definitions are provided in Section 3.3. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table 6: Monetary policy uncertainty and the investment-cash flow sensitivity

	CSA			PCA		
	(1)	(2)	(3)	(4)	(5)	(6)
OCF	-0.006	-0.011	-0.031**	0.003	0.002	-0.018
	(0.009)	(0.010)	(0.015)	(0.007)	(0.007)	(0.012)
$MPU_1 \times OCF$	0.132***			0.135***		
	(0.038)			(0.040)		
MPU_1	-0.005			-0.005		
	(0.003)			(0.003)		
$MPU_3 \times OCF$		0.094***			0.074***	
		(0.027)			(0.022)	
MPU_3		-0.004*			-0.003*	
		(0.002)			(0.002)	
$MPU_{12} \times OCF$			0.074***			0.059***
			(0.021)			(0.017)
MPU_{12}			-0.003*			-0.003*
			(0.002)			(0.001)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
$Adj.R^2$	0.482	0.482	0.482	0.482	0.482	0.482
Observations	124988	124988	124988	124988	124988	124988

This table presents the coefficient estimates of the investment-cash flow sensitivity. The dependent variable is $Invest_{i,t+1}$, defined as the the capital expenditures on fixed assets, intangible assets and other long-term assets scaled by total assets for firm i in quarter $t+1$. Columns (1) to (6) present the results of using MPU_1^{csa}, MPU_3^{csa}, MPU_{12}^{csa}, MPU_1^{pca}, MPU_3^{pca}, and MPU_{12}^{pca} as proxies for monetary policy uncertainty, respectively. Control variables include firm size, firm age, net working capital, leverage, Market-to-Book ratio, board independence, board size, CEO duality, and six macroeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). The coefficient estimates for the control variables are not reported for brevity. Variable definitions are provided in Section 3.3. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table 7: Monetary policy uncertainty and corporate investments

	CSA			PCA		
	(1)	(2)	(3)	(4)	(5)	(6)
MPU_1	-0.001			-0.001		
	(0.002)			(0.002)		
MPU_3		-0.001			-0.001	
		(0.001)			(0.001)	
MPU_{12}			-0.001			-0.001
			(0.001)			(0.001)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
$Adj.R^2$	0.868	0.868	0.868	0.868	0.868	0.868
Observations	124988	124988	124988	124988	124988	124988

This table presents the coefficient estimates from regressions of corporate investments on monetary policy uncertainty and controls. The dependent variable is $Invest_{i,t+1}$, defined as the the capital expenditures on fixed assets, intangible assets and other long-term assets scaled by total assets for firm i in quarter $t+1$. Columns (1) to (6) present the results of using MPU_1^{csa}, MPU_3^{csa}, MPU_{12}^{csa}, MPU_1^{pca}, MPU_3^{pca}, and MPU_{12}^{pca} as proxies for monetary policy uncertainty, respectively. Control variables include firm size, firm age, net working capital, leverage, Market-to-Book ratio, operating cash flows, board independence, board size, CEO duality, and six macroeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). The coefficient estimates for the control variables are not reported for brevity. Variable definitions are provided in Section 3.3. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table 8: Monetary policy uncertainty and changes in cash holdings and investments

	$\Delta Cash$		$\Delta Invest$		$\Delta Cash + \Delta Invest$	
	(1) CSA	(2) PCA	(3) CSA	(4) PCA	(5) CSA	(6) PCA
MPU_3	0.012***	0.009***	-0.001	-0.001	0.011***	0.009***
	(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.002)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
$Adj.R^2$	0.161	0.161	0.076	0.076	0.145	0.145
Observations	124988	124988	124988	124988	124988	124988

This table presents the coefficient estimates from regressions of the changes in corporate cash holdings and investments on monetary policy uncertainty and controls. The dependent variable is $\Delta Cash$ in columns (1) and (2), is $\Delta Invest$ in column (3) and (4), is $\Delta Invest$ in column (5) and (6). Column (1), (3) and (5) present the results of using MPU_3^{csa} as proxy for monetary policy uncertainty. Column (2), (4) and (6) present the results of using MPU_3^{pca} as proxy for monetary policy uncertainty. Control variables include firm size, firm age, investment, net working capital, leverage, Market-to-Book ratio, operating cash flows, board independence, board size, CEO duality, and six macroeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). The coefficient estimates for the control variables are not reported for brevity. Variable definitions are provided in Section 3.3. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table 9: Monetary policy uncertainty and corporate cash holdings: financial constraints

	CSA		PCA	
	(1)	(2)	(3)	(4)
$MPU_3 \times High_{SA}$	0.120***		0.088***	
	(0.011)		(0.008)	
$High_{SA}$	-0.043***		-0.024***	
	(0.004)		(0.003)	
$MPU_3 \times High_{Tangibility}$		-0.111***		-0.088***
		(0.012)		(0.009)
$High_{Tangibility}$		-0.005		-0.020***
		(0.005)		(0.003)
MPU_3	-0.037***	0.076***	-0.026***	0.061***
	(0.006)	(0.008)	(0.005)	(0.006)
Control	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
$Adj.R^2$	0.567	0.577	0.566	0.577
Observations	124988	124988	124988	124988

This table presents the heterogeneity analysis of the promoting effect of monetary policy uncertainty with different financial constraints. The dependent variable is $Cash_{i,t+1}$, defined as the ratio of cash to total assets for firm i in quarter $t+1$. Column (1) and (2) present the results of using MPU_3^{csa} as proxy for monetary policy uncertainty. Column (3) and (4) present the results of using MPU_3^{pca} as proxy for monetary policy uncertainty. $High_{SA}$ and $High_{Tangibility}$ indicate firms with higher SA index and higher tangibility. Control variables include firm size, firm age, investment, net working capital, leverage, Market-to-Book ratio, operating cash flows, board independence, board size, CEO duality, and six macroeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). The coefficient estimates for the control variables are not reported for brevity. Variable definitions are provided in Section 3.3. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table 10: Monetary policy uncertainty and corporate cash holdings: external financing dependence and ownership

	CSA		PCA	
	(1)	(2)	(3)	(4)
$MPU_3 \times High_{EFD}$	0.032***		0.027***	
	(0.010)		(0.008)	
$High_{EFD}$	-0.011***		-0.007***	
	(0.003)		(0.002)	
$MPU_3 \times SOE$		-0.137***		-0.105***
		(0.014)		(0.011)
SOE		0.034***		0.015**
		(0.007)		(0.006)
MPU_3	-0.002	0.092***	-0.002	0.072***
	(0.007)	(0.009)	(0.006)	(0.007)
Control	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
$Adj.R^2$	0.565	0.568	0.565	0.567
Observations	124988	124988	124988	124988

This table presents the heterogeneity analysis of the promoting effect of monetary policy uncertainty with different external financing dependence or ownership type. The dependent variable is $Cash_{i,t+1}$, defined as the ratio of cash to total assets for firm i in quarter $t+1$. Column (1) and (2) present the results of using MPU_3^{csa} as proxy for monetary policy uncertainty. Column (3) and (4) present the results of using MPU_3^{pca} as proxy for monetary policy uncertainty. $High_{EFD}$ indicates firms with higher external finance dependence. SOE indicates state-owned enterprises. Control variables include firm size, firm age, investment, net working capital, leverage, Market-to-Book ratio, operating cash flows, board independence, board size, CEO duality, and six macroeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). The coefficient estimates for the control variables are not reported for brevity. Variable definitions are provided in Section 3.3. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table 11: Monetary policy uncertainty and corporate cash holdings: bank financing channel

	CSA			PCA		
	(1)	(2)	(3)	(4)	(5)	(6)
$MPU_1 \times High_{BK}$	-0.057***			-0.067***		
	(0.013)			(0.014)		
MPU_1	0.038***			0.043***		
	(0.008)			(0.007)		
$MPU_3 \times High_{BK}$		-0.040***			-0.032***	
		(0.009)			(0.007)	
MPU_3		0.028***			0.023***	
		(0.005)			(0.004)	
$MPU_{12} \times High_{BK}$			-0.020***			-0.018***
			(0.007)			(0.006)
MPU_{12}			0.020***			0.016***
			(0.004)			(0.003)
$High_{BK}$	0.005	0.007*	0.007	0.002	0.001	0.005
	(0.003)	(0.004)	(0.005)	(0.002)	(0.002)	(0.004)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
$Adj.R^2$	0.566	0.566	0.565	0.566	0.566	0.566
Observations	124988	124988	124988	124988	124988	124988

This table presents the heterogeneity analysis of the promoting effect of monetary policy uncertainty with different levels of bank loan. The dependent variable is $Cash_{i,t+1}$, defined as the ratio of cash to total assets for firm i in quarter $t+1$. Columns (1) to (6) present the results of using MPU_1^{csa}, MPU_3^{csa}, MPU_{12}^{csa}, MPU_1^{pca}, MPU_3^{pca}, and MPU_{12}^{pca} as proxies for monetary policy uncertainty, respectively. $High_{BK}$ indicates firms with higher levels of bank loan. Control variables include firm size, firm age, investment, net working capital, leverage, Market-to-Book ratio, operating cash flows, board independence, board size, CEO duality, and six macroeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). The coefficient estimates for the control variables are not reported for brevity. Variable definitions are provided in Section 3.3. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table 12: Monetary policy uncertainty and corporate cash holdings: monetary policy easing and tightening

	CSA		PCA	
	(1)	(2)	(3)	(4)
$MPU_3 \times High_{M2}$	-0.030***		-0.024***	
	(0.005)		(0.004)	
$High_{M2}$	0.014***		0.011***	
	(0.002)		(0.001)	
$MPU_3 \times High_{ILR1}$		0.019***		0.018***
		(0.004)		(0.004)
$High_{ILR1}$		-0.014***		-0.012***
		(0.002)		(0.001)
MPU_3	0.046***	0.016***	0.037***	0.012***
	(0.006)	(0.004)	(0.005)	(0.003)
Control	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
$Adj.R^2$	0.565	0.565	0.565	0.565
Observations	124988	124988	124988	124988

This table presents the heterogeneity analysis of the promoting effect of monetary policy uncertainty between periods of monetary policy tightening and easing. The dependent variable is $Cash_{i,t+1}$, defined as the ratio of cash to total assets for firm i in quarter $t+1$. Column (1) and (2) present the results of using MPU_3^{csa} as proxy for monetary policy uncertainty. Column (3) and (4) present the results of using MPU_3^{pca} as proxy for monetary policy uncertainty. $High_{M2}$ and $High_{ILR1}$ indicate periods with higher unanticipated M2 growth and interbank offered rate. Control variables include firm size, firm age, investment, net working capital, leverage, Market-to-Book ratio, operating cash flows, board independence, board size, CEO duality, and six marcoeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). The coefficient estimates for the control variables are not reported for brevity. Variable definitions are provided in Section 3.3. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

Table A1: Description of monetary policy indicators

	Indicator name	Calculation method	Variable
Monetary Policy	Money supply M0	Year on year growth	$M0$
	Money supply M1	Year on year growth	$M1$
	Money supply M2	Year on year growth	$M2$
	Required Reserve Ratio	Level value	DRR
	Rediscount Ratio	Level value	DIR
	Nominal lending rate: within 1 year	Level value	$LR1$
	Nominal lending rate: 1-5 year	Level value	$LR1$-5
	Nominal lending rate: over 5 year	Level value	$LR5$
	Household savings deposits rate: 1 year	Level value	$DR1$
	Household savings deposits rate: 2 year	Level value	$DR2$
	Household savings deposits rate: 3 year	Level value	$DR3$
	Interbank offered rate: 7 day	Level value	$ILR7$
	Interbank offered rate: 1 month	Level value	$ILR1$
	Interbank offered rate: 3 month	Level value	$ILR3$
Bond Market	Treasury bond spread: 1 year	Minus 3 month Treasury bond yield	$1y3mTS$
	Treasury bond spread: 3 year	Minus 3 month Treasury bond yield	$3y3mTS$
	Treasury bond spread: 5 year	Minus 3 month Treasury bond yield	$5y3mTS$
	Treasury bond spread: 10 year	Minus 3 month Treasury bond yield	$10y3mTS$
	3A corporate bond spread: 1 year	Minus 3 month Treasury bond yield	$10y3mCS$
	3A corporate bond spread: 3 year	Minus 3 month Treasury bond yield	$10y3mCS$
	3A corporate bond spread: 5 year	Minus 3 month Treasury bond yield	$10y3mCS$
	3A corporate bond spread: 10 year	Minus 3 month Treasury bond yield	$10y3mCS$
Stock Market	Shanghai stock exchange return	Return of SSE composite index	R_{SH}
	Shenzhen stock exchange return	Return of SZSE composite index	R_{SZ}
	Shanghai stock exchange volatility	GARCH(1,1) Conditional Std.	$SVOL_{SH}$
	Shenzhen stock exchange volatility	GARCH(1,1) Conditional Std.	$SVOL_{SZ}$
	Shanghai stock exchange turnover rate	Level value	TO_{SH}
	Shenzhen stock exchange turnover rate	Level value	TO_{SZ}
Macro Economy	Value added of industry	Year on year growth	VAI
	Leading index	Year on year growth	$MI1$
	Coincident index	Year on year growth	$MI2$
	Lagging index	Year on year growth	$MI3$
	Purchasing managers' index: manufacture	Year on year growth	PMI
	Retail sales of consumer goods	Year on year growth	SCR
	Fixed asset invest: ytd	Year on year growth	FI
Price Level	Consumer price index	Year on year growth	CPI
	Retail price index	Year on year growth	RPI
	Corporate good price	Year on year growth	FPI
	Producer price index	Year on year growth	PPI
	Producer price index: agricultural input	Year on year growth	API
Exchange Market	RMB to USD: PBC	Level value	PBC
	RMB exchange rate index: BIS	Year on year growth	BIS
Government	Government revenue	Year on year growth	GI
	Government expenditure	Year on year growth	GS

Table A2: Correlation matrix

Variables	MPU_3^{csa}	MPU_3^{pca}	$MPU_{H\&L}$	$EPU_{H\&L}$	EPU_{Baker}	$Cash$	$Size$	Age	$Invest$	NWC	Lev	MB	OCF	$Independ$	$Board$	$Dual$	GDP	CCI	$Retsd$	$Profitsd$
MPU_3^{csa}	1.000																			
MPU_3^{pca}	0.989	1.000																		
$MPU_{H\&L}$	0.626	0.608	1.000																	
$EPU_{H\&L}$	0.148	0.146	0.634	1.000																
EPU_{Baker}	-0.569	-0.529	-0.524	0.130	1.000															
$Cash$	0.037	0.033	0.084	0.059	-0.064	1.000														
$Size$	-0.133	-0.126	-0.114	-0.003	0.129	-0.170	1.000													
Age	-0.348	-0.336	-0.346	-0.042	0.384	-0.141	0.194	1.000												
$Invest$	0.110	0.105	0.111	0.035	-0.102	-0.039	-0.050	-0.217	1.000											
NWC	-0.126	-0.123	-0.104	0.003	0.114	0.013	-0.263	-0.047	-0.130	1.000										
Lev	0.102	0.098	0.085	0.001	-0.094	-0.361	0.365	0.056	0.108	-0.409	1.000									
MB	0.059	0.063	0.060	-0.011	-0.100	-0.040	-0.083	0.076	-0.079	-0.208	0.143	1.000								
OCF	-0.021	-0.016	-0.049	-0.025	0.064	0.148	0.036	-0.002	0.176	-0.185	-0.151	-0.037	1.000							
$Independ$	-0.076	-0.074	-0.064	0.003	0.076	0.002	0.023	0.016	-0.014	0.044	-0.022	0.019	-0.019	1.000						
$Board$	0.130	0.125	0.124	0.013	-0.140	-0.037	0.256	-0.027	0.042	-0.185	0.146	-0.009	0.046	-0.501	1.000					
$Dual$	-0.088	-0.085	-0.079	-0.002	0.089	0.074	-0.145	-0.052	0.055	0.132	-0.105	-0.005	-0.012	0.112	-0.186	1.000				
GDP	0.436	0.417	0.355	-0.091	-0.470	0.027	-0.106	-0.268	0.092	-0.106	0.073	0.020	-0.024	-0.065	0.101	-0.069	1.000			
CCI	-0.469	-0.452	-0.694	-0.293	0.750	-0.099	0.115	0.368	-0.100	0.100	-0.081	-0.095	0.055	0.066	-0.131	0.077	-0.154	1.000		
$Retsd$	0.152	0.208	-0.184	-0.175	0.037	-0.078	0.024	0.079	-0.045	-0.024	0.003	0.074	0.041	0.004	-0.019	-0.000	-0.064	0.126	1.000	
$Profitsd$	-0.016	0.026	-0.114	-0.017	0.216	0.033	0.006	0.001	-0.010	0.000	-0.013	-0.020	0.037	0.002	-0.010	0.010	-0.132	0.111	-0.000	1.000

This table presents the correlation matrix of variables used in the baseline regressions. The sample and variable definitions are as described in Section 3.

Table A3: MPU and corporate cash holdings: measurement of Huang and Luk (2020)

	(1)	(2)	(3)	(4)
$MPU_{H\&L}$	0.021***	0.009***	0.006***	0.003***
	(0.002)	(0.001)	(0.001)	(0.001)
Firm Control		Yes		Yes
Marco Control		Yes		Yes
Firm FE			Yes	Yes
Year FE			Yes	Yes
Quarter FE			Yes	Yes
$Adj.R^2$	0.008	0.179	0.522	0.565
Observations	124988	124988	124988	124988

This table presents the coefficient estimates from regressions of corporate cash holdings on monetary policy uncertainty. The dependent variable is $Cash_{i,t+1}$, defined as the ratio of cash to total assets for firm i in quarter $t+1$. The monetary policy uncertainty $MPU_{H\&L}$ is based on Huang and Luk (2020). Control variables include firm size, firm age, investment, net working capital, leverage, Market-to-Book ratio, operating cash flows, board independence, board size, CEO duality, and six macroeconomic variables (GDP growth, consumer confidence index, volatility of the firms' earnings growth, volatility of stock returns, M2 growth, and 1 month interbank offered rate). The coefficient estimates for the control variables are not reported for brevity. Variable definitions are provided in Section 3. In all regressions, year-, quarter- and firm-fixed effects are included. The standard errors clustered at firm level are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.