Firm-Level Risk Perceptions and the Transmission of Monetary Policy Shocks

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Abstract

This paper examines how firm-level perceived risks shape the transmission of monetary policy shocks, leveraging risk measures derived from corporate earnings call transcripts. By distinguishing between Political and Non-Political Risks, the analysis reveals that firms perceiving higher risks reduce capital accumulation in response to expansionary monetary policy shocks. Risks tied to technology, environmental policies, and taxation significantly dampen investment responses, while trade and institutional risks show limited effects. These findings underscore the importance of firm-level heterogeneity in monetary policy frameworks and suggest that central banks can enhance policy effectiveness by monitoring firm-specific risk indicators.

JEL Classification: D8, E52, E22, E44, E58, G30.
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1 Introduction

The role of risk in shaping firm decision-making has been central to economic thought since Keynes (1936), who linked investment behavior under uncertainty to "animal spirits." Over time, uncertainty has been recognized as a factor influencing business cycle fluctuations (Bloom et al. (2007); Bloom (2009)), with its impact evident during major economic events like the 2007–2009 global financial crisis. While much of the existing literature has explored the macroeconomic implications of uncertainty, less is known about its interaction with monetary policy at the firm level (Cascaldi-Garcia et al. (2023)).

Firm-level heterogeneity affects the transmission of monetary policy. Recent studies (Ottonello and Winberry (2020); Cloyne et al. (2023); Anderson and Cesa-Bianchi (2024)) show how differences in firm characteristics influence the effects of monetary policy shocks on investment. However, these studies primarily focus on financial frictions or market-based measures of uncertainty, such as implied volatility (Lakdawala and Moreland (2023); Lakdawala and Moreland (2024)). Firms' own assessments of uncertainty, as reflected in earnings call transcripts, have received less attention in this context. This gap is important because firms' perceptions of economic risk influence their decision-making. As works like Altig et al. (2022), Kumar et al. (2023), and Fiori and Scoccianti (2023) illustrate, firm-specific uncertainty shapes strategic choices and planning.

This study contributes to the literature by showing that firms' risk perceptions influence the transmission of monetary policy shocks, with the type of risk playing a critical role in this process. Using the risk perception measures developed by Hassan et al. (2019), I analyze both Political and Non-Political Risks reflected in the earnings call transcripts of publicly traded U.S. firms. Employing the Local Projections method Jordà (2005), I find that firms' risk perceptions significantly moderate investment responses to monetary policy shocks, even after controlling for the "financial friction" channel (Gilchrist et al. (2014)). Firms with higher perceived risks exhibit weaker responses to monetary shocks, with differences in capital accumulation exceeding -0.5 percent after five to six quarters, consistent with the "wait and see" behavior associated with uncertainty (Bloom et al. (2007); Bloom (2009)). Additionally, the results indicate that risks related to technology, environmental policies, and taxation significantly dampen investment responses, while risks associated with trade, institutions, or securities show no significant effect.

By focusing on firm-level risk perceptions, this study contributes to the literature on monetary policy transmission by introducing a "Perceived Risk channel." Unlike studies that focus on aggregate or market-based measures, this paper shows how firm-specific perceptions influence macroeconomic outcomes. The findings emphasize the need to consider firm-level heterogeneity in monetary policy frameworks and suggest strategies for addressing uncertainty's impact on investment and economic activity.

2 Data

2.1 Firm-Level Uncertainty Measure

This study uses quarterly data from Q1 2002 to Q4 2018. The risk measures employed in this analysis are derived from Hassan et al. (2019), which uses textual analysis of conference calls by publicly traded firms. Natural Language Processing (NLP) techniques identify terms associated with uncertainty to develop a dictionary that categorizes risks into Political, Non-Political, and General Risk. The frequency of these terms in transcripts is used to quantify risk as the proportion of sentences containing at least one risk-related term. Political Risk reflects uncertainties related to political events, government policies, and regulations, while Non-Political Risk captures risks tied to broader economic conditions. Political Risk is further divided into categories such as "Environment," "Trade," "Institutions and Political Processes," "Tax Policy," and "Technology and Infrastructure." These measures provide a firm-level, quarterly time series of risk, enabling an analysis of how different types of uncertainty influence firm behavior and monetary policy transmission.

2.2 Firm-Level Controls and Outcome Variables

Firm-level variables are sourced from the quarterly Compustat database, which provides a comprehensive panel of publicly listed U.S. firms. The dependent variable, capital accumulation (investment), is calculated using the perpetual inventory method, following Ottonello and Winberry (2020) and Lakdawala and Moreland (2024). Control variables, also derived from Compustat, include market capitalization, price-to-cost margin, receivables-minus-payables to sales, liquidity, dividend payer status, firm size, sales growth, Tobin's Q, fiscal quarter, leverage, firm age, the depreciation-to-assets ratio, and distance to default. Additionally, implied volatility (sourced from OptionMetrics) and realized volatility (from CRSP) are included to account for broader financial market dynamics that may influence the transmission of monetary policy.

2.3 Monetary Policy Shocks

This study employs the short-term monetary policy shock identified by Jarociński (2024), which is calculated using the daily change in federal funds futures on FOMC announcement days. This identification strategy offers a significant advantage; the shock is orthogonal to other types of monetary policy actions, such as unconventional measures like Quantitative Easing or Forward Guidance, that may have occurred during the analysis period. Moreover, the shock is designed to be free from potential information effects embedded in monetary policy announcements, enabling a more precise estimation of how risk perceptions influence the transmission of monetary policy. To align with the quarterly firm-level data, these high-frequency shocks are aggregated to a quarterly frequency by summing all daily shocks within each quarter. This approach, commonly adopted in the literature, ensures consistency and facilitates the analysis of monetary policy effects on firm behavior.

3 Methodology

To quantify the dynamic responses of firm investment to monetary policy shocks, I employ the Local Projections framework introduced by Jordà (2005). This approach offers flexibility in estimating impulse response functions without imposing restrictive parametric assumptions. Following the methodologies of Ottonello and Winberry (2020) and Lakdawala and Moreland (2024), the primary specification interacts monetary policy shocks with firm-level risk measures to assess their combined effects on capital accumulation:

$$\begin{aligned}\Delta_h \log(k_{i,t+h}) = \alpha_i^h + \alpha_{st}^h + \beta^h \text{MPS}_t \times \text{Perceived Risk}_{i,t-1} \\ + \delta^h \text{MPS}_t + \gamma^h \text{Perceived Risk}_{i,t-1} + \Gamma_z^h Z_{i,t-1} + \epsilon_{i,t}^h\end{aligned} \tag{1}$$

Where $\Delta_h \log(k_{i,t+h}) \equiv \log(k_{i,t+h}) - \log(k_{i,t-1})$ represents the cumulative change in physical capital stock. The term α_i^h denotes firm fixed effects, while α_{st}^h captures sector-time fixed effects. The monetary policy shock MPS_t is derived from Jarociński (2024), aggregated to a quarterly frequency, and multiplied by -1 to facilitate interpretation as an expansionary shock. The firm-level perceived risk measure Perceived $\text{Risk}_{i,t-1}$ is sourced from Hassan et al. (2019), including Political and Non-Political Risks, as well as subcategories of Political Risk (e.g., technology, environment, and taxation). Following Lakdawala and Moreland (2024), the perceived risk measure is standardized such that a value of 0 represents the 30th percentile (low Risk Perception) and a value of 1 represents the 70th percentile (high Risk Perception).

Firm-level control variables $Z_{i,t-1}$ include a comprehensive set of financial and operational indicators: sales growth, asset value, liquidity ratio, price-to-cost margin, receivables minus payables, depreciation-to-assets ratio, log of market capitalization, Tobin's Q, leverage ratio, firm age, and distance to default, as well as indicators for sector and fiscal quarter. To account for other channels of monetary policy transmission, I also include measures of implied and realized volatility. Additionally, firm-level sentiment perceptions, as calculated by Hassan et al. (2019), are incorporated to control mean effects and to ensure that the results are attributable to second-moment effects (i.e., risk).

To address potential nonlinearities in the transmission of monetary policy shocks, I include interactions between monetary policy shocks and firm-level controls, following the framework of Ottonello and Winberry (2020). This ensures that variables such as distance to default and leverage, which are critical in capturing financial frictions, are appropriately controlled. The sample comprises an average of 700 firm observations per quarter. Given the focus on the effects of conventional monetary policy shocks, the period from 2009 to 2014 is excluded from the main specification. However, the results remain robust when this period is included. Standard errors are clustered by firm and quarter.

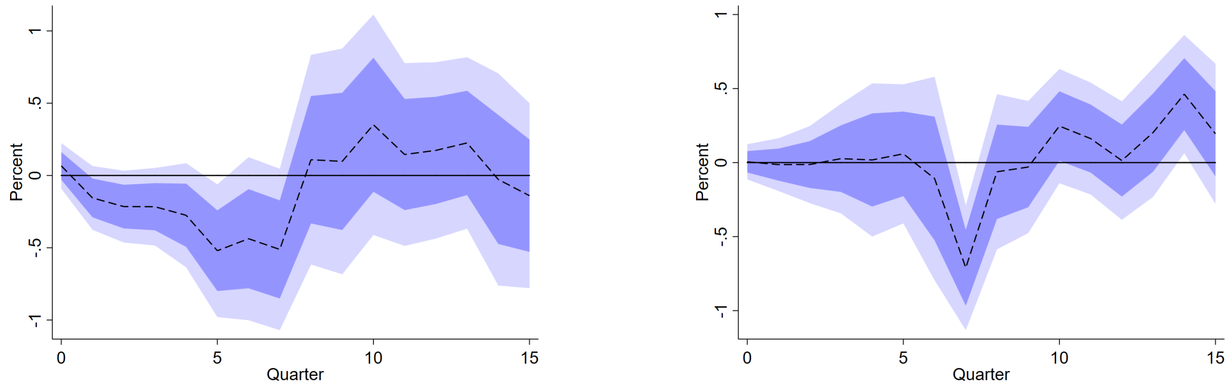
4 Results

The primary coefficient of interest, β^h, captures the differential impact of monetary policy shocks on investment dynamics between firms with low (30th percentile) and high (70th percentile) risk perceptions. Figure Figure 1 illustrates the difference in the impulse response of capital investment between these two groups.A negative value indicates that firms with higher risk perceptions accumulate less capital in response to monetary policy shocks compared to firms with lower risk perceptions.

Figure 1a focuses on Non-Political Risk, showing that firms with high levels of perceived Non-Political Risk experience a significantly muted response to monetary policy shocks. Specifically, these firms exhibit a 0.5 percentage point reduction in capital accumulation compared to low-risk firms, with the difference becoming statistically significant after five quarters.

Figure 1b presents the results for Political Risk, which reveal a similar pattern. Firms with high Political Risk perceptions exhibit a 0.7 percentage point reduction in capital accumulation relative to low-risk firms, with statistical significance observed around the seventh quarter.

These findings are consistent with the "wait and see" behavior observed in the literature, where elevated risk prompts firms to postpone investment decisions (Bloom et al. (2007); Bloom (2009)). The results also account for financial frictions by incorporating variables that capture the influence of financial constraints on monetary policy transmission. This highlights firm-level risk perceptions as a critical channel for understanding the heterogeneity in how monetary policy shocks affect investment, shedding light on the nuanced interplay between firm-specific risks and broader macroeconomic dynamics.

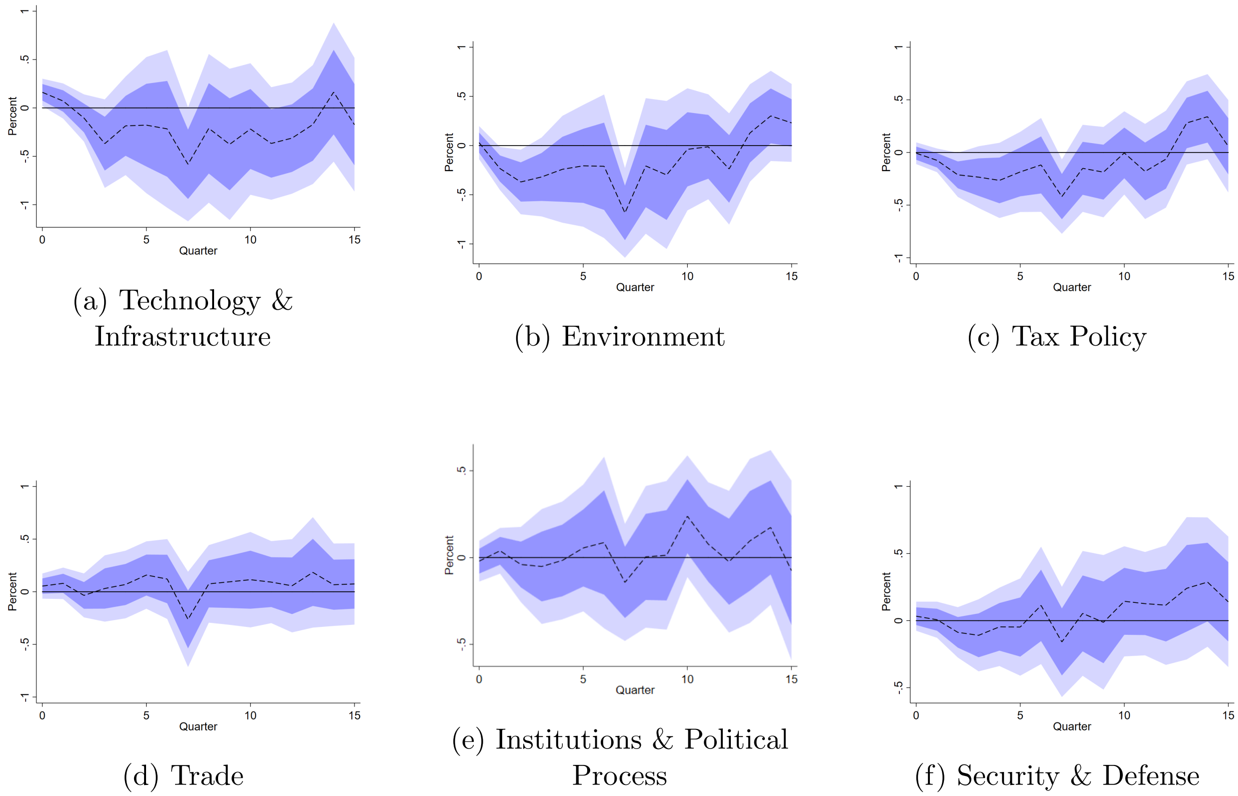


(a) Non-Political Risk (b) Political Risk

Figure 1: Firm-Level Physical Capital Response to Expansionary Monetary Shocks (High Minus Low Perceived Uncertainty)

This figure shows the response to a one-standard-deviation monetary policy shock, represented by the coefficient β^h from the specification in equation (1). Panel (a) shows the response when the interaction corresponds to the firm-level Non-Political Risk measure, while Panel (b) displays the response when the firm-level Risk Perception measure corresponds to Political Risk. The shaded areas represent the 90th and 68th percentile confidence intervals, and standard errors are two-way clustered at the firm and quarter levels.

Figure 2 illustrates the effect of different types of Political Risk perceptions on the transmission of monetary policy shocks. It is important to note that not all types of Political Risk interact in a statistically significant way with monetary policy shocks. Notably, Political Risks associated with technology, environmental policies, and taxation significantly dampen the investment response to monetary policy shocks, with statistically significant effects observed at seven quarters. For Environmental Risk, the effect is also statistically significant in the early quarters, with the impact at seven quarters reaching approximately 0.8 percentage points in the difference in investment between firms with high and low perceived risks. By contrast, Political Risks related to trade, institutions, and security do not exhibit statistically significant effects on the transmission of monetary policy shocks.



(a) Technology & Infrastructure

(b) Environment

(c) Tax Policy

(d) Trade

(e) Institutions & Political Process

(f) Security & Defense

Figure 2: Firm-Level Physical Capital Response to Expansionary Monetary Shocks Across Types of Political Risk (High Minus Low Perceived Uncertainty)

This figure shows the response to a one-standard-deviation expansionary policy shock, represented by the coefficient β^h from the specification in equation (1), using the Topic-Specific Political Risk Measures. Panel (a) corresponds to "Technology & Infrastructure," Panel (b) to "Environment, "Panel (c) to "Tax Policy," Panel (d) to "Trade," Panel (e) to "Institutions & Political Process," and Panel (f) to "Security & Defense." The shaded areas indicate the 90th and 68th percentile confidence intervals, with standard errors two-way clustered at the firm and quarter levels.

5 Conclusion

This paper shows that firm-level risk perceptions significantly influence the transmission of monetary policy shocks. Firms with heightened Political and Non-Political Risks exhibit weaker investment responses to expansionary monetary policy, with risks related to technology, environmental policies, and taxation playing a particularly important role. These results align with the "wait and see" channel, where heightened uncertainty prompts firms to delay investment decisions.

The findings highlight the importance of firm-level heterogeneity in understanding the effectiveness of monetary policy and suggest that specific risk channels warrant greater attention in policy design. Central banks could enhance their strategies by monitoring firm-specific risk indicators, as these metrics provide critical insights into the underlying drivers of investment behavior. By understanding the distribution of perceived risks across firms, policymakers can better tailor communication strategies and implement targeted measures to mitigate the adverse effects of uncertainty on investment.

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