Decoding Unconventional Monetary Policy: The Role of Firm-Level Heterogeneity*

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Abstract

This paper studies heterogeneity in firm investment responses to conventional and unconventional monetary policy, emphasizing attention and balance-sheet position. I construct a firm-level measure of attention to monetary policy using earnings conference call transcripts and combine it with conventional, Odyssean, and Delphic policy shocks identified in the literature from high-frequency asset price movements around FOMC announcements. The patterns of heterogeneity differ across shock types. Following an Odyssean easing, which reflects commitment to a future policy path, firms respond relatively more when their attention to monetary policy is high. For conventional policy and Delphic guidance, which conveys the central bank's assessment of economic fundamentals, differential responses are associated primarily with firms' balance-sheet positions, with a limited role for attention. I rationalize these findings with a framework in which firms differ in attention and financial fragility. The results highlight how the informational content of monetary policy affects heterogeneity in firm investment responses.

JEL Classification: E22, E32, E44, E52

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1 Introduction

Firms invest based on expectations about future financing costs and expected returns, not just current interest rates. A company evaluating whether to build a new plant or expand capacity must forecast borrowing conditions over the life of the investment—a horizon that typically spans several years. Monetary policy affects those expectations through two distinct channels. The first is direct: when the Federal Reserve changes the policy rate, borrowing costs adjust. The second is indirect: when the Fed communicates its intentions about the future path of rates or the economic outlook—providing forward guidance—firms can adjust their investment plans before any rate change occurs. This paper studies how these two channels operate across heterogeneous firms.

Forward guidance has become a central instrument of modern monetary policy—not only when conventional tools are constrained, but also as a complement to standard interest rate decisions. By shaping expectations about future rates and economic conditions, policy communication affects financing costs and real investment decisions. Despite its prominence, the effectiveness of forward guidance remains contested: empirical estimates vary widely, and standard models often predict effects far larger than those observed in the data, a discrepancy known as the forward guidance puzzle (Del Negro et al., 2023). Most existing evidence focuses on aggregate outcomes, leaving open the question of how monetary policy communication transmits across heterogeneous firms.

A key feature of monetary policy is that different announcements convey different types of information. Following Campbell et al. (2012, 2017), I distinguish between conventional monetary policy, Odyssean forward guidance, and Delphic forward guidance. Conventional policy refers to unexpected changes in the current policy rate. Odyssean guidance reflects a commitment to the future policy path—statements in which the Fed signals that rates will remain at a particular level for a given period regardless of near-term data. Delphic guidance, by contrast, conveys the central bank's assessment of economic fundamentals: projections of inflation, employment, and growth from which an implied rate path follows. These forms of communication are likely to operate through distinct transmission channels, with potentially different implications for firm behavior.

This paper studies the transmission of conventional and unconventional monetary policy to firm investment, with particular emphasis on forward guidance. I focus on two dimensions of heterogeneity that are central to transmission. The first is financial frictions: a firm's capacity to respond to changes in financing conditions, determined by the strength of its balance sheet. The second is attention to monetary policy: the extent to which a firm engages with central bank communication, measured by how much it discusses monetary policy. Attention matters because not all policy signals are created equal. A conventional rate change is priced into financial markets and requires no special monitoring to act on. Delphic guidance conveys the central bank's assessment of economic fundamentals. To the extent that this information is reflected in broad market prices and is also available through other economic signals, firms may gain relatively little from devoting additional attention to FOMC communication. Odyssean guidance—a commitment about the future policy path—is different. Responding to it requires a firm to understand what the central bank has said, what it implies for borrowing costs over a multi-year horizon, and whether the commitment is credible. Firms that engage more with FOMC communication are better positioned to incorporate the committed rate path into their investment decisions. Firms that do not engage with policy communication are less likely to act on a signal that is not readily available from other sources, regardless of how strong their balance sheet is.

I measure attention using earnings conference call transcripts. These calls are held quarterly, are comparable across firms and time, and reflect what managers consider most relevant to their firm's performance and outlook. A firm that devotes a larger share of its earnings call to discussing monetary policy—the Fed's intentions, the implications for borrowing costs, the expected path of rates—is likely a firm whose management has engaged with policy communication and incorporated it into their planning. A firm that does not discuss monetary policy in its earnings call may not have made that connection.

Empirically, I combine high-frequency monetary policy shocks that separately identify conventional policy, Odyssean forward guidance, and Delphic forward guidance with firm-level data on investment, balance sheets, and earnings call transcripts. I estimate local projections that allow investment responses to vary with both balance-sheet position and attention.

The results reveal that monetary policy does not transmit through a single channel. For conventional policy, differential responses run primarily through firms' balance sheets, consistent with prior evidence. For forward guidance, the pattern of heterogeneity depends on informational content. Odyssean guidance generates stronger investment responses from a firm when its attention to monetary policy is above its own average, consistent with a commitment channel operating through expectations. For Delphic guidance, in contrast, differential responses run mainly through financial frictions, with a limited role for attention. These findings indicate that the transmission of forward guidance depends not only on what the central bank communicates but also on which firms engage with the signal.

To interpret these patterns, I present a parsimonious framework in which firms differ in attention and financial fragility. The key asymmetry is informational: Odyssean commitments require understanding the institutional context of policy deliberations and are therefore costly to process, while Delphic guidance and conventional rate changes are publicly observable and immediately priced into financial markets. This asymmetry implies that attention governs the transmission of Odyssean commitments, while leverage amplifies responses to Delphic and conventional shocks through the balance sheet channel. The framework also offers a possible resolution to the forward guidance puzzle, which the within-firm estimates do not test directly: if many firms are inattentive, the aggregate investment response to Odyssean guidance reflects a weighted average across the attention distribution and can be substantially smaller than what a representative-agent model predicts.[1]

This paper contributes to three literatures. It provides firm-level evidence distinguishing the transmission of Odyssean from Delphic forward guidance, showing that the two operate along different dimensions of firm heterogeneity. It extends the literature on heterogeneous firm responses to monetary policy—which has focused on conventional rate changes (Ottonello & Winberry, 2020; Cloyne et al., 2023; Jeenas, 2023)—by showing that attention

[1]The literature offers several responses to the forward guidance puzzle. One strand restores discounting in the forward-looking IS equation through overlapping generations, incomplete markets, departures from full-information rational expectations, wealth in the utility function, or durable goods (Del Negro et al., 2023; Gabaix, 2019). A second strand attributes the muted response to imperfect central bank credibility or communication (Andrade et al., 2019; Campbell et al., 2019; Bernanke, 2020). Eggertsson & Schüle (2024) instead argue that there is no puzzle to resolve, tracing it to the assumed monetary regime rather than to the model's structure. The resolution I emphasize is distinct: the aggregate response is dampened by heterogeneity in firm attention rather than by a modification of the IS equation, the policy rule, or credibility.

and financial frictions play distinct roles depending on the nature of the shock. Finally, it contributes to the literature on rational inattention by documenting that attention governs the transmission of policy commitments but not of information-based announcements, a distinction with possible implications for the forward guidance puzzle.

The remainder of the paper is organized as follows. Section 2 reviews the related literature. Section 3 presents the data. Section 4 describes the empirical framework. Section 5 reports the main results. Section 6 presents the mechanism framework. Section 7 concludes and discusses implications for the design of forward guidance.

2 Related Literature

This paper connects to three strands of the literature: heterogeneous firm responses to monetary policy, the macroeconomic effects of forward guidance, and attention in expectations formation.

Heterogeneous firm responses to monetary policy. A large literature documents that firms' financial positions govern their investment responses to conventional monetary policy. Ottonello & Winberry (2020) find stronger responses to monetary easing among financially unconstrained firms, as measured by distance to default. Cloyne et al. (2023) show that young, financially constrained firms reduce investment more sharply following monetary tightening, while Jeenas (2023) emphasizes the role of internal liquidity. Together, these studies establish financial frictions as an important source of heterogeneity in the transmission of conventional policy. Pollio (2025) extends this evidence to central bank communication, showing that financial positions also govern firms' responses to Federal Reserve information shocks about the economic outlook. Existing work leaves open whether the same dimension of firm heterogeneity governs responses to policy announcements with different informational content. I show that it does not. Balance-sheet position governs the transmission of conventional policy and Delphic guidance, whereas attention governs firms' responses to Odyssean commitments.

Forward guidance and its macroeconomic effects. Campbell et al. (2012) distinguish between Delphic guidance, which conveys information about economic conditions, and

Odyssean guidance, which communicates commitments about future policy. Subsequent work examines the effects of forward guidance on financial markets and macroeconomic outcomes (Campbell et al., 2017; Bernanke, 2020; Andrade & Ferroni, 2021; D'Amico & King, 2023). A related literature emphasizes the role of heterogeneous beliefs and imperfect information in shaping how agents incorporate policy communication into their expectations (Andrade et al., 2019; Campbell et al., 2019). Most of this evidence concerns asset prices, professional forecasts, or aggregate outcomes, leaving less known about investment responses across firms. I provide firm-level evidence that Odyssean and Delphic guidance operate through distinct transmission channels, even when they induce similar movements in the yield curve. Similar interest-rate responses therefore need not imply similar patterns of heterogeneity in firm investment responses.

Attention and expectations formation. A large theoretical literature studies how cognitive constraints lead agents to allocate attention according to the value of information (Sims, 2003; Maćkowiak & Wiederholt, 2015; Gabaix, 2019; Afrouzi & Yang, 2021). Recent empirical work documents substantial heterogeneity in firms' attention to monetary policy and macroeconomic conditions. Song & Stern (2024) construct a text-based measure of firm attention and find that attentive firms outperform their less attentive counterparts following both expansionary and contractionary monetary policy shocks. Albrizio et al. (2025) show that attention to central bank communication increases with uncertainty and that its effects on firm behavior vary with the uncertainty environment. Flynn & Sastry (2024) document cyclical variation in aggregate attention. This literature asks whether attentive firms respond differently to monetary policy, but does not examine whether the role of attention depends on the type of policy signal. This paper draws that distinction using a measure of attention constructed from earnings conference calls. Attention governs firms' investment responses to Odyssean guidance, which requires firms to interpret a commitment about future policy, but plays a limited role in their responses to conventional policy and Delphic guidance. The findings therefore identify the informational content of the policy signal as a key determinant of when attention matters for transmission.

3 Data

3.1 Monetary Policy and Forward Guidance

Before turning to shock identification, I provide descriptive evidence on the content of FOMC communication over time. To do so, I classify forward-guidance passages in FOMC statements using a state-of-the-art large language model, which allows for a richer characterization of the informational content of Federal Reserve communications. This exercise is intended purely as motivation; the identification of conventional, Odyssean, and Delphic monetary policy shocks is described separately below.

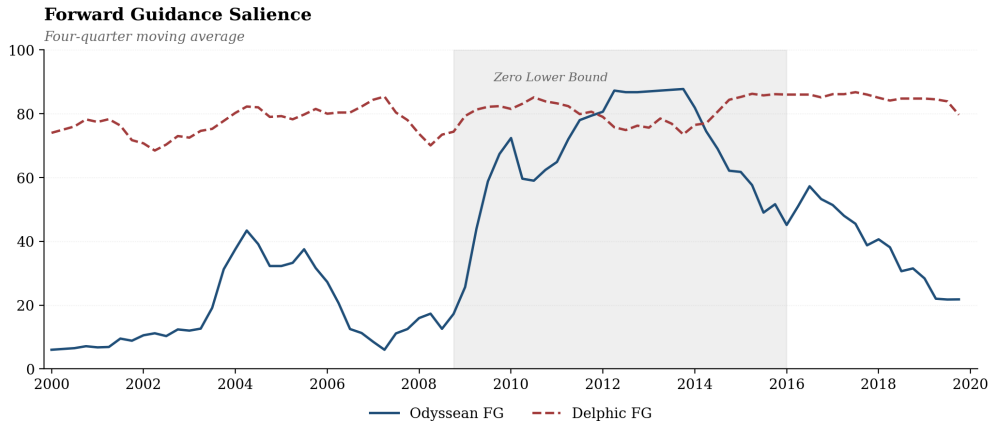
Odyssean guidance captures communication in which the Federal Reserve signals an intended future policy path or commitment-like behavior—including statements indicating that policy will remain accommodative for a given period or that rates are expected to follow a particular path based on the Committee's intended actions. Delphic guidance captures communication that conveys information about the economic outlook, where expectations about future policy are tied to projected inflation, employment, growth, or risks. Additional details on the classification procedure are provided in Appendix A.

Figure 1 reports the time series of forward guidance by type. The top panel shows the salience of each type—the extent to which it is present within individual FOMC statements, measured on a scale from 1 to 100. The bottom panel reports their relative importance, comparing the prominence of each type across documents over time.

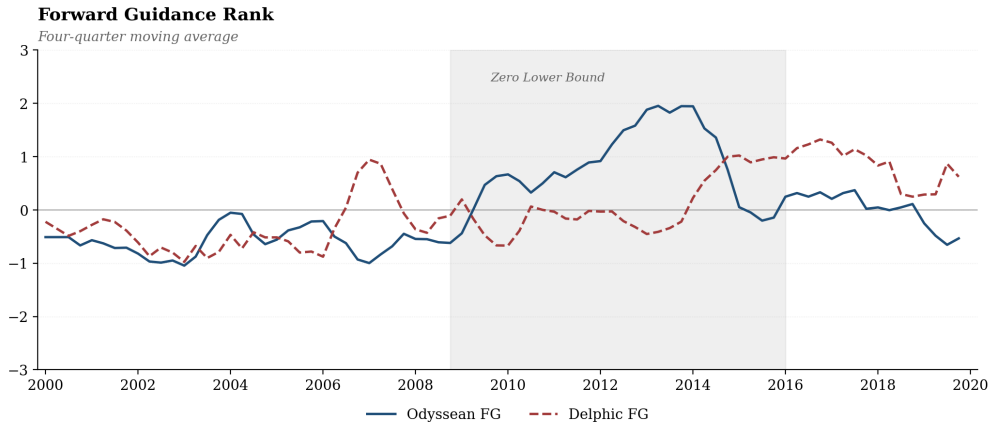
Two patterns emerge. First, Delphic guidance is consistently present throughout the sample, reflecting the Federal Reserve's ongoing communication about the economic outlook. Odyssean guidance is also visible outside the zero lower bound period, but becomes especially pronounced during it. Second, the relative importance of the two types shifts over time: Odyssean guidance gains prominence during the zero lower bound period and then recedes, while Delphic guidance is comparatively more stable. These patterns confirm that forward guidance varies in its informational content over time, motivating an empirical strategy that distinguishes between commitment-based and information-based shocks.

To identify conventional, Odyssean, and Delphic monetary policy shocks, I follow Jaro-

FIGURE 1: Forward Guidance by Type



(A) Forward Guidance Salience

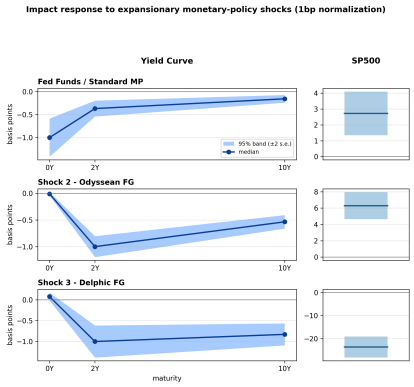


(B) Forward Guidance Rank

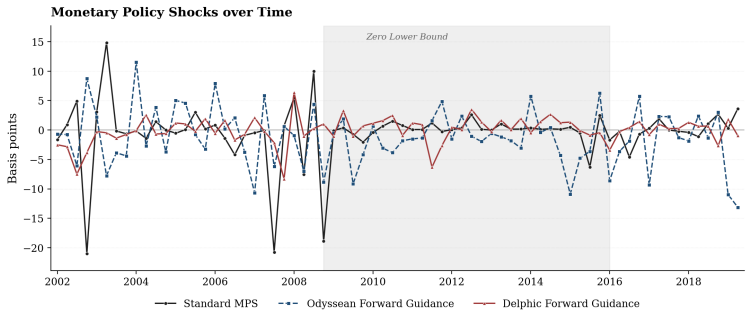
Notes: The figure reports the evolution of forward guidance based on FOMC statements. The top panel shows the salience of Odyssean and Delphic guidance; the bottom panel reports their relative importance (rank). Series are four-quarter moving averages. Vertical dashed lines denote the zero lower bound period (2008Q4–2015Q4).

ciński (2024), who exploits the non-Gaussianity of high-frequency asset price movements around FOMC announcements to recover distinct shocks without imposing sign restrictions. The identification uses changes in fed funds futures, two- and ten-year Treasury yields, and the S&P 500 around FOMC windows. The standard monetary policy shock reflects unexpected changes in the current policy rate, with the largest effect at the short end of the yield curve and a positive equity response. The Odyssean forward guidance shock captures commitment to an accommodative future policy path, with the largest effect at the two-year yield and a positive equity response. The Delphic forward guidance shock conveys information about the economic outlook, also lowering medium-term yields but triggering a negative equity response, reflecting markets' interpretation of the signal as bad news about fundamentals. A fourth shock associated with large-scale asset purchases is identified but excluded from the analysis given the focus on forward guidance and conventional policy. Figure 2A illustrates the impact effects of a one-basis-point expansionary shock on Treasury yields and equity prices for each identified shock. Figure 2B reports the corresponding quarterly shock series over the sample period.

FIGURE 2: Identification and Evolution of Monetary Policy Shocks



(A) Impact responses used for shock identification



(B) Monetary policy shocks over time

Notes: Panel (a) illustrates the impact effects of a one-basis-point expansionary monetary-policy shock on Treasury yields and equity prices. Panel (b) reports quarterly series for the standard monetary policy shock, the Odyssean forward-guidance shock, and the Delphic forward-guidance shock over the sample period.

3.2 Firm-Level Attention

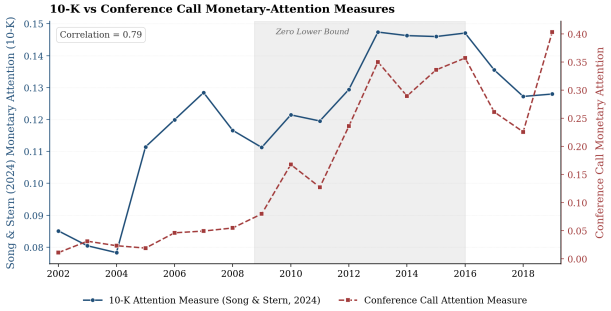
I construct a firm-level measure of attention to monetary policy from earnings conference call transcripts. These calls provide a natural setting to measure firms' engagement with policy communication: they are held quarterly, comparable across firms and time, and reflect what managers and analysts consider most relevant to the firm's performance and outlook.

The measure is constructed in two steps. First, I extract all sentences containing references to monetary policy using a query that includes terms associated with central bank institutions, policy instruments, and interest rate dynamics—such as "Federal Reserve," "FOMC," "quantitative easing," "tightening cycle," "forward guidance," and "monetary policy." Second, to avoid capturing incidental or irrelevant mentions, I apply a manual cleaning procedure that removes passages where the reference does not constitute a substantive discussion of monetary policy. The resulting set of passages is then normalized by total call length, yielding the share of sentences devoted to monetary policy for each firm-quarter observation. A complete list of terms and details of the cleaning procedure are provided in Appendix B. Each earnings call is dated by its actual call date and assigned to the corresponding calendar quarter. Appendix C describes which firms pay attention to monetary policy, how attention varies across sectors and firm characteristics, and how much of its variation occurs within firms.

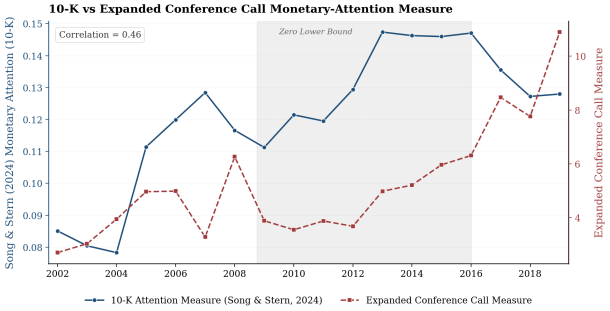
Figure 3 provides external validation for the conference call–based attention measure by comparing it with the annual attention measure developed by Song & Stern (2024), which is constructed from firms' 10-K filings. To ensure comparability, I first aggregate the conference call measure to the annual frequency. Panel (a) compares the baseline conference call measure—constructed using the same monetary policy terms employed by Song & Stern (2024), including references such as "FOMC," "monetary policy," and "quantitative easing"—with the 10-K measure. The two series exhibit a strong correlation of 0.79, indicating that firms discussing monetary policy in annual filings also tend to discuss it in earnings calls. Panel (b) compares the expanded conference call measure, which incorporates a broader set of monetary policy and forward-guidance-related terms, with the 10-K measure. The correlation declines to 0.46, reflecting that the expanded conference call measure captures dimensions

of monetary policy communication that are less prevalent in annual filings. Finally, panel (c) compares the baseline and expanded conference call measures directly, yielding a correlation of 0.64. Taken together, the results indicate that the conference call measure is strongly related to existing measures of firm attention to monetary policy while also capturing additional variation associated with firms' real-time engagement with monetary policy communication.

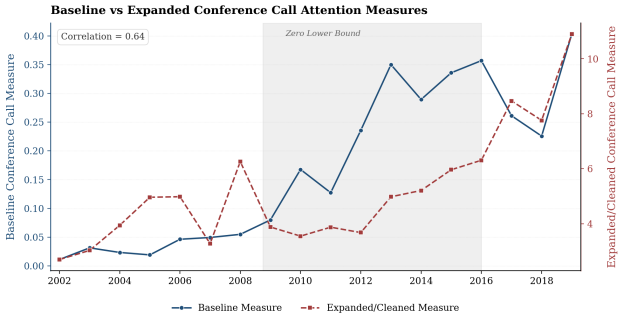
FIGURE 3: Comparison of Monetary Policy Attention Measures



(A) 10-K vs. Conference Call Measure



(B) 10-K vs. Expanded Conference Call Measure



(C) Baseline vs. Expanded/Cleaned Conference Call Measures

Notes: The figure compares alternative measures of firm attention to monetary policy constructed from 10-K filings and earnings conference calls. Panel (a) compares the baseline conference call measure with the 10-K attention measure. Panel (b) compares the expanded conference call dictionary measure with the 10-K measure. Panel (c) compares the baseline and expanded/cleaned conference call measures.

What does it mean for a firm to pay attention to monetary policy? The measure captures a specific form of engagement: whether management, in a formal and investor-facing setting, treats central bank communication as material to the firm's business outlook. A firm that devotes a larger share of its earnings call to monetary policy has likely processed recent

announcements, formed views about the future rate path, and incorporated those views into planning. This differs from interest rate sensitivity. A firm may carry substantial debt—and therefore respond strongly to rate movements through the financial channel—without actively monitoring FOMC communication. Attention captures the degree to which a firm engages with the content of policy communication. The measure captures both cross-sectional and time-series variation. Higher values indicate greater relative prominence of monetary policy in the firm's communication with investors. By construction, the measure reflects the information that firms choose to emphasize in a setting where they discuss the drivers of current performance and future expectations. The measure is designed to capture engagement with monetary policy communication rather than general attention to macroeconomic conditions. The underlying passages include discussions of demand, output, and the economic outlook when firms explicitly connect those topics to monetary policy, so the measure is not mechanically limited to financing costs. Nevertheless, it may not capture attention to macroeconomic information obtained from sources other than Federal Reserve communication. The empirical results should therefore be interpreted as identifying the role of policy-specific attention, rather than the broader role of macroeconomic information processing.

The passages that make up the measure show what this engagement looks like. Managers refer to monetary policy in two ways, often in the same sentence: they interpret the Federal Reserve's intentions, its expected policy path, its commitment to keep rates low, and its reaction function, and they relate that reading to their own business, to interest expense and refinancing, to demand, and to investment plans. Classifying every passage in the corpus by keyword (Appendix B.9),[2] exposure language appears in 42 percent of passages and interpretation language in 30 percent; 10 percent contain both, and most firms produce

[2]A passage carries *interpretation* language if it refers to the Federal Reserve's intentions: the expected policy path, what the Fed will or would do, a commitment to keep rates low, the Fed's reaction function, its officials or statements, or uncertainty about its next move. It carries *exposure* language if it refers to the firm's own position: interest expense, debt, refinancing, and hedging; the rates on its own borrowing or cash; interest or float income; demand, sales, and customers; investment plans; or currency and commodity effects. *Commitment* language is the subset of interpretation language that refers to rates staying low for a stated period. *Decision* language flags passages in which the firm describes a choice of its own, such as locking in a rate or letting a hedge expire. The indicators are keyword-based and non-mutually-exclusive; Appendix B.9 lists the patterns.

both kinds (Table 1). The balance shifts with the policy regime: exposure-only passages fall from 40 percent before the zero lower bound to 28 percent during it, interpretation-only passages rise from 15 to 22 percent, and commitment language peaks in 2012 and 2013, the years of calendar- and threshold-based guidance. Firms also act on their reading of policy. Catalent Pharma Solutions, a pharmaceutical manufacturer, let its interest-rate hedges expire in 2013 because "statements made by the Fed" implied "low interest rates for the foreseeable future," and Ducommun, an aerospace components manufacturer, planned a $317 million refinancing in 2014 because the Chair "has indicated ... rates will stay modest for another 12 to 15 months." The measure thus records a firm's reading of policy together with what that reading means for its own decisions, and it is distinct from the firm's balance-sheet position and from its cyclical exposure.

TABLE 1: Interpretation and exposure language in the attention corpus.

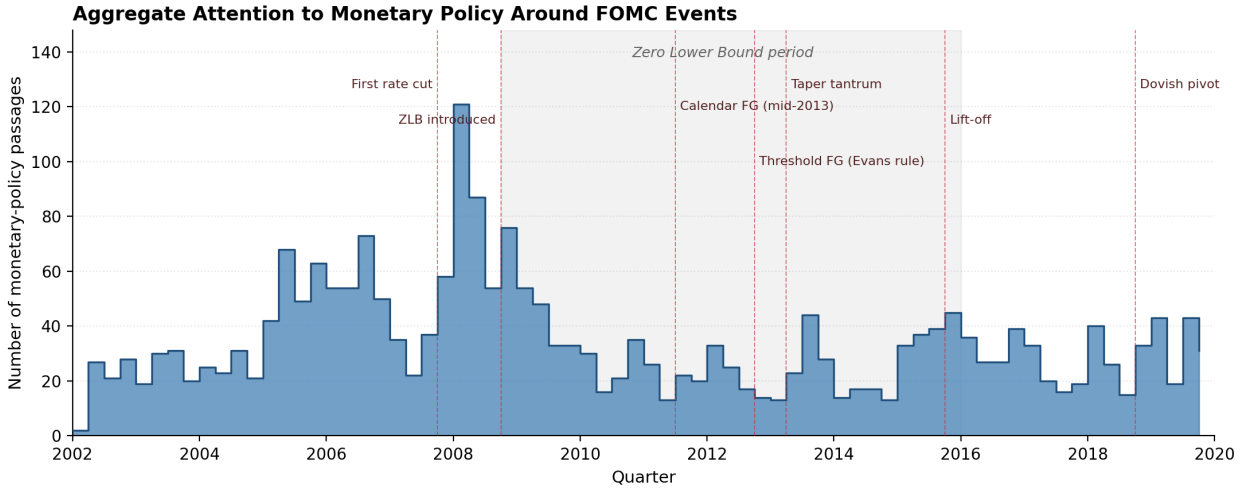
	Full sample 2002–2019	Pre-ZLB 2002–2007	ZLB 2008–2015	Post-ZLB 2016–2019
Passages	2,503	899	1,121	482
Share of passages (percent)				
Any interpretation language	29.8	23.2	31.8	37.3
Any exposure language	42.3	48.9	38.0	40.0
Interpretation only	19.5	14.8	21.8	22.8
Exposure only	32.0	40.5	28.0	25.5
Both	10.3	8.5	10.0	14.5
Neither	38.2	36.3	40.2	37.1
Selected indicators (percent of passages)				
Commitment language	1.8	0.9	2.6	1.5
Reaction-function vocabulary	5.1	1.0	7.2	7.7
Own interest cost or debt	20.7	25.1	16.1	23.2
Demand and customers	8.2	9.3	7.6	7.3
Decision language	2.7	2.7	2.9	2.3

Notes: Shares of passages in the monetary-policy attention corpus that match each family of keyword indicators; the indicators are non-mutually-exclusive and are defined in Appendix B.9. "Any interpretation" and "Any exposure" include passages that match both families. Regimes: Pre-ZLB 2002–2007, ZLB 2008–2015, Post-ZLB 2016–2019.

Figure 4 reports the aggregate evolution of monetary policy attention over time, measured as the number of earnings-call passages devoted to monetary policy discussions, together with vertical markers indicating major FOMC events. Three patterns emerge. First,

attention rises sharply during the conventional tightening cycle of 2005–2006 and peaks in 2008Q1, preceding the failure of Bear Stearns and the most acute phase of the Global Financial Crisis.[3] Second, attention remains elevated throughout the zero lower bound (ZLB) period (2008Q4–2015Q4, shaded), with secondary peaks corresponding to calendar-based forward guidance in 2011Q3, Evans-rule threshold guidance in 2012Q4, and the taper tantrum episode in 2013Q2. Third, attention increases around the December 2015 liftoff announcement and again during the December 2018 dovish pivot. Appendix D provides additional details on the episodes highlighted in the figure.

FIGURE 4: Attention to Monetary Policy over Time



Notes: The figure reports the total number of substantive monetary-policy passages in each quarter during 2002Q1–2019Q4. Vertical dashed lines mark salient FOMC events: the first rate cut of the easing cycle (September 2007), the introduction of the zero lower bound (December 2008), calendar-based forward guidance (August 2011), threshold-based guidance under the Evans rule (December 2012), the taper tantrum (May–June 2013), the lift-off rate hike (December 2015), and the dovish pivot (December 2018). The shaded region denotes the zero lower bound period (2008Q4–2015Q4).

To illustrate what firms are saying during these episodes, Table 2 reports curated text excerpts from earnings calls of high-attention firms in each event window. The excerpts cover the three informational channels distinguished in the main analysis: conventional rate

[3]The decline in the attention measure around 2007 reflects the cleaning procedure applied to the text data. During this period, many references to monetary policy relate to regulatory changes rather than policy-relevant discussions. The cleaning process excludes such passages. In addition, the empirical analysis excludes the Global Financial Crisis period (2007–2009).

adjustments, commitment-based Odyssean forward guidance, and information-based Delphic communication. Several excerpts explicitly reference the policy mechanism being studied: TRX Inc. describes its working-capital plan as "ensured" by the August 2011 commitment to hold rates low for two years, AutoNation interprets the 100-basis-point cut of October 2008 as a coordinated easing.

TABLE 2: Example Text Excerpts from High-Attention Earnings Calls Around FOMC Policy Events

Event (quarter)	**Example text excerpts from high-attention firms**
First rate cuts; liquidity crisis (2007Q3–Q4)	"Only time will tell, but we were encouraged by the Fed's decision earlier this week to lower rates by 50 basis points." (Steelcase Inc, September 20, 2007) "While we do expect additional rate cuts by the Fed, we do not expect much benefit to the economy or the industries we serve in 2008." (Caterpillar Inc, October 19, 2007)
Zero lower bound (2008Q4–2009Q1)	"The recent total cut of 100 basis points by the Federal Reserve is another sign that all tools are being used to get the US economy back on track." (AutoNation Inc, November 6, 2008) "... the steps that various agencies, including the U.S. Treasury, the Federal Reserve, Congress, as well as counterparts around the globe, have been taking to combat the disruptions in global capital markets..." (Boise Cascade Holdings LLC, November 6, 2008)
Calendar-based forward guidance (2011Q3)	"The Fed's commentary in early August that interest rates will be held low for at least another two years bodes well ... in terms of ensuring continued access to working capital borrowings at attractive interest rates." (TRX Inc, August 11, 2011) "I think it's good that the Fed has indicated that rates will stay low." (Mard Inc, August 11, 2011)
Threshold guidance (Evans rule) (2012Q4–2013Q1)	"The Fed's interest rate policies and their plan to continue injecting liquidity are, in our view, positive for 2013 growth." (Caterpillar Inc, January 28, 2013) "This cautiously favorable outlook is based on the expectation that the monetary stimulus put in place in many key economies will have some positive impact on growth..." (Kennametal Inc, January 24, 2013)
Taper tantrum (2013Q2–Q3)	"We look at current trends of rates, and ... when the Fed came out and announced that QE3 was coming off, the first concern... is that means rates will go up." (Stoneridge Inc, August 1, 2013)

Continued on next page

Table 2 — continued from previous page

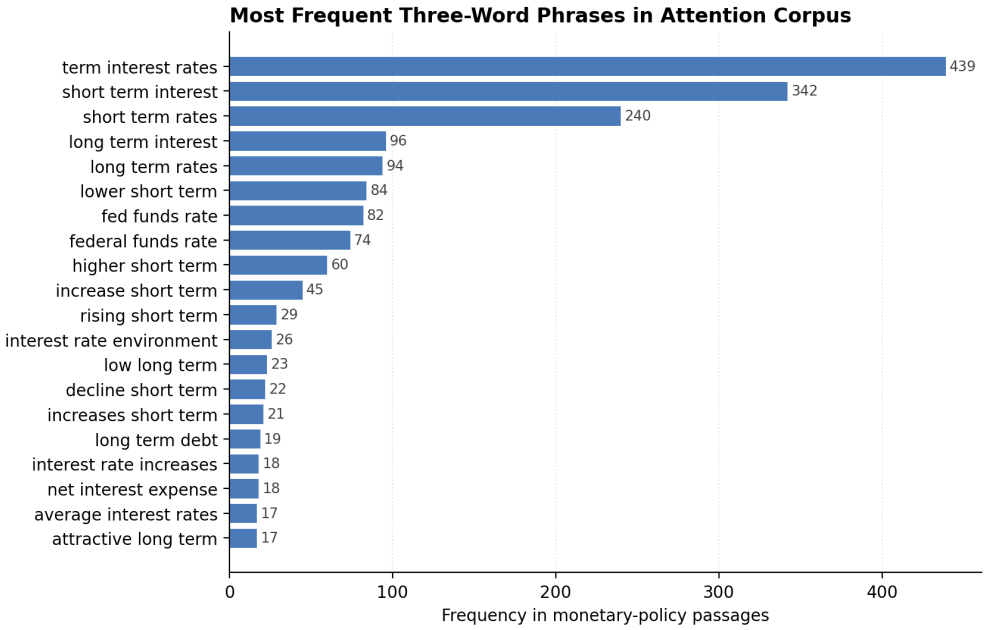
Event (quarter)	Example text excerpts from high-attention firms
Lift-off (first hike since GFC) (2015Q4–2016Q1)	"On December 16, as you all are aware, the Fed raised federal funds rates by 25 basis points, the first interest rate hike in nearly a decade." (Paychex Inc, December 22, 2015)
Pivot to dovish (2018Q4–2019Q1)	"... we definitely feel the effects of the Fed interest rate hikes... particularly in new home sales that have declined as a result. ... we actually agree with the recent stance of the Fed to pause, because housing is such a critical part of the economy." (Spectrum Brands Holdings Inc, February 7, 2019) "Since then, the Fed has moderated their view on future interest rate increases, mortgage rates have come down from fourth-quarter highs..." (TopBuild Corp, February 26, 2019)

Notes: Excerpts are drawn from earnings conference calls of firms in the top decile of the within-firm attention measure during each event window. Each row corresponds to a salient monetary-policy event covering a particular informational channel: conventional rate adjustments, calendar- and threshold-based Odyssean forward guidance, and Delphic communication about the future path of asset purchases . Firm names and earnings-call dates are reported in parentheses. Bracketed ellipses indicate omitted text retained for readability.

What language do firms use when they discuss monetary policy, and does it shift with the policy regime? Three pieces of evidence are reported here. First, Figure 5 reports the twenty most frequent three-word phrases in the cleaned corpus. The phrases are dominated by rate-path expressions ("short term interest rates," "long term interest rates," "higher short term"), institutional references ("federal funds rate," "federal reserve board"), and instrument-specific language ("quantitative easing"). Generic macroeconomic terms are absent. This is consistent with the cleaning procedure successfully removing incidental mentions and retaining substantive engagement with policy communication.

Second, Figure 6 decomposes monetary-policy passages by topic, using a keyword-based classification into five categories: financing and borrowing costs, demand and customer-facing language, investment and capital expenditure, yield-curve and macro outlook, and explicit references to policy institutions and personnel. Financing dominates throughout the sample (between 19 and 23 percent of passages in each regime), confirming that firms primarily interpret monetary policy through the lens of borrowing conditions. The most pronounced regime shift is in the "policy/institutional" category: explicit references to FOMC chairs, governors, and the Federal Reserve as an institution rise from 0.8 percent of passages

FIGURE 5: Most Frequent Three-Word Phrases in the Attention Corpus

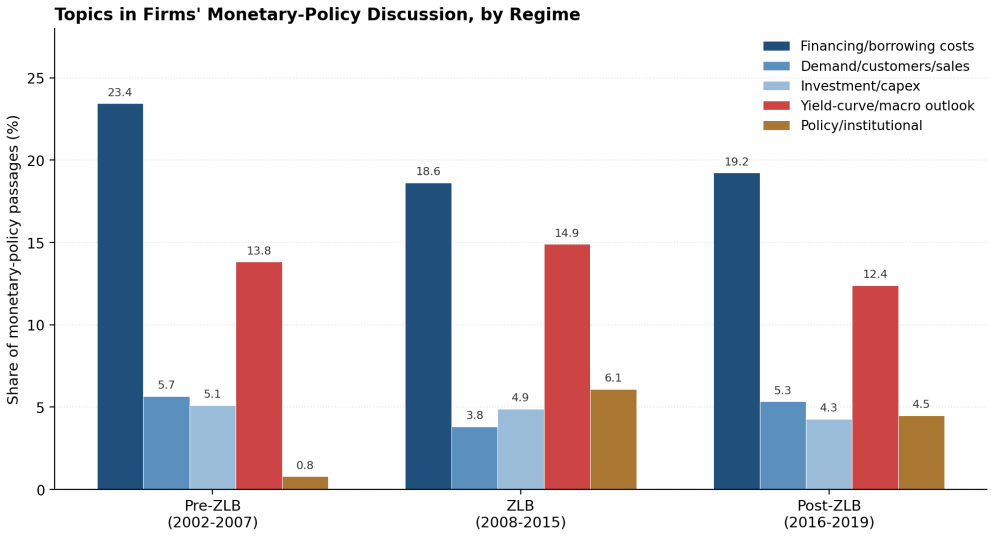


Notes: The figure reports the most frequent three-word phrases appearing in the monetary-policy attention corpus constructed from earnings conference call transcripts. Frequencies correspond to the number of occurrences of each phrase in passages classified as related to monetary policy discussions.

before the ZLB to 6.1 percent during the ZLB and 4.5 percent afterward. The pattern is consistent with firms increasingly treating monetary policy itself—rather than only its rate consequences—as a source of business-relevant news once policy moved into unconventional territory.

Third, Figure 7 reports the prevalence of forward-guidance-specific and policy-action language by regime. The "quantitative easing" label is essentially absent in the pre-ZLB period, jumps to 5.0 percent of passages during the ZLB, and remains elevated at 4.1 percent afterward as firms continue to discuss the legacy of the program. "Taper / tapering" peaks during the ZLB at 1.6 percent. "Forward guidance" as a term and explicit references to the "rate path" or "future rates" rise monotonically from 0.1 to 0.9 percent across the three regimes. Critically, language indicative of commitment—"remain low," "low for [an extended period]," "stay low"—is uniquely concentrated in the ZLB period (0.5 percent) and absent both before and after. The post-ZLB period instead features the language of normalization: "hike / hiking" rises to 4.1 percent of passages, and "pause" and "pivot" appear for the first

FIGURE 6: Topics in Firms' Monetary-Policy Discussion Across Monetary Policy Regimes

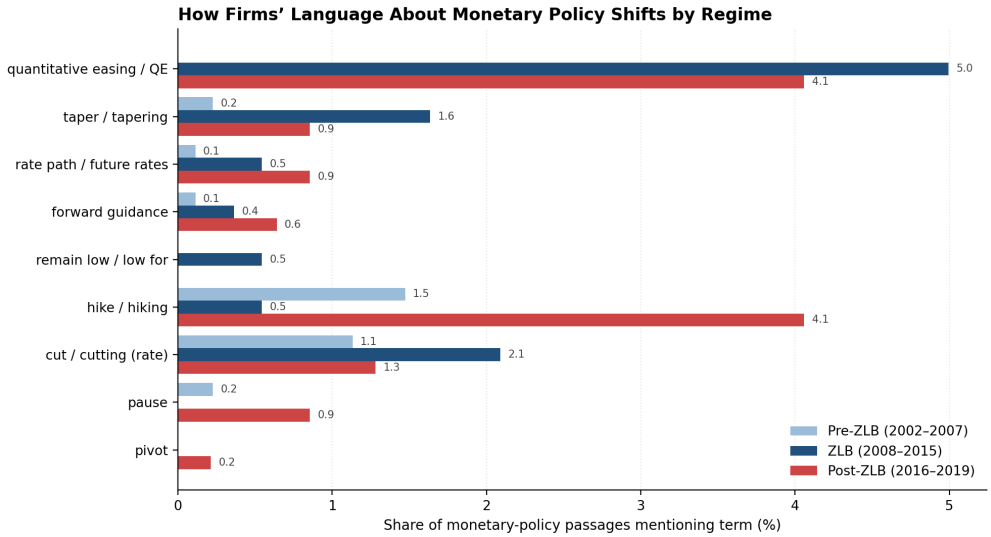


Notes: The figure reports the share of monetary-policy passages associated with different discussion topics across monetary-policy regimes. The categories capture references to financing and borrowing costs, demand and sales conditions, investment and capital expenditures, yield-curve and macroeconomic outlook considerations, and policy or institutional discussions. The Pre-ZLB period covers 2002–2007, the ZLB period covers 2008–2015, and the Post-ZLB period covers 2016–2019.

time. The vocabulary thus reflects the policy environment firms were facing, supporting the interpretation that the measure captures attention to the substantive content of monetary-policy communication.

Although aggregate patterns are informative, identification in the empirical specification of Section 4 arises from within-firm variation over time. Firms do not adjust attention to monetary policy in a uniform or synchronized manner; rather, attention fluctuates substantially within firms across quarters. Figure 8 illustrates this point by plotting quarterly counts of monetary-policy passages for six firms with extensive sample coverage. The figure reveals considerable heterogeneity in the timing and intensity of attention. Some firms display persistent engagement with monetary policy discussions, while others exhibit episodic spikes concentrated around particular policy environments. Importantly, these patterns differ markedly across firms and do not simply mirror aggregate monetary-policy events. The evidence highlights that attention varies both across firms and within firms over time, with the latter providing the source of variation exploited in the empirical analysis.

FIGURE 7: How Firms' Language About Monetary Policy Shifts Across Policy Regimes



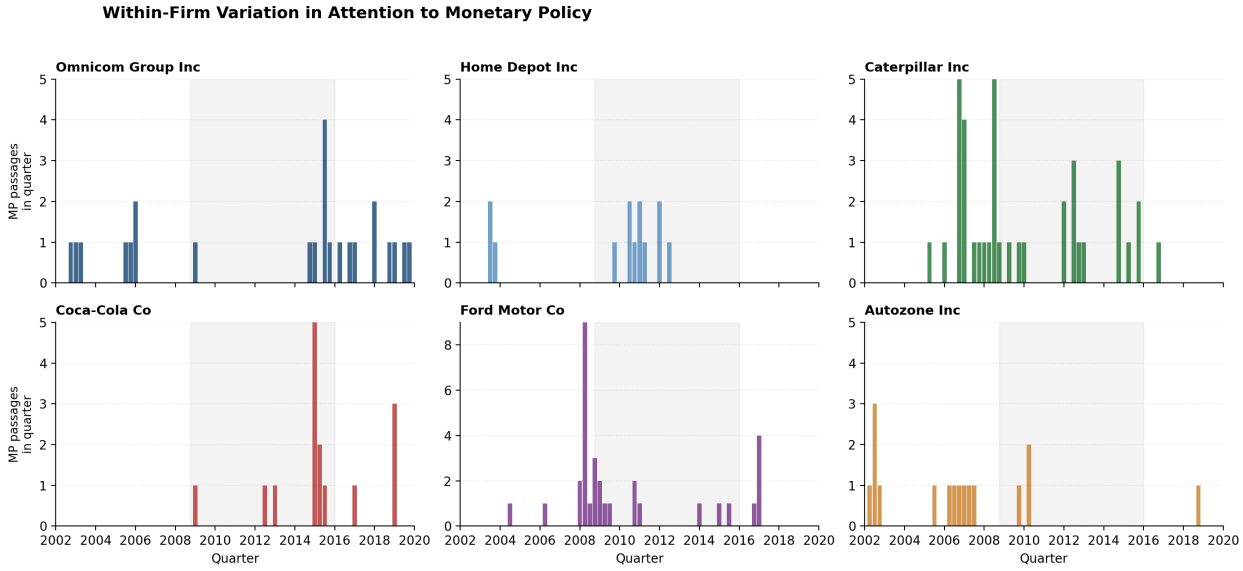
Notes: The figure reports the share of monetary-policy-related passages in earnings conference calls that mention selected monetary policy terms across three monetary policy regimes: Pre-ZLB (2002–2007), the Zero Lower Bound (ZLB) period (2008–2015), and the Post-ZLB normalization period (2016–2019). The results show substantial shifts in the language firms use to discuss monetary policy over time. References to quantitative easing, tapering, and rate cuts become substantially more prevalent during the ZLB period, while terms associated with policy normalization—such as "hike," "pause," and "pivot"—increase after 2015.

3.3 Firm-Level Controls and Outcome Variable

Firm-level data are drawn from the quarterly Compustat database, which provides a comprehensive panel of publicly listed U.S. firms. The quarterly frequency aligns naturally with the timing of monetary policy shocks and earnings calls, while the panel structure supports within-firm identification. The main outcome variable is firm investment, measured as capital accumulation. I construct investment using the perpetual inventory method following Ottonello & Winberry (2020), which yields a consistent measure of capital growth across firms and over time.

To characterize firms' balance-sheet positions, I use three variables: leverage, distance to default, and liquidity. Leverage is the ratio of total debt to assets. Distance to default measures proximity to financial distress and reflects the tightness of borrowing constraints. Liquidity is the ratio of liquid assets to total assets. These variables are constructed following Ottonello & Winberry (2020) and Jeenas (2023). Leverage and distance to default capture sensitivity to changes in external financing conditions; liquidity reflects the capac-

FIGURE 8: Within-Firm Variation in Attention to Monetary Policy



Notes: The figure illustrates within-firm variation in monetary policy attention for a selected set of firms using quarterly earnings conference call transcripts. The bars report the number of monetary-policy-related passages identified in each quarter for each firm. The shaded region corresponds to the Zero Lower Bound (ZLB) period from 2008 to 2015. The figure highlights substantial heterogeneity both across firms and over time in the intensity of attention to monetary policy. Some firms display persistent engagement with monetary policy discussions, while others exhibit episodic attention concentrated around periods of unconventional monetary policy.

ity to buffer investment from such changes using internal funds. Together, they provide a multidimensional characterization of firms' financial positions.[4]

Table 3 reports summary statistics and pairwise correlations for the main estimation sample. The regression sample is drawn from 2002Q1–2017Q4, excludes the 2007–2009 Global Financial Crisis period, and is restricted to firms with available conference-call data. The sample contains 25,728 firm-quarter observations. Investment, measured as log capital growth, has a slightly negative median and a standard deviation of 5.9 percent, reflecting a mix of expanding and contracting firms. These magnitudes are broadly consistent with Ottonello & Winberry (2020), with differences reflecting sample composition and time period. Leverage averages 0.28; distance to default averages 8.6, indicating that the typical firm is far from financial distress; liquidity is low on average but exhibits considerable dispersion.

The correlation matrix confirms expected patterns. Investment is negatively correlated with leverage and positively correlated with distance to default and liquidity, indicating that financially stronger firms tend to invest more. Leverage is negatively associated with distance to default and liquidity, reflecting that more indebted firms also tend to be more financially fragile. The correlations are moderate in magnitude, indicating that the three measures capture distinct dimensions of firms' balance-sheet positions.

Table 4 examines whether firms' balance-sheet positions systematically predict attention to monetary policy. Neither leverage, distance to default, nor liquidity is significantly associated with within-firm variation in attention, either contemporaneously or with a one-quarter lag. The estimated coefficients are economically small and close to zero across specifications.

These results suggest that attention captures a dimension of firm heterogeneity distinct from standard balance-sheet characteristics. Firms do not systematically devote more attention to monetary policy when they become more leveraged, less liquid, or closer to financial distress. This distinction is important for the empirical analysis that follows. Because attention and balance-sheet position evolve largely independently within firms, the specification can separately identify the role of attention from the role of financial frictions in shaping

[4]Precise variable definitions are provided in Appendix E. The main analysis focuses on distance to default and leverage as the primary balance-sheet measures, following Ottonello & Winberry (2020). Results for liquidity interactions are qualitatively consistent with the main findings and are reported in the Appendix to preserve the interpretability of the baseline specification.

TABLE 3: Summary Statistics and Correlations

	Summary Statistics			
	$\Delta \log k_{j,t+1}$	ℓ_{jt}	dd_{jt}	liq_{jt}
Mean	0.001	0.277	8.616	0.151
Median	-0.003	0.245	7.595	0.088
S.D.	0.059	0.219	5.787	0.171
95th Percentile	0.075	0.658	18.886	0.535
Observations	25,728	25,728	25,728	25,728
	Pairwise Correlations			
	$\Delta \log k_{j,t+1}$	ℓ_{jt}	dd_{jt}	liq_{jt}
$\Delta \log k_{j,t+1}$	1.000	-0.058	0.116	0.043
ℓ_{jt}	-0.058	1.000	-0.373	-0.165
dd_{jt}	0.116	-0.373	1.000	0.109
liq_{jt}	0.043	-0.165	0.109	1.000

investment responses to monetary policy shocks.

TABLE 4: Balance-Sheet Position and Attention to Monetary Policy

	(1) Contemporaneous	(2) Lagged
Leverage	0.000	
	(0.013)	
Distance to default	-0.008	
	(0.008)	
Liquidity	-0.010	
	(0.016)	
Leverage, $t-1$		0.004
		(0.014)
Distance to default, $t-1$		-0.008
		(0.007)
Liquidity, $t-1$		-0.020
		(0.015)
Observations	25,751	25,681
R^2	0.039	0.039

Notes: The dependent variable is within-firm standardized attention to monetary policy. All specifications include firm fixed effects, industry-by-quarter fixed effects, fiscal-quarter fixed effects, and controls for sales growth, size, and the current-assets share. Standard errors are two-way clustered by firm and quarter and reported in parentheses.

4 Empirical Framework

To estimate how firm heterogeneity affects the transmission of monetary policy, I use the local projections method of Jordà (2005). This approach provides flexible estimates of impulse response functions without requiring a fully specified dynamic structural model and accommodates the interaction terms needed to identify heterogeneous responses. Following Ottonello & Winberry (2020), I estimate specifications that allow investment responses to vary simultaneously with both balance-sheet position and attention.

The baseline specification is:

$$\begin{aligned}\log k_{jt+h} - \log k_{jt-1} = \alpha_j + \alpha_{st} \\ &+ \theta_h \left(\text{Attention}_{jt-1} - \mathbb{E}[\text{Attention}_{jt}]\right) \epsilon_{mt} \\ &+ \beta_{\ell,h} \left(\ell_{jt-1} - \mathbb{E}[\ell_{jt}]\right) \epsilon_{mt} \\ &+ \beta_{dd,h} \left(\text{dd}_{jt-1} - \mathbb{E}[\text{dd}_{jt}]\right) \epsilon_{mt} \\ &+ \beta_{liq,h} \left(\text{liq}_{jt-1} - \mathbb{E}[\text{liq}_{jt}]\right) \epsilon_{mt} \\ &+ \Gamma_h' Z_{jt-1} + \varepsilon_{jt+h}.\end{aligned} \tag{1}$$

The dependent variable $\log k_{jt+h} - \log k_{jt-1}$ is the cumulative log change in the capital stock of firm j at horizon h. Firm fixed effects α_j absorb time-invariant heterogeneity across firms; sector-time fixed effects α_{st} absorb common shocks at the sector-quarter level. The policy shock ϵ_{mt} takes three forms in separate regressions: the conventional monetary policy shock, the Odyssean forward guidance shock, and the Delphic forward guidance shock.[5] Because ϵ_{mt} is common to all firms within a quarter, its level is absorbed by α_{st} and does not enter separately. All heterogeneity variables are demeaned at the firm level, consistent with Ottonello & Winberry (2020), so that together with the firm fixed effects the interaction coefficients capture within-firm variation: how the same firm's response to a given shock changes as its attention and balance-sheet position move above or below their firm-specific averages. The specification identifies these differential responses; it does not identify the average response to the shock. A positive θ_h, for example, means that a firm responds

[5] High-frequency shocks are aggregated to quarterly frequency by summing within each quarter.

relatively more to an expansionary shock in quarters when its attention is above its own average than in quarters when it is below. Throughout the paper, a statement that firms with higher attention, or with a given balance-sheet position, respond more or invest more following a shock refers to this within-firm differential.

The timing of the attention measure ensures that it is predetermined relative to the policy shock. Earnings calls are assigned to calendar quarters according to their call dates. The attention variable entering the interaction is measured in quarter $t-1$, whereas ϵ_{mt} aggregates FOMC announcements occurring in quarter t. Thus, all calls used to construct $\text{Attention}_{j,t-1}$ occur before the policy announcements included in ϵ_{mt}. The interaction therefore captures whether a firm responds differently to subsequent policy innovations in quarters after it has shown greater engagement with monetary policy.

The coefficients of interest are θ_h, $\beta_{\ell,h}$, and $\beta_{dd,h}$, which capture how investment responses vary with within-firm movements in attention, leverage, and distance to default, respectively. The main analysis focuses on these two balance-sheet measures following Ottonello & Winberry (2020); results for the liquidity interaction $\beta_{liq,h}$ are qualitatively consistent with the main findings and are reported in Appendix F. The vector Z_{jt-1} includes the levels of all interacted variables together with a standard set of lagged firm-level controls: log total assets, sales growth, current assets as a share of total assets, and fiscal-quarter indicators. In addition, the specification includes interactions of attention and of each balance-sheet variable with lagged GDP growth to allow firms with different balance-sheet positions and levels of monetary policy attention to exhibit different sensitivities to the business cycle. These controls help ensure that the estimated heterogeneity in monetary policy transmission is not driven by differences in firm fundamentals or cyclical exposure. The dependent variable is multiplied by 100 for ease of interpretation, so that coefficients are expressed in percentage points. Monetary policy shocks are rescaled to correspond to a 25 basis point movement and multiplied by -1 so that positive values represent easing. Standard errors are two-way clustered at the firm and quarter levels.

An important advantage of the specification is that it allows the roles of attention and balance-sheet position to be distinguished within a unified framework. Monetary policy shocks are interacted simultaneously with attention, leverage, distance to default, and liq-

uidity, allowing investment responses to vary along both dimensions of firm heterogeneity. The inclusion of firm fixed effects implies that identification comes from within-firm variation over time rather than from permanent differences across firms, while sector-by-quarter fixed effects absorb all aggregate and industry-level shocks in a given quarter, including the average effect of the monetary policy shock itself. As a result, the coefficients capture how the same firm's response to a given monetary policy shock changes as its attention and balance-sheet position evolve over time.

Estimating the specification separately for conventional monetary policy, Odyssean forward guidance, and Delphic forward guidance further helps distinguish the underlying transmission channels. Because all three shocks affect current or expected financing conditions, a purely financial interpretation would predict similar roles for attention across specifications. By contrast, if attention reflects firms' engagement with monetary policy communication, its importance should depend on the informational content of the shock. The results provide evidence consistent with the latter interpretation.

5 Results

This section presents the main empirical findings. I estimate the baseline specification in equation (1) separately for each of the three monetary policy shocks—conventional, Odyssean, and Delphic—and report differential impulse responses of firm-level investment at horizons up to twelve quarters. The analysis proceeds in three steps. I first examine conventional monetary policy to establish a benchmark and confirm consistency with prior evidence. I then turn to Odyssean and Delphic forward guidance, where the central findings of the paper emerge. Throughout, the focus is on the *differential* response of investment—that is, on the coefficients θ_h, $\beta_{dd,h}$ and $\beta_{\ell,h}$ in equation (1), which capture how the response to each shock varies with within-firm movements in attention and balance-sheet position.

The overarching result is that monetary policy does not transmit through a single channel. The role of attention and financial frictions varies systematically with the type of shock, in a pattern that is consistent across multiple balance-sheet measures and robust to allowing the two heterogeneity dimensions to interact. Table 5 previews the main findings before the

detailed impulse responses are discussed.

TABLE 5: Summary of Main Results

	Conventional MP	**Odyssean FG**	**Delphic FG**
Attention	Limited	Central	Limited
Financial frictions	Central	Limited	Central

Notes: The table summarizes the role of attention and financial frictions in shaping firm-level investment responses to each type of monetary policy shock. "Central" indicates a large, statistically significant, and persistent differential response. "Limited" indicates small and imprecisely estimated differentials.

5.1 Conventional Monetary Policy

I begin with conventional monetary policy, which serves as a natural benchmark. The results, reported in Figure 9, are broadly consistent with the prior literature.

Consider first the role of attention, shown in panel A. Firms that discuss monetary policy more frequently in their earnings calls do not exhibit systematically stronger investment responses following an expansionary conventional shock. The point estimates are small across all horizons, the confidence intervals comfortably span zero, and there is no indication that attention amplifies or dampens the response at any point in the impulse response horizon. Attention does not generate heterogeneity in responses to conventional policy.

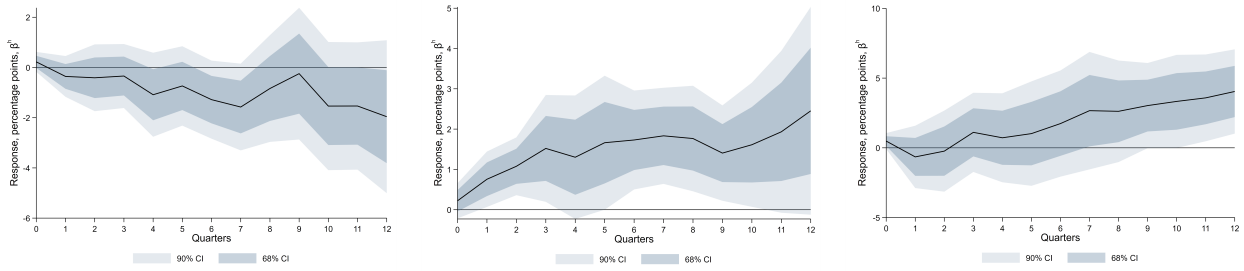
The picture changes entirely when attention is replaced by balance-sheet position. Panel B shows that a firm invests substantially more following an expansionary shock when its distance to default is above its own average. The differential is precisely estimated and builds persistently over the horizon, peaking between four and eight quarters. This result aligns closely with Ottonello & Winberry (2020): financially healthier firms—those further from distress—are best positioned to exploit improvements in external funding costs, consistent with the interest rate channel driving heterogeneous responses to conventional monetary easing.

The leverage result, shown in panel C, points in the same direction but with the opposite sign relative to Ottonello & Winberry (2020): higher-leverage firms respond *more* strongly, rather than less. While this differs from the linear leverage interaction reported in Ottonello & Winberry (2020), recent evidence suggests that leverage does not summarize monetary-

policy responsiveness in a simple monotonic way. Using a framework that estimates the full distribution of firm-level investment responses to monetary policy, Drechsel et al. (2026) show that responsiveness is highly multidimensional, varies primarily within firms over time, and is only weakly explained by standard balance-sheet characteristics. They further document important nonlinearities in the relationship between leverage and monetary-policy sensitivity, with firms at both low and high levels of leverage exhibiting stronger responses. In this light, the positive leverage coefficient should not be interpreted as evidence against the financial-frictions channel. Rather, conditional on distance to default, leverage captures a distinct dimension of balance-sheet exposure that need not map one-for-one into financial distress.

The distance-to-default result provides the cleaner test of the underlying mechanism. Consistent with Ottonello & Winberry (2020), firms that are farther from financial distress respond more strongly to an expansionary conventional shock, suggesting that healthier firms are better positioned to exploit improvements in external financing conditions when borrowing costs fall. Taken together, the results indicate that balance-sheet position remains central to the transmission of conventional monetary policy, with distance to default providing the more reliable signal of the balance-sheet margin governing heterogeneous investment responses.

FIGURE 9: Conventional Monetary Policy: Attention and Financial Frictions



(A) Attention (B) Distance to Default (C) Leverage

Notes: Differential impulse responses of firm-level investment to an expansionary conventional monetary policy shock, corresponding to the interaction coefficients in equation (1). Panel A shows heterogeneity with respect to firm attention; panels B and C show heterogeneity with respect to distance to default and leverage. Shaded areas denote 68 and 90 percent confidence intervals. Shocks are scaled to a 25 basis point easing.

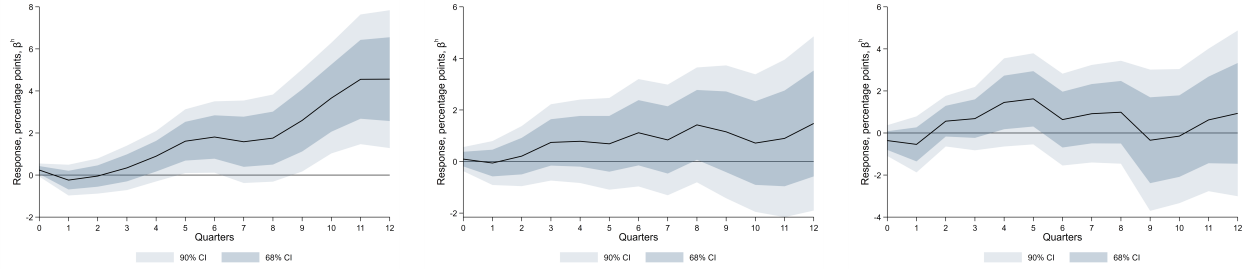
5.2 Odyssean Forward Guidance

I now turn to the first type of forward guidance. The results for Odyssean shocks, reported in Figure 10, present a striking reversal of the pattern observed for conventional policy.

Begin with attention, shown in panel A. In contrast to the null result for conventional policy, attention is now strongly and precisely associated with differential investment responses. A firm invests significantly more following an expansionary Odyssean shock when its engagement with monetary policy communication—measured by the share of its earnings call devoted to monetary policy—is above its own average. The differential response is essentially zero on impact, rises steadily over the first four to six quarters, and remains large and statistically significant through the end of the horizon. The pattern is consistent with an expectation channel: firms that engage more with central bank communication are better positioned to incorporate the committed future rate path into their decisions, adjusting capital accumulation as those beliefs solidify.

Now consider balance-sheet position, shown in panels B and C. The contrast with conventional policy is equally sharp. Neither distance to default nor leverage generates a systematic differential in investment responses. The point estimates are small, frequently change sign across horizons, and the confidence intervals are wide. This null result is informative. Crucially, it does not arise because Odyssean guidance leaves interest rates unchanged: in the identification, the Odyssean and Delphic shocks move the yield curve in the same way. In the framework of Section 6, it arises because the rate implication of an Odyssean commitment—that policy will remain accommodative regardless of incoming data—must be incorporated into a firm's expectations before the firm acts on it. The collateral channel that amplifies the Delphic rate decline for high-leverage firms is then engaged only for firms that incorporate the commitment; if most firms do not, the leverage interaction is diluted to a small fraction of its Delphic counterpart. Under this interpretation, the binding margin for Odyssean transmission is not the capacity to borrow but engagement with the commitment signal. In this sense, Odyssean guidance calls for a different type of firm response than conventional policy: one governed by engagement with policy communication rather than by balance sheet strength.

FIGURE 10: Odyssean Forward Guidance: Attention and Financial Frictions



(A) Attention (B) Distance to Default (C) Leverage

Notes: Differential impulse responses of firm-level investment to an expansionary Odyssean forward guidance shock, corresponding to the interaction coefficients in equation (1). Panel A shows heterogeneity with respect to attention; panels B and C show heterogeneity with respect to distance to default and leverage. Shaded areas denote 68 and 90 percent confidence intervals. Shocks are scaled to a 25 basis point easing.

5.3 Delphic Forward Guidance

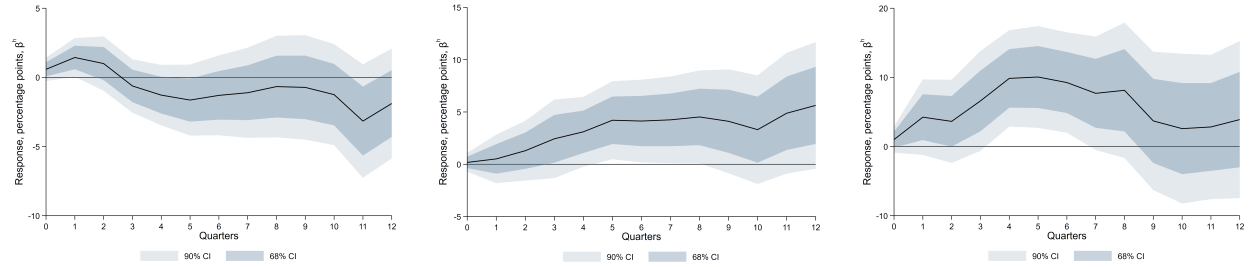
The results for Delphic forward guidance, reported in Figure 11, complete the picture. Unlike Odyssean guidance, Delphic shocks generate a pattern of heterogeneous responses that closely resembles conventional policy—but for reasons that reflect the specific nature of the information conveyed and the channel through which it operates. Panel A shows that within-firm variation in attention generates no systematic difference in investment responses over the projection horizon. This null is not implied by the nature of Delphic guidance. If the Federal Reserve possesses superior information about economic fundamentals, firms that monitor its communication more closely may be better able to extract signals about future demand and could therefore respond differently. The estimates provide little evidence of such a differential response. One interpretation is that the information contained in Delphic announcements diffuses rapidly through asset prices, professional forecasts, financial news, and other public indicators. Direct engagement with FOMC communication may therefore provide little additional information relative to signals that are broadly available to firms. Under this interpretation, heterogeneity arises primarily from firms' capacity to respond to the associated change in expected financing conditions rather than from their ability to acquire the signal. This result should be interpreted as evidence that attention to monetary policy provides limited incremental explanatory power for Delphic shocks, not as evidence

that attention to macroeconomic conditions is generally irrelevant.

Panels B and C show that balance-sheet position governs heterogeneous responses. A firm invests substantially more following an expansionary Delphic shock when its distance to default and its leverage are above their own averages, and both differentials are large, persistent, and precisely estimated. The heterogeneity runs through rate sensitivity rather than through the informational content of the signal itself. A Delphic easing shifts the central bank's assessment in a direction that signals lower future policy rates. Consistent with the rapid diffusion of Delphic information through public signals, the estimates indicate that heterogeneity in investment responses is associated with firms' sensitivity to the implied rate movement rather than with their direct attention to FOMC communication. That sensitivity is governed by the firm's position in external capital markets: higher leverage implies a tighter wedge between the firm's borrowing rate and the risk-free rate, and a larger reduction in this wedge generates a proportionally larger expansion of effective investment capacity. A Delphic announcement also carries an adverse signal about economic fundamentals. In the framework of Section 6, that signal enters investment through a term common to all firms, so it generates no heterogeneity across balance-sheet positions; the distance-to-default and leverage differentials isolate the rate-sensitivity channel. The rate component of a Delphic announcement is therefore the component along which investment responses vary within firms, and a firm's response is larger when its balance sheet makes it more sensitive to that component.

Read alongside the Odyssean results, the Delphic findings sharpen the paper's central message. Both types of forward guidance shift expectations about future interest rates, yet their transmission mechanisms are fundamentally distinct. The difference lies not in what they do to the yield curve, but in what they require of firms: Odyssean guidance requires firms to understand a commitment, while Delphic guidance requires firms to have the financial capacity to respond to a rate movement. In the estimates, the dominant margin for Odyssean shocks is informational, whereas the dominant margin for Delphic shocks is financial. This distinction cannot be identified by studies focused on conventional monetary policy alone, where the financial channel dominates by default and the informational margin is never activated.

FIGURE 11: Delphic Forward Guidance: Attention and Financial Frictions



(A) Attention (B) Distance to Default (C) Leverage

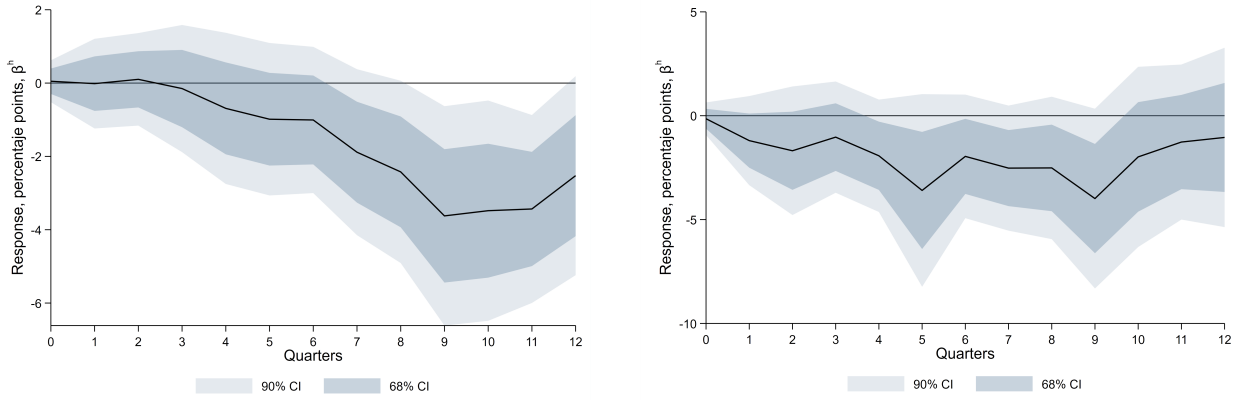
Notes: Differential impulse responses of firm-level investment to an expansionary Delphic forward guidance shock, corresponding to the interaction coefficients in equation (1). Panel A shows heterogeneity with respect to attention; panels B and C show heterogeneity with respect to distance to default and leverage. Shaded areas denote 68 and 90 percent confidence intervals. Shocks are scaled to a 25 basis point easing.

5.4 Joint Role of Attention and Financial Frictions

To examine whether the attention channel interacts with firms' financial positions, I augment the baseline specification with triple interaction terms that combine the monetary policy shock, within-firm attention, and balance-sheet position. Specifically, I estimate specifications that include $\left(\text{Attention}_{j,t-1} - \bar{\text{Attention}}_j\right) \times \varepsilon_t \times \left(\text{Financial}_{j,t-1} - \bar{\text{Financial}}_j\right)$, where balance-sheet position is captured alternatively by distance to default and leverage. The results indicate that the two channels are largely orthogonal, with the relevant margin determined by the informational content of the shock rather than by the interaction between attention and balance-sheet position.

Figure 12 reports the results for conventional monetary policy. The interaction between attention and leverage is small and statistically indistinguishable from zero across all horizons. By contrast, the interaction between attention and distance to default is negative at longer horizons, with some evidence of significance between quarters eight and eleven, suggesting that among attentive firms, those with stronger balance sheets respond relatively less at longer horizons. This pattern reflects heterogeneity within the financial channel rather than an independent role for attention. Overall, the triple interactions are consistent with the baseline result that balance-sheet position, rather than attention, governs heterogeneous responses to conventional monetary policy.

FIGURE 12: Conventional Monetary Policy: Triple Interactions



(A) Attention × Distance to Default

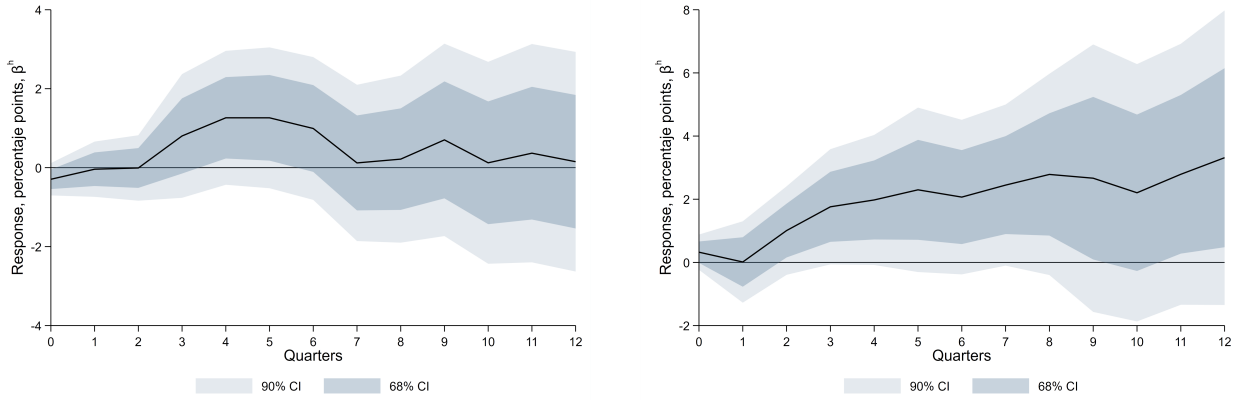
(B) Attention × Leverage

Notes: The figure reports impulse responses of firm-level investment associated with triple interaction terms combining an expansionary conventional monetary policy shock, within-firm attention, and balance-sheet position. Panel A reports the interaction with distance to default and panel B reports the interaction with leverage. All variables are demeaned at the firm level. Shaded areas denote 68 and 90 percent confidence intervals. Shocks are scaled to a 25 basis point easing.

Turning to Odyssean forward guidance, Figure 13 reports the triple interactions between the shock, attention, and balance-sheet position. Neither interaction is statistically distinguishable from zero at any horizon. The interaction between attention and distance to default, shown in panel A, is small and imprecisely estimated throughout. The interaction between attention and leverage, shown in panel B, displays the same pattern. The attention differential for Odyssean guidance is therefore similar across the distribution of balance-sheet positions—attentive firms respond more strongly regardless of whether they are financially constrained or unconstrained. This rules out the interpretation that the attention result simply reflects firms that are simultaneously attentive and financially healthy responding more strongly through the balance sheet channel. Instead, attention captures a genuinely distinct margin of transmission that operates independently of financial frictions.

Finally, Figure 14 reports the triple interactions for Delphic forward guidance. Both interactions are small and statistically indistinguishable from zero across all horizons. The interaction between attention and distance to default, shown in panel A, is imprecisely estimated throughout. The interaction between attention and leverage, shown in panel B,

FIGURE 13: Odyssean Forward Guidance: Triple Interactions



(A) Attention × Distance to Default

(B) Attention × Leverage

Notes: The figure reports impulse responses of firm-level investment associated with triple interaction terms combining an expansionary Odyssean forward guidance shock, within-firm attention, and balance-sheet position. Panel A reports the interaction with distance to default and panel B reports the interaction with leverage. All variables are demeaned at the firm level. Shaded areas denote 68 and 90 percent confidence intervals. Shocks are scaled to a 25 basis point easing.

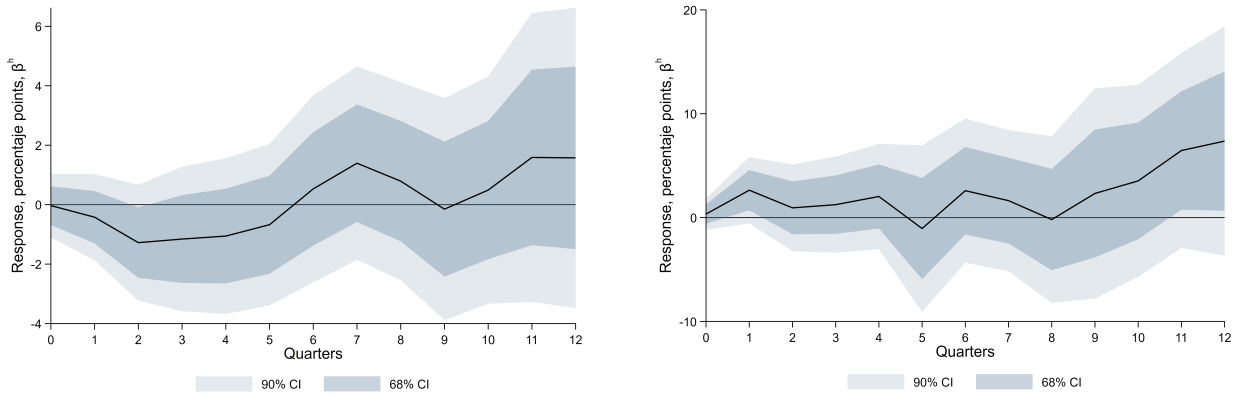
displays the same pattern. These results confirm that the financial channel governing Delphic transmission operates independently of attention—financially sensitive firms respond more strongly to Delphic easing regardless of how closely they monitor monetary policy communication.

5.5 Empirical Results Discussion

Three main findings emerge from the empirical analysis, each of which carries distinct implications for how monetary policy transmission should be understood.

Transmission depends on informational content, not just the yield curve. The two Forward Guidance shock types studied here generate qualitatively similar movements in long-term interest rates, yet the heterogeneity in responses differs sharply. For Delphic guidance, differential responses run through firms' balance sheets: a firm responds more strongly when its distance to default or its leverage is above its own average. For Odyssean guidance, the differential runs along a different margin, firm attention, with balance-sheet position playing a limited role. This finding implies that two policy announcements can

FIGURE 14: Delphic Forward Guidance: Triple Interactions



(A) Attention × Distance to Default (B) Attention × Leverage

Notes: The figure reports impulse responses of firm-level investment associated with triple interaction terms combining an expansionary Delphic forward guidance shock, within-firm attention, and balance-sheet position. Panel A reports the interaction with distance to default and panel B reports the interaction with leverage. All variables are demeaned at the firm level. Shaded areas denote 68 and 90 percent confidence intervals. Shocks are scaled to a 25 basis point easing.

have identical effects on the yield curve and yet be transmitted along different dimensions of firm heterogeneity, depending on what information they convey. The yield curve alone is therefore an insufficient summary statistic for how monetary policy communication reaches firms.

The attention result is specific to Odyssean guidance. A natural concern about the attention measure is whether it captures genuine engagement with policy communication or simply reflects time-varying interest rate sensitivity or investment intentions. If firms that discuss monetary policy more in their earnings calls are merely more interest-rate sensitive, or if they do so in anticipation of planned investment, one would expect attention to predict differential investment responses to all three shocks—since all three move long-term yields and all three are relevant to investment financing costs. The data are inconsistent with both interpretations. Attention generates large and precisely estimated differential responses to Odyssean guidance, while producing comparatively precise null results for conventional policy and Delphic guidance. The Delphic null is particularly informative because attention could matter if firms use Federal Reserve communication to extract information about future

fundamentals. The estimates instead suggest that direct attention to policy communication provides little incremental advantage once Delphic information has diffused through asset prices and other public signals. This interpretation does not rule out a role for broader attention to macroeconomic conditions, which the measure is not designed to capture. It does, however, indicate that the estimated attention effect is not a general proxy for interest-rate sensitivity or investment intentions. A firm with greater exposure to interest rates or stronger investment plans should respond differentially to several forms of monetary easing, rather than only to the policy commitment embedded in Odyssean guidance. The cross-shock pattern therefore supports a narrower interpretation: policy-specific attention is especially important when firms must interpret a commitment about the future conduct of policy.

Firms with the most to gain from a commitment to keep rates low may also be the firms most likely to discuss it. Two further pieces of evidence show that the attention result is not exposure under another name. Balance-sheet position does not predict within-firm variation in attention (Table 4), and the attention differential for Odyssean guidance is the same for firms with high and low distance to default or leverage (Figure 13). The estimates therefore identify the role of a firm's engagement with policy communication, which the framework in Section 6 interprets as decoding the commitment. The language of the passages points the same way: firms' references to monetary policy shift from their own interest costs toward the Federal Reserve's intentions once guidance becomes commitment-based (Table 1), and firms state financing decisions taken on the strength of those intentions (Section 3; Appendix Table 11).

Financial frictions operate differently across shock types. The role of balance-sheet position varies across shocks. For conventional monetary policy, the results replicate the core finding in Ottonello & Winberry (2020): firms with greater distance to default exhibit larger responses, consistent with an interest rate channel. Financial frictions are also relevant for Delphic guidance. In contrast, they play a limited role in the heterogeneity of responses to Odyssean forward guidance.

Taken together, these three findings point to a view of monetary policy transmission that is richer than existing models allow. Firm heterogeneity matters not just along the balance-sheet dimension, but also along the attention dimension, and which dimension is

relevant depends on the type of signal the central bank sends. The mechanism framework in Section 6 formalizes this view and derives the cross-sectional predictions that map directly onto the empirical patterns documented here.

6 Mechanism

This section develops a parsimonious framework that rationalizes the heterogeneous firm-level responses documented in Section 5. The framework consists of an information structure in which firms process different policy announcements differently, a standard investment Euler equation with convex adjustment costs, and a financial friction modeled as a leverage-dependent collateral wedge. It abstracts from general equilibrium and focuses on the cross-sectional predictions that map directly to the empirical estimates. The organizing idea is that an Odyssean commitment must be *decoded* to be acted upon, whereas conventional and Delphic information is modeled as more readily incorporated through market prices and other public signals. Decoding the commitment does two things for a firm: it deepens the firm's appreciation of the commitment's benefit for the economic outlook, and it reveals that the commitment keeps policy rates low even as conditions improve, lowering the firm's expected borrowing costs. Both effects accrue only to attentive firms; the broad headline of the commitment is understood by all. Because the financial channel operates through borrowing costs and the borrowing-cost effect reaches few firms, the model delivers the empirical pattern of Table 5—attention central only for Odyssean guidance, financial frictions central for conventional and Delphic shocks but limited for Odyssean—and it does so without appeal to the rate path, so it is consistent with the two forms of forward guidance moving the yield curve identically.

6.1 Environment

Consider a continuum of firms indexed by $i \in [0, 1]$. Time is discrete. Firms differ along two dimensions: their attention to monetary policy $a_i \in [0, 1]$, which determines how fully they decode commitment-based communication, and their financial fragility, proxied by leverage Lev_i.

Policy announcements. At each FOMC announcement the central bank releases a composite signal $m_t = s_t^O + s_t^D$, where s_t^O is the Odyssean component—a commitment about the future policy path—and s_t^D is the Delphic component—an assessment of economic fundamentals. A third shock, r_t^c, is the conventional policy surprise. I sign all three shocks so that a positive realization is an *expansionary* (easing) surprise; for the conventional shock this means r_t^c is the surprise rate *cut*. All three follow AR(1) dynamics with independent Gaussian innovations,

$$s_t^O = \rho_O s_{t-1}^O + \varepsilon_t^O, \qquad s_t^D = \rho_D s_{t-1}^D + \varepsilon_t^D, \qquad r_t^c = \rho_c r_{t-1}^c + \varepsilon_t^c. \tag{2}$$

Information structure. The departure from full-information models is that the friction is not noise but processing. All signals are observed precisely; what differs is whether their investment-relevant content can be read off variables the firm already observes or must be decoded from the communication. Delphic guidance conveys an outlook embedded in publicly observable indicators and broad media coverage, and conventional rate changes are immediately priced into financial markets; all firms therefore incorporate s_t^D and r_t^c in full, independent of attention. An Odyssean commitment is different. Every firm grasps its headline—that the central bank intends to support the economy—but acting on the commitment requires inferring two implications that are not contained in current prices. The first is the commitment's benefit for the outlook: an attentive firm more fully internalizes that a credible promise of accommodation improves expected demand and returns. The second is the commitment's implication for the firm's own borrowing costs: because the promise is to keep rates low regardless of incoming data, an attentive firm understands that its financing costs are insulated from an improving economy, whereas a firm that does not decode the statement defaults to the usual reaction function and expects rates to normalize as conditions improve. Firm i obtains each decoded implication to the extent of its attention a_i.

6.2 Firm beliefs

The weight a_i is a comprehension weight on a precisely-observed commitment, not a Kalman gain on a noisy signal; Appendix G.4 micro-founds it as a decoding probability and as a rational-inattention capacity weight (Sims, 2003; Maćkowiak & Wiederholt, 2015; Gabaix, 2019). Decoding affects both of the firm's relevant expectations:

$$E_i[r_{t+1}] = \bar{r} + a_i\,\varphi^O s_t^O + \varphi^D s_t^D + \varphi^c r_t^c, \tag{3}$$

$$E_i[X_{t+1}] = \bar{X} + (\kappa_0 + \kappa_1 a_i)\, s_t^O - \mu^D s_t^D, \tag{4}$$

with $\varphi^O, \varphi^D, \varphi^c < 0$, $\kappa_0, \kappa_1 > 0$, and $\mu^D > 0$. The common sign $\varphi^O, \varphi^D, \varphi^c < 0$ encodes the uniform convention: a positive realization of any of the three shocks lowers the expected policy rate, i.e. is an easing. The rate belief (3) loads on the decoded commitment $a_i s_t^O$: only a firm that decodes the "regardless of data" feature revises its expected borrowing costs through the Odyssean channel; the Delphic and conventional surprises are public and revise every firm's expected rate in full. The fundamentals belief (4) has a public part $\kappa_0 s_t^O$, common to all firms, and an attention-enhanced appreciation $\kappa_1 a_i s_t^O$ of the commitment's benefit. Higher attention thus strengthens the response of both expectations to an Odyssean easing, $\partial^2 E_i[r_{t+1}]/\partial s_t^O \partial a_i = \varphi^O < 0$ and $\partial^2 E_i[X_{t+1}]/\partial s_t^O \partial a_i = \kappa_1 > 0$, while the analogous derivatives for the publicly observed Delphic and conventional signals are zero.

Processing versus noise. The distinction between a comprehension weight and a Kalman gain is not innocuous. Under a noisy-signal model the weight on the commitment would be $a_i = \sigma_O^2/(\sigma_O^2 + \sigma_{v,i}^2)$, which tends to one for every firm as the commitment becomes more precise; the attention gap would then vanish exactly when guidance is clearest. Because a_i here reflects the cost of processing rather than the imprecision of the signal, the attention gap is instead invariant to precision. Attention governs Odyssean transmission even when guidance is perfectly clear—consistent with the fact that Odyssean commitments are, if anything, less noisy than Delphic projections yet require more processing.

6.3 Investment and financial frictions

Firm i accumulates capital according to $k_{i,t+1} = (1-\delta)k_{i,t} + I_{i,t}$, with convex adjustment costs $\Phi(I/k)$, $\Phi' > 0$, $\Phi'' > 0$, and chooses investment to satisfy the Euler equation

$$1 + \Phi'\left(\frac{I_{i,t}}{k_{i,t}}\right) = \frac{1}{1+r_{i,t}} E_i\left[\pi'(k_{i,t+1}) + (1-\delta)\left(1 + \Phi'\left(\tfrac{I_{i,t+1}}{k_{i,t+1}}\right)\right)\right], \tag{5}$$

where $\pi'(k) = \alpha A k^{\alpha-1}$. The firm-specific cost of funds carries a leverage-dependent premium reflecting informational asymmetries between borrowers and lenders (Bernanke et al., 1999),

$$r_{i,t} = r_t + \varphi(\text{Lev}_i), \qquad \varphi' > 0,\ \varphi(0) = 0,\ \varphi(\text{Lev}_i) \approx \varphi_1 \text{Lev}_i. \tag{6}$$

The premium $\varphi_1 > 0$ raises the *steady-state* financing costs of more leveraged firms. Heterogeneity in the *sensitivity* of investment to movements in financing conditions is a distinct object, introduced separately in the first-order investment representation below; a natural structural source is a leverage-dependent pass-through of policy rates into borrowing costs ($r_{i,t} = \bar{r}_i + (1 + \lambda \text{Lev}_i)\tilde{r}_t$, $\lambda > 0$), under which a common rate movement shifts the cost of funds of more leveraged firms more strongly.

6.4 The investment response

Log-linearizing (5) around the firm-specific steady state motivates a first-order representation in which investment falls with the expected borrowing rate and rises with expected fundamentals. Parameterizing the interest-rate semi-elasticity as $\chi_i = \chi_0 + \chi_1 \text{Lev}_i$ and substituting beliefs (3)–(4) gives the central equation (Appendix G.2):

$$\hat{I}_{i,t} = -\underbrace{(\chi_0 + \chi_1 \text{Lev}_i)}_{\chi_i}\left(a_i\, \varphi^O s_t^O + \varphi^D s_t^D + \varphi^c r_t^c\right) + \eta\left((\kappa_0 + \kappa_1 a_i)\, s_t^O - \mu^D s_t^D\right), \tag{7}$$

where $\chi_i \equiv \chi_0 + \chi_1 \text{Lev}_i$ is the interest-rate sensitivity of investment, with baseline $\chi_0 > 0$ and leverage loading $\chi_1 > 0$, and $\eta > 0$ is the sensitivity to expected fundamentals. The restriction $\chi_1 > 0$ is a maintained leverage-sensitivity condition: it allows a firm's exposure to financing conditions to increase with its leverage, consistent with the estimated conventional

and Delphic leverage interactions in Section 5, and it should be read as a reduced-form parameterization rather than as a mechanical consequence of the additive premium (6) alone. Equation (7) has a transparent structure. The rate sensitivity χ_i multiplies the rate channel but not the fundamentals channel, so leverage operates only through the cost-of-funds channel. Because $\varphi^O, \varphi^D, \varphi^c < 0$, every term in the rate channel raises investment at an easing. Within the rate channel the Odyssean term is gated by a_i: only firms that decode the commitment revise their borrowing-cost expectations, whereas the Delphic and conventional terms reach every firm. Within the fundamentals channel the Odyssean term has a public part κ_0 and an attention-enhanced part $\kappa_1 a_i$. An inattentive firm therefore still responds to an Odyssean easing through the public headline $\eta\kappa_0 s_t^O$, but this response is leverage-free.

6.5 Cross-sectional predictions

Equation (7) maps directly to the interaction terms in the local projection of equation (1), so its cross-partials are the objects estimated in Section 5. Differentiating it shows that attention and financial frictions operate through different shocks; the proofs are in Appendix G.5.

Consider attention first. Decoding an Odyssean commitment lifts investment through both the expected benefit and the expected-borrowing-cost channels, so attention raises the Odyssean response, while a firm that does not decode the commitment still responds through the public headline.

Proposition 1 (Odyssean guidance and attention)**.** $\dfrac{\partial^2 \hat{I}_{i,t}}{\partial s_t^O \, \partial a_i} = -\chi_i \varphi^O + \eta\kappa_1 > 0$. *Attention operates through two channels: a deeper appreciation of the commitment's benefit ($\eta\kappa_1$) and the understanding that borrowing costs stay low regardless of data ($-\chi_i\varphi^O$). An inattentive firm still responds through the public headline,* $\partial \hat{I}_{i,t}/\partial s_t^O\big|_{a_i=0} = \eta\kappa_0 > 0$.

Neither effect is present for the publicly observed shocks, because all firms incorporate them in full:

Proposition 2 (Public shocks and attention)**.** $\dfrac{\partial^2 \hat{I}_{i,t}}{\partial s_t^D \, \partial a_i} = 0$ *and* $\dfrac{\partial^2 \hat{I}_{i,t}}{\partial r_t^c \, \partial a_i} = 0$. *Attention is irrelevant for the transmission of Delphic guidance and conventional policy.*

Financial frictions, by contrast, operate through the cost-of-funds channel and so are

governed by leverage. A conventional rate cut and a Delphic easing both move the rate that the collateral wedge amplifies, and they reach every firm:

Proposition 3 (Conventional and Delphic guidance and leverage)**.** *Under the maintained condition $\chi_1 > 0$, the conventional and Delphic shocks reach every firm and are leverage-amplified through the same rate sensitivity:* $\dfrac{\partial^2 \hat{I}_{i,t}}{\partial r_t^c \, \partial Lev_i} = -\chi_1 \varphi^c > 0$ *and* $\dfrac{\partial^2 \hat{I}_{i,t}}{\partial s_t^D \, \partial Lev_i} = -\chi_1 \varphi^D > 0$*, both invariant to a_i. The conventional response is $-\chi_i \varphi^c r_t^c$, increasing in leverage; higher-leverage firms have a larger rate sensitivity χ_i and respond more strongly to both shocks.*

The central cross-sectional prediction is that the financial channel is muted for Odyssean guidance. The Odyssean rate-path implication is leverage-amplified for a firm that decodes it, but it reaches only attentive firms, and most firms are inattentive.

Proposition 4 (Odyssean guidance and leverage)**.** $\dfrac{\partial^2 \hat{I}_{i,t}}{\partial s_t^O \, \partial Lev_i} = -\chi_1 a_i \varphi^O$*, full for a firm that decodes the commitment but zero for an inattentive firm, which responds only through the leverage-free headline and appreciation channels. Averaging across firms with $a_i \perp Lev_i$, the cross-sectional Odyssean leverage interaction is $-\chi_1 \mathbb{E}[a_i] \varphi^O$, a fraction $\mathbb{E}[a_i]$ of the Delphic interaction in Proposition 3.*

The contrast with Proposition 3 is the heart of the result. The same collateral logic that makes high-leverage firms more sensitive to a Delphic rate decline applies to an Odyssean easing as well, but only for the firms that decode it. Because the commitment's rate implication—that policy will remain accommodative regardless of incoming data—is not contained in current prices, a firm revises its expected borrowing costs, and so mobilizes its leverage-amplified response, only to the extent that it processes the statement; an inattentive firm's expected rate does not move, so its Odyssean response carries no leverage at all. Among decoders the collateral channel is present and exactly as strong as it would be for a Delphic shock of the same size. What differs is its *reach*: a Delphic rate signal is public and revises every firm's expected rate, so its leverage interaction is the full $-\chi_1 \varphi^D$, whereas the Odyssean rate implication reaches only the share $\mathbb{E}[a_i]$ of firms that decode it, so the cross-sectional leverage interaction is $-\chi_1 \mathbb{E}[a_i] \varphi^O$—the same per-firm force, scaled by the fraction

of firms in which it operates. With most firms inattentive that fraction is small. The argument never appeals to a difference in what the two shocks do to the yield curve: both can move rates identically and still generate sharply different leverage interactions, because what governs the cross-section is how widely each shock's rate implication is understood, not the size of the rate movement itself.

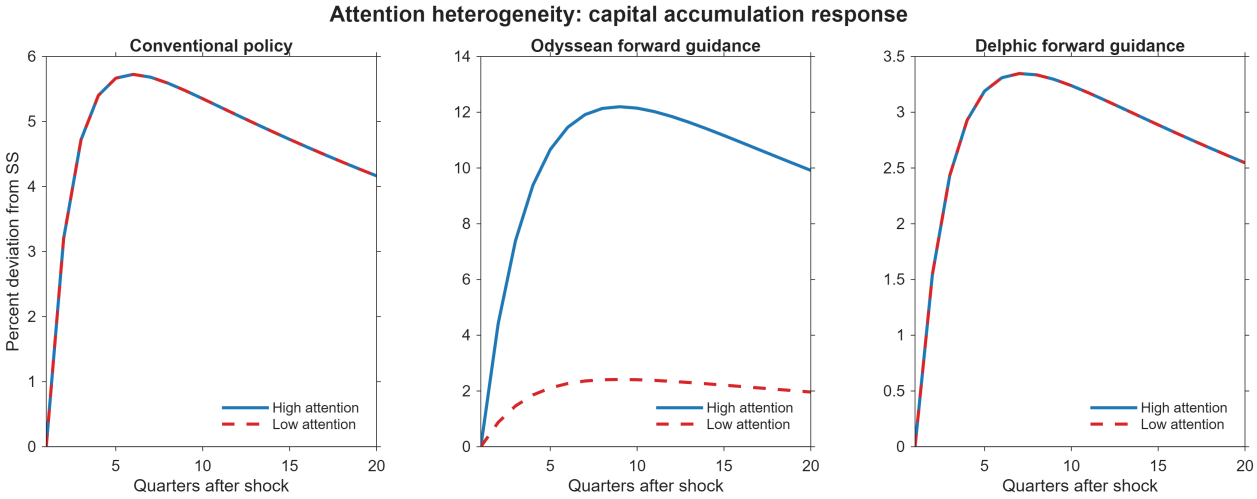
Financial frictions are thus central for conventional and Delphic shocks but limited for Odyssean guidance—not because Odyssean bypasses the collateral channel, but because its borrowing-cost implication reaches few firms. Because only this borrowing-cost channel interacts with leverage, while the larger expected-benefit channel does not, the leverage-relevant part of the Odyssean response is also the smaller part. The *conditional* triple cross-partial is $\partial^3 \hat{I}_{i,t}/\partial s_t^O \partial a_i \partial \text{Lev}_i = -\chi_1 \varphi^O > 0$—high-leverage firms respond more to Odyssean guidance conditional on being attentive—and is not itself scaled by $\mathbb{E}[a_i]$; it is the *population-average* Odyssean leverage interaction that equals this force diluted by the decoding share $\mathbb{E}[a_i]$. The model thus predicts a small population interaction alongside a positive conditional triple interaction, an over-identifying prediction consistent with the imprecise triple-interaction estimates in Section 5.

6.6 Model dynamics

The quantitative model discretizes the firm distribution into four types defined by two attention levels and two leverage levels; high-attention firms decode the commitment, low-attention firms rely on the public headline, and the high-attention group is a share p_H of firms, calibrated so that most firms are inattentive (Appendix G.7). Figure 15 isolates the attention channel by contrasting high- and low-attention firms, averaging over leverage: a differential appears only in the Odyssean panel, where the low-attention response is positive but well below the high-attention response, while the conventional and Delphic panels coincide. Figure 16 isolates the financial channel by contrasting high- and low-leverage firms, averaging over attention and plotting all panels on a common scale: financial frictions generate a sizable differential under conventional and Delphic shocks but only a small one under Odyssean guidance. The two figures mirror the empirical evidence in Figures 10 and 11. The appendix unpacks why the small Odyssean leverage differential coexists with a strong

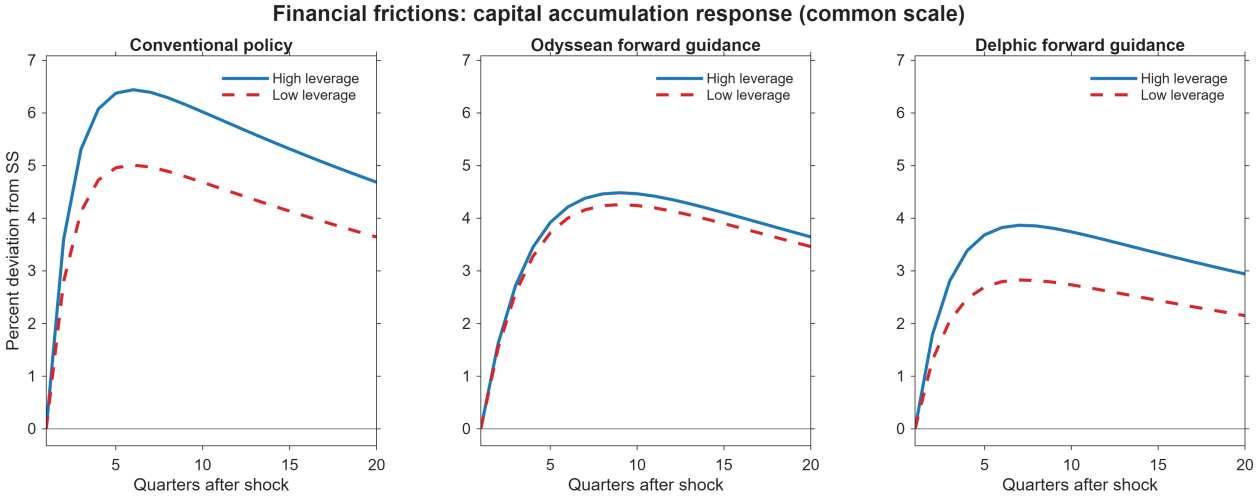
response by both leverage groups (Appendix G.6, Figure 27).

FIGURE 15: Attention Heterogeneity: Capital Accumulation Response



Notes: Simulated capital-accumulation responses comparing high- and low-attention firms, averaging over leverage. A differential appears only for Odyssean guidance (Proposition 1); the low-attention line is positive (the public headline) but well below the high-attention line. Conventional and Delphic responses coincide (Proposition 2).

FIGURE 16: Financial Frictions: Capital Accumulation Response



Notes: Simulated capital-accumulation responses comparing high- and low-leverage firms, averaging over the attention distribution and plotted on a common scale. Financial frictions amplify responses to conventional and Delphic shocks (Proposition 3) but generate only a small differential for Odyssean guidance (Proposition 4).

6.7 Discussion

The framework rationalizes the empirical patterns through a single friction: an Odyssean commitment must be decoded, while conventional and Delphic content need not be. Decoding has two effects—a deeper appreciation of the commitment's benefit and the understanding that borrowing costs stay low regardless of data—and both make attention central for Odyssean guidance alone. Only the second effect interacts with leverage, and it reaches few firms, so financial frictions are limited for Odyssean guidance while remaining central for conventional and Delphic shocks. Because the argument turns on which firms decode the commitment rather than on the rate path, it is consistent with the two forms of forward guidance moving the yield curve identically and differing only in their equity response. Finally, within the model, the same inattention that mutes the Odyssean leverage interaction also mutes the aggregate Odyssean response, connecting the cross-sectional results to the forward-guidance puzzle: commitment-based guidance is powerful for the firms that process it, but reaches few of them.

7 Conclusion

This paper shows that monetary policy does not transmit to firm investment through a single channel. Using firm-level local projections that allow investment responses to vary with both attention and balance-sheet position, I document that the pattern of heterogeneity in transmission depends on the informational content of the policy shock. For conventional monetary policy and Delphic forward guidance, which conveys information about economic fundamentals, differential responses run primarily through financial frictions, while attention plays a limited role. Odyssean forward guidance, which reflects commitment to a future policy path, operates through a different mechanism: a firm responds relatively more when its attention to monetary policy is high, while balance-sheet position plays a limited role.

These findings imply that the transmission of central bank communication to firms depends on both what is communicated and who processes the signal. A policy announcement that produces an identical movement in interest rates can be transmitted along different margins depending on whether it reflects a commitment or a forecast, and its incidence

across firms depends on the distribution of attention. This observation has implications for how central banks communicate and for the design of forward guidance. Commitment-based guidance is transmitted most strongly to attentive firms; its reach therefore depends on how broadly the commitment is understood. Information-based guidance, by contrast, requires no decoding but is amplified by financial frictions, so its incidence depends on the balance-sheet composition of the corporate sector.

The framework also suggests a possible resolution to the forward guidance puzzle. If many firms are inattentive to policy commitments, the aggregate investment response to Odyssean guidance would reflect a weighted average across the attention distribution and could be substantially smaller than what representative-agent models predict. The estimates in this paper identify the within-firm differentials on which this argument rests rather than the aggregate response itself. Within the framework, improving policy communication in ways that make commitments more salient and accessible to a broader set of firms could amplify the real effects of forward guidance. More broadly, these results point to the distribution of attention across firms as a relevant dimension of heterogeneity for the transmission of central bank communication, alongside the distribution of balance-sheet positions that the existing literature has emphasized.

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Appendix

A LLM Prompts for Forward Guidance Classification

This appendix documents the AI-based classification used to construct Figure 1. Section A.1 reproduces the exact prompts; Section A.2 illustrates the classification on three unambiguous documents; Section A.3 describes the pipeline; Section A.4 maps document-level outputs into the quarterly series; Section A.5 summarises the validity and robustness evidence.

A.1 Prompts

I classify forward guidance using GABRIEL (OpenAI), a Python library that wraps calls to GPT models with standardized prompts, retry logic, and audit-trail logging (Asirvatham et al., 2026). The model is applied to the full text of FOMC statements and is instructed to evaluate each document along two dimensions corresponding to Odyssean and Delphic forward guidance.

Specifically, the model is asked: *How strongly does the document discuss Odyssean forward guidance? Odyssean forward guidance refers to communication in which the Federal Reserve signals an intended future policy path or a commitment-like plan regarding future monetary policy. The key feature is that the central bank is shaping expectations through its own intended future actions. Include passages where the Fed indicates that rates are expected to remain low, or policy is expected to follow a certain path, because the Committee intends to keep policy accommodative or intends to act in a particular way in the future. This includes commitment-like language, date-based guidance, calendar-based guidance, or strong statements about maintaining accommodation. Focus on communication that emphasizes policy intention or commitment by the Fed itself. Do not classify as Odyssean when the statement is mainly describing the economic outlook, risks, inflation, employment, or weak conditions as the reason markets should expect a certain policy path.*

The model is also asked: *How strongly does the document discuss Delphic forward guidance? Delphic forward guidance refers to communication in which the Federal Reserve reveals information about the economic outlook, and the implied future policy path follows from that*

outlook rather than from a firm policy commitment. The key feature is that the statement conveys the Fed's assessment of future economic conditions. Include passages where future policy expectations are linked to expected inflation, unemployment, growth, downside risks, financial conditions, or general macroeconomic weakness or strength. This includes guidance that signals what policy is likely to be because of the expected state of the economy. Focus on communication that is primarily informational about the outlook rather than commitment-like. Do not classify as Delphic when the statement mainly emphasizes the Federal Reserve's intended policy path, deliberate commitment, or explicit promise to keep policy accommodative independent of incoming information.

In addition to these evaluations, the model is used to assess the relative extent to which each document discusses Odyssean and Delphic forward guidance using the same definitions, and to extract representative passages corresponding to each category. The extraction follows the instruction: *Return a passage from the document that discusses the category. Return one or more sentences when relevant text exists. Use the document's original wording. A passage can belong to more than one category if appropriate, but prefer the category that best reflects the main meaning. Use Odyssean when the passage is mainly about the Fed's intended policy path or commitment. Use Delphic when the passage is mainly about the Fed's information regarding the economic outlook.*

A.2 Illustrative Examples

Three FOMC statements illustrate the classification on documents where the assignment is unambiguous. The salience scores reported below are produced by `gabriel.rate`; the indented passages are the literal text returned by `gabriel.codify` from the corresponding statement.

Example 1: Calendar-based Odyssean guidance (August 9, 2011). Salience scores: Odyssean = 90, Delphic = 82. The Committee made an explicit, calendar-dated commitment over the future path of the policy rate, independent of incoming data:

> *"The Committee currently anticipates that economic conditions—including low rates of resource utilization and a subdued outlook for inflation over the medium*

run—are likely to warrant exceptionally low levels for the federal funds rate at least through mid-2013."

Example 2: Threshold-based Odyssean guidance (December 12, 2012). Salience scores: Odyssean = 88, Delphic = 82. The Committee replaced calendar-based guidance with the Evans rule, conditioning the future path of the policy rate on macroeconomic thresholds rather than on the realized state of the economy at any future date:

"... the Committee decided to keep the target range for the federal funds rate at 0 to 1/4 percent and currently anticipates that this exceptionally low range for the federal funds rate will be appropriate at least as long as the unemployment rate remains above 6-1/2 percent, inflation between one and two years ahead is projected to be no more than a half percentage point above the Committee's 2 percent longer-run goal, and longer-term inflation expectations continue to be well anchored."

Example 3: Pure Delphic communication (August 7, 2007). Salience scores: Odyssean = 5, Delphic = 90. The statement contains no commitment language; it describes the Committee's assessment of the economic outlook and links any implied policy adjustment to incoming information:

"Although the downside risks to growth have increased somewhat, the Committee's predominant policy concern remains the risk that inflation will fail to moderate as expected. Future policy adjustments will depend on the outlook for both inflation and economic growth, as implied by incoming information."

The three statements span the salience scale (90, 88, and 5 for Odyssean) and demonstrate the operational distinction between the two informational channels. The first two are widely treated in the empirical forward-guidance literature as the canonical Odyssean episodes of the sample period; the third is representative of the pre-ZLB sample, in which essentially all forward-looking content is outlook-based.

A.3 Pipeline

The input is the full set of 167 FOMC press releases issued between February 2000 and December 2019. Each PDF is parsed to text with `pypdf`; whitespace is collapsed; the calendar date is extracted from the filename. The classification model is `gpt-5-mini`.

Three GABRIEL primitives are applied in sequence to each document. `gabriel.rate` returns a 0–100 salience score for each attribute, measuring the absolute prominence of Odyssean and Delphic content. `gabriel.rank` runs a pairwise tournament (three rounds, five matches per document per round) and returns a within-sample z-score for each attribute, providing a calibration-free relative ranking that is robust to monotonic transformations of the salience scale. `gabriel.codify` extracts representative passages illustrating each attribute. The rate output produces the top panel of Figure 1; the rank output produces the bottom panel; the codify output serves as an audit trail and is not plotted.

A.4 Aggregation

Document-level scores are mapped to the quarterly series in Figure 1 by averaging within each calendar quarter and applying a backward four-quarter moving average:

$$S_q^k = \frac{1}{N_q} \sum_{i \in q} s_i^k, \qquad \bar{S}_q^k = \frac{1}{\min(4, q)} \sum_{q'=q-3}^{q} S_{q'}^k, \qquad k \in \{\text{Odyssean, Delphic}\},$$

and analogously for the rank scores R_q^k. Here i indexes documents, q indexes quarters, N_q is the number of statements in quarter q, and s_i^k is the document-level salience score from `gabriel.rate`.

A.5 Validity and Robustness

Asirvatham et al. (2026) validate the GABRIEL pipeline against more than 1,000 human-labelled benchmark tasks. Their evidence addresses the two concerns relevant for an AI-based measurement: *accuracy* (the score agrees with what a careful human reader would record) and *directness* (the score is driven by the textual content rather than by background knowledge correlated with the construct). Five specific results support the validity of the

classification used here:

- *No training-data contamination.* Across more than 1,000 HuggingFace classification tasks, labelling accuracy is statistically identical for datasets released *before* versus *after* the model's mid-2024 training cutoff. If memorisation were driving accuracy, post-cutoff performance should fall sharply; it does not.
- *Small models perform as well as large.* `gpt-5-mini`, used here, matches `gpt-5` on measurement accuracy. The smaller model lacks the capacity to store the relevant texts and labels, so its parity with the large model is direct evidence that the measurements come from reasoning over text, not from regurgitation.
- *No shortcut inference.* In signal-stripping designs, removing the target content from synthetic and real-world documents attenuates the model's score by 81–98 percent while leaving correlated-but-distinct attributes unchanged. The model reads the textual signal rather than inferring the construct from correlated cues.
- *Prompt robustness.* On the V-Dem benchmark, Pearson correlations across semantically equivalent prompt reformulations exceed 0.93. Within the family of well-posed prompts, the measurement is stable.

Application to this paper. The pattern in Figure 1 is consistent with the direct-measurement interpretation. The highest Odyssean-salience score in the sample (92) is assigned to the August 9, 2011 FOMC statement that contains the literal commitment to keep rates "at exceptionally low levels . . . at least through mid-2013"; the December 16, 2008 statement that introduced the ZLB receives a much lower Odyssean score and a high Delphic score, consistent with its outlook-based content. If the model were inferring from the date or the policy environment rather than the text, both statements would receive similar Odyssean scores.

B Data Construction, Classification, and Supplementary Descriptive Evidence

This appendix documents the construction of the firm-level monetary-policy corpus used in the empirical analysis, the classification procedure that produces Figures 5–7 of the main text, and a set of supplementary descriptive patterns that further characterise the cross-section of firm attention. Sections B.1–B.7 document the data pipeline. Sections B.5–B.8 present supplementary descriptive evidence not reported in the body of the paper.

B.1 Source Corpus

This section describes the classification of monetary policy references in firm earnings call transcripts. The objective is to map each reference into economically meaningful categories based on the underlying transmission channel.

Monetary policy references are first identified using a keyword-based procedure applied to the full text of conference call transcripts. The keyword identification step relies on explicit mentions of terms including FOMC, the federal reserve, federal funds rate, federal reserve, policy rates, fed, monetary policy, quantitative easing, tightening cycle, further rate cuts, additional rate hikes, interest rate policy, hawkish, dovish, longer-term interest rates, forward guidance, monetary easing, policy rate, short-term rates, long-term rates, long-term interest rates, short-term interest rates, tapering, monetary policies, QE, long rates, future rate hikes, Federal Reserve, monetary stimulus, quantitative tightening, janet yellen, bernanke, and future interest rates.

The resulting text fragments are then individually reviewed to discard false positives, ensuring that only economically meaningful references to monetary policy are retained. The filtered set of references is used to construct the firm-level measure of attention to monetary policy.

The revised corpus consists of 2,452 substantive monetary-policy passages drawn from earnings conference call transcripts of publicly listed U.S. firms over 2002Q1–2019Q4. The regression analysis uses the more restricted estimation sample described in Section 4 and

Appendix D. Each passage is a sentence-level extract from a transcript in which firm management or analysts discuss monetary policy in a way that is economically interpretable and non-incidental. Each passage in the file is followed by an attribution line that records the firm name, the Compustat sector grouping, the firm's SIC code, and the date of the earnings call. The attribution line takes the form

```
Firm Name (Sector ; SIC code) on YYYY-MM-DD
```

and is the basis for the metadata extraction described in Section B.2.

B.2 Parsing and Quote-Level Metadata

The source file is parsed in Python using the `python-docx` library. Each non-empty paragraph in the document is tested against the regular expression

```
^(.*?)\s*([A-Z][A-Za-z0-9 ,&.\-\']+(?:Inc|Corp|Corporation|
Co|LLC|Ltd|Holdings|Group|Plc|N.V.|Bancorp))\s*\(([^)]+)\)
\s*on\s*(\d{4})-(\d{2})-(\d{2})
```

which jointly captures (i) the passage text, (ii) the firm name, (iii) the parenthetical content holding sector and SIC, and (iv) the year, month, and day of the earnings call. A total of 2,452 paragraphs match this pattern. Three light cleaning conventions are then applied. First, the firm name is stripped of speaker-tag prefixes that occasionally appear in the transcripts (`Presentation.` and `Questions And Answers.`). Second, the sector field is normalised by a small set of typo replacements (for example, "Energy Fossil Fuels" → "Energy – Fossil Fuels"). Third, the date is converted to a calendar quarter and to a decimal-year index used for plotting. The resulting tidy dataset has one row per passage with columns `firm`, `sector`, `SIC`, `date`, `quarter`, `x_pos`, and `text`, plus the indicator columns introduced in Sections B.6 and B.7.

B.3 Period Assignment

Each passage is assigned to one of three policy regimes by the year of its earnings call. The Pre-ZLB regime is defined as 2002Q1–2007Q4, the ZLB regime as 2008Q1–2015Q4, and the

Post-ZLB regime as 2016Q1–2019Q4. The partition is year-based; the conventional ZLB period of 2008Q4–2015Q4 is reported separately in the time-series figures of the main text. The three-way partition produces 883 passages in the Pre-ZLB regime, 1,101 in the ZLB regime, and 468 in the Post-ZLB regime. The partition is used in the regime-level shares plotted in Figures 6 and 7 of the main text.

B.4 Common Construction of the Indicators

For Figures 6 and 7 I compute a set of binary indicators by case-insensitive regular-expression matching against each passage's text. The indicators are non-mutually-exclusive: a single passage may carry positive values for several indicators simultaneously, reflecting the fact that a single sentence may discuss, for example, both higher borrowing costs and weaker consumer demand.The patterns used in the figures are reproduced in Sections B.6 and B.7 below.

The choice of a regex-based pipeline is deliberate. The role of Figures 5–7 is to provide face-validity evidence: they document that the corpus contains the kind of monetary-policy language one would expect, and that this language varies across regimes in the expected directions. Regex matching is deterministic, auditable, and reproducible from the published patterns by any reader without an API key or model dependency. Each pattern is documented in full so that an external researcher can both verify the implementation and modify the patterns to test sensitivity.

B.5 Figure 5: Most Frequent Three-Word Phrases

Figure 5 reports the twenty most frequent three-word phrases in the corpus. The construction proceeds as follows.

1. Concatenate the text of all 2,452 passages into a single string.
2. Convert to lowercase and strip all characters outside the set `[a-z, space, apostrophe]`. This removes punctuation, digits, and transcript annotations while preserving contractions.

3. Tokenise on whitespace.

4. Remove a fixed list of standard English stop words (*the*, *of*, *and*, *in*, *to*, *a*, and so on; the complete list is reproduced in the `build_excel.py` script in the replication archive) and tokens of length one or less.

5. Construct three-word sequences by sliding a window of length three across the cleaned token stream. Count occurrences across the corpus.

6. Remove a small fixed exclusion list of conference-call boilerplate trigrams: `cfo corporate participant`, `ceo corporate participant`, `corporate participant during`, `rates basis points`, `interest expense million`. The exclusion set is documented in the same script.

7. Rank the remaining trigrams by frequency and retain the top twenty.

The procedure uses no information beyond the passage text. The resulting top-twenty list is dominated by rate-path expressions ("short term interest rates," "long term interest rates," "higher short term," "rising short term"), institutional references ("federal funds rate," "federal reserve board"), and instrument-specific terminology ("quantitative easing"). Generic macroeconomic terms ("inflation," "unemployment," "GDP") do not appear in the top twenty, consistent with a corpus that captures substantive engagement with monetary-policy communication rather than incidental macroeconomic discussion.

B.6 Figure 6: Topic Indicators by Regime

Figure 6 decomposes the corpus by economic-channel topic and reports the share of passages that match each topic within each of the three regimes defined in Section B.3. Five topic indicators are constructed. Each indicator is set to one if any of the regex patterns in Table 6 matches the passage text, and zero otherwise. The patterns are case-insensitive and word-boundary anchored.

Within each regime r and for each topic indicator I, Figure 6 reports the percentage share

$$\text{share}(I, r) \;=\; 100 \times \frac{\sum_{s \in r} I(s)}{N(r)},$$

TABLE 6: Regex patterns defining the five topic indicators in Figure 6.

Indicator	Pattern (case-insensitive, word-boundary anchored)
`topic_financing`	`\b(borrowing|debt|credit|refinanc|interest expense|cost of (capital|debt|funds|funding)|spread|libor|covenant|leverag|float|interest income)\b`
`topic_demand`	`\b(consumer|customer|sales|demand|spending|order|housing|home (sale|buy)|mortgag|auto sale|retail)\b`
`topic_investment`	`\b(capex|capital expenditure|invest(ment|ing)?|expansion|new plant|facility|project|build|construction)\b`
`topic_outlook`	`\b(yield curve|recession|growth|gdp|economy|inflation|unemployment|outlook|forecast|recovery|slowdown)\b`
`topic_policy`	`\b(fed (chair|governor|chairman)|janet yellen|ben bernanke|jerome powell|fomc|federal reserve board|monetary policy stance|tightening|easing)\b`

where $N(r)$ is the number of passages in regime r and the sum is taken over passages in that regime. Because the indicators are non-mutually-exclusive, the shares within a regime may sum to more than 100 percent across topics. The most pronounced regime shift is in the policy/institutional indicator, which rises from 0.8 percent of passages before the ZLB to 6.1 percent during the ZLB and 4.5 percent afterward, consistent with firms increasingly treating the Federal Reserve itself as a source of business-relevant news once policy moved into unconventional territory.

B.7 Figure 7: Forward-Guidance Vocabulary Indicators by Regime

Figure 7 reports the share of passages mentioning each of nine vocabulary items, again by regime. The items capture instrument-specific terms (quantitative easing, taper), forward-guidance terms (rate path, forward guidance, commitment language indicating that rates will remain low for an extended period), and rate-action terms (hike, cut, pause, pivot). Indicators are constructed in the same way as the topic indicators: a passage carries an indicator equal to one if any of the regex patterns in Table 7 matches its text, and zero otherwise. The regime partition and the aggregation formula are identical to those for Figure 6.

The patterns are designed to distinguish between the language of conventional rate ad-

TABLE 7: Regex patterns defining the nine vocabulary indicators in Figure 7.

Indicator	Pattern
lang_qe	\b(quantitative easing|qe[123]?)\b
lang_taper	\btaper(?:ing)?\b
lang_ratepath	\b(rate path|future (rates?|interest|policy)|future path| policy path)\b
lang_forwardguid	\bforward guidance\b
lang_remainlow	\b(remain low|low for (a |an)?(extended|long|some|several| considerable|prolonged)|stay low|kept low|keep (rates?)?low)\b
lang_hike	\b(hike|hiking|hikes)\b
lang_cut	\b(rate (?:cut|cuts|cutting))\b
lang_pause	\bpause\b
lang_pivot	\bpivot\b

justments and the language of unconventional policy communication. As Figure 7 shows, the resulting regime-specific incidence is consistent with the historical record: `lang_qe` and `lang_taper` are essentially absent before the ZLB and rise sharply during it; `lang_remainlow` (commitment-style language indicating that rates will remain low for an extended period) is uniquely concentrated in the ZLB years; `lang_pause` and `lang_pivot` appear only in the post-ZLB normalisation period.

B.8 Illustrative Excerpts by Regime

Table 8 reports curated excerpts that illustrate the language of monetary-policy attention in each of the three policy regimes documented in Figures 6 and 7. The Pre-ZLB excerpts capture management discussions of an active tightening cycle and the policy stance of Chairman Greenspan; the ZLB excerpts capture both the commitment-based language of calendar guidance and the quantitative-easing vocabulary specific to the unconventional-policy episodes; the Post-ZLB excerpts capture the language of normalisation and the dovish-pivot narrative of late 2018. The regime-specific contrast that the table makes explicit is the central qualitative feature of Figures 6 and 7: firms' language about monetary policy tracks the policy environment they face.

TABLE 8: Regime-specific language in firms' monetary-policy discussion.

Regime	Example text excerpts
Pre-ZLB: rising rates, tightening cycle (2002Q1–2007Q4)	"Last week, Federal Reserve Chairman, Greenspan left little doubt that an interest rate hike is on the horizon." (Sherwin-Williams Co, April 29, 2004) "Don, we are expecting the Fed to tighten more and so we are expecting LIBOR rates to move up a little bit beyond kind of where we are." (Huntsman Corp, February 24, 2006) "This is due to persistent federal reserve rate increase actions that caused interest rates to rise more quickly than our debt declined." (Adtalem Global Education Inc, August 17, 2006)
ZLB: forward guidance and commitment (2008Q1–2015Q4)	"Depending upon the actual timing of our future capital spending, and assuming that short-term rates remain low for the foreseeable future, we could continue to see our interest expense run lower than the prior year in future quarters." (Marcus Corp, December 17, 2009) "...the Fed has the ability to keep interest rates at low levels for an extended period of time." (United Natural Foods Inc, December 10, 2009) "It appears that the Federal Reserve will continue the monetary policy which should keep interest rates low for the year..." (UFP Industries Inc, February 13, 2014)
ZLB: quantitative easing and asset purchases (2008Q1–2015Q4)	"If we stay at this level for an extended period of time, it says that you have probably replaced some artificial funding from the Fed and aggressive management of the capital markets with real solid economic growth." (FTI Consulting Inc, August 8, 2013) "We look at current trends of rates, and ...when the Fed came out and announced that QE3 was coming off, the first concern...is that means rates will go up." (Stoneridge Inc, August 1, 2013)
Post-ZLB: normalisation, hikes, pause, pivot (2016Q1–2019Q4)	"As many of you know, the Federal Reserve hiked the fed funds rate at their September 26 meeting, and economic data points to another rate hike at their December meeting." (A-Mark Precious Metals Inc, November 8, 2018) "And so we actually agree with the recent stance of the Fed to pause, because housing is such a critical part of the economy." (Spectrum Brands Holdings Inc, February 7, 2019) "Clearly, I think the pivot by the Fed, lower rates from the market...is lowering mortgage rates; and the housing market has just become accustomed to very low rates." (Spectrum Brands Holdings Inc, May 8, 2019)

Notes. Excerpts are drawn from the firm-level monetary-policy corpus and selected to illustrate the language characteristic of each policy regime. Firm names and earnings-call dates are reported in parentheses. Ellipses indicate omitted text retained for readability.

B.9 Interpretation versus Exposure in Firms' Language

The topic and vocabulary indicators above describe what firms talk about when they refer to monetary policy. This subsection documents the classification of passages by interpretation and exposure language reported in Section 3: whether a passage interprets the Federal Reserve's intentions, describes the firm's own exposure to interest rates, or does both.

Classification procedure. The unit of classification is the passage: a sentence or short group of sentences from an earnings call that survived the cleaning procedure of Section B.1, together with the firm's name, sector, SIC code, and call date. The classification proceeds in five steps.

1. Two families of indicators are defined by regular expressions, case-insensitive and word-boundary anchored, following the procedure used for Figures 6 and 7. The *interpretation* family (Table 9) contains six indicators: statements about the expected policy path; conditional statements about what the Fed will, would, or intends to do; commitment language, such as "remain low," "for an extended period," or "through 2014"; reaction-function and normalization vocabulary, such as "data dependent," "credibility," "taper," or "pause"; references to Federal Reserve officials or to FOMC statements and minutes; and expressed uncertainty about the Fed. The *exposure* family (Table 10) contains six indicators: the firm's own interest expense, debt, refinancing, and hedging; the rates on the firm's own borrowing or cash; interest and float income; demand, sales, and customers; capital expenditure and investment plans; and currency or commodity effects. A thirteenth indicator flags passages in which the firm describes a decision of its own, such as locking in a rate, letting a hedge expire, or planning a refinancing.

2. Each indicator is set to one if any of its patterns matches the passage text and to zero otherwise. Indicators are non-mutually-exclusive: a passage that says the Fed has signaled that rates will stay low and that the firm therefore expects lower interest expense carries positive values for a commitment indicator and for an exposure indicator.

3. A passage is assigned to one of four groups. It is *interpretation only* if at least one interpretation indicator and no exposure indicator equals one; *exposure only* in the

converse case; *both* if at least one indicator of each family equals one; and *neither* if no indicator equals one. Passages in the last group are mostly short mentions of a Federal Reserve action or of macroeconomic data; some describe exposure or interpretation in words the patterns do not cover.

4. Each passage is assigned to a policy regime by its call date, using the partition of Section B.3, and shares are computed within regime as for Figures 6 and 7. Firm-level co-occurrence is computed by grouping passages by firm and counting firms with at least one passage of each kind, restricted to firms with at least five passages so that the count is not driven by firms that appear once.

5. Precision is assessed by reading fixed-seed random samples of 50 passages classified as interpretation only and 50 classified as exposure only, and a sample of 30 passages that match neither family. The procedure uses no information beyond the passage text and the patterns in Tables 9 and 10, so it can be reproduced or modified by any reader.

Table 1 in the main text reports the shares. Exposure language is the more common: 42 percent of passages match at least one exposure indicator, 30 percent match at least one interpretation indicator, and 10 percent match both. The remaining 38 percent match neither family; most are short mentions of a Federal Reserve action or of macroeconomic data, and the rest describe exposure or interpretation in words the patterns do not cover, so the shares are lower bounds on the prevalence of each kind of language. The single most common theme is the firm's own interest cost or debt (21 percent of passages), consistent with the financing share reported for Figure 6. Within the interpretation family, conditional statements about what the Fed will do (12 percent) and expected-path statements (9 percent) dominate; explicit commitment language appears in 2 percent of passages over the full sample. Passages containing explicit decision language are 3 percent of the corpus.

The mix shifts with the policy regime. Exposure-only passages fall from 40 percent of the corpus before the zero lower bound to 28 percent during it and 26 percent afterward, while interpretation-only passages rise from 15 percent to 22 and 23 percent. Commitment language is concentrated in 2012 and 2013 (8.5 and 6.4 percent of passages in those years),

TABLE 9: Regex patterns defining the interpretation indicators.

Indicator	Pattern (case-insensitive, word-boundary anchored)
interp_path	\b(expect\w*|anticipat\w*|likely|probabl\w*|signal\w*| indicat\w*|telegraph\w*|guid\w*)\b.{0,60}\b(fed| federal reserve|fomc|monetary policy|rate (hike| cut|increase|decrease)s?)\b|\b(fed|federal reserve| fomc)\b.{0,60}\b(expect\w*|anticipat\w*|likely|signal\w*| indicat\w*|guidance|telegraph\w*|will (raise|cut|hike|lower| increase|reduce|hold|keep|pause|move|continue|tighten|ease))\b| \b(rate path|future (rates?|path|interest rates?)|path of (rates|interest)|forward guidance|next (meeting|move|hike|cut)| dot plot|dots)\b
interp_conditional	\b(if|when|should|as long as|until|assuming|whatever| depending on what|regardless of what)\b.{0,30}\b(the)?(fed| federal reserve|fomc)\b|\b(the)?(fed|federal reserve| fomc)\b.{0,40}\b(is going to|will|would|may|might|could| continues? to|starts? to|stops?|intends?|plans?|has (indicated|signaled|said|announced|affirmed))\b|\b(market)?consensus\b|\brate (hikes?|cuts?|increases?) (is|are) (coming|anticipated|expected|likely)\b
interp_commitment	\b(remain low|stay low|kept low|keep(ing)? (short[-]term)?(interest)?rates? low|low for (an?)?(extended|long| prolonged|considerable|foreseeable|some)|extended period| foreseeable future|accommodat\w*|low(er)?[-]for[-]long\w*| until (at least)?(20\d\d|mid|late|the end)|through (20\d\d| mid|late)|zero (interest)?rate|near zero)\b
interp_reaction	\b(data[-]dependent|dual mandate|inflation target|unemployment (rate)?(threshold|target)|reaction function|credib\w*|behind the curve|ahead of the curve|normaliz\w*|taper\w*|quantitative easing|qe ?[123]?|asset purchase\w*|balance sheet (reduction| runoff|unwind\w*)|hawkish|dovish|tightening cycle|easing cycle| pause|pivot|hold(ing)? (rates|steady|off))\b
interp_officials	\b(bernanke|yellen|powell|greenspan|fed (chair\w*|governor| president)|fomc (statement|minutes|meeting)|fed (statement| minutes|meeting|commentary|comments|language|messaging| rhetoric|speech\w*))\b
interp_uncertainty	\b(uncertain\w*|unclear|wait and see|what the fed (does| will do|is going to do)|depend\w* on (what)?the fed|hard to (predict|know|say)|nobody knows|crystal ball)\b

TABLE 10: Regex patterns defining the exposure indicators and the decision indicator.

Indicator	Pattern (case-insensitive, word-boundary anchored)
expo_interestcost	\b(interest expense|interest cost\w*|cost of (debt|funds|funding|capital|borrowing)|borrowing cost\w*|libor|floating[-]rate|variable[-]rate|refinanc\w*|debt|credit (facility|line|agreement)|term loan|revolver|line of credit|swap\w*|hedg\w*|fixed[-]rate|notes? (due|payable)|bonds?|leverage|covenant)\b
expo_ownrates	\b(our|us)\b.{0,50}\b(interest rates?|short[-]term rates?|rates?)\b|\b(interest rates?|short[-]term rates?|rates?)\b.{0,50}\b(our (debt|borrowing|interest|portfolio|float|cash|revolver|facility|notes|earnings|results|guidance|margin)|to us|for us|on us)\b|\baverage (interest)?rate\b|\b(interest|rates?) (were|was|are|is) .{0,20}(higher|lower|up|down)\b|\bbasis points?\b.{0,60}\b(our|us)\b
expo_interestincome	\b(interest income|investment income|yield on (our)?(cash|investments|portfolio)|money market|float|cash balances?|earn\w* on (our)?cash|returns? on (our)?cash|reinvestment rate)\b
expo_demand	\b(demand|sales|consumer\w*|customer\w*|housing|home ?(sales|buy\w*|build\w*)|mortgage\w*|orders?|spending|retail|traffic|volume\w*|end[-]market\w*|affordab\w*|auto (sales|loans?)|purchas\w*)\b
expo_investment	\b(capex|capital (expenditure|spending|investment)s?|invest(ment|ing)?|expansion|new (plant|store|facilit)\w*|project\w*|build(ing)?|construction|acquisition\w*|buyback\w*|repurchase\w*|dividend\w*)\b
expo_fxcommodity	\b(dollar|exchange rate|currenc\w*|fx|gold|silver|copper|commodit\w*|oil)\b
decision	\b(we|our (board|team|management))\b.{0,40}\b(decid\w*|chose|choos\w*|elect\w* to|lock\w* in|fix\w*|swap\w*|hedg\w*|accelerat\w*|delay\w*|defer\w*|postpon\w*|pull\w* forward|refinanc\w*|pay(ing)? down|repay\w*|extend\w*|term\w* out|prepay\w*|hold off|wait\w*|plan\w* to|will (not)?(be)?(making|invest|spend|borrow|refinanc|issu|buy|build))\b

the years of calendar- and threshold-based guidance, and the share of passages carrying any interpretation language is highest from 2013 to 2016. The two kinds of language are produced by the same firms: among the 139 firms with at least five passages, 105 have passages of both kinds. The classification is keyword-based and therefore noisy. In the audited samples, about seven in ten interpretation-only passages and nine in ten exposure-only passages are correctly classified; the errors are mostly quotations of Federal Reserve officials on the state of the economy rather than on policy, references to other central banks, and words such as *guidance* or *tapering* used in a non-monetary sense. The patterns favor precision over recall, and the regime pattern is unchanged when the corpus is restricted to firms in the regression sample. Table 11 reports illustrative passages of each kind.

TABLE 11: Interpretation and exposure in firms' monetary-policy language: illustrative passages.

Firm (call date)	**Passage**
Panel A. Interpretation of the Federal Reserve's commitment or expected path	
ITT Educational Services Inc (January 26, 2012)	"The Fed made an announcement yesterday saying that rates are probably locked at these low levels out through 2014."
Cabela's LLC (February 16, 2012)	"We did read in Chairman Bernanke comments several weeks ago, I mean he was very clear that the Fed intends to keep rates low."
Hyatt Hotels Corp (February 16, 2012)	"With the Fed's commitment to keeping rates low indefinitely, it feels like."
Mohawk Industries Inc (November 2, 2012)	"In October, the Fed affirmed plans to keep interest rates low through at least mid 2015."
Moody's Corp (October 25, 2013)	"It looks like the median view right now is that tapering won't begin until March of next year, though there is some dispersion around when that will happen."

Continued on next page

Table 11 — continued from previous page

Firm (call date)	Passage
UFP Industries Inc (February 13, 2014)	"It appears that the Federal Reserve will continue the monetary policy which should keep interest rates low for the year and we believe political self-preservation will encourage maintenance of the status quo."
Panel B. Interpretation carried into a stated decision	
Home Depot Inc (August 17, 2010)	"So we don't feel compelled to go to market, even though interest rates are very low, because with the Fed's announcement last week that they're going to keep the size of their balance sheet for the foreseeable future, it doesn't appear to us that rates will be moving in the near term."
Catalent Pharma Solutions Inc (May 10, 2013)	"It is our intention currently to let those hedges expire given our assessment of the interest rate environment [and] statements made by the Fed [that we] were likely to be experiencing low interest rates for the foreseeable future, which would probably encompass a hedge period for us."
Ducommun Inc (May 6, 2013)	"The accommodative monetary policy by the Fed presented us with an opportunity to reduce the interest on our term and revolving credit lines by 50 basis points, and we were also able to lower our interest rate floor by 25 basis points."
Ducommun Inc (July 28, 2014)	"Given that the chairman of the Federal Reserve has indicated intermediate-term, short- and intermediate-term rates will stay modest for another 12 to 15 months, we believe that we can refinance our $317 million, which will be down by another $15 million if we keep paying them down."
Burlington Stores Inc (June 9, 2015)	"Although one can never predict when the Fed will raise or lower interest rates, we believe that locking in the majority of our term loan at a historically low interest rate through May of 2019 was in the best interest of the Company and our shareholders."
S&P Global Inc (July 29, 2014)	"The Fed has system-wide macro data which is incredibly valuable for us to hear from her on those signals and we've incorporated what she said into our business."
Panel C. Exposure without interpretation	
Adtalem Global Education Inc (August 18, 2005)	"Although borrowing levels were lower throughout the year compared to a year ago, short-term interest rates in which our debt rate is based have increased significantly over that period."
Cognizant Technology Solutions Corp (October 31, 2005)	"Interest income increased due to higher global cash balance, as well as an increase in U.S. short-term rates."

Continued on next page

Table 11 — continued from previous page

Firm (call date)	Passage
Paychex Inc (June 25, 2009)	"First was the fed funds rates at or near zero that caused our float income to decline by $56 million, or 43% year on year."
Silgan Holdings Inc (April 22, 2004)	"If we were to see a 50-[bit] increase from Fed funds, would you want to comment on what that would do to interest expense on a quarterly basis?"
Panel D. Interpretation of the policy path under conventional policy	
S&P Global Inc (January 25, 2005)	"We expect the Federal Reserve to increase interest rates gradually as they have been through 2005, going from a current 2.25 percent to 4 percent by either the end of the year or just as we get into 2006."
S&P Global Inc (April 25, 2006)	"Another 25 basis point rate hike is anticipated when the Fed meets on May 10."
Quanex Building Products Corp (August 26, 2004)	"Interest rates have moved up a bit, but as Sir Allen says, it is the fed's reaction to what they see as a slow and steady improvement in the overall economy."

Notes: Passages are drawn from the monetary-policy attention corpus described in Section B.1. Panels A and B are classified as interpretation by the indicators in Table 9; Panel B additionally matches the decision indicator. Panel C passages match only the exposure indicators in Table 10. Panel D shows interpretation of the policy path during the 2004–2006 tightening cycle. Bracketed text is added for readability.

C Which Firms Pay Attention to Monetary Policy?

This appendix describes which firms discuss monetary policy in their earnings calls and which firm characteristics are associated with that attention. The evidence is descriptive. The local projections in Section 4 use only within-firm variation in attention, so the cross-firm patterns reported here do not enter the identification. They characterize the firms and the variation behind the measure.

The sample contains every firm-quarter of the Compustat sample described in Appendix E that has an earnings-call transcript between 2002Q1 and 2019Q4: 91,982 calls from 2,803 firms.[6] This window is wider than the regression sample, which ends in 2017Q4 and excludes 2007–2009. I use two versions of the measure. The first is an indicator equal to one if the call contains at least one sentence from the cleaned monetary-policy corpus described in Appendix B. The second is the intensity measure used in the main text, expressed as the number of monetary-policy sentences per 1,000 sentences in the call.

C.1 How Often Firms Discuss Monetary Policy

Attention to monetary policy is infrequent and concentrated (Table 12, Panel A). Only 4.0 percent of the calls matched to the Compustat sample contain a monetary-policy sentence, although 43.8 percent of the firms with at least one matched call produce at least one such call. When a call discusses monetary policy, the discussion is short: 80.4 percent of these calls contain a single monetary-policy sentence, and monetary policy accounts for 0.33 percent of the sentences in the call. The top 5 percent of firms account for 49.1 percent of all monetary-policy sentences, and the top 10 percent account for 64.6 percent. Figure 17(b) shows the same concentration across firms with at least eight calls: half never mention monetary policy, a quarter mention it in at most 5 percent of their calls, and 5.2 percent mention

[6] The Compustat sample for 2002–2019 contains 174,294 firm-quarters from 4,935 firms. Of these, 91,982 firm-quarters (53 percent) from 2,803 firms have a matched earnings-call transcript, and coverage rises from 19 percent of firm-quarters in 2002 to 72 percent in 2019. Firm-quarters without a transcript are excluded because attention is not observed for them. The transcript data cover all calls in the sample, including calls with no monetary-policy sentence, and record the total number of sentences in each call. The 1,575 firms that never mention monetary policy therefore contribute 40,863 calls with a recorded length and no monetary-policy sentence. Only the calls that mention monetary policy contribute passages to the text corpus in Appendix B.

it in more than 15 percent of their calls.

Attention is persistent but most episodes are short. A firm that discusses monetary policy in one quarter does so again in the next quarter with probability 26.2 percent, compared with 3.0 percent for a firm that did not. Panel B of Table 12 decomposes the variance of the measure. Firm fixed effects explain 15.0 percent of the variance of the indicator and 26.6 percent of the variance of intensity. Quarter fixed effects explain less than 1 percent, and sector-by-quarter fixed effects explain about 1 percent. Adding sector-by-quarter fixed effects to firm fixed effects raises the explained share only to 15.7 and 27.2 percent. Between 73 and 84 percent of the variation in attention therefore occurs within firms over time and is not common to firms in the same sector and quarter. This is the variation that the local projections exploit.

Figure 17(a) reports the share of calls that mention monetary policy in each quarter. Unlike the passage count in Figure 4, the share is not affected by the growth in transcript coverage over the sample. The share rises during the 2004–2006 tightening cycle, peaks at 7.7 percent in 2008Q1, and from 2009 onward stays between 2.6 and 4.3 percent. It averages 4.8 percent in 2002–2007, 3.8 percent in 2008–2015, and 3.3 percent in 2016–2019. Its correlation with the federal funds rate is 0.46 (0.56 for the four-quarter moving average). Firms therefore discuss monetary policy more often when the policy rate is high and moving, which is consistent with the prominence of financing-cost language in the corpus (Table 1).

C.2 Attention across Sectors

Figure 18(a) reports the share of calls that mention monetary policy by sector. The share is highest in services (5.2 percent) and wholesale trade (4.8 percent), close to the sample mean in manufacturing (4.0 percent), and lower in retail trade (3.1 percent), transportation and utilities (3.0 percent), mining (2.5 percent), and construction (1.2 percent). Panel (b) shows that the ordering is broadly stable over time. Services and manufacturing stay between 3 and 6.4 percent in every three-year period. Retail trade is the main exception: its share is high in 2005–2010 and falls to 1.3 percent after 2014. Construction contains only 27 firms, and its estimates are imprecise. These sector differences are small relative to the dispersion

TABLE 12: Properties of the Firm-Level Attention Measure

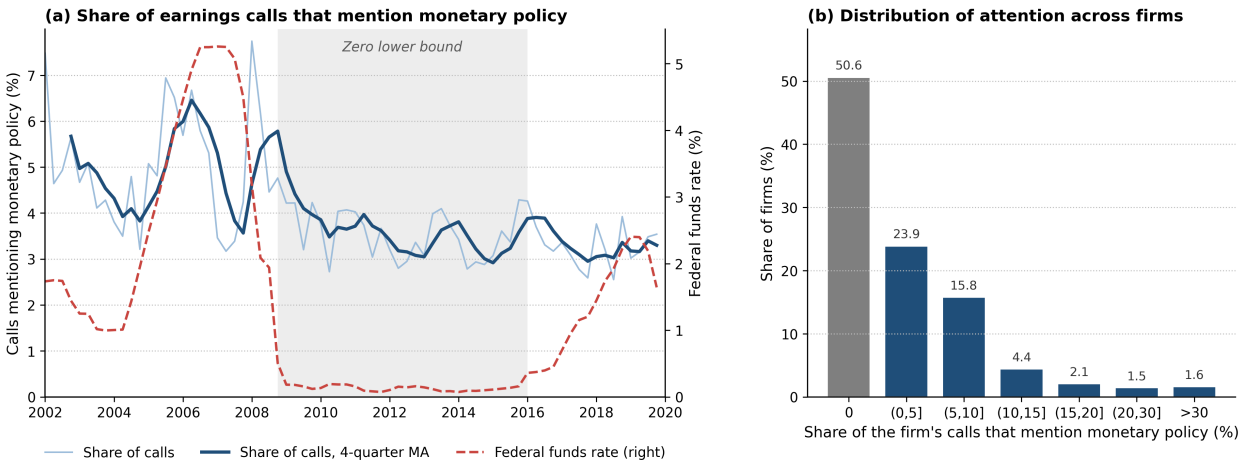
Panel A. Coverage, incidence, and persistence	
Firm-quarter observations (calls)	91,982
Firms	2,803
Calls per firm, median	32
Calls with at least one monetary-policy sentence (%)	4.0
Firms with at least one such call (%)	43.8
Monetary-policy sentences per call, if positive: mean	1.33
share with one sentence (%)	80.4
Monetary-policy share of call sentences, if positive (%)	0.33
Share of all monetary-policy sentences, top 5% of firms (%)	49.1
Share of all monetary-policy sentences, top 10% of firms (%)	64.6
$\Pr(\text{attention}_t = 1 \mid \text{attention}_{t-1} = 1)$ (%)	26.2
$\Pr(\text{attention}_t = 1 \mid \text{attention}_{t-1} = 0)$ (%)	3.0

Panel B. Share of variance explained by fixed effects (R^2)

	Any mention	Share of sentences
Quarter	0.003	0.002
Sector × quarter	0.010	0.007
Firm	0.150	0.266
Firm + sector × quarter	0.157	0.272

Notes: Sample of firm-quarters with an earnings-call transcript, 2002Q1–2019Q4. A call pays attention when it contains at least one sentence from the cleaned monetary-policy corpus. The persistence rows use consecutive quarters of the same firm. Panel B reports the R^2 of a regression of each attention measure on the indicated fixed effects; the share of sentences is the number of monetary-policy sentences divided by the total number of sentences in the call.

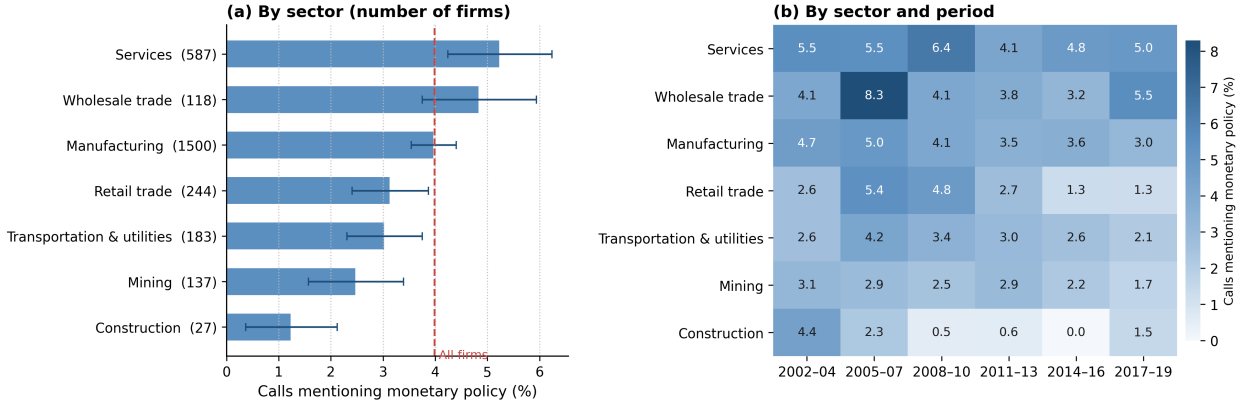
FIGURE 17: Attention to Monetary Policy over Time and across Firms



Notes: Panel (a) reports the percentage of earnings calls in each quarter that contain at least one sentence from the cleaned monetary-policy corpus, and its four-quarter moving average (left axis), together with the federal funds rate (right axis). The shaded region marks the zero lower bound period (2008Q4–2015Q4). The 2002Q1 value is based on 107 calls. Panel (b) reports the distribution across firms of the percentage of each firm's calls that mention monetary policy, for the 2,430 firms with at least eight calls. Sample: 2002Q1–2019Q4.

within sectors, which is why sector-by-quarter fixed effects explain so little of the variance in Table 12.

FIGURE 18: Attention to Monetary Policy by Sector



Notes: Panel (a) reports the percentage of calls that contain at least one monetary-policy sentence, by major SIC sector; the number of firms is in parentheses. Whiskers show 95 percent confidence intervals based on standard errors clustered by firm. The dashed line is the sample mean. Panel (b) reports the same percentage by sector and three-year period. Agriculture (6 firms) is not shown. Sample: 2002Q1–2019Q4.

C.3 Firms That Pay Attention and Firms That Do Not

This subsection compares firms that discuss monetary policy with firms that do not. I call a firm *attentive* ("Ever") if at least one of its calls in 2002Q1–2019Q4 contains a monetary-policy sentence and *non-attentive* ("Never") otherwise. The sample contains 1,228 attentive and 1,575 non-attentive firms. The comparison proceeds in three steps. I first report the raw differences between the two groups without conditioning on anything. I then examine how these differences vary over time, across sectors, and with firm size and sample coverage. Finally, I condition on all characteristics jointly and on within-firm variation.

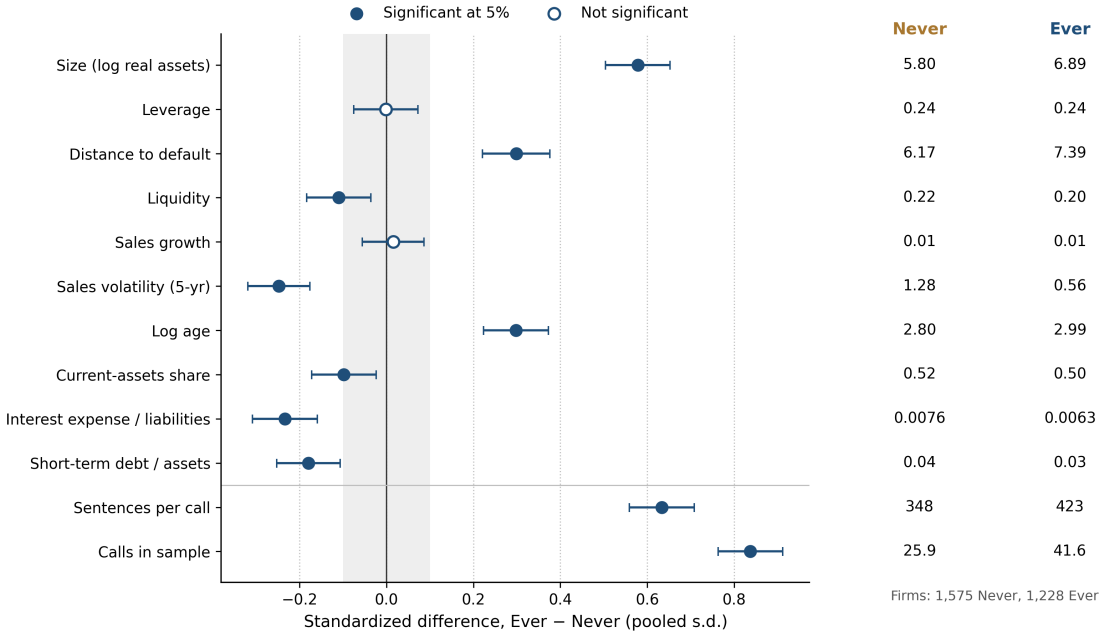
C.3.1 Raw Differences

Figure 19 reports the unconditional difference between the two groups for each characteristic, scaled by the pooled standard deviation, together with the group means in natural units. Table 13 reports the same comparison with standard deviations. The largest differences are not balance-sheet variables. Attentive firms have transcripts for more quarters (41.6 against

25.9 calls, 0.84 standard deviations), and their calls are longer (423 against 348 sentences, 0.63 standard deviations). Among firm characteristics, size shows the largest gap: attentive firms are larger by 1.09 log points, or 0.58 standard deviations. Attentive firms are also older and farther from default (0.30 standard deviations each), and they have lower sales volatility, lower interest expense relative to liabilities, and less short-term debt (between 0.18 and 0.25 standard deviations). Leverage and sales growth are nearly identical across the two groups.

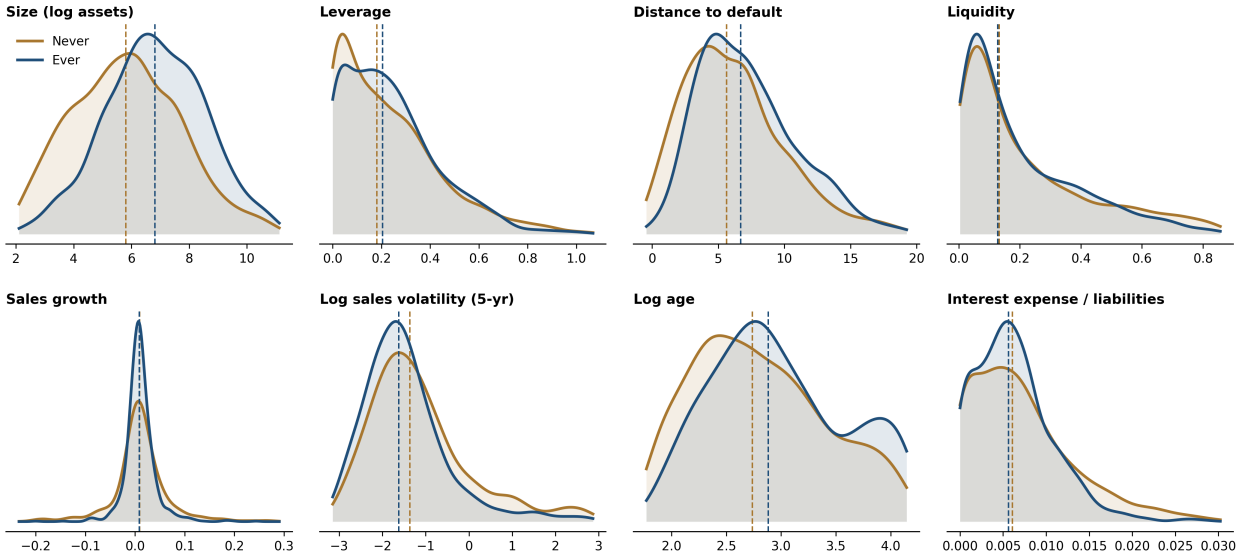
Figure 20 shows that these gaps are shifts of whole distributions rather than differences driven by a few firms. The size distribution of attentive firms lies to the right of that of non-attentive firms over its entire range. The distributions of leverage, liquidity, and sales growth overlap almost completely, and their medians differ by less than 0.03. Distance to default and age show moderate rightward shifts for attentive firms.

FIGURE 19: Firms That Pay Attention and Firms That Do Not: Raw Differences



Notes: Each firm is one observation, with characteristics averaged over its quarters with a transcript in 2002Q1–2019Q4. "Ever" firms (1,228) have at least one call that contains a monetary-policy sentence; "Never" firms (1,575) have none. Dots show the difference in means divided by the pooled standard deviation, with 95 percent confidence intervals based on unequal-variance standard errors. Filled dots are significant at the 5 percent level. The shaded band marks differences smaller than 0.1 standard deviations. The columns on the right report group means in natural units. No controls are included.

FIGURE 20: Distributions of Firm Characteristics by Attention Status



Notes: Each panel compares the distribution of one firm characteristic between firms that mention monetary policy in at least one call ("Ever," navy) and firms that never do ("Never," ochre). Each firm is one observation, equal to the average of the characteristic over the firm's quarters with a transcript. The curves are smoothed histograms (kernel density estimates); the area under each curve equals one, so the vertical scale is not shown. Dashed vertical lines mark the median of each group. For readability, each panel shows values between the 1st and 99th percentiles of the two groups combined. Sales volatility is shown in logs because its distribution is highly skewed. Balance-sheet variables are measured with a one-quarter lag and winsorized at the 0.5th and 99.5th percentiles.

TABLE 13: Characteristics of Firms That Do and Do Not Discuss Monetary Policy

	Never		Ever		Difference
	Mean	S.D.	Mean	S.D.	Ever − Never
Size (log real assets)	5.802	1.974	6.893	1.794	1.091***
					(0.071)
Leverage	0.242	0.240	0.242	0.207	−0.000
					(0.008)
Distance to default	6.165	4.111	7.387	4.074	1.222***
					(0.162)
Liquidity	0.223	0.227	0.200	0.193	−0.023***
					(0.008)
Sales growth	0.010	0.100	0.011	0.039	0.001
					(0.003)
Sales volatility (5-yr)	1.278	3.703	0.556	1.812	−0.722***
					(0.107)
Log age	2.802	0.629	2.988	0.623	0.186***
					(0.024)
Current-assets share	0.517	0.239	0.495	0.212	−0.022***
					(0.009)
Interest expense / liabilities	0.008	0.007	0.006	0.005	−0.001***
					(0.000)
Short-term debt / assets	0.040	0.064	0.030	0.045	−0.010***
					(0.002)
Sentences per call	348	118	423	118	75***
					(4)
Calls in sample	25.9	19.7	41.6	17.7	15.7***
					(0.7)
Firms	1,575		1,228		

Notes: Each firm is one observation; characteristics are averaged over the firm's quarters with a transcript in 2002Q1–2019Q4. "Ever" firms have at least one call that contains a monetary-policy sentence. Balance-sheet variables are measured with a one-quarter lag and winsorized at the 0.5th and 99.5th percentiles. Standard errors of the difference, allowing for unequal variances, are in parentheses. ***, **, *: significant at the 1, 5, and 10 percent levels. Distance to default is missing for 240 firms.

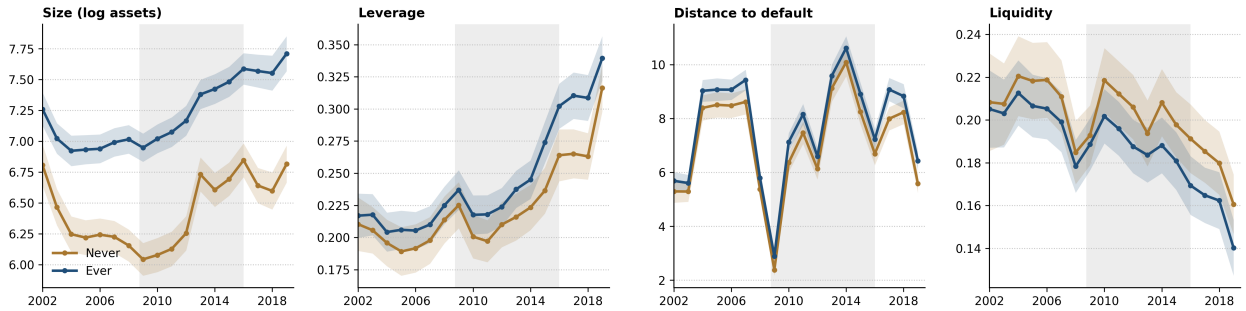
C.3.2 Where the Differences Come From

Figure 21 tracks the average of four characteristics for each group by year. The size gap is present in every year and ranges from 0.45 to 0.95 log points. The gaps in the balance-sheet variables are small relative to their movements over time. Attentive firms are slightly more leveraged in every year, by 0.02 on average, and slightly less liquid, by 0.01 on average. These annual averages weight firms by their number of calls, whereas Figure 19 weights each firm equally, which is why the leverage gap is zero there. Distance to default moves almost one-for-one in the two groups, falling sharply in 2008–2009 and recovering afterward, with a gap of 0.6 on a variable whose annual average ranges from 2.4 to 10.6.

Figure 22 repeats the raw comparison within each sector. Two gaps hold in every sector. Attentive firms are larger (between 0.46 and 0.66 standard deviations, significant at least at the 10 percent level in every sector) and appear in the sample for more quarters (significant in every sector except construction, which has 27 firms). The balance-sheet gaps change sign across sectors. The leverage gap ranges from -0.16 in services to 0.29 in transportation and utilities, the liquidity gap is negative in manufacturing and retail and positive in services, and the distance-to-default gap is close to zero in retail and transportation. Balance-sheet position therefore does not distinguish attentive firms in a consistent way.

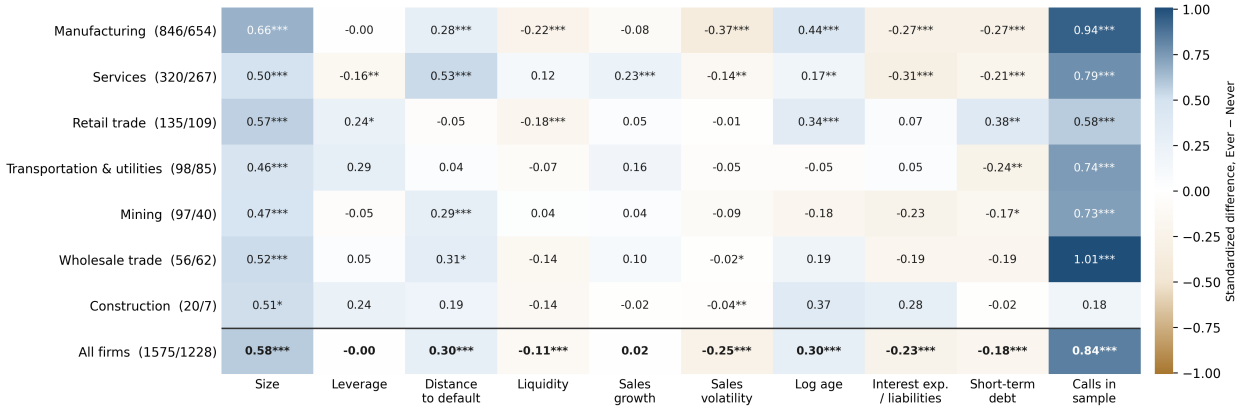
Figure 23 separates size from coverage. In panel (a), the share of firms that ever mention monetary policy rises steeply with the number of calls observed: from 16 to 50 percent for small firms and from 25 to 69 percent for large firms. The "Ever" classification thus partly records how long a firm is observed. Within each coverage group, large firms are more likely to be attentive than small firms, by 10 to 19 percentage points. Panel (b) restricts the sample to firms with at least 20 calls. The share of calls that mention monetary policy rises from 3.4 percent in the smallest size quintile to 5.1 percent in the largest, and the share of firms that ever mention it rises from 42 to 69 percent. Figure 24 shows the call-level counterpart for other characteristics: sorting calls into within-quarter quintiles produces a clear gradient for size and flat profiles for leverage, distance to default, liquidity, and age.

FIGURE 21: Characteristics of Attentive and Non-Attentive Firms over Time



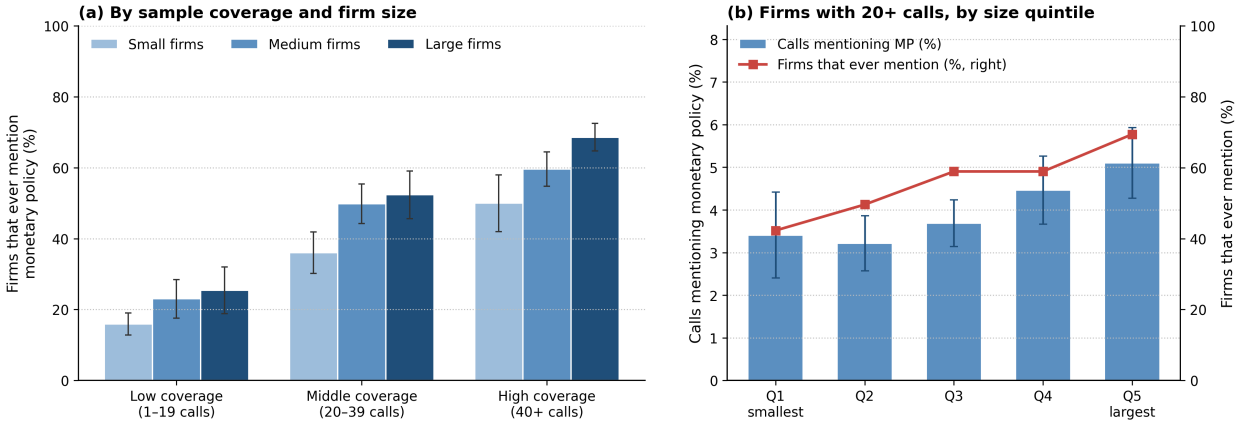
Notes: Annual averages across calls of firms that ever (navy) and never (ochre) mention monetary policy during the sample. Group membership is fixed over time. Bands are 95 percent confidence intervals based on standard errors clustered by firm. The shaded region marks the zero lower bound period (2008Q4–2015Q4).

FIGURE 22: Differences between Attentive and Non-Attentive Firms within Sectors



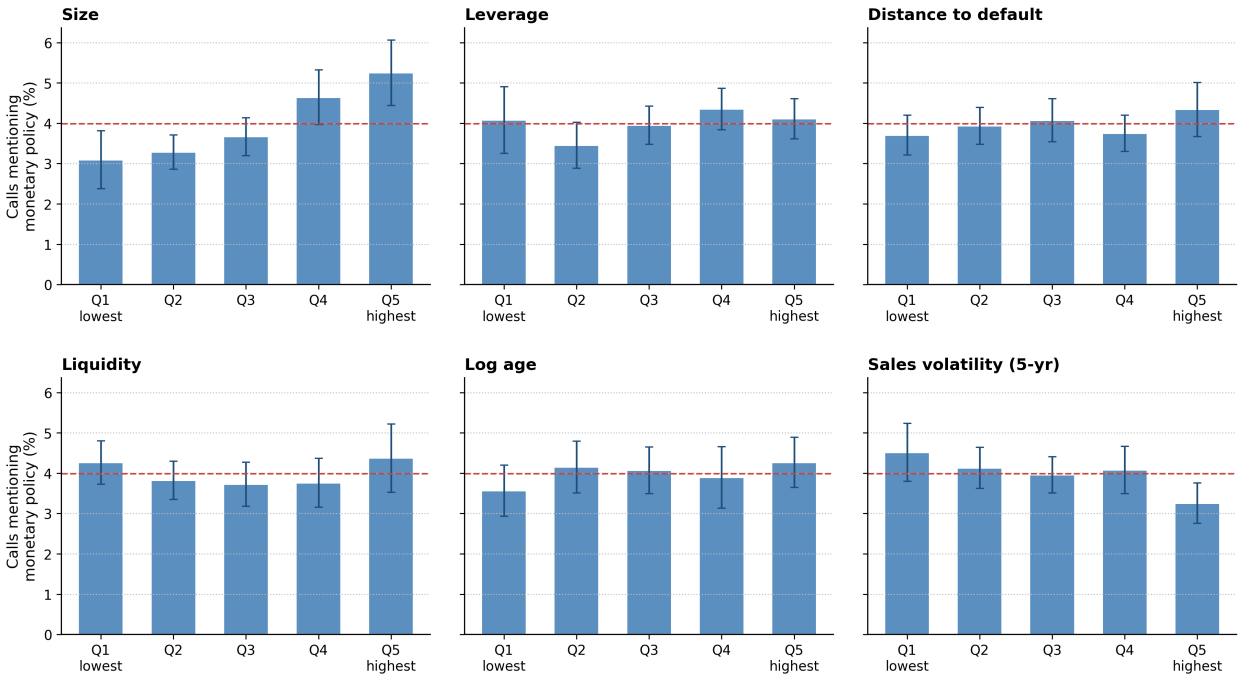
Notes: Each cell reports the difference in firm-level means between "Ever" and "Never" firms within the sector, divided by the pooled standard deviation in the full sample. Blue cells indicate higher values for attentive firms. The number of Never/Ever firms is in parentheses. ***, **, *: significant at the 1, 5, and 10 percent levels (unequal-variance t-test). Agriculture (6 firms) is not shown.

FIGURE 23: Attention, Firm Size, and Sample Coverage



Notes: Panel (a) reports the share of firms that mention monetary policy in at least one call, by the number of calls the firm has in the sample and by tercile of average firm size. Panel (b) restricts the sample to firms with at least 20 calls and reports, by quintile of average firm size, the share of calls that mention monetary policy (bars, left axis) and the share of firms that ever mention it (line, right axis). Error bars are 95 percent confidence intervals; in panel (b) they are clustered by firm.

FIGURE 24: Attention to Monetary Policy by Quintile of Firm Characteristics



Notes: Each panel sorts calls into quintiles of the indicated characteristic within each quarter and reports the percentage of calls in each quintile that contain at least one monetary-policy sentence. Whiskers show 95 percent confidence intervals based on standard errors clustered by firm. The dashed line is the sample mean. Size is the log of real total assets; sales volatility is the standard deviation of annual real sales growth over the previous five years. Balance-sheet variables are measured with a one-quarter lag and winsorized at the 0.5th and 99.5th percentiles. Sample: 2002Q1–2019Q4.

C.3.3 Conditioning on Firm Characteristics and Within-Firm Variation

The raw comparisons do not hold other characteristics fixed, and size, age, distance to default, and coverage are correlated with one another. Figure 25 and Table 14 estimate the association of each characteristic with attention in five steps, moving from the raw correlation to within-firm variation. The dependent variable is the call-level indicator, scaled to 100, and each characteristic is standardized. Column (1) includes one characteristic and no controls. Column (2) adds sector-by-quarter fixed effects. Column (3) also controls for size and call length. Column (4) includes all characteristics jointly. Column (5) adds firm fixed effects, so the coefficient uses only within-firm variation, which is the variation used in the local projections.

Three patterns emerge. First, leverage, distance to default, liquidity, sales growth, the current-assets share, and interest expense are not significant at the 5 percent level in any of the five columns. The raw firm-level gaps in distance to default and liquidity in Figure 19 do not appear at the call level even without controls. They reflect differences in coverage rather than a higher probability that a given call mentions monetary policy: firms observed for more quarters are farther from default and less liquid, and at the firm level both gaps become small and insignificant at the 5 percent level once the number of calls is controlled. Second, the characteristics that are significant in some columns lose significance once other characteristics are held fixed. Age is significant only in column (2) and falls to zero once size is controlled. Short-term debt is significant only in column (3). Sales volatility remains marginally significant across firms (-0.15 percentage points, $t = -2.06$, in column 4) and falls to 0.00 within firms. Third, size is the only characteristic that is significant across firms in every specification. Its coefficient falls by half once call length is controlled, from 1.01 to 0.52 percentage points, because larger firms hold longer calls. Within firms its coefficient is not significant at the 5 percent level (0.94, $t = 1.76$).

Table 15 reports the joint specifications for both versions of the measure. The intensity measure gives the same conclusions. Within firms (columns 4 and 5), no characteristic other than call length is significant at the 5 percent level. This result extends Table 4 to the full transcript sample and to a broader set of characteristics. It includes the variables most

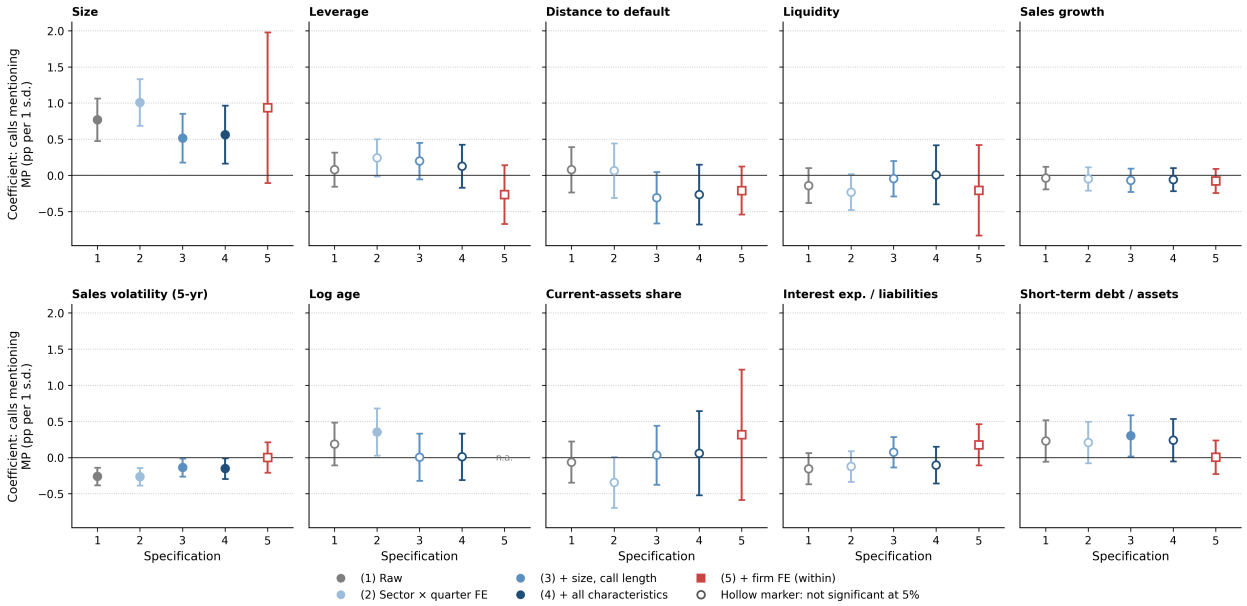
closely tied to a firm's refinancing needs, short-term debt and interest expense relative to liabilities, neither of which predicts attention within firms. This pattern is consistent with attention reflecting engagement with policy communication rather than changes in the firm's own financing position.

TABLE 14: From Raw Differences to Within-Firm Variation: Correlates of Attention

	(1) Raw	(2) Sector × quarter FE	(3) + Size, call length	(4) + All jointly	(5) + Firm FE (within)
Size (log real assets)	0.769***	1.009***	0.516***	0.564***	0.936*
	(0.150)	(0.164)	(0.172)	(0.204)	(0.531)
Leverage	0.079	0.245*	0.199	0.128	−0.264
	(0.120)	(0.131)	(0.129)	(0.152)	(0.207)
Distance to default	0.079	0.065	−0.307*	−0.264	−0.209
	(0.160)	(0.192)	(0.181)	(0.211)	(0.169)
Liquidity	−0.140	−0.230*	−0.045	0.009	−0.205
	(0.123)	(0.127)	(0.125)	(0.208)	(0.319)
Sales growth	−0.037	−0.048	−0.067	−0.058	−0.076
	(0.080)	(0.082)	(0.082)	(0.081)	(0.084)
Sales volatility (5-yr)	−0.260***	−0.264***	−0.137**	−0.151**	0.002
	(0.061)	(0.062)	(0.064)	(0.073)	(0.107)
Log age	0.189	0.354**	0.006	0.011	
	(0.151)	(0.167)	(0.166)	(0.164)	
Current-assets share	−0.061	−0.342*	0.033	0.061	0.316
	(0.145)	(0.179)	(0.207)	(0.297)	(0.460)
Interest exp. / liabilities	−0.153	−0.123	0.074	−0.102	0.178
	(0.110)	(0.108)	(0.107)	(0.130)	(0.145)
Short-term debt / assets	0.231	0.209	0.302**	0.241	0.007
	(0.146)	(0.146)	(0.145)	(0.149)	(0.118)
Characteristics per regression	One	One	One + controls	All	All
Observations			66,623		
Firms			2,415		

Notes: Each cell reports the coefficient on the standardized characteristic in a linear regression of an indicator equal to 100 if the call contains at least one monetary-policy sentence. Columns (1)–(3) include one characteristic at a time: column (1) has no controls, column (2) adds sector-by-quarter fixed effects, and column (3) also controls for size and the log number of sentences in the call (call length only, in the size row). Column (4) includes all characteristics jointly with sector-by-quarter fixed effects and call length. Column (5) adds firm fixed effects and omits log age, which moves one-for-one with calendar time within a firm. Standard errors two-way clustered by firm and quarter in parentheses. ***, **, *: significant at the 1, 5, and 10 percent levels. Sample: 2002Q1–2019Q4.

FIGURE 25: Correlates of Attention: From Raw Differences to Within-Firm Variation



Notes: Each panel plots the coefficient on one standardized characteristic, with a 95 percent confidence interval, in a regression of an indicator equal to 100 if the call contains at least one monetary-policy sentence. Specifications: (1) no controls; (2) sector-by-quarter fixed effects; (3) adds size and the log number of sentences in the call; (4) all characteristics jointly, with sector-by-quarter fixed effects and call length; (5) adds firm fixed effects. Hollow markers are not significant at the 5 percent level. Log age is not identified in specification (5) because it moves one-for-one with calendar time within a firm. Standard errors two-way clustered by firm and quarter. The coefficients are reported in Table 14.

TABLE 15: Correlates of Attention to Monetary Policy: Across and Within Firms

	Across firms			Within firms	
	Any mention (1)	Any mention (2)	Intensity (3)	Any mention (4)	Intensity (5)
Size (log real assets)	0.461**	0.564***	0.019***	0.936*	0.028
	(0.200)	(0.204)	(0.007)	(0.531)	(0.023)
Leverage	0.116	0.128	0.002	−0.264	−0.021*
	(0.149)	(0.152)	(0.006)	(0.207)	(0.011)
Distance to default	−0.162	−0.264	−0.012*	−0.209	−0.014*
	(0.210)	(0.211)	(0.007)	(0.169)	(0.008)
Liquidity	−0.015	0.009	−0.006	−0.205	−0.019
	(0.184)	(0.208)	(0.009)	(0.319)	(0.015)
Sales growth	−0.068	−0.058	−0.005	−0.076	−0.006*
	(0.078)	(0.081)	(0.003)	(0.084)	(0.004)
Sales volatility (5-yr)	−0.177***	−0.151**	−0.004	0.002	0.001
	(0.068)	(0.073)	(0.003)	(0.107)	(0.005)
Log age	−0.041	0.011	−0.005		
	(0.157)	(0.164)	(0.006)		
Current-assets share	0.214	0.061	0.005	0.316	0.020
	(0.236)	(0.297)	(0.011)	(0.460)	(0.024)
Interest expense / liabilities	−0.125	−0.102	−0.005	0.178	0.007
	(0.129)	(0.130)	(0.006)	(0.145)	(0.007)
Short-term debt / assets	0.257*	0.241	0.011*	0.007	0.002
	(0.149)	(0.149)	(0.007)	(0.118)	(0.006)
Log sentences in call	2.392***	2.384***	−0.021	2.456***	−0.017
	(0.312)	(0.304)	(0.015)	(0.299)	(0.015)
Mean of dependent variable	3.91	3.91	0.12	3.91	0.12
Fixed effects	Q	S×Q	S×Q	F, S×Q	F, S×Q
Observations	66,623	66,623	66,623	66,623	66,623
Firms			2,415		

Notes: Linear regressions on firm-quarters with a transcript, 2002Q1–2019Q4. "Any mention" equals 100 if the call contains at least one monetary-policy sentence and 0 otherwise, so coefficients are in percentage points. "Intensity" is the number of monetary-policy sentences per 1,000 sentences in the call. Firm characteristics are standardized to mean zero and unit standard deviation in the pooled sample, so each coefficient is the change associated with a one-standard-deviation difference. Q: quarter; S×Q: sector-by-quarter; F: firm fixed effects. Columns (4) and (5) use only variation within firms over time; log age is omitted there because it moves one-for-one with calendar time within a firm. Standard errors two-way clustered by firm and quarter in parentheses. ***, **, *: significant at the 1, 5, and 10 percent levels.

C.4 Summary

The evidence yields three conclusions. First, attention to monetary policy is concentrated in a minority of firms and occurs episodically within them. Second, in raw comparisons attentive firms are larger, older, farther from default, and observed for more quarters than non-attentive firms. Among firm characteristics, size is the only difference that holds within every sector and survives conditioning on the other characteristics across firms. Third, no characteristic is significantly associated with attention within firms at the 5 percent level: quarters in which a firm is more leveraged, closer to default, or less liquid than usual are not quarters in which it discusses monetary policy more. The firm fixed effects and the size control in the local projections absorb the cross-firm differences, and the within-firm variation in attention that identifies the results is distinct from the balance-sheet channels of Ottonello & Winberry (2020). Because attention enters the local projections as a deviation from the firm's own mean, the attention coefficients are estimated from the firms that discuss monetary policy at least once, which is the population of firms that engage with policy communication and to which the mechanism applies.

D Highlighted Periods and Events in Figure 4

D.1 Overview

Figure 4 plots the total quarterly count of substantive monetary-policy passages in the firm-level corpus over 2002Q1–2019Q4. The figure overlays two pieces of contextual information: a shaded vertical band marking the period during which the Federal Reserve held the policy rate at the zero lower bound, and seven dashed vertical lines, each labelled with a short descriptor, marking salient FOMC events that bracket the major monetary-policy episodes of the sample period.

This appendix records the date, official source, channel classification, and academic reference for each highlighted period. The seven events were selected jointly to span the three informational channels distinguished in the main paper—conventional rate adjustments, Odyssean (commitment-based) forward guidance, and Delphic (information-based) forward guidance—and to align with the salient FOMC episodes documented in the high-frequency monetary-policy shock literature.

D.2 Shaded Band: The Zero Lower Bound Period

Period: 2008Q4 through 2015Q4.

Start event: FOMC statement of December 16, 2008. The federal funds rate target was reduced to a target range of 0 to 1/4 percent.

End event: FOMC statement of December 16, 2015. The target range was raised to 1/4 to 1/2 percent (lift-off).

Official press releases.

- https://www.federalreserve.gov/newsevents/pressreleases/monetary20081216b.htm
- https://www.federalreserve.gov/newsevents/pressreleases/monetary20151216a.htm

Academic references. Bernanke (2020); Swanson (2021); Del Negro, Giannoni, and Patterson (2023).

D.3 Seven Highlighted FOMC Events

Each of the seven dashed vertical lines in Figure 4 corresponds to one of the events documented below. The channel classification (Conventional, Odyssean, Delphic) follows the taxonomy used throughout the main paper (Section 4) and ultimately traces back to Campbell, Evans, Fisher, and Justiniano (2012).

Summary table

#	Event label	Date	Channel
1	First rate cut	September 18, 2007	Conventional
2	ZLB introduced	December 16, 2008	Conventional / unconventional
3	Calendar forward guidance	August 9, 2011	Odyssean
4	Threshold FG (Evans rule)	December 12, 2012	Odyssean
5	Taper tantrum	May 22, 2013	Delphic
6	Lift-off	December 16, 2015	Conventional
7	Dovish pivot	December 19, 2018	Conventional

Event 1. First rate cut (September 18, 2007)

FOMC action. The federal funds rate target was reduced by 50 basis points, from 5.25 percent to 4.75 percent. The Committee cited tightening of credit conditions following the August 2007 money-market disruption.

Channel. Conventional monetary-policy shock.

Why highlighted. Marks the start of the conventional easing cycle that culminated in the December 2008 introduction of the zero lower bound. The August–September 2007 episode is a canonical conventional shock in the high-frequency monetary-policy shock literature.

Official source. FOMC press release of September 18, 2007:
https://www.federalreserve.gov/newsevents/pressreleases/monetary20070918a.htm

Academic references. Jarociński (2024); Gertler and Karadi (2015).

Event 2. Zero Lower Bound introduced (December 16, 2008)

FOMC action. The federal funds rate target was reduced to a target range of 0 to 1/4 percent. The statement also indicated that economic conditions were likely to warrant exceptionally low levels of the federal funds rate for some time, marking the onset of explicit forward guidance language.

Channel. Combination of conventional easing (the rate cut itself) and the start of the unconventional-policy era (zero lower bound, large-scale asset purchases, and explicit forward guidance).

Why highlighted. The introduction of the zero lower bound is the structural break in the sample. After this event, conventional rate policy is constrained and the Federal Reserve relies on balance-sheet operations and communication. The event also marks the start of the shaded ZLB band in the figure.

Official source. FOMC press release of December 16, 2008:
https://www.federalreserve.gov/newsevents/pressreleases/monetary20081216b.htm

Academic references. Bernanke (2020); Campbell, Evans, Fisher, and Justiniano (2012).

Event 3. Calendar-based forward guidance (August 9, 2011)

FOMC action. The FOMC statement explicitly committed to keeping the federal funds rate at exceptionally low levels at least through mid-2013. This was the first explicit calendar-based forward-guidance commitment in U.S. monetary policy.

Channel. Odyssean forward-guidance shock. The commitment is over the future path of the policy rate and is independent of incoming data, in the spirit of Campbell et al. (2012, 2017).

Why highlighted. The August 9, 2011 statement is the canonical example of Odyssean forward guidance and is used as a benchmark event in the empirical forward-guidance literature.

Official source. FOMC press release of August 9, 2011:

https://www.federalreserve.gov/newsevents/pressreleases/monetary20110809a.htm

Academic references. Campbell, Fisher, Justiniano, and Melosi (2017); Swanson (2021).

Event 4. Threshold-based forward guidance: the Evans rule (December 12, 2012)

FOMC action. The Committee announced that the federal funds rate would remain at exceptionally low levels at least as long as the unemployment rate remained above 6.5 percent, provided that projected inflation between one and two years ahead did not exceed 2.5 percent and longer-term inflation expectations remained well anchored. This is the so-called Evans rule.

Channel. Odyssean forward guidance. The commitment is state-contingent rather than calendar-based, but it remains a commitment over the future policy path independent of marginal incoming data.

Why highlighted. Threshold-based guidance is the second canonical Odyssean episode in the sample and demonstrates a different operational form of commitment-based forward guidance.

Official source. FOMC press release of December 12, 2012:
https://www.federalreserve.gov/newsevents/pressreleases/monetary20121212a.htm

Academic references. Evans, Fisher, Gourio, and Krane (2015); Femia, Friedman, and Sack (2013).

Event 5. Taper tantrum (May 22, 2013)

FOMC action. In Congressional testimony on May 22, 2013, Chairman Bernanke signalled that the FOMC might begin tapering the pace of asset purchases later in the year if economic conditions warranted. The remarks were followed by a sharp rise in long-term Treasury yields and pronounced volatility in emerging-market assets—the episode known as the taper tantrum.

Channel. Delphic shock. The communication conveyed information about the Federal Reserve's assessment of the economic outlook and the implied future path of asset pur-

chases, rather than a new commitment to a specific policy path. The market response was characterised by a sharp yield reaction, consistent with information-based rather than commitment-based forward guidance.

Why highlighted. The taper tantrum is the canonical Delphic episode in the U.S. sample and is the standard reference point for studies of information-based monetary-policy communication.

Official sources. Chairman Bernanke's Joint Economic Committee testimony of May 22, 2013, and the subsequent FOMC statement of June 19, 2013, which formally introduced the tapering timetable:
https://www.federalreserve.gov/newsevents/testimony/bernanke20130522a.htm
https://www.federalreserve.gov/newsevents/pressreleases/monetary20130619a.htm

Academic references. Andrade and Ferroni (2021); Jarociński and Karadi (2020); Aizenman, Binici, and Hutchison (2016).

Event 6. Lift-off (December 16, 2015)

FOMC action. The FOMC raised the target range for the federal funds rate by 25 basis points, from 0–0.25 percent to 0.25–0.50 percent. This was the first increase in the policy rate since June 2006 and marked the formal end of the zero lower bound period.

Channel. Conventional monetary-policy shock. The action itself is a change in the current policy rate.

Why highlighted. Lift-off marks the end of the ZLB shaded band and the start of the post-ZLB normalisation cycle. The December 16, 2015 statement is a salient conventional event in the sample and serves as a natural breakpoint for the analysis.

Official source. FOMC press release of December 16, 2015:
https://www.federalreserve.gov/newsevents/pressreleases/monetary20151216a.htm

Academic references. Bauer and Rudebusch (2020); D'Amico and King (2023).

Event 7. Dovish pivot (December 19, 2018)

FOMC action. The FOMC raised the target range for the federal funds rate by 25 basis points to 2.25–2.50 percent. However, the accompanying statement and the dot plot projected fewer further increases than markets had previously anticipated, and Chairman Powell's press conference signalled that the Committee was moving toward a more patient stance. The episode is commonly referred to as the dovish pivot.

Channel. Conventional monetary-policy shock with a salient communication component. The rate change itself is a standard conventional move; the communication component shifted market expectations of the future path of rates.

Why highlighted. The December 2018 episode is the most salient communication event in the post-ZLB period and an instance of policy stance recalibration in the absence of binding ZLB constraints. It also closes the bracket of major monetary-policy episodes in the sample window.

Official source. FOMC press release of December 19, 2018:
https://www.federalreserve.gov/newsevents/pressreleases/monetary20181219a.htm

Academic references. Powell (2019); Bauer and Swanson (2023).

D.4 Selection Criteria

The seven events were selected jointly to satisfy four criteria. First, the set should span the three informational channels of the main analysis (four Conventional, two Odyssean, one Delphic). Second, each event should be a canonical reference point in the high-frequency monetary-policy shock literature, so that the chosen episodes coincide with the events that the shock-identification literature treats as informative. Third, the events should bracket the major monetary-policy episodes of the sample window: the start of the easing cycle, the introduction of the zero lower bound, the principal forward-guidance episodes, and the normalisation episodes (lift-off and the dovish pivot). Fourth, the events should be widely recognised by readers; no event in the list requires explanation beyond the brief descriptor used in the figure.

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E Data Construction (firm's balance sheet)

This appendix outlines the construction and cleaning of firm-level variables used in the empirical analysis. The procedures closely follow those implemented in Ottonello & Winberry (2020), using quarterly data from Compustat. The variable definitions and sample filters are based on standard conventions in the literature.

Variables

1. **Investment**: Measured as the change in the logarithm of capital stock, $\Delta \log(k_{j,t+1})$, where $k_{j,t+1}$ is the capital stock of firm j at the end of quarter t. The initial value of $k_{j,t+1}$ is set as gross property, plant, and equipment (`ppegtq`, item 118) in the first available quarter. For subsequent quarters, I compute $k_{j,t+1}$ using the changes in net PPE (`ppentq`, item 42). When data on `ppentq` is missing between two valid quarters, I interpolate linearly; spells with more than one consecutive missing value are dropped. Investment spells with 40+ consecutive quarters are retained for estimating firm fixed effects.

2. **Leverage**: Defined as total debt divided by total assets, where total debt is the sum of long- and short-term debt (`dlcq` and `dlttq`, items 45 and 71), and total assets are `atq` (item 44).

3. **Net Leverage**: Total debt minus current assets (`actq`, item 40), net of liabilities (`lctq`, item 49), scaled by total assets.

4. **Distance to Default**: Constructed using the Merton (1974) framework, as in Gilchrist and Zakrajšek (2012).

5. **Real Sales Growth**: Computed as the log-difference in sales (`saleq`, item 2), adjusted using the BLS implicit deflator.

6. **Size**: Logarithm of total assets, deflated using the BLS price deflator.

7. **Liquidity**: Ratio of cash and short-term investments (`cheq`, item 36) to total assets.

8. **Cash Flow**: Calculated as earnings before interest and taxes (EBIT) over capital stock.

9. **Dividend Payer**: Binary indicator equal to one if the firm issues any dividends to preferred shareholders in a quarter (constructed using `dvq`, item 21).

10. **Industry Dummies**: Based on SIC codes:

    - Agriculture: $\texttt{SIC} < 999$
    - Mining: $1000 \leq \texttt{SIC} < 1500$
    - Construction: $1500 \leq \texttt{SIC} < 1800$
    - Manufacturing: $2000 \leq \texttt{SIC} < 4000$
    - Transportation, Utilities: $4000 \leq \texttt{SIC} < 5000$
    - Wholesale: $5000 \leq \texttt{SIC} < 5200$
    - Retail: $5200 \leq \texttt{SIC} < 6000$
    - Services: $7000 \leq \texttt{SIC} < 9000$

Sample Selection

The empirical analysis excludes observations using the following criteria, applied in order:

1. Firms in the financial, insurance, and real estate sectors ($6000 \leq \texttt{SIC} < 6800$), utilities ($4900 \leq \texttt{SIC} < 5000$), non-operating entities ($\texttt{SIC} = 9995$), and industrial conglomerates ($\texttt{SIC} = 9997$).

2. Firms that are not incorporated in the United States.

3. Firm-quarter observations that meet any of the following exclusion conditions:

    i. Negative values for capital stock or total assets.

    ii. Acquisitions (constructed using `aqcy`, item 94) greater than 5% of total assets.

    iii. Investment rate in the top or bottom 0.5% of the distribution.

iv. Investment spells shorter than 40 quarters.

v. Net current assets as a share of total assets exceeding 10 or below -10.

vi. Leverage ratios above 10 or negative.

vii. Quarterly real sales growth above 1 or below -1.

viii. Missing or negative values for sales or liquidity.

F Liquidity Interactions

The baseline specification in equation (1) interacts each monetary policy shock with three balance-sheet measures: leverage, distance to default, and liquidity. The discussion in the main text focuses on distance to default and leverage, following Ottonello & Winberry (2020), and defers the liquidity interaction $\beta_{liq,h}$ to this appendix in order to preserve the interpretability of the baseline specification. This appendix reports the estimated liquidity interactions for each of the three shocks and shows that they reinforce, rather than qualify, the central finding of the paper.

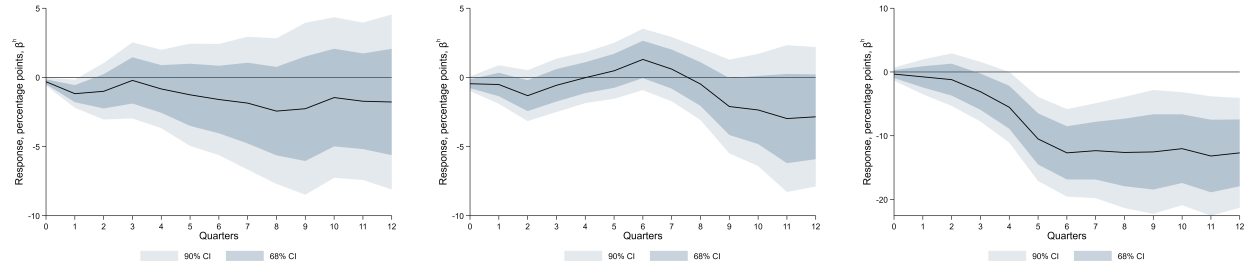
Liquidity plays a conceptually distinct role from the other two financial measures. Leverage and distance to default govern a firm's sensitivity to changes in *external* financing conditions: more leveraged firms and firms closer to distress face a tighter wedge between their borrowing rate and the risk-free rate, so a given movement in policy rates translates into a larger movement in their effective cost of funds. Liquidity, by contrast, measures the capacity to buffer investment from external financing conditions using *internal* funds. Firms holding ample liquid assets can finance investment from cash on hand and are therefore less exposed to movements in the cost of external finance, whereas firms with thin liquidity buffers must rely on external markets and respond more strongly (Jeenas, 2023). The liquidity interaction should accordingly carry the *opposite* sign to the distance-to-default and leverage interactions: because greater liquidity insulates investment, firms with more liquid balance sheets display *smaller* differential responses to a shock that transmits through financing conditions.

Figure 26 confirms this pattern and shows that it is shock-specific in exactly the way the paper's mechanism predicts. Panel A reports the liquidity interaction for conventional

policy. The differential is negative—consistent with the buffering interpretation, since less liquid firms respond more to an expansionary shock—but it is modest in magnitude and imprecisely estimated, reaching significance at the 68 percent level only at the longer horizons. Panel B reports the interaction for Odyssean forward guidance. Here the differential is small, oscillates around zero, and the confidence intervals comfortably span zero at every horizon: liquidity plays no systematic role in the transmission of Odyssean guidance, just as leverage and distance to default do not. Panel C reports the interaction for Delphic forward guidance, where the liquidity channel is sharpest. The differential is negative, large, and precisely estimated: it builds over the first five to six quarters and stabilizes at roughly -12 percentage points, with the 68 and 90 percent confidence bands lying below zero from the fourth quarter onward. Firms with less liquidity—those least able to buffer investment with internal funds—respond substantially more to an expansionary Delphic shock.

Read together, the three panels reproduce the summary pattern of Table 5 along the liquidity dimension. Financial frictions govern heterogeneity in responses to conventional policy and Delphic guidance but not to Odyssean guidance: the liquidity interaction is large and significant for Delphic guidance, present but weaker for conventional policy, and statistically indistinguishable from zero for Odyssean guidance. The negative sign of the liquidity interaction mirrors, rather than contradicts, the positive distance-to-default and leverage interactions reported in the main text. Distance to default and leverage capture external-finance sensitivity, which amplifies responses among more exposed firms; liquidity captures the offsetting role of internal funds, which dampens responses among better-buffered firms. Both point to the same conclusion—that responses to Delphic and conventional shocks differ with firms' balance sheets while responses to Odyssean guidance do not—and the liquidity results therefore corroborate the interpretation advanced in Section 5 using a financial measure built on entirely different balance-sheet information.

FIGURE 26: Liquidity Interactions by Shock Type



(A) Conventional Monetary Policy

(B) Odyssean Forward Guidance

(C) Delphic Forward Guidance

Notes: Impulse responses of firm-level investment associated with the interaction between each monetary policy shock and within-firm liquidity, $\beta_{liq,h}$ in equation (1). Liquidity is the ratio of cash and short-term investments to total assets, demeaned at the firm level. Panel A reports the conventional monetary policy shock, panel B the Odyssean forward guidance shock, and panel C the Delphic forward guidance shock. A negative coefficient indicates that firms with greater liquidity respond less to an expansionary shock, consistent with internal funds buffering investment from external financing conditions. Shaded areas denote 68 and 90 percent confidence intervals. Shocks are scaled to a 25 basis point easing. Note the different vertical scale in panel C.

G Mechanism Framework: Full Details

This appendix provides complete derivations for the mechanism framework presented in Section 6. It derives the non-stochastic steady state, log-linearizes the investment Euler equation step by step, records the sign conventions and reads the central equation channel by channel, derives firm beliefs from the processing problem, proves the propositions, and discusses the calibration.

G.1 Non-stochastic steady state

In the non-stochastic steady state all shocks are zero, $s^O = s^D = r^c = 0$. The capital accumulation equation requires steady-state investment to offset depreciation,

$$\bar{I} = \delta \, \bar{k}. \tag{8}$$

Following the standard normalization in the q-theory literature, set $\Phi(\delta) = 0$ and $\Phi'(\delta) = 0$, so that adjustment costs and their first derivative vanish at the steady-state investment-to-

capital ratio $\bar{x} = \delta$; steady-state Tobin's q then equals one. The steady-state Euler equation reduces to

$$1 + \bar{r}_i = \alpha A \bar{k}_i^{\alpha-1} + (1 - \delta), \tag{9}$$

which pins down the steady-state capital stock $\bar{k}_i$ of each firm type given its borrowing rate $\bar{r}_i = \bar{r} + \varphi_1 \text{Lev}_i$. Equivalently, the steady-state marginal product of capital is $\alpha A \bar{k}_i^{\alpha-1} = \bar{r}_i + \delta > 0$. Since $\varphi_1 > 0$, higher-leverage firms face a higher borrowing rate and hold a lower steady-state capital stock. Log-deviations $\hat{x}_{i,t} \equiv \log x_{i,t} - \log \bar{x}_i$ are defined relative to each firm's own steady state.

G.2 Log-linearization of the Euler equation

I log-linearize the Euler equation (5) around the firm-specific steady state $(\bar{k}_i, \bar{I}_i, \bar{r}_i)$. Using $\Phi'(\delta) = 0$ and $\Phi''(\delta) > 0$, a first-order Taylor expansion of the left-hand side gives

$$1 + \Phi'\left(\frac{I_{i,t}}{k_{i,t}}\right) \approx 1 + \delta\, \Phi''(\delta)\big(\hat{I}_{i,t} - \hat{k}_{i,t}\big). \tag{10}$$

On the right-hand side, the firm's expected gross return to capital, $E_{i,t}[\pi'(k_{i,t+1})]$, varies with two objects: an exogenous fundamentals factor X_{t+1} that shifts the marginal revenue product of capital—a demand/profitability shifter, normalized to $\bar{X} = 1$, about which the firm forms the belief (4)—and the firm's own expected capital $k_{i,t+1}$. Writing the marginal revenue product as $\pi'(k_{i,t+1}) = X_{t+1}\, \alpha A k_{i,t+1}^{\alpha-1}$ and expanding around the steady state, with $M_i \equiv \alpha A \bar{k}_i^{\alpha-1} = \bar{r}_i + \delta$ from (9), a direct first-order expansion of (5) gives

$$\begin{aligned} \delta\Phi''(\delta)\big(\hat{I}_{i,t} - \hat{k}_{i,t}\big) = & -\frac{\bar{r}_i}{1+\bar{r}_i}\,\hat{r}_{i,t} + \frac{M_i}{1+\bar{r}_i}\,E_{i,t}\big[\hat{X}_{t+1}\big] \\ & - \frac{(1-\alpha)M_i}{1+\bar{r}_i}\,E_{i,t}\big[\hat{k}_{i,t+1}\big] \\ & + \frac{(1-\delta)\delta\Phi''(\delta)}{1+\bar{r}_i}\,E_{i,t}\big[\hat{I}_{i,t+1} - \hat{k}_{i,t+1}\big]. \end{aligned} \tag{11}$$

The left-hand side is the current investment gap $\hat{I}_{i,t} - \hat{k}_{i,t}$ from (10). On the right, the first term is the discount-factor channel and is *negative*: it carries $\bar{r}_i/(1+\bar{r}_i)$ because $\hat{r}_{i,t}$ is a log deviation of the net rate. The second is the response to expected fundamentals, loading

positively through the steady-state marginal product $M_i = \bar{r}_i + \delta > 0$. The third is the concave-capital feedback—a higher expected capital stock lowers the marginal product—and is *negative* because $0 < \alpha < 1$; its coefficient carries $M_i \propto \bar{k}_i^{\alpha-1}$, the level base required to multiply a log deviation. The fourth is the continuation adjustment-cost term, which retains its depreciation weight $(1-\delta)$ and discount factor and enters through the forward investment gap.

Equation (11) is forward-looking—it contains $E_{i,t}[\hat{I}_{i,t+1}]$ and $E_{i,t}[\hat{k}_{i,t+1}]$, with capital predetermined by $\hat{k}_{i,t+1} = (1-\delta)\hat{k}_{i,t} + \delta\hat{I}_{i,t}$. Solving it exactly by undetermined coefficients would yield an investment rule that *also* loads on current capital,

$$\hat{I}_{i,t} = d_{k,i}\hat{k}_{i,t} + d_{O,i}s_t^O + d_{D,i}s_t^D + d_{c,i}r_t^c, \tag{12}$$

with loadings d that generally depend on δ, $\Phi''(\delta)$, α, the shock persistences ρ_O, ρ_D, ρ_c, and the firm-specific steady state. Rather than impose those cross-equation restrictions, I take the compact rule as a *reduced-form parameterization motivated by* (11): dropping the (quantitatively second-order) current-capital feedback and writing

$$\hat{I}_{i,t} = -\chi_i\,\hat{r}_{i,t} + \eta\,E_{i,t}[\hat{X}_{t+1}], \tag{13}$$

with reduced-form loadings

$$\chi_i \equiv \chi_0 + \chi_1 \mathrm{Lev}_i, \quad \chi_0 \equiv \frac{\bar{r}}{\delta\Phi''(\delta)(1+\bar{r})}, \quad \chi_1 \equiv \frac{\varphi_1}{\delta\Phi''(\delta)(1+\bar{r})^2}, \quad \eta \equiv \frac{\bar{r}+\delta}{\delta\Phi''(\delta)(1+\bar{r})} > 0. \tag{14}$$

The three expressions in (14) are the leading-order magnitudes implied by (11): they share the common denominator $\delta\Phi''(\delta)(1+\bar{r})$ and are mutually consistent in log-rate units, with $\chi_1 = \partial\chi_i/\partial\mathrm{Lev}_i$ obtained by expanding the log-rate semi-elasticity $\bar{r}_i/[\delta\Phi''(\delta)(1+\bar{r}_i)]$ around $\mathrm{Lev}_i = 0$ using $\bar{r}_i = \bar{r} + \varphi_1\mathrm{Lev}_i$. They motivate the *signs* $\chi_0 > 0$, $\eta > 0$, and the maintained leverage-sensitivity condition $\chi_1 > 0$; the operational objects are reduced-form loadings, disciplined by the estimated interactions rather than imposed as exact structural functions. The fundamentals sensitivity η is the steady-state marginal product of capital $\bar{r} + \delta$ scaled by the adjustment-cost curvature and the gross discount factor, and is treated as common

across firms; its exact firm-specific value $\eta_i = (\bar{r}_i + \delta)/[\delta\Phi''(\delta)(1+\bar{r}_i)]$ depends on leverage only at second order, so the common-η assumption leaves the propositions unaffected. Substituting the firm-specific borrowing-rate response $\hat{r}_{i,t} = a_i\varphi^O s_t^O + \varphi^D s_t^D + \varphi^c r_t^c$ from (3) and the expected fundamentals $E_{i,t}[\hat{X}_{t+1}] = (\kappa_0 + \kappa_1 a_i)s_t^O - \mu^D s_t^D$ from (4) into (13) yields equation (7) of the main text. The capital accumulation equation log-linearizes to $\hat{k}_{i,t+1} = (1-\delta)\hat{k}_{i,t} + \delta\hat{I}_{i,t}$, so the cumulative capital response at horizon h is

$$\hat{k}_{i,t+h} - \hat{k}_{i,t} = \delta \sum_{j=0}^{h-1} (1-\delta)^{h-1-j} \hat{I}_{i,t+j}. \tag{15}$$

Since every term in the geometric sum inherits the cross-sectional structure of (7), the cumulative capital response $\Delta \log k_{i,t+h}$—the outcome variable in the empirical local projections—preserves all the propositions at every horizon $h > 0$.

G.3 Sign conventions and the direction of each channel

This subsection records the sign of every shock and parameter and reads the central equation (7) channel by channel, so that the direction of each effect is unambiguous.

Shock signs. All three shocks are signed as *expansionary* (easing) innovations: a positive s_t^O, s_t^D, or r_t^c lowers the expected policy rate. For the two forward-guidance shocks this is an easing commitment and a dovish signal, respectively; for the conventional shock, r_t^c is the surprise rate *cut*. An easing experiment sets all three positive; a monetary contraction sets them negative.

Parameter signs. The structural coefficients satisfy

$$\chi_0 > 0,\ \chi_1 > 0,\ \eta > 0,\ \kappa_0 > 0,\ \kappa_1 > 0,\ \mu^D > 0, \quad \varphi^O < 0,\ \varphi^D < 0,\ \varphi^c < 0, \quad a_i \in [0,1]. \tag{16}$$

The rate loadings $\varphi^O, \varphi^D, \varphi^c < 0$ encode that an expansionary surprise lowers the expected policy rate (eq. (3))—a single, uniform sign convention for all three shocks. The loading $\kappa_0, \kappa_1 > 0$ encode that an Odyssean commitment raises expected fundamentals, while $\mu^D > 0$

encodes that a Delphic easing also reveals weaker expected fundamentals (eq. (4)). The baseline sensitivity $\chi_0 > 0$ and the fundamentals sensitivity $\eta > 0$ carry the signs implied by the leading-order expressions (14); the leverage loading $\chi_1 > 0$ is a maintained leverage-sensitivity condition (Appendix G.2), disciplined by the estimated leverage interactions. $\chi_i = \chi_0 + \chi_1 \text{Lev}_i$ is the leverage-dependent loading of investment on the firm's expected borrowing rate, and η is its loading on expected fundamentals.

Reading the central equation. Writing equation (7) term by term,

$$\hat{I}_{i,t} = \underbrace{-\chi_i a_i \varphi^O s_t^O}_{(1)} \underbrace{-\chi_i \varphi^D s_t^D}_{(2)} \underbrace{-\chi_i \varphi^c r_t^c}_{(3)} \underbrace{+\eta(\kappa_0 + \kappa_1 a_i) s_t^O}_{(4)} \underbrace{-\eta \mu^D s_t^D}_{(5)}. \tag{17}$$

Evaluated at an easing ($s_t^O, s_t^D, r_t^c > 0$), the five channels have the signs and interpretations summarized in Table 16.

TABLE 16: Sign and interpretation of each channel at a monetary easing

Channel	Expression	Sign	Lev.	Att.
(1) Odyssean rate	$-\chi_i a_i \varphi^O s_t^O$	+	yes	yes
(2) Delphic rate	$-\chi_i \varphi^D s_t^D$	+	yes	no
(3) Conventional rate	$-\chi_i \varphi^c r_t^c$	+	yes	no
(4) Odyssean fundamentals	$+\eta(\kappa_0 + \kappa_1 a_i) s_t^O$	+	no	partial
(5) Delphic fundamentals	$-\eta \mu^D s_t^D$	−	no	no

Notes: "Sign" is the sign of the term at an expansionary (easing) shock, where $s_t^O, s_t^D, r_t^c > 0$. "Lev."/"Att." indicate whether the term is amplified by leverage ($\chi_i = \chi_0 + \chi_1 \text{Lev}_i$) or by attention ($a_i$). Channel (4) is amplified by attention only through the appreciation $\kappa_1 a_i$; its headline κ_0 reaches every firm. All three rate channels are positive at an easing because $\varphi^O, \varphi^D, \varphi^c < 0$.

The channels read as follows. (1) Decoding the commitment lowers the firm's expected borrowing cost, raising investment; because $\varphi^O < 0$ and $\chi_i > 0$, the term is $+\chi_i a_i |\varphi^O| s_t^O \geq 0$, amplified by leverage through χ_i and gated by attention through a_i. (2) The public dovish signal lowers the expected rate for *every* firm, $+\chi_i |\varphi^D| s_t^D > 0$, amplified by leverage but independent of attention. (3) A rate cut lowers borrowing costs for every firm, $-\chi_i \varphi^c r_t^c = +\chi_i |\varphi^c| r_t^c > 0$, again leverage-amplified and attention-free. (4) The commitment improves the expected outlook, $+\eta(\kappa_0 + \kappa_1 a_i) s_t^O > 0$; it is leverage-free, with the headline κ_0 common to all firms and the appreciation $\kappa_1 a_i$ accruing only to decoders. (5) The Delphic easing also

reveals weaker fundamentals, $-\eta\mu^D s_t^D < 0$, partially offsetting channel (2).

Net direction by shock. For an *Odyssean* easing only channels (1) and (4) are active, both positive, so investment rises; the response is larger for attentive firms (both channels scale with a_i) and, among decoders, modestly larger for high-leverage firms (only channel (1) scales with χ_i). For a *Delphic* easing the positive rate channel (2) and the negative fundamentals channel (5) offset; with the rate channel dominating in the data, investment rises and is amplified by leverage through (2). For a *conventional* easing (a rate cut, $r_t^c > 0$) only channel (3) is active, positive and leverage-amplified, with no role for attention. A monetary *contraction* flips every sign one for one, so the same cross-sectional rankings hold with investment falling rather than rising.

G.4 Derivation of firm beliefs

The novel ingredient is the information structure: the Odyssean commitment is observed precisely by every firm, but acting on it requires costly decoding. The commitment carries a headline—understood by all—and two decoded implications: its benefit for the economic outlook and its implication that policy rates remain low regardless of incoming data. Firm i obtains each decoded implication to the extent of its attention $a_i \in [0, 1]$, so that its perceived decoded content is $a_i s_t^O$. Two micro-foundations deliver this weight from a precisely-observed signal.

Decoding probability. Suppose decoding succeeds with probability a_i, increasing in attention. With probability a_i the firm decodes the commitment and adopts its content s_t^O; otherwise it acts on the public headline alone. Averaging over decoding outcomes—equivalently, across a unit mass of type-a_i firms—gives perceived content $a_i s_t^O$.

Rational-inattention capacity. Alternatively, the firm observes s_t^O precisely but, subject to a finite information-processing capacity, places weight a_i on the decoded content and the remainder on its prior (Sims, 2003; Maćkowiak & Wiederholt, 2015; Gabaix, 2019). Both formulations yield the perceived content $a_i s_t^O$, with a_i determined by the cost of attention

rather than by signal noise; the under-reaction $a_i < 1$ persists for an arbitrarily precise signal.

Decoding affects both expectations. The expected borrowing rate revises only to the extent the firm decodes the "regardless of data" feature, giving the $a_i\varphi^O s_t^O$ term in (3). The expected fundamentals revise through the public headline $\kappa_0 s_t^O$, common to all firms, and the attention-enhanced appreciation $\kappa_1 a_i s_t^O$, giving (4). Because s_t^D and r_t^c are publicly observed, all firms incorporate them in full, which is why their components in (3)–(4) carry no firm-specific weight.

Contrast with the noisy-signal formulation. If instead the firm observed a noisy signal $y_{i,t} = s_t^O + \nu_{i,t}$ with $\nu_{i,t} \sim \mathcal{N}(0, \sigma^2_{\nu,i})$, conjugacy would give the posterior mean $E_i[s_t^O \mid y_{i,t}] = a_i y_{i,t}$ with the Kalman gain

$$a_i = \frac{\sigma_O^2}{\sigma_O^2 + \sigma^2_{\nu,i}} \in (0,1), \tag{18}$$

which is strictly increasing in signal precision: as $\sigma^2_{\nu,i} \to 0$ the gain $a_i \to 1$ for every firm. Under that formulation the cross-firm differences in a_i, and hence the attention gap, vanish as the commitment becomes precise. The comprehension weight severs this link, which is the content of the precision-invariance result proved below.

G.5 Proofs of propositions

All proofs follow from differentiating equation (7), recalling $\varphi^O, \varphi^D, \varphi^c < 0$ and $\chi_0, \chi_1, \eta, \kappa_0, \kappa_1, \mu^D > 0$, with $\chi_i = \chi_0 + \chi_1 \text{Lev}_i$. By (15) each cross-partial carries over to $\Delta \log k_{i,t+h}$ at every horizon.

Proposition 1. Differentiating with respect to s_t^O gives $\partial \hat{I}_{i,t}/\partial s_t^O = -\chi_i a_i \varphi^O + \eta(\kappa_0 + \kappa_1 a_i)$. Differentiating again with respect to a_i yields $\partial^2 \hat{I}_{i,t}/\partial s_t^O \partial a_i = -\chi_i \varphi^O + \eta\kappa_1 > 0$, since $\chi_i > 0$, $\varphi^O < 0$, and $\eta\kappa_1 > 0$. At $a_i = 0$ the response is $\eta\kappa_0 > 0$. ■

Proposition 2. The s_t^D terms are $-\chi_i \varphi^D s_t^D - \eta\mu^D s_t^D$ and the conventional term is $-\chi_i \varphi^c r_t^c$; none depends on a_i. Hence $\partial^2 \hat{I}_{i,t}/\partial s_t^D \partial a_i = 0$ and $\partial^2 \hat{I}_{i,t}/\partial r_t^c \partial a_i = 0$. ■

Proposition 3. Setting $s_t^O = s_t^D = 0$ gives $\hat{I}_{i,t} = -\chi_i \varphi^c r_t^c = -(\chi_0 + \chi_1 \text{Lev}_i)\varphi^c r_t^c$, so $\partial^2 \hat{I}_{i,t} / \partial r_t^c \partial \text{Lev}_i = -\chi_1 \varphi^c > 0$: increasing in leverage and independent of a_i. For the Delphic case, $\partial \hat{I}_{i,t} / \partial s_t^D = -(\chi_0 + \chi_1 \text{Lev}_i)\varphi^D - \eta\mu^D$, so $\partial^2 \hat{I}_{i,t} / \partial s_t^D \partial \text{Lev}_i = -\chi_1 \varphi^D > 0$. The two interactions are symmetric. ■

Proposition 4. From the proof of Proposition 1, $\partial \hat{I}_{i,t} / \partial s_t^O = -\chi_i a_i \varphi^O + \eta(\kappa_0 + \kappa_1 a_i)$; only the first term involves Lev_i, so $\partial^2 \hat{I}_{i,t} / \partial s_t^O \partial \text{Lev}_i = -\chi_1 a_i \varphi^O$, full for a decoder and zero for $a_i = 0$. Averaging over firms with $a_i \perp \text{Lev}_i$ gives the population-average cross-sectional interaction $-\chi_1 \mathbb{E}[a_i]\varphi^O$, a fraction $\mathbb{E}[a_i]\varphi^O / \varphi^D$ of the Delphic interaction $-\chi_1 \varphi^D$, small when most firms are inattentive. Differentiating once more gives the *conditional* triple interaction $\partial^3 \hat{I}_{i,t} / \partial s_t^O \partial a_i \partial \text{Lev}_i = -\chi_1 \varphi^O > 0$, which is not itself scaled by $\mathbb{E}[a_i]$; the dilution by $\mathbb{E}[a_i]$ applies to the population-average leverage interaction, not to this conditional coefficient. ■

Precision invariance. The Odyssean attention gap between high- and low-attention firms is $(a_H - a_L)(-\chi_i \varphi^O + \eta\kappa_1)$, independent of the signal scale under the comprehension-weight formulation. Under the Kalman gain (18) with $\sigma_{\nu,i}^2 = \sigma^2 n_i$, $a_i(\sigma) \to 1$ for every firm as $\sigma \to 0$, so $a_H - a_L \to 0$ and the gap vanishes. The two formulations therefore differ precisely in how the attention gap responds to precision. ■

G.6 Numerical implementation

The reduced-form mechanism (7) is simulated with Dynare. What is solved is the compact first-order representation, *not* the exact forward-looking Euler equation (11): the investment rule is contemporaneous in the shocks, and capital accumulates according to the log-linear law of motion but does not feed back into the investment rule. Because the simulated system is already in log-linear form the solution is exact for that system and corresponds to a first-order approximation, and because it is purely backward-looking it is determinate for any admissible calibration. The continuum of firms is discretized into four types defined by the Cartesian product of two attention levels and two leverage levels, yielding types HH, HL, LH, and LL (the first index attention, the second leverage). High-attention firms decode the

commitment (a_H); low-attention firms do not ($a_L = 0$) but receive the public headline. The high-attention group is a share p_H of firms, and within each attention group leverage is split equally, so aggregate investment and capital are p_H-weighted across attention and equal-weighted across leverage. Capital enters as a predetermined state and evolves according to $\hat{k}_{i,t+1} = (1-\delta)\hat{k}_{i,t} + \delta\hat{I}_{i,t}$. The attention figure contrasts the attention groups averaging over leverage; the leverage figure contrasts leverage averaging over the population attention distribution.

Levels versus the cross-sectional differential. The four-type discretization clarifies why a muted Odyssean leverage interaction coexists with a strong investment response by both leverage groups; the two are distinct objects. The *level* of the Odyssean response is governed by the leverage-free expected-benefit channel $\eta(\kappa_0 + \kappa_1 a_i)$, which lifts investment for high- and low-leverage firms alike. The cross-sectional *differential*—the gap between high- and low-leverage firms, and the coefficient the local projections recover—arises only from the borrowing-cost channel $-\chi_i a_i \varphi^O$, the single term that is at once leverage-amplified and attention-gated.

Why the differential is diluted. For the Odyssean shock the population leverage differential is

$$p_H(\hat{I}_{HH} - \hat{I}_{HL}) + (1-p_H)(\hat{I}_{LH} - \hat{I}_{LL}) = p_H\,\chi_1(\mathrm{Lev}_H - \mathrm{Lev}_L)\,a_H|\varphi^O|, \tag{19}$$

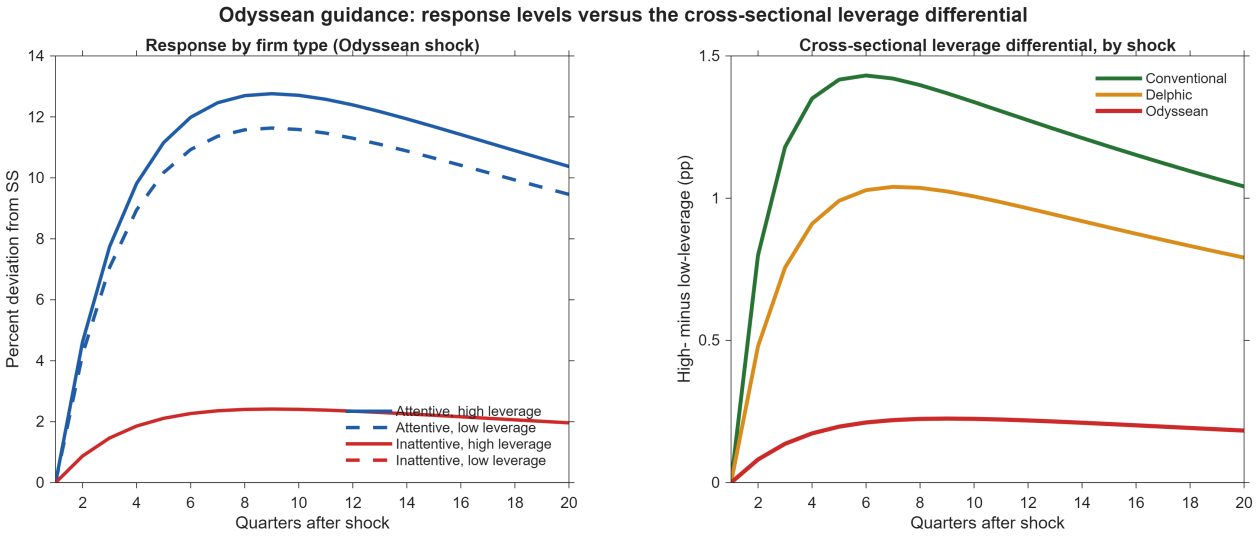
because the second term vanishes: a fully inattentive firm ($a_L = 0$) extracts none of the commitment's private rate content, so its Odyssean response is identical across leverage, $\hat{I}_{LH} = \hat{I}_{LL}$. The differential collapses to p_H times the differential among decoders. The Delphic differential, by contrast, is $\chi_1(\mathrm{Lev}_H - \mathrm{Lev}_L)|\varphi^D|$ for every firm and is undiluted. The collateral force is identical in the two cases—and, for a firm that decodes the Odyssean commitment, exactly as strong as the same-sized Delphic shock would produce. What differs is its *reach*: a public rate signal revises the expected rate of every firm, whereas a committed rate path revises only the expected rate of the firms that process it. Equation (19) is therefore the full per-decoder interaction multiplied by the decoding share. Under the calibration this

places the Odyssean leverage differential at 0.033 at impact against 0.192 for the Delphic shock, about $\mathbb{E}[a_i]\,\varphi^O/\varphi^D$ of it.

Why the rate implication is decoded, not read off the curve. The asymmetry between the two forward-guidance shocks does not come from a difference in their effect on the yield curve, which is identical by construction ($|\varphi^O| = |\varphi^D|$). It comes from what is investment-relevant about an Odyssean easing. Investment is forward-looking and responds to the firm's expectation of its future financing conditions. The pertinent content of an Odyssean commitment is not the level of today's yields but its conditional feature—that policy will remain accommodative *even as the economy improves*—which insulates the firm's financing costs from a recovery and is precisely what the collateral wedge amplifies. That conditionality is a statement about the central bank's committed reaction function rather than a quantity summarized by the current term structure, so it enters a firm's expectations only once the firm has processed the commitment. A firm that does not draw the inference treats the observed rate move as it would any transitory decline and does not revise the expected financing path that governs its leverage-sensitive investment. The borrowing-cost channel is thus attention-gated for Odyssean guidance and public for Delphic guidance, and this is the source of the asymmetry in their leverage interactions. The same reasoning delivers an over-identifying restriction: because the leverage-sensitive Odyssean response is confined to decoders, the model predicts a positive but small triple interaction among the shock, attention, and leverage—high-leverage firms respond more to Odyssean guidance only *conditional on* being attentive—of magnitude $-\chi_1\varphi^O$ scaled by $\mathbb{E}[a_i]$, consistent with the imprecise triple-interaction estimates in Section 5.

Figure 27 displays the mechanism. Its left panel plots the Odyssean response of the four firm types: the two attentive types separate by leverage, while the two inattentive types coincide, having no leverage-sensitive Odyssean response. Its right panel plots the cross-sectional leverage differential for each shock—large and persistent for conventional and Delphic guidance, whose rate signals reach every firm, but small for Odyssean, where it is diluted by the mass of non-decoders.

FIGURE 27: Odyssean Guidance: Response Levels versus the Cross-Sectional Leverage Differential



Notes: Left: simulated Odyssean capital-accumulation responses for the four firm types (attention × leverage). The attentive types separate by leverage, while the inattentive types coincide, having no leverage-sensitive Odyssean response. Right: the cross-sectional leverage differential (high- minus low-leverage, population-weighted) for each shock. The differential is large for conventional and Delphic guidance but small for Odyssean guidance (Proposition 4), diluted by the share of non-decoders.

G.7 Calibration

Table 17 reports all parameter values. The shock innovation standard deviations are normalized to 25 basis points for all three shocks, consistent with the scaling of the Jarociński (2024) shock series in Section 3. The persistences $\rho_O = 0.70$, $\rho_D = 0.60$, $\rho_c = 0.50$ are set to match the autocorrelations of the estimated shock series. The high-attention comprehension weight $a_H = 0.85$ corresponds to the upper quartile of the firm-level attention measure and the low-attention group decodes none of the commitment's private content ($a_L = 0$), relying on the public headline; the high-attention share is $p_H = 0.20$, so that most firms are inattentive. The leverage values $\text{Lev}_H = 0.55$ and $\text{Lev}_L = 0.15$ are the 75th and 25th percentiles of the debt-to-assets ratio in the Compustat estimation sample, and the leverage loading $\chi_1 = 0.80$ is set to match the magnitude of the leverage interactions estimated for the conventional and Delphic shocks in Section 5. The forward-guidance rate loadings $|\varphi^O| = |\varphi^D| = 0.60$ are equal, reflecting the common medium-term yield-curve response of the two forward-guidance shocks in the identification; with equal loadings the difference between their leverage interac-

tions reflects only the dilution by inattention. The conventional loading $|\varphi^c| = 1$ normalizes the unit pass-through of a policy-rate surprise into the expected rate. The fundamentals parameters $\kappa_0 = 0.70$, $\kappa_1 = 1.80$, $\mu^D = 0.30$, and $\eta = 0.50$ govern the expected-benefit channel; κ_0 is the public headline understood by all firms and so sets the response of a fully inattentive firm to the Odyssean shock ($\eta\kappa_0$), while κ_1 sets how strongly attention deepens that response through the commitment's benefit. The fundamentals sensitivity $\eta = 0.50 > 0$ is the steady-state marginal product of capital scaled by the adjustment-cost curvature and the discount factor. Since κ_0 enters the common headline, it cancels in the attention gap and leaves the cross-sectional propositions unaffected; at $\kappa_1 = 1.80$ the expected-benefit channel is 51 percent of the Odyssean attention effect. The depreciation rate $\delta = 0.025$ corresponds to a ten percent annual rate.

Under this calibration the numerical solution satisfies all the propositions at the impact horizon. The Odyssean attention gap is $\hat{I}_{HH}(1) - \hat{I}_{LH}(1) = 1.50 > 0$, of which 0.77 comes from the expected benefit and 0.73 from borrowing costs (Proposition 1); a fully inattentive firm retains a positive Odyssean response of 0.35 through the headline—about a fifth of the high-attention response, so the attention gap is large but the low-attention line is clearly above zero. The attention gaps for the Delphic and conventional shocks are exactly zero (Proposition 2). The leverage gaps are $\hat{I}_{HH}(1) - \hat{I}_{HL}(1) = 0.32$ for the conventional shock and 0.192 for the Delphic shock (Proposition 3). The Odyssean leverage gap is 0.16 among decoders but, p_H-weighted in the cross-section, 0.033—about one-sixth of the Delphic gap (Proposition 4). The sign $\chi_1 > 0$ matches the leverage interactions in Figures 10 and 11; it runs opposite to the distance-to-default interaction, with leverage and distance to default capturing distinct balance-sheet margins.

TABLE 17: Calibration of the Mechanism Framework

Parameter	Description	Value	Source / Target
Shock processes			
ρ_O, ρ_D, ρ_c	Persistence (Odyssean, Delphic, conventional)	0.70, 0.60, 0.50	Shock autocorrelations
$\sigma_O, \sigma_D, \sigma_c$	Innovation s.d.	0.25	Normalized to 25 bp
Attention			
a_H	Comprehension weight, high-attention type	0.85	Upper quartile of attention measure
a_L	Comprehension weight, low-attention type	0.00	Decodes only the public headline
p_H	Share of high-attention firms	0.20	Most firms inattentive
Balance sheets and financial frictions			
$\text{Lev}_H, \text{Lev}_L$	Leverage, high- and low-leverage types	0.55, 0.15	75th and 25th percentiles, Compustat
χ_0	Baseline investment sensitivity	1.00	Normalization
χ_1	Leverage loading on sensitivity	0.80	Matches Delphic and conventional leverage estimates
Rate and fundamentals channels			
$\lvert\varphi^O\rvert, \lvert\varphi^D\rvert$	FG shock $\rightarrow$ expected rate	0.60, 0.60	Common yield-curve loading
$\lvert\varphi^c\rvert$	Conventional shock $\rightarrow$ expected rate	1.00	Unit pass-through (rate cut)
κ_0	Public-headline effect on fundamentals	0.70	Sets the low-attention Odyssean response
κ_1	Attention-enhanced appreciation	1.80	Expected benefit equals 51% of the attention effect
μ^D	Delphic signal of weak fundamentals	0.30	Illustrative
η	Investment sensitivity to fundamentals	0.50	$\dfrac{\bar{r}+\delta}{\delta\Phi''(\delta)(1+\bar{r})} > 0$
Capital accumulation			
δ	Quarterly depreciation rate	0.025	10% annually; standard calibration