Monetary Policy and Investment Plans

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Abstract

We explore how monetary policy affects corporate investment decisions, and why there are long lags in transmission. To do so, we hand-collect a firm-level dataset of U.S. investment plans and link it to managers' cash-flow expectations. Plans strongly predict realized investment, and allow us to observe decision changes separately from implementation. Using high-frequency monetary policy surprises, we show that firms revise investment plans in response to monetary policy, but the response varies by horizon: long-horizon plans are much more sensitive to policy than near-term plans. Consistent with theories of capital production frictions, plans for new projects respond more to monetary policy than plans related to ongoing projects. These results help to explain the long lags in monetary policy transmission. Regarding transmission mechanisms, we document evidence of a cost of capital channel.

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How does monetary policy affect corporate investment decisions, and why does it do so with long lags? Classic explanations for lags include production frictions such as investment adjustment costs [Abel and Eberly, 1994] or information frictions that delay firms' updating of beliefs [Lucas, 1973, Mankiw and Reis, 2002, Coibion et al., 2018]. However, evidence to disentangle these narratives is limited. Without directly observing corporate expectations and decision making, the business investment response to monetary policy remains a black box.

In this paper, we construct a new firm-level panel of quarterly forward-looking investment plans and revenue expectations for U.S. non-financial corporations to directly observe how firms adjust their investment decisions in response to monetary policy. Unlike data on realizations, plans data capture the decision margin separately from the potentially slow and noisy process of implementation. The data provides a unique perspective into the decision-making of corporate managers in real time. To establish that these plans are economically meaningful, we first document that plans predict actual investment, even up to five years in the future.

Using this new dataset and high-frequency monetary policy surprises around FOMC announcements, we establish two new facts about how monetary policy affects firms' investment decisions. First, investment plans exhibit a pronounced term structure of responsiveness: plans for investment several years ahead respond much more than plans for the near term. In other words, monetary policy primarily reshapes the future investment path by affecting long-horizon investment rather than immediately cutting next-year capital expenditure. These plan adjustments occur within one quarter of the policy shock. Second, we provide novel evidence of the irreversibility of investment once underway: plans for new projects are most responsive to monetary policy, but plans for ongoing projects are comparatively inert, even for distant-horizon spending. Overall, we interpret these results as novel evidence of adjustment costs that dampen and delay the transmission of monetary policy to real activity.

With our new data on plans and expectations, we can more precisely map decision changes to various shocks to study monetary policy transmission. We document three findings supportive of a cost of capital channel: first, firms with longer maturity assets and longer duration investments are more responsive; second, firms with debt coming due in the near-term that are thus likelier to pay attention to their cost of debt are more responsive; and third, long horizon plans are more responsive to changes in long-run risk-free rates than they are to short-run risk-free rates. We also find evidence of a cash flow expectations channel—proxied by firms' revenue expectations—that operates at longer horizons, though it is quantitatively modest.

One key contribution of our paper is our data collection effort, which aggregates hand-collected publicly available information from various company disclosures, including regulatory filings, earnings call presentations, and investor presentations, to create a novel panel dataset of firm investment plans for multiple plan horizons up to five years in the future. We hand-collect 46,871 firm-quarter-projection year observations covering 881 of the largest non-financial U.S. corporations. We merge this with company guidance data on investment and revenues and analyst revenue forecasts from IBES and Refinitiv LSEG, yielding over 75,000 observations of management capital expenditure (capex) plans for over three thousand U.S. firms.

Our data on investment plans spans 1999-2024 and accounts for nearly 80% of the total capital expenditure and roughly 60% of total assets of all U.S. non-financial corporations reported in Compustat since 2008. The vast majority of firms update plans on a quarterly basis, providing a high-frequency view into decision making. To compare the effects of monetary policy on different types of investment, roughly half of our investment plans data include qualitative comments about the kind of investment, such as research and development, environmental projects, and maintenance, allowing us to measure how plans for these different kinds of investment respond to shocks. Importantly, investment plans predict actual investment with a predictability coefficient of nearly 0.8, confirming that plans are informative about a firm's intentions.

We use the plans data to understand firms' investment decisions in response to monetary policy. To investigate this, we instrument quarterly U.S. Treasury yield changes with standard monetary policy shocks constructed using high-frequency changes in interest rate futures around FOMC announcements. Our main outcome variable is planned capital expenditure net of recent actual capex, normalized by lagged assets, capturing the firm's planned change in investment going forward. We document a term structure of planned investment responsiveness: plans about investment expected to take place two or more years into the future are more responsive than plans about investment expected to occur in the next year. Importantly, we validate that policy-driven adjustments to planned investment manifest roughly one-to-one to realized long-horizon investment..

We provide a new estimate of the responsiveness of investment to monetary policy, and use this to back out a plans-based estimate of the elasticity of investment with respect to the user cost of capital. Given our data, we are able to provide precise estimates both for the near-term and longer-term response of investment. We find estimates for the short-term elasticity of investment with respect to the user cost of capital that are in line with the upper end of prior estimates for investment. We find an elasticity of 4.5 for the investment response over the first two years. When turning to the response over longer horizons of three or more years,

the estimated elasticity is even larger (around 6.5).

Next, we explore the reasons behind the previously documented lagged response of realized investment to monetary policy. Consistent with models of partial irreversibility [Arrow, 1968, Bernanke, 1983, Abel and Eberly, 1994], plans regarding new investment projects are more responsive to monetary policy; plans regarding ongoing investment projects are less responsive. This is the case even when holding fixed the horizon of the plan. We interpret these results are direct evidence of adjustment costs, in particular the partial irreversibility of ongoing projects, as delaying the transmission of monetary policy to real activity. Further supporting this mechanism, we also find significant variation in policy responsiveness across types of investment: firms are most likely to change the likelihood of mentioning planned investments that are potentially more flexible in their timing, such as investment related to environmental projects, while the likelihood of discussing plans for investment related to R&D, acquisitions, and infrastructure are less responsive to policy.

Finally, we directly test mechanisms of monetary policy transmission, and how they vary across firms through the lens of a simple model with adjustment costs. First, we investigate the cost of capital channel, where monetary policy may affect investment by changing the cost of capital that firms use to discount expected future cash flows of projects. Firms that have bond debt coming due in the next 1-2 years, and thus are likelier to pay attention to their cost of debt, are more sensitive to monetary policy-induced changes in interest rates. Consistent with a cost of capital channel, we show that firms adjust their net issuance downward after policy-driven increases in the yields and excess bond premiums. The evidence also points to duration matching along the term structure: long-term investment plans exhibit greater responsiveness to shocks to long-term yields than do short-term plans. Similarly, longer-horizon plans react more strongly to movements at the long end of the yield curve than to changes at the short end. In line with the duration effects, we find that firms with greater investment cash flow duration are more responsive to policy-driven changes in interest rates.

To investigate the cash flow expectations channel, we use firms' revenue projections as a proxy for expected cash flows, estimating how they respond to monetary policy and how they co-move with firms' investment plans. In a panel regression, we show that firms that expect lower long-term revenues tend to plan lower long-term investment, consistent with [Gennaioli et al., 2016]. A 100 basis point policy-driven increase in yields reduces longer-horizon revenue expectations by about 0.14 standard deviations, while the near-term response is statistically insignificant. This supports the idea that expectations are updated within one quarter

of a monetary policy shock. Moreover, this result shows that the negative effect of a contractionary surprise dominates the potential information effect of a policy rate hike on net [Nakamura and Steinsson, 2018].

The question of how monetary policy affects firms has been studied extensively [Keynes, 1937, Friedman, 1968, Bernanke and Blinder, 1992, Cochrane, 1998, Kashyap et al., 1993, Bernanke et al., 1999, Kashyap and Stein, 2000, Ottonello and Winberry, 2020, Cloyne et al., 2023, Jeenas, 2024, Jeenas and Lagos, 2024]. In neoclassical theory (Jorgenson and Stephenson [1967], Jorgenson [1963]), changes in the cost of capital should elicit immediate and large investment responses. This is generally not true in the data: firms' realized investment typically responds to monetary policy shocks with significant delays [Bernanke and Gertler, 1995, Christiano et al., 2005]. With data on planned investment, we can better pinpoint the economic decision around a monetary policy event, yielding a more precise estimate of investment decisions that is economically larger than when using realized investment. In that vein, our paper also contributes to the literature on measuring the elasticity of investment with respect to the user cost of capital [Schaller, 2006, Gilchrist and Zakrajšek, 2007, House and Shapiro, 2008, Zwick and Mahon, 2017, Koby and Wolf, 2020, Winberry, 2021, He et al., 2022].

Our results help explain the well-documented pattern that realized business investment lags monetary policy shocks [Bernanke and Gertler, 1995, Christiano et al., 2005], contrary to predictions of immediate responses in neoclassical models. Explanations include nominal rigidities [Christiano et al., 2005], financial accelerator models [Bernanke and Gertler, 1995, Bernanke et al., 1996], information rigidities [Lucas, 1973, Mankiw and Reis, 2002, Coibion and Gorodnichenko, 2015, Coibion et al., 2018], and production frictions such as time to build and partial irreversibility [Kydland and Prescott, 1982, Abel and Eberly, 1994]. For the firms in our sample, we do observe plan updating in response to shocks within one quarter, suggesting that slow updating alone is unlikely to be the sole driver of the long lags. Instead, we show that production frictions are an important channel that leads to lagged responsiveness.[1] Production frictions include partial irreversibility of investment [Abel and Eberly, 1994], where low resale value of capital makes investment costly to reverse. Our findings that new investment plans are more responsive than ongoing plans are consistent with these models. While this paper focuses on the transmission of monetary shocks, similar frictions likely characterize firms' responses to tax changes, regulatory shifts, and other demand or supply shocks.

[1] In a similar vein, Siani and Zhang [2025] show that institutional frictions in state budgeting processes create long lags in spending responses to aggregate shocks.

Our paper takes a step towards opening the "black box of monetary policy transmission" via firms [Bernanke and Gertler, 1995]. In doing so, we build on a large literature on investment determinants (Jorgenson and Stephenson [1967], Tobin [1969],Hayashi [1982] Keynes [1937], Fisher [1930], Kuh [1963], Greenwood and Hanson [2015] Lamont [2000], Fazzari et al. [1988], Barro [1990], Kaplan and Zingales [1997], Gennaioli et al. [2016], Cooper and Haltiwanger [2006]) and policy transmission to investment [Bernanke and Gertler, 1995, Jeenas and Lagos, 2024, Fukui et al., 2024]. Neoclassical models predict a high investment responses to interest rates. Empirical results thus far are mixed.[2] Our data allows us to trace with more detail the effects of monetary policy, comparing across firms and adding to a papers that document heterogeneous effects of policy [Gertler and Gilchrist, 1994, Cloyne et al., 2023], and attributing changes in different horizons to shocks in different asset prices and building on recent literature that uses micro data to better understand the transmission channels (Selgrad [2023]).

Finally, we add to a growing set of papers on firm expectations and forecasting and their real effects. Manski [2004] makes the case for studying expectations of economic agents to better analyze decision-making, and many studies have since used surveys to understand firm expectations of macro and firm-level outcomes [Eisner, 1962, Guiso and Parigi, 1999, Gennaioli et al., 2016, Ma et al., 2020, Coibion et al., 2020, Barry et al., 2022, Graham, 2022].[3] More recent work by Gormsen and Huber [2022] and Gormsen and Huber [2024] use public disclosures to study firm decisions, which can be more informative than surveys if decision-makers are held accountable for their plans and expectations.[4] A closely related paper Sharpe and Suarez [2021] analyzes these CFO surveys and finds that according to CFOs, investment plans are insensitive to interest rates; we build on this using a longer panel that includes many more firms to allows us to explore

[2]For example, Gilchrist and Zakrajšek [2012] show that higher credit spreads predict lower growth; meanwhile Kothari et al. [2014] show that while a decline in credit spreads predicts higher aggregate investment growth, the effects are weak and short-lived. Recent empirical work has addressed the problem of simultaneity by using monetary policy shocks to show that in aggregate, investment is affected by changes in interest rates [Gertler and Karadi, 2015, Nakamura and Steinsson, 2018, Bauer and Swanson, 2023]. However, micro data on firms suggest that managers are relatively insensitive to changes in their cost of capital when it comes to determining hurdle rates, which are used in firms' investment decisions (Graham [2022], Gormsen and Huber [2022]).

[3]Lamont [2000] uses aggregated firm-level survey data of investment from 1948-1993 to show that planned future investment forecasts low stock returns, and Guiso and Parigi [1999] uses survey data from the Bank of Italy in 1993 to show that uncertainty weakens the responsiveness of investment to demand. In more recent years, Coibion et al. [2018] and Coibion et al. [2020] use survey data to explore how firms respond to expectations of macroeconomic conditions and Gennaioli et al. [2016] and Ma et al. [2020] use survey data to map manager expectations of earnings growth to planned or actual investment. Graham [2022] provides an overview of management plans from CFO surveys, finding that CFOs make scenario-specific, multi-year plans.

[4]A related strand of literature in macroeconomics studies the forecasts and forecast errors of professional forecasters [Farmer et al., 2024], and their responses to monetary policy [Campbell et al., 2012, Bauer and Swanson, 2023, Nakamura and Steinsson, 2018]. In addition, a large and growing literature in accounting studies the strategic considerations associated with managers disclosing guidance (see Call et al. [2024] and Roychowdhury et al. [2019] for surveys). We build on this literature by constructing and analyzing the most comprehensive micro-data on investment plans and cash flow expectations to date. While the focus in this paper is on monetary policy, our data open up a host of new opportunities for understanding corporate behavior by directly observing management decisions. We explore these questions further in our companion paper Selgrad and Siani [2025].

heterogeneity and mechanisms. We contribute to this literature by being the first to collect and use firm-level, manager-disclosed planned investment data to map out economic responses to monetary policy.

The remainder of the paper is organized as follows. We first discuss the new data on investment plans in Section 1. We then investigate the responsiveness of investment with respect to monetary policy, and investigate heterogeneity in this relationship across different types of investment in Section 2. Section 3 explores the transmission mechanisms through which monetary policy can affect investment. Section 4 discusses implications and Section 5 concludes.

1 Measurement of Investment Plans

Our core dataset is compiled using novel, hand-collected data on investment plans and merging this with corporate and analyst expectations data from LSEG and IBES. First, we construct a new, manually collected dataset containing 46,871 company investment plans for 881 U.S. publicly traded non-financial companies. To do this, we sort U.S. non-financial firms in Compustat by total assets, and check 58,392 files including quarterly and annual reports, earnings reports, and other investor disclosures on company websites for the largest 1,387 U.S. non-financial firms. Because firms are not required to disclose their investment plans, there is significant heterogeneity in how these data are reported. In our final sample, 80.7% of the observations come from the text of SEC filings, 18.3% from earnings call presentations, and the remainder come from other investor presentations.

As an example, Ford Motor Company reported in the discussion of their 2023 10-K (published in February 2024) the following: "Capital spending was $8.2 billion in 2023, $1.6 billion higher than a year ago, and is expected to be in the range of $8 billion to $9.5 billion in 2024."[5] As another example, Encore Wire Corporation wrote in its 2021 10-K (published in February 2022): "We expect total capital expenditures to range from $150 - $170 million in 2022, $150 - $170 million in 2023, and $80 - $100 million in 2024."[6] See Figure G.4 for further examples of how firms report their capital spending plans in earnings presentations. When the planned capital expenditure is reported as a range, we take the midpoint of the range.[7]

[5] See the SEC filing at link `https://www.sec.gov/ix?doc=/Archives/edgar/data/0000037996/000003799624000009/f-20231231.htm`.

[6] See the SEC filing at link `https://www.sec.gov/Archives/edgar/data/850460/000085046022000024/wire-20211231.htm`.

[7] In some cases, the dollar amount disclosed is spread over many years. For example, American Airlines wrote in its June 2024 10-Q "We estimate that, based on our commitments as of June 30, 2024, our planned aggregate expenditures for aircraft purchase commitments and certain engines on a consolidated basis for the remainder of 2024 through 2028 would

While artificial intelligence programs can help aggregate qualitative observations about company investment plans (Jha et al. [2024]), the heterogeneity in ways that companies report this information makes the task more suitable for manual entry. Thus, we instruct a team of research assistants to parse through SEC filings, earnings call reports, and investor day presentations to collect the data. Research assistants search for the terms "capital planning", "planned capital expenditures", "capital budgeting", and variations, and collect the amounts, time horizon, and any qualitative information surrounding the forecast. We describe the data collection and cleaning process in Appendix A.

We supplement our manually collected company investment plans with additional investment projections obtained from IBES (company guidance) and LSEG Guidance Reports (see Mayew et al. [2024]). The combined dataset is at the firm, date of announcement, forecast horizon level, and covers between 70-80% of capital expenditures and 60% of total assets of the universe of non-financial U.S. firms in Compustat from 2008-2023 (see Figure 1 for the time series of data coverage). Table 1 reports the summary statistics of firms that are in our sample, compared to non-financial U.S. firms in Compustat. Most firm-level measures are from Compustat; we compute the distance to default using a Merton model as described in Gilchrist and Zakrajšek [2012], adapting code from Ottonello and Winberry [2020].

Firms in our sample are significantly larger than the universe of Compustat firms, with a median firm of 2.4 billion in total assets versus the median Compustat firm of 370 million in assets. Across these three sources of investment plans, we observe forward-looking investment plans for 3,336 firms made in 1999-2024 for projected investment occurring in the years 2000-2033. Figure G.5 shows the distribution of projection years across the three sources; there is fairly even coverage over the years. We observe plans for firms across a variety of industries, as shown in Figure G.6. In the analysis, we trim the planned-investment outcome at the 2nd and 98th percentiles, and additionally exclude plans implying planned capital expenditure growth above 300% of assets.

The plan horizon varies significantly by industry, as summarized in Figure 2; firms in the utilities and transportation sectors tend to have much longer projection horizons on average, from 3-5 years on average, while construction and healthcare companies have on average 15-18 months between announcement and end of investment plan horizon. Firms frequently update their projected investment for a given fiscal year. Figure G.8a shows the modal number of revisions to a given investment plan is three. Further, Figure G.8b shows

be approximately $14.0 billion". See the SEC filing at link `https://americanairlines.gcs-web.com/static-files/ce8cb2f0-7c8f-4324-be01-b8e559b626e4`. In cases like these, we assume the total amount is equally distributed across all years.

that these revisions are most often made quarterly, providing helpful high-frequency variation to study the investment decision responses to shocks.

Because we aggregate the stated investment plans from public disclosures, we consider them the managers' carefully considered plans of future investment given available information. Regulation S-K Item 303 requires SEC-filing companies to disclose material cash requirements, including capital expenditure commitments. Accordingly, once a project is reasonably likely to require material cash outlays, it should be disclosed.[8] Managers are strongly incentivized to provide guidance honestly and avoid "cheap talk". The 1934 Securities Exchange Act, Section 10b-5 makes it unlawful for anyone to "make any untrue statement of a material fact or to omit to state a material fact... in connection with the purchase or sale of any security." (U.S. Congress [1934]). Managers are thus constantly under the threat of litigation when making public disclosures (Francis et al. [1994], Rogers et al. [2011]). Moreover, the passage of the Sarbanes-Oxley Act in 2002 following the Enron and Worldcom scandals put considerable pressure on executive officers to ensure the quality and veracity of disclosures. By contrast, survey-based measures of managerial expectations often used in the literature, while informative, typically rely on voluntary responses with fewer direct consequences for misstatement. As a result, our data offers a uniquely accountable and transparent lens on firms' forward investment intentions.

In Appendix C, we analyze our sample, discuss firm disclosure behavior (including the frequency and horizon of investment plans), and address potential selection bias. In summary, firms that report plans are larger and have more tangible assets and higher investment rates than those that do not disclose plans. Collectively, our firms make up between 70-80% of fixed business investment since 2008 in U.S. Compustat non-financial firms. We view our results as representative of the investment response of large firms, which are key for understanding the response of aggregate investment. Firms that do disclose planned investment tend to do so systematically, with most firms disclosing plans either quarterly or annually. We find no evidence that firms are significantly more or less likely to deviate from their pattern of disclosure in response to changes in their own fundamentals such as investment opportunities, leverage, or profitability. Importantly, we find no evidence that monetary policy surprises significantly affect firms' propensity to disclose investment plans.

Mapping our micro investment plans to aggregate investment requires distinguishing between creation and reallocation of capital. Under U.S. GAAP, capital expenditures incorporate outlays that add to property, plant, and equipment (PP&E) through purchases, construction, and improvements, while excluding acquisitions

[8] See `https://www.ecfr.gov/current/title-17/chapter-II/part-229/subpart-229.300/section-229.303`.

of business entities.[9] For example, purchases of used machinery are recorded as capex, and while these transactions can improve productivity [Schoar, 2002], they do not contribute to aggregate capital formation. In our sample, the reallocation margin is limited: the share of PP&E that is sold by the firms in our sample each year is under 0.4%, lower than but broadly in line with Eisfeldt and Rampini [2006].[10] Young/small firms are more likely to acquire used capital [Ma et al., 2022], and our sample is skewed larger. Property acquisitions, which also do not contribute to aggregate capital formation, do appear in plans but are infrequent; explicit references to land occur in under 1% of plan descriptions. We therefore interpret the capex plans we study as primarily reflecting new capital formation.

1.1 Plans are Informative about Actual Investment

First, we establish that the plans are informative about actual investment. In aggregate, planned capital expenditures closely track actual capital expenditures. In Figures 3a and 3b, we show total planned capital expenditure for investment one year (three years) ahead, as a share of lagged assets, alongside the realized capital expenditure share that materialized over the same period for the subset of firms in our sample. Realized investment tends to be lumpier than planned investment (Doms and Dunne [1998], Caballero and Engel [1999]), particularly when considering longer horizons. For example, capital expenditures were planned to stay roughly constant as a share of assets in 2020 based on 1-year plans made in 2019; but instead dropped significantly, likely due to the COVID-19 pandemic.

We can further show that individual firm-level plans are informative about realized investment. To test this, we regress firm i's *actual* change in investment in year $t+h$ relative to year t on its *planned* change in investment over this horizon, planned as of the end of year t, including firm fixed effects:

$$\frac{I_{i,t+h} - I_{i,t}}{I_{i,t}} = \beta_h \frac{\mathbf{F}_{i,t}[I_{i,t+h}] - I_{i,t}}{I_{i,t}} + \alpha_i^h + \varepsilon_{i,t}^h, \tag{1}$$

where we use $\mathbf{F}_{i,t}[\cdot]$ to denote plans stated in period t for firm i.[11] We plot the estimated coefficients across all horizons $h \in [1,5]$ in Figure 4. We condition on plans that are announced at least three months prior to the end of the projection period; for example, we include AT&T's 2011 capital expenditure plan

[9] In our data, companies will sometimes describe planned capital expenditure in conjunction with acquisition activities, but our planned amounts do not reflect the value of the acquisitions themselves.

[10] We follow Eisfeldt and Rampini [2006] and compute the PP&E turnover as the average Sales of PP&E across firms divided by the lagged average PP&E.

[11] Note that this is a distinct object from the familiar expectations operator $\mathbb{E}_{i,t}$ which reflects expectations.

announced in September 2011, but not the one announced in October 2011. For all of the projection horizons, the coefficients are between 0.6 to nearly 0.8 and statistically significant. This suggests that plans are significantly better than random noise, and are informative about actual investment. We report the regression results of predictiveness of one-year and longer-horizon plans in Table G.6, and find that medium and longer horizon plans (greater than one year) are slightly less predictive but still significantly predict actual investment, with a combined coefficient of roughly 0.6.[12] This finding gives us confidence that identifying changes in planned investment indeed captures meaningful economic decisions on future actual investment.

1.2 Other Data

We obtain firms' projections and analysts' expectations for revenues from LSEG Guidance Reports (see Mayew et al. [2024]). LSEG sources these projections from public disclosures, such as conference calls, press releases, analyst days, and industry conferences. We focus on projections for revenues as these are well populated. Firms provide projections for this cash flow variable in a similar way to their projections for investment, specifying a dollar amount expected for a given projection period. For an investment plan announced in a particular fiscal quarter and for a given future projection period, we also observe firm revenue guidance in 23% of the observations, and rely on analyst consensus expectations for a further 47%. There are 3,165 unique firms for which we observe either management or analyst revenue expectations alongside an investment plan.

We use high-frequency changes in interest rate futures around FOMC announcements constructed by Bauer and Swanson [2023] as the main monetary policy shocks. For the front-end of the yield curve (short-term, or "ST Shock"), we use the first principal component of the changes in the current-quarter Eurodollar (ED) futures contract, next-quarter ED futures contract, and the two- and three-quarter-ahead ED futures contracts from 10 minutes before the announcement until 20 minutes after the announcement, scaled so that the impact on the latter contract is one. To measure changes to the longer-end in the yield curve, we use changes in the yields of the 2-year, 5-year, and 10-year Treasury bond futures, also in the 30-minute announcement window.

We further use macro variables including the Chicago Fed National Activity Index (CFNAI) for monthly economic activity from the Chicago Federal Reserve, and U.S. Treasury spot rates, GDP growth, inflation and unemployment rates from FRED. To adjust the investment plans in real terms, we obtain data on

[12] Forecast errors are roughly mean zero and do not demonstrate a clear bias; see Figure G.7 for the distribution.

horizon-specific inflation expectations from the Philadelphia Federal Reserve (the ATSIX series from the Survey of Professional Forecasters). We combine the data with realized capital expenditures and other firm characteristics in Compustat. We use Mergent FISD for data on corporate bond debt outstanding, employing the merge with Compustat as described in Mota and Siani [2023], and use Capital IQ to gather the share of bond and bank debt for each firm.

2 The Relationship between Firm Investment Decisions and Monetary Policy

In this section, we investigate the relationship between monetary policy and corporate investment decisions. Specifically, we study how monetary policy affects planned investment, rather than realized investment, as is common in the literature. Planned investment maps more tightly to optimal corporate decisions in investment models such as q-theory [Hayashi, 1982], which condition on time-t information. Using plans as the outcome variable provides a cleaner measure of the decision margin through which monetary policy affects real corporate investment. Realized investment, in contrast, is a noisier outcome variable. Investment is lumpy [Doms and Dunne, 1998] and takes time to plan and build [Kydland and Prescott, 1982, Christiano and Todd, 1996]; realized investment following a policy event thus reflects a combination of policy response, past decisions, and intervening shocks. In addition, identified monetary policy shocks are small and available over a limited time series. This makes it challenging to precisely attribute realized investment, which may be implemented multiple years after a policy change, to the policy itself. Observing planned investment thus improves the signal-to-noise ratio [Nakamura and Steinsson, 2018] by isolating the investment decision following a policy shock. We formalize this argument in Appendix B.

The baseline hypothesis from a neoclassical or q-theory model is that contractionary (expansionary) monetary policy shocks should reduce (increase) planned investment. We test this directly using standard monetary policy measures from the literature, and exploit our data on plans to estimate elasticities of planned investment over different horizons to interest rates. This leads to our first key finding: planned investment at longer projection horizons is more responsive to monetary-policy-induced changes in interest rates. Importantly, our findings are all based on immediate decision responses to shocks in a given quarter; thus, the long lags documented in realized investment responses to monetary policy cannot be driven solely by information rigidities in our context. In our second key finding, we document novel micro-evidence of frictions in the production of capital as a driver of long lags in responsiveness.

2.1 The Responsiveness of Investment with Respect to Monetary Policy

We first investigate the average responsiveness of investment plans to monetary policy, pooling across all firms and types of investment. A distinctive feature of our data is that we observe investment plans at various horizons and can track how planned investment at each horizon adjusts in response to monetary policy. Exploiting this feature, we test how plans for one to five years in the future respond to policy-driven changes in interest rates.

For each firm i, let q denote the most recently closed fiscal quarter before the plan is disclosed, and y denote the fiscal year for the projected capex.[13] We compute the firm's planned investment growth as:

$$\mathrm{F}_{i,q}[\Delta\text{Investment}_{i,y}] \equiv 100 \times \frac{\mathrm{F}_{i,q}[I_{i,y}] - \sum_{s=q-4}^{q-1} I_{i,s}}{Assets_{i,q-1}}, \tag{2}$$

where $\mathrm{F}_{i,q}[I_{i,y}]$ is the disclosed capex plan for fiscal year y, deflated to time q dollars using inflation expectations, and $\sum_{s=q-4}^{q-1} I_{i,s}$ is the trailing four-quarter realized capex, converted to time q dollars using PPI. We subtract trailing four-quarter realized capex to isolate changes in planned capital expenditures relative to the firm's recent investment baseline.

Our baseline specification regresses this outcome variable on quarterly changes in U.S. Treasury yields, instrumented by high-frequency monetary policy surprises around FOMC announcements. This specification is commonly used to ensure the coefficients can be interpretable as output responses to policy-driven changes in yields. Within each fiscal quarter, we sum all 30-minute policy surprises for the instrument and map them to the investment plan disclosed right after the end of that quarter. We make two identifying assumptions: policy surprises in Treasury yields affect investment plans primarily via quarterly yield changes, and the surprises are otherwise exogenous to firm-level investment plans (conditional on lagged controls). This allows us to isolate the component of yield changes attributable to policy news.

Specifically, we run:

$$\text{Planned Investment}_{i,q,h} = \beta_h \ \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}, \tag{3}$$

where $\widehat{\Delta y}_q$ is the predicted quarterly change in a maturity-m U.S. Treasury yield, instrumented with the

[13] Investment plan disclosures (announcements) can occur at any point within a quarter, so we assign a disclosed capex plan to the fiscal quarter q immediately preceding it. For example, for a firm with a fiscal year beginning in January, a plan announcement on January 15, 2010 will be assigned the fiscal quarter 2009 Q4 (i.e., the fiscal quarter ending December 31, 2009).

sum of 30-minute changes in the maturity-m U.S. Treasury futures around all FOMC announcements that occurred during quarter q. For example, we instrument quarterly changes in the 5-year yield with the sum of 30-minute changes in the 5-year Treasury futures price. We report the first stage in Table G.8: high-frequency MP-driven changes in U.S. Treasury futures is a relevant instrument for quarterly changes in interest rates, with F-statistics well above 10 for each maturity, consistent with findings that policy-window changes in yields impact lower-frequency yield movements [Hillenbrand, 2025]. Firm controls include pre-shock cash-to-assets, leverage, log assets, return on assets, tangibility and Tobin's Q. Macro controls include the lagged quarter change and level of the CFNAI index, the lagged 2-year U.S. Treasury yield and 2-10 year Treasury yield curve, and four lags of GDP growth, inflation rate, and unemployment rate. We include all plans ending at least three months after announcement, and cluster standard errors by firm and calendar quarter.

Table 2 shows our baseline estimates using the 5-year yield, which are stable across different sets of fixed effects and controls. Adding macro controls increases both statistical and economic significance of the result, likely reflecting the correlation of MP "shocks" with lagged macro variables [Bauer and Swanson, 2023]; as such, all further specifications will include the full suite of controls. Short-horizon investment plans for the upcoming year seem relatively unresponsive to monetary policy shocks, while long-horizon investment plans for several years into the future are quite responsive. For example, columns (1)-(3) in Table 2 suggest that a one percentage point increase to the 5-year yield leads to no reduction today in short-term planned investment ($h = 1$). However, policy-driven yield changes lead to a reduction of 0.7, 0.9, 1.5, and 1.1 pp of lagged assets today in planned investment that is to occur in two, three, four, and five years respectively. In general, it appears that the response of planned investment to risk-free interest rate shocks is increasing in the horizon of the plan, although the pattern is not strictly monotonic.

Figure 5 summarizes the effects on planned investment across horizons for monetary policy-driven changes to the 5-year yield, corresponding to the specification in column (3) of Table 2; Appendix Figure G.14 reports the analogous responses to shocks at other points of the yield curve (1-, 2-, and 10-year). While these figures resemble local projections common in the monetary transmission literature, the key difference is that all coefficient estimates are capturing decisions made directly following the monetary surprise. Thus, we can interpret these results as the immediate response of the planned investment path up to five years in the future following a monetary policy event. In sum, monetary policy primarily shifts investment planned further into the future, while near-term plans are comparatively less responsive.[14]

[14] A common concern with using high-frequency shocks is that they are small. To address this, we regress planned investment

There are two additional concerns when using these high-frequency surprises to infer policy responses. First, if shocks are predictable by macro news [Bauer and Swanson, 2023] or yield changes De Fraisse et al. [2026], then the estimated effects are not truly capturing managers' responses to the policy. For this to meaningfully bias our results, however, corporate managers would need to anticipate Treasury yield movements around FOMC announcements more accurately than professional bond traders, which seems implausible.[15] Second, the shocks could also reflect the Fed "information effect" [Nakamura and Steinsson, 2018, Jarociński and Karadi, 2020], where markets learn from the FOMC announcement about the Fed's private information regarding future economic conditions. To the extent that contractionary surprises convey positive information about growth prospects, this channel would attenuate our estimates, making them conservative. Moreover, we later show that firms revise long-run revenue expectations downward following contractionary shocks, suggesting that managers do not on net interpret these surprises as favorable news about the macroeconomic outlook. To the extent that there is an information effect, it would suggest our estimates are conservative.

For robustness, we also run a version of the specification where we have $\text{Revision}_{i,q,h} = \frac{\mathbf{F}_{i,q}[I_{i,y}] - \mathbf{F}_{i,q-1}[I_{i,y}]}{A_{i,q-1}}$ on the left-hand side instead. The results are shown in Figure G.12. In this specification, we lose observations where there are not consecutive updates to plans within a year, so the confidence intervals are wider. However, the coefficient estimates are similar in magnitude to our baseline in Figure 5.

What would we have learned looking only at realized investment? We estimate the following analogous specification for realized investment, for horizons $h = 1, 2, 3, 4, 5$:

$$\text{Realized Investment}_{i,q,h} = \beta_h \ \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}, \tag{4}$$

where $\text{Realized Investment}_{i,q,h}$ is defined as $\frac{I_{i,q+h} - \sum_{s=q-4}^{q-1} I_{i,s}}{A_{i,q-1}}$. Figure G.11 compares estimates for this specification using realized investment to the specification using planned investment. The coefficients estimated using realized investment are somewhat similar in magnitude to those estimated using planned investment, but are much less precise.

This comparison highlights the low signal-to-noise ratio issue when using data on realized investment:

directly on quarterly changes in U.S. Treasury yields, and find a similar a term structure of responsiveness but with weaker magnitudes across the board, reported in Figure G.10. The "naive OLS" estimates are biased towards towards a positive effect, consistent with the intuitive bias that higher nominal interest rates coincide with a growing economy, thus rates and plans may co-move positively.

[15] In Appendix F, we further show that all of our main results are robust to including 8 quarterly lags of one-year Treasury yield changes, addressing the concern raised by De Fraisse et al. [2026] that predictable variation in the interest rate path may confound estimates using high-frequency MPS.

these noisily estimated coefficients could reflect measurement error or weak policy transmission. This problem becomes more pronounced at longer horizons after a shock, when additional events may further affect firms' investment decisions. Analyzing our data on plans instead of relying solely on data on realizations allows us to see that the policy is indeed effective at adjusting economic agents' decisions.

2.1.1 Do policy-driven changes in investment plans translate to changes in realized investment?

Do these policy-driven changes in investment plans manifest in realized investment? We test this directly in Table 3: using the 5-year monetary policy shock as an instrument for planned investment, we find that the IV coefficient on instrumented planned investment is large and statistically significant for long-horizon realized investment, with a coefficient of 1.17. This suggests that policy-induced changes in long-horizon investment plans are matched by a roughly equal-sized movement in subsequent realized investment. For short-term plans, the first stage is weak, thus the corresponding second stage estimate is uninformative. Overall, because policy-induced changes in long-horizon plans do show up in subsequent realized investment, the planned investment response to MPS is a useful object to study.

2.2 Why are Long Horizon Investment Plans More Responsive to Monetary Policy?

Overall, the results so far underscore a clear relationship: the longer the planning horizon, the greater the sensitivity of investment plans to monetary policy shocks. We call this the "term structure of planned investment responsiveness". This helps explain why monetary policy takes time to impact realized investment: it impacts long-horizon plans the most, which are still often years away from realization.

Next, we investigate what drives the previous observation that the response of planned investment to interest rate shocks tends to be increasing in the horizon of the plan. This could be due to heterogeneity across firms: firms with longer horizon investment plans may generally be more responsive to monetary policy, perhaps because their investment projects are longer in duration and thus more interest rate sensitive. Figure 2 shows that there is substantial variation in average investment plan horizons across industries.

In this vein, we next compare the responsiveness of investment plans across firms with differing planning horizons. To do so, we split our sample based on the firms' maximum planning horizon in a given quarter. There are three sub-samples: firm-quarters with a maximum planning horizon $\overline{h}$ of up to and including one year, of greater than one and less than or equal to three years, and of more than three years. We then estimate

the specification in Equation 3 separately for these three sub-samples, for planning horizons $h = 1, 2-3, 4-5$. The results are shown in Table 4.

Firms with longer maximum planning horizons appear to be generally more sensitive to monetary policy-induced changes in interest rates. For example, column 1 shows that the one-year plans for firms with short maximum planning horizons of $\overline{h} = 1$ are essentially unresponsive, with a coefficient close to zero. Column 2 shows that one-year plans for firms with intermediate maximum planning horizons of $\overline{h} \in \{2, 3\}$ are more responsive, with planned investment reducing by 0.7pp as a percentage of lagged assets in response to a 1pp monetary-policy induced increase in the 5-year yield. Column 3 shows that one-year plans for firms with long maximum planning horizons of $\overline{h} \in \{4, 5\}$ are even more responsive, with planned investment reducing by 1.7pp in response to the same change. Similarly, when comparing columns (4) to (5), two and three year-plans for firms with intermediate maximum planning horizons are again less responsive than for those with long maximum planning horizons. This suggests that firms with longer investment plan horizons are generally more responsive to monetary policy-induced changes in interest rates at all horizons. This may be because their investments are expected to generate cash flows further in the future, and so their present value is more sensitive to changes in interest rates. In line with this, we observe a positive correlation between firms' investment plan horizons and their asset maturity (defined as per Stohs and Mauer [1996]), as shown in Figure G.16.

One potential concern is that firms selectively disclose long-horizon plans in a way that is correlated with policy. To alleviate this concern, Table G.4 shows that disclosure of long-horizon plans are not sensitive to monetary policy, and Columns 2-3 in Table G.5 show that disclosing long-horizon plans does not load significantly on changes in firm fundamentals. We discuss potential selection bias in further detail in Appendix C.

2.2.1 Comparing to Prior Estimates

To compare our estimates to the prior literature, we compute the elasticity of investment with respect to the user cost of capital that is implied by our estimates. We compute this elasticity for cumulative investment across different horizons.

As shown in Figure 2, industries differ in their planning horizons. To compute our macro-elasticities, we first assign the estimates in Table 4 to industries based on the average maximum planning horizon of firms in each industry, as observed in our data. To be conservative, we assume that industries with a maximum

planning horizon of $\overline{h}_i$ have a response of zero for horizons $h > \overline{h}_i$. We then weight these estimates by each industry's share of total capital expenditures, using 2022 BEA Table 4a, to obtain a single economy-wide estimate $\hat{\beta}_h$ for each plan horizon h.

We then compute an estimate of the elasticity of investment over the next H years to the user cost of capital as follows:

$$\frac{\partial \log I_H}{\partial \log c} = \frac{\sum_{h=1}^{H} (1-\delta)^{H-h} \hat{\beta}_h \frac{A}{I}}{\frac{\omega(1-\tau)\phi_d + (1-\omega)\phi_e}{r+\delta}} \tag{5}$$

The numerator is the semi-elasticity of net investment over the next H years with respect to the risk-free rate. To obtain this, we cumulate our annual estimates of the investment response $\hat{\beta}_h$ for $h = 1, \ldots, H$, accounting for depreciation rate δ, and convert them so they are expressed in percentage points of investment by multiplying by the average ratio of assets to CAPX in our sample, A/I. In the denominator, we have the semi-elasticity of the user cost of capital with respect to the risk-free rate. ω is the leverage ratio, r is the weighted average cost of capital, τ is the taxation rate, and ϕ_e and ϕ_d are the pass-through of changes in the risk-free rates to the cost of equity and cost of debt respectively.[16]

The results are shown in Table 5, which shows a sensitivity analysis for different values of the pass-through of risk-free rates to the cost of equity and debt. The macro-elasticity of investment with respect to the user cost of capital increases with the horizon of investment. Our baseline estimate using $\phi_e = \phi_d = 1$ of the one-year elasticity of investment with respect to the user cost of capital is about -2.6, the two-year elasticity is about -4.5, and the longer-term elasticity of investment with respect to the user cost of capital is about -6.5. These magnitudes are in the same ballpark as estimates from natural experiments in Zwick and Mahon [2017], He et al. [2022] and model-implied estimates in Koby and Wolf [2020], Winberry [2021]. Overall, our estimates suggest that the longer-run elasticity of investment with respect to the user cost of capital is large and increasing in horizon.

2.3 Plans for New Projects are More Responsive to Monetary Policy

Our term-structure results could reflect differential adjustment costs for long versus short term projects, but it could also reflect a simple duration channel. To separate the two, we next turn to investigate the nature of potential adjustment costs and their source. In particular, we explore a capital-production friction: the

[16] Section E details the parameter assumptions used to convert our estimates of the response of investment with respect to the risk-free rate into an elasticity with respect to the user cost of capital.

partial irreversibility of investment. When installed capital has a low resale value relative to its purchase cost, investment is costly to reverse [Abel and Eberly, 1994]. Under the partial irreversibility of investment, planned investment in new projects where no capital has yet been installed should be more responsive to monetary policy, while planned investment on projects already underway should be comparatively inelastic, because they are costly to reverse.

To test this prediction of partial irreversibility, we exploit the qualitative text that accompanies roughly half of the investment-plan observations. We implement a transparent keyword-based classification that labels a plan as new when the disclosure clearly indicates project initiation (e.g., "new [facility/store/plant]," "openings," "build," "establish"), and as ongoing when it describes continuation or completion of existing programs (e.g., "ongoing," "continue," "existing," "complete"). Table G.7 reports the full dictionary. We restrict the analysis to plans whose language maps cleanly into one category, so that the comparison isolates how monetary policy affects the decision to work on new versus ongoing projects. This distinction is hard to recover from realized investment alone, which mechanically aggregates pre-committed pipeline spending with discretionary new projects.

We then estimate the following specification for plans that are categorized as being exclusively about new or about ongoing projects:

$$\begin{aligned}\text{Planned Investment}_{i,q,h} = &\sum_j \sum_k \beta_{j,k} \widehat{\Delta y}_q \times \mathbb{1}\{\text{LT Plan}_{i,q,h} = j\} \times \mathbb{1}\{\text{New Plan}_{i,q,h} = k\} \\ &+ \sum_j \sum_k \delta_{j,k} \mathbb{1}\{\text{LT Plan}_{i,q,h} = j\} \times \mathbb{1}\{\text{New Plan}_{i,q,h} = k\} \\ &+ \gamma X_{i,q-1} + \alpha_i + \alpha_h + \varepsilon_{i,q,h} \end{aligned} \tag{6}$$

$\mathbb{1}\{\text{New Plan}_{i,q,h} = 1\}$ if the investment plan is categorized as being exclusively about new projects, and $\mathbb{1}\{\text{New Plan}_{i,q,h} = 0\}$ if the investment plan is categorized as being exclusively about ongoing projects. $\mathbb{1}\{\text{LT Plan}_{i,q,h} = 1\}$ if the plan is for a year that ends at least 24 months after the announcement date of the plan. In this way, we compare differences between new and existing plans within a planning horizon, in order to separate out the differences in sensitivity of new and ongoing projects from the differences in sensitivity of plans of short and long horizons.

The results are shown in Figure 6 for the 5-year monetary policy shock (Appendix Figure G.3 reports the 1-, 2-, and 10-year shocks). Long-term plans for new projects are significantly more responsive to monetary

policy shocks than long-term plans for existing projects. This suggests that for new investment projects, firms have considerably more flexibility in adjusting the scale of the project. For ongoing investment projects, firms have less flexibility in terms of adjusting it in response to monetary policy, i.e., investments appear irreversible once underway. Consistent with this mechanism, we find that the coefficients on ongoing projects are close to zero.

2.4 What Types of Investment are Most Responsive?

We established in the previous section that new plans are more responsive to monetary policy than existing plans. In this section, we further exploit the textual data to investigate which types of investment decisions are particularly sensitive to monetary policy shocks, to try to identify more directly an extensive margin effect. We classify investments into the following, non-mutually exclusive categories: maintenance, acquisitions, physical infrastructure, environmental, expansion, and research and development. Table G.7 presents the primary keywords utilized in our classification process to systematically identify investment types.

As an example, consider the second quarter of 2022, when the Fed Funds rate increased by 100 basis points and more than two-thirds of firms scaled back their planned investments. One such firm is Ingles Markets, a grocery store chain with approximately $1 billion in market capitalization as of March 2025. In its fiscal year 2021 10-K (ending September 25, 2021), Ingles planned capital expenditures ranging from $120 to $160 million for the fiscal year of 2022. This spending was initially designated for store openings in the fiscal year of 2023, technology enhancements, equipment upgrades and replacements for existing stores, warehouse and transportation improvements, and upgrades to its milk processing facility, alongside considerations for property acquisitions aimed at future store development. However, in its subsequent 2022 Q2 10-Q filing, following the rapid rise in interest rates, Ingles revised these plans downward to a range of $100 to $120 million, notably excluding property acquisitions intended for future store development from their planned expenditures.

To test which types of investment are most likely to be cut on average in response to contractionary monetary policy, we run the following regression on plans for projection horizons that end at least 3 months after announcement:

$$\mathbb{1}\{\text{Investment Type}\}_{i,q} = \beta \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q}, \tag{7}$$

where the outcome variable is a dummy variable that equals one if the qualitative description of the investment

plan mentions words in a given category of investment and zero otherwise. Note that one investment plan can mention multiple types of investment. Figure 7 shows the estimated coefficients using the instrumented 5-year UST yield change, with 90 percent confidence intervals. The most robust finding is that environment-related investment plans are significantly responsive to monetary policy: a one percentage point increase in yields (driven by monetary policy) will reduce the likelihood of mentioning an investment plan about the environment by about one percentage point. Further, increases in the 5-year yield reduce the likelihood of mentioning investment plans about expansionary projects or maintenance capex: a one percentage point increase in yields reduces the likelihood of planned expansionary or maintenance investment, though the effect is statistically weak.

These results underscore the heterogeneity of investment responses to monetary policy. Monetary policy appears to primarily affect the likelihood of planning investment categories where firms can adjust timing without immediate consequences - environmental projects that are often voluntary, or anticipatory and expansionary plans that can wait for better conditions. By contrast, the likelihood of planning for investments involving deeper strategic or institutional commitments - such as R&D programs tied to specialized teams and long-term research agendas, acquisitions driven by time-sensitive opportunities, and infrastructure governed by contractual obligations - appear less responsive.

3 Transmission Channels of Monetary Policy to Investment

Next, we explore the transmission channels of monetary policy to firm investment decisions. A key advantage of our approach is that, by using investment plans and cash-flow expectations data, we observe firms' decisions and expectations in real time. We consider the firm's planned investment as the firm's optimal decision at the time of the decision. This lets us tie discrete adjustments in plans directly to contemporaneous changes in firms' cost of capital and cash-flow expectations, avoiding the timing mismatches and noise inherent in realized data.

Monetary policy may affect firms' investment decisions through the cost of capital or through cash-flow expectations. The text surrounding the manually collected investment plans is informative about which is operative. For example, as interest rates began to rise after the zero-lower-bound period in January 2016, Williams Partners discussed reduced capital expenditure plans in the context of lower expected net income and a higher cost of capital: "Reduced growth in production areas, combined with lower commodity margins

and a higher cost of capital, will drive both lower capital and lower ongoing expenses." Consol Energy, in its 2009 10-K, described how easy monetary policy raised its cash-flow expectations: "Due to the relaxed monetary policy in the United States, a modest recovery appears likely . . . This should lead to an increase in demand for energy products."

To organize this section, we consider firms optimally making investment decisions in a q-theory model with taxes, building on Jorgenson [1963], Hall and Jorgenson [1967], Hayashi [1982]. The model abstracts from financing frictions: we study a sample of large, bond-market-active firms that have high distance to default (see Table 1). Our evidence is consistent with a cost-of-capital channel acting as the primary transmission mechanism and shaping the cross-section of responsiveness, with cash-flow expectations playing a quantitatively smaller role.

3.1 A Simple Theoretical Framework

Consider a firm that produces output by combining capital K_t and labor L_t through a constant-returns production function $F(K_t, L_t)$. The firm hires labor at wage w and chooses investment I_t; capital accumulates as $K_{t+1} = (1-\delta)K_t + I_t$, with economic depreciation rate δ. Investment goods carry relative price p_K, and investment is subject to a quadratic adjustment cost

$$C(I_t, K_t) \;=\; \frac{b}{2}\Big(\frac{I_t}{K_t} - a\Big)^2 K_t, \tag{8}$$

where $b > 0$ governs the magnitude of adjustment and a is the steady-state investment rate where adjustment costs equal zero. Total investment expenditure is the purchase $p_K I_t$ plus the adjustment cost $C(I_t, K_t)$. There are no financing frictions: the firm discounts after-tax cash flows at its cost of capital ρ.

The firm pays corporate tax at rate τ on operating profit, and investment generates depreciation deductions whose present value is z per dollar of investment, so each dollar of investment carries a tax shield worth τz. We show in Appendix D that optimal investment satisfies

$$\frac{I_t}{K_t} \;=\; a + \frac{q_t - \hat{p}}{(1-\tau)\, b}, \tag{9}$$

where q_t is the marginal value of an installed unit of capital: $q_t \equiv \frac{1}{1+\rho} E_t[\partial V / \partial K_{t+1}]$, and $\hat{p} \equiv p_K(1-\tau z)$ is the after-tax acquisition price (the purchase price net of the depreciation tax shield). Investment exceeds the

frictionless rate a when q_t exceeds $\hat{p}$, and the adjustment-cost parameter b governs how strongly it responds.

Monetary policy moves the discount rate through the policy rate r_f; let $\phi_i \equiv \partial \rho_i / \partial r_f$ denote the firm-level pass-through. Policy can also affect cash-flow expectations and thus the marginal product of capital Π_K. Combining the investment rule (9) with $\partial q / \partial \rho = -q/(\rho + \delta)$ (derived in Appendix D), and interpreting our observed plans as the optimal investment rate, the response of planned investment to monetary policy is

$$\frac{\partial (I/K)}{\partial r_f} = \frac{q}{1-\tau} \underbrace{\frac{1}{b}}_{\text{flexibility}} \left(\underbrace{\frac{d \ln \Pi_K}{dr_f}}_{\text{cash-flow channel}} - \underbrace{\frac{1}{\rho + \delta}}_{\text{duration}} \underbrace{\phi_i}_{\text{cost of capital pass-through}} \right), \tag{10}$$

This decomposition clarifies how cross-sectional heterogeneity helps inform the transmission mechanism. First, the response scales with flexibility $1/b$: a not-yet-started project is more revisable than one already underway, so plans for new projects respond more to monetary policy than plans for ongoing projects, holding horizon fixed. We can microfound this with irreversibility [Kermani and Ma, 2023] that makes ongoing projects costly to revise; here, we model it in reduced form as $b^{(\text{ongoing})} > b^{(\text{new})}$. This prediction is consistent with our new versus ongoing results discussed above.

Second, the cost-of-capital channel scales with the pass-through ϕ_i. In the frictionless benchmark every firm funds the marginal dollar at the market rate, so ϕ_i is common across firms. A reasonable departure from this is that the discount rate a firm applies is repriced to the market when the firm transacts in external markets and is sticky in between—consistent with the finding that there is cross-firm variation in how sticky discount rates are [Fukui et al., 2024], and the idea that firms in the active-borrowing region are more responsive to market rates [Jeenas, 2024].

Third, if there is a strong cost-of-capital channel, then the response scales with duration of cash flows through the term $1/(\rho + \delta)$. Firms with longer duration cash flows or with longer-lived assets should thus be more responsive to policy-driven changes in yields.

Finally, the model clarifies how we can map the monetary policy-driven effects to the elasticity of the user cost of capital. Specifically, in the long-run steady state, the marginal value equals the effective price, $q = \hat{p}$, and the marginal product of capital equals the Hall–Jorgenson user cost [Hall and Jorgenson, 1967],

$$\Pi_K = c \equiv \frac{1 - \tau z}{1 - \tau} (\rho + \delta) p_K. \tag{11}$$

3.2 Cost of Capital

One transmission mechanism outlined by the Q-theory framework above is the discount rate channel, or cost of capital channel. If firms discount expected future cash flows by their cost of capital, and monetary policy changes the cost of capital, then this should influence firms' investment decisions. Gormsen and Huber [2024] find that firms' perceived costs of capital differ from their hurdle rates. They find that while hurdle rates move slowly, firms' perceived costs of capital update relatively quickly in response to changes in their financial cost of capital. Therefore, even in the presence of sticky hurdle rates, if firms' perceived cost of capital updates in response to monetary policy, this can translate to changes in investment decisions if firms use both objects in their investment decision-making process. Tighter monetary policy may thus dampen investment plans by raising firms' cost of capital.[17] This mechanism also potentially helps to explain our term structure of planned responsiveness results.

3.2.1 Heterogeneity in Exposure to Updates in the Cost of Capital

Under a cost of capital channel, firms that are more attentive to and more likely to receive more timely information about their cost of capital will be more responsive to monetary policy. We argue that firms that have some bond debt coming due and are therefore due to refinance are more likely to regularly update their perceived cost of debt, which feeds directly into their perceived cost of capital. Following a monetary policy shock, such firms are likelier to adjust their perceived cost of capital and, in turn, their investment plans.

To investigate this, we run our baseline IV regression where we interact instrumented yield changes with measures of bond-market exposure: indicators for whether the firm has bond debt maturing in the near term (0-6 months, 0-12 months, or 0-24 months) before the shock, using data from Mergent FISD. We estimate:

$$\begin{aligned}\text{Planned Investment}_{i,q,h} = \beta_1 \widehat{\Delta y}_q + \beta_2 \widehat{\Delta y}_q \times \mathbb{1}\{\text{Bond Mkt Exposure}_{i,q-1}\} \\ + \beta_3 \mathbb{1}\{\text{Bond Mkt Exposure}_{i,q-1}\} + \gamma X_{i,q-1} + \alpha_i + \alpha_h + \varepsilon_{i,q,h},\end{aligned} \tag{12}$$

where $\widehat{\Delta y}_q$ is the quarterly change in the 5-Year Treasury yield, instrumented by the 5-Year monetary policy surprise; $\mathbb{1}\{\text{Bond Mkt Exposure}_{i,q-1}\}$ is an indicator for whether firm i has a debt maturing within the specified window (0-6, 0-12, or 0-24 months); $X_{i,q-1}$ are lagged firm and macro controls; α_i are firm fixed

[17] Table G.9 provides examples of firms discussing interest rates during the 2022-23 tightening cycle during earnings calls in quarters where they also revised their investment plans down.

effects; and α_h are horizon fixed effects. The coefficient β_1 captures the base effect of interest rate changes on planned investment, but the coefficient of interest is β_2, which captures the differential response for firms that are more likely to be attentive to and receive more timely information about their cost of capital.

Figure 8 plots the results of the estimation, showing both the base effect of interest rate changes on planned investment and the interaction effect for firms with debt coming due in the indicated window. We find a significantly negative interaction coefficient on all debt coming due indicators, indicating that firms with near-term debt maturities and thus facing imminent refinancing needs respond more strongly to monetary policy. It is intuitive that firms facing imminent refinancing receive more timely signals about their market cost of debt, and so respond more strongly to monetary policy.

3.2.2 Heterogeneity in the Duration of Investment

If monetary policy operates through the cost of capital channel from Equation 10, then we should see that firms with greater duration assets are more responsive. We test this in three ways, making the reasonable assumption that longer-term investment plans are associated with projects that produce longer-term cash flows. First, we sort firms by the dollar-weighted average horizon of their planned capital expenditures, or investment duration. Second, we use the weighted-average maturity of a firm's outstanding bonds (WAM) as a proxy for asset duration, following the idea that firms match the maturity of their liabilities to that of their assets. Third, because a plan likely loads on the segment of the yield curve that prices its cash flows, longer-horizon plans should respond more to shocks at the long end of the curve than to short-rate shocks that leave the long end unchanged—a prediction we test within firm using our maturity-matched shocks.

First, we run a similar heterogeneity test as Equation 12:

$$\begin{aligned}\text{Planned Investment}_{i,q,h} = \beta \cdot \widehat{\Delta y}_q + \psi \cdot \widehat{\Delta y}_q \times \mathbb{1}\{X_{i,q-1} \in \text{Top 25\%}\} + \delta \cdot \mathbb{1}\{X_{i,q-1} \in \text{Top 25\%}\} \\ + \gamma X_{i,q-1} + \alpha_i + \alpha_h + \varepsilon_{i,q,h}, \end{aligned} \tag{13}$$

where the outcome, instrumented yields, controls, and fixed effects are defined just as in specification 12. The coefficient of interest, ψ, captures the differential response of firms in the top quartile of investment duration or weighted-average debt maturity (WAM) (prior to the shock) relative to other firms in that quarter. Figure 9 shows that firms with greater investment duration and weighted average debt maturity are more responsive to policy-driven risk-free rate changes.

We next compare how planned investment for different horizons responds to shocks in different parts of the yield curve. The idea is that when valuing investment projects, the discount rate used should match the duration of the project. Projects with longer-term cash flows should be discounted using long-term yields, thus we would expect to see differential responses across maturities.

Because our proposed specification interacts the policy-driven yield change with four horizon indicators, the corresponding IV first stages are weak; we therefore report the reduced form here, regressing planned investment directly on the maturity-matched surprise MPS_q^m:[18]

$$\text{Planned Investment}_{i,q,h} = \beta_1 \text{MPS}_q + \sum_{x=2}^{5} \beta_x \, \text{MPS}_q \times \mathbb{1}\{h = x\} + \gamma X_{i,q-1} + \alpha_i + \alpha_h + \varepsilon_{i,q,h} \tag{14}$$

Table 6 reports the results. Importantly for the cost of capital channel, the responsiveness of investment plans appears aligned with the maturity of the interest rate shocks: 10-year yield shocks affect longer horizon plans the most, while the effect of shorter maturity shocks on long-horizons plans is economically smaller and statistically weaker.[19] Note that this prediction is not directly applicable in our single-ρ model, we consider it suggestive reduced-form evidence consistent with the cost-of-capital channel, particularly if firms discount each future cash flow at its maturity-matched rate.

3.2.3 Do Firms Change their Borrowing in Response to Monetary Policy?

If firms reduce planned investment in response to higher cost of capital, we may expect this to be reflected in their borrowing behavior. We next test whether firms adjust their borrowing in response to monetary policy shocks. We estimate how a one-period policy shock alters firms' debt-issuing behavior over multiple horizons. Concretely, for each month horizon $h = 0, 1, \ldots, 12$, we run regressions of the form:

$$\frac{\sum_{\tau=0}^{h} \text{NetIss}_{i,q+\tau}}{A_{i,q-1}} = \beta_h \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}, \tag{15}$$

where $\text{NetIss}_{i,q+\tau}$ is firm i's net debt issuance in month $q+\tau$ deflated to time q dollars using PPI, and we include the same controls and fixed effects as before. Figure 10 shows the average results across all firms. There is a statistically significant decline in net issuance in response to policy-driven increases in the 5-year

[18] Table G.10 in the Appendix shows that a similar qualitative story is true in the IV specification, but the first stage F-statistics are too low for inference.

[19] In a similar vein, De Fraisse [2023] documents that secular changes in the slope of the yield curve impact the duration of corporate investment.

U.S. Treasury yield. The cumulative response pattern implies that tighter policy raises firms' cost of debt, leading them to cut back planned borrowing over time as their cost of capital increases.

The coefficient plots in Figure 10 indicate notably shorter response lags for borrowing compared to realized investment. Borrowing responses peak 2-3 months following a policy-driven change in the 5-year UST yield. In contrast, realized investment responses typically peak between 2 to 3 years, as documented in existing literature (Cloyne et al. [2023]). Supporting evidence from recent studies also suggests near-immediate borrowing responses to shifts in issuance costs (Boyarchenko et al. [2022], Darmouni and Siani [2022], Mota and Siani [2023], Selgrad [2023], Siani [2021]), likely facilitated by frequent issuers and firms holding shelf registrations. Thus, bond market borrowing responds quickly to monetary policy shocks.

Collectively, these results indicate that firms adjust their debt issuance behavior significantly in response to monetary policy-induced shifts in borrowing costs. The joint response of investment plans and borrowing behavior suggests that monetary policy operates through the cost of capital channel in a manner consistent with firms both re-evaluating the attractiveness of investment projects and adjusting their financing accordingly.

3.3 Cash Flow Expectations Channel

Because we observe expected revenues in the same quarter as investment plans, we can study whether monetary-policy-driven investment plans adjustments correlate with cash-flow news. In this section, we study a potential cash-flow expectations margin. Gennaioli et al. [2016] use CFO survey data to document that higher earnings expectations in the next twelve months corresponds to increased planned investment over the same period. Through the lens of our model, the main channels is that policy-driven changes in revenue expectations could affect the expected future payoff of investment projects, thus affecting today's investment decisions.[20] It follows that if an increase in interest rates dampens a firm's expectations of future cash flows, via an aggregate demand channel, then the firm may reduce its planned investment.

While we do not directly observe firms' cash-flow expectations, we do observe a combination of manager and analyst revenue expectations, and treat revenue expectations as a reasonable proxy for cash flow expectations. First, we study the relationship between expected future revenue and monetary policy. We

[20] In practice, there are multiple potential channels. First, in the presence of capital market frictions that make internal funds less costly than external funds, a decrease in a firm's cash flows will result in an decrease in that firm's investment (Fazzari et al. [1988]). Second, in the presence of cash-flow based lending (Lian and Ma [2021]), a decrease in a firm's cash flows may cause financial constraints to become more binding, which may lead to a decrease in that firm's investment. Third, as outlined in the simple Q-theory framework above, a decrease in firm's cash flow expectations, for example due to lower anticipated aggregate demand, may decrease the expected future payoff of investment projects, which may also lead to a decrease in investment. We focus on the third explanation here, and relegate exploration of the other channels for future work.

estimate the following specification:

$$\mathbb{E}_{i,q}[Revenue_{i,q,h}] = \beta\widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \alpha_h + \varepsilon_{i,q,h}. \tag{16}$$

where β represents the effect of a change in the yield induced by monetary policy events on revenue projections. Controls $X_{i,q-1}$ are as above, and α_i and α_h are firm and projection horizon fixed effects. Standard errors are clustered at the firm and calendar quarter level.

The results of these estimations are shown in Table 7, for revenue expectations for upcoming year in columns (1) - (3), and for expectations for longer horizons ending over one year after announcement in columns (4) - (6). We find that near-term revenue expectations respond negatively to monetary policy, but the effect is not statistically significant. Longer-horizon revenue expectations have a negative and statistically significant coefficient on the instrumented yield change—indicating that policy tightening lowers firms' expectations of demand further out.

Two implications follow from these results. First, expectations update quickly: the decline in longer-horizon revenue expectations appears within one quarter of the policy-driven change in yields, consistent with our finding that investment plans also adjust within the quarter, and difficult to reconcile with information rigidities as the source of slow transmission. Second, the sign of the response speaks to the Fed information effect [Nakamura and Steinsson, 2018]: if contractionary surprises primarily revealed favorable news about growth prospects, revenue expectations should rise after a hike. Instead, they fall significantly at longer horizons, indicating that the contractionary effect dominates any information effect on net. To the extent an offsetting information component is present, it attenuates our estimates, making them conservative. An important measurement caveat is that our revenue expectations data combines management guidance with analyst consensus forecasts, used where guidance is unavailable.

Next, to study the relationship between a firm's investment plans and projected revenue, we estimate the following specification:

$$\text{Planned Investment}_{i,q,h} = \beta\mathbb{E}_{i,q}[Revenue_{i,q,h}] + \gamma X_{i,q-1} + \alpha_i + \alpha_q + \varepsilon_{i,q,h}, \tag{17}$$

where $\mathbb{E}_{i,q}[Revenue_{i,q,h}]$ is firm i's deflated expected revenue the next year relative to the rolling sum of revenue over the prior four quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets. Planned Investment$_{i,q,h}$

is the analogous term for projected investment for projection year y. Controls $X_{i,q-1}$ include the same firm controls and macro controls as before. α_i and α_q are firm and calendar quarter fixed effects, respectively. Standard errors are clustered at the firm and calendar quarter level.

Table 8 reports the regressions of planned investment on expected revenue. Columns (1) - (5) regress current-fiscal-year planned investment on contemporaneous and long-run revenue expectations; columns (6) - (8) regress longer-horizon planned investment on contemporaneous and long-run revenue expectations. The first panel shows that the coefficient on contemporaneous revenue expectations is positive and significant, implying that a 1 percentage point increase in expected revenue relative to the last four quarters' realized revenue (as a share of assets) is associated with roughly a 0.02–0.03 percentage point increase in planned investment (as a share of assets), and is robust to the inclusion of firm controls, macro controls, and firm and time fixed effects. For longer-horizon plans, near-term revenue expectations are not significantly related to investment, but longer-horizon revenue expectations are: increases in long-run revenue expectations predict long-run planned investment with a coefficient of about 0.014. Revenue expectations thus translate into investment plans at matched horizons, with long-run revenue expectations loading on both near- and long-run planned investment, consistent with the mechanism in our framework.

Overall, the cash flow expectations channel—proxied here by revenue expectations—is present and detectable at longer horizons: a monetary tightening lowers longer-dated revenue expectations, and longer-horizon investment plans move with those expectations. The magnitudes are modest: a 100 basis point policy-driven increase in yields reduces expected revenues as a percentage of assets by 1.8 percentage points, which is roughly a 0.14 standard deviation change.

4 Discussion

One core takeaway from our empirical analysis of the plans and expectations data is a separation between corporate decisions and implementation. The decision stage responds quickly to monetary policy driven changes in yields: managers update planned investment and revenue expectations adjust within one quarter of a given policy shock. While we cannot claim that managers process all available information completely, slow information updating cannot be the only source of long lags for the transmission of monetary policy to corporate investment. Instead, we show the lag is in implementation: long-horizon plans for over two years in the future respond more so to policy, and these plans ultimately manifest roughly one-for-one in realized

investment.

What are the frictions driving these implementation lags? Our evidence indicates two complementary features of capital production within a standard q-theory framework: discounting of long-duration payoffs, and differential adjustment costs associated with new versus ongoing projects. Long-horizon plans are more responsive to policy, since long-duration cash flows are mechanically more sensitive to the cost of capital. Consistent with maturity-matched discounting, long-horizon plans respond more so to shocks in the long end of the yield curve.

Duration alone is unable to explain the differences in responsiveness across projects. Even holding fixed plan horizon, plans for new projects are more responsive to policy than ongoing projects, consistent with more lower flexibility for adjusting ongoing projects. A natural microfoundation for this heterogeneity arises from partial irreversibility of installed capital [Abel and Eberly, 1994, Kermani and Ma, 2023]: plans to finish a factory that is 90% finished are unlikely to be sensitive to interest rate shocks.

In terms of mechanisms, we find evidence of a cost of capital channel. While monetary policy transmission through firms has been shown to work robustly via a bank lending channel [Kashyap et al., 1996, Kashyap and Stein, 2000], other channels may also affect larger firms that borrow actively from capital markets. Indeed, our sample of publicly-traded U.S. firms tends to borrow more from bond markets: the median firm in our sample has 46% of its debt in bonds, while the median Compustat firm has 12% in bonds. We find evidence that the cost of capital channel operates more strongly through firms that have bond debt coming due, likely because market rates are more salient for them. A cash flow expectations channel, proxied by revenue expectations, is present at longer horizons but quantitatively modest, so through the lens of the standard Q-theory model, the cost-of-capital channel remains the primary margin for our set of firms. The implied elasticity of investment with respect to the user cost is about -4.5 over two years and -6.5 at longer horizons, indicating that investment decisions are considerably more rate-sensitive than realized-investment regressions imply.

Overall, our findings reveal a new picture of monetary policy transmission to the real economy. Monetary policy affects corporate investment mainly by shifting the discounting and market rates applied to long-duration projects, while the pace at which those decision changes translate into realized investment depends on the composition of firms' project pipelines. Because the most policy-sensitive margin is new long-horizon investment, the macro response is delayed in large part because a substantial fraction of near-term spending is already in motion and costly to reverse. An important caveat is that by the nature of our data,

our conclusions are most relevant for large, bond-issuing firms that are publicly traded. Policy transmission likely differs for smaller, bank-dependent firms that are more likely to face financing constraints.

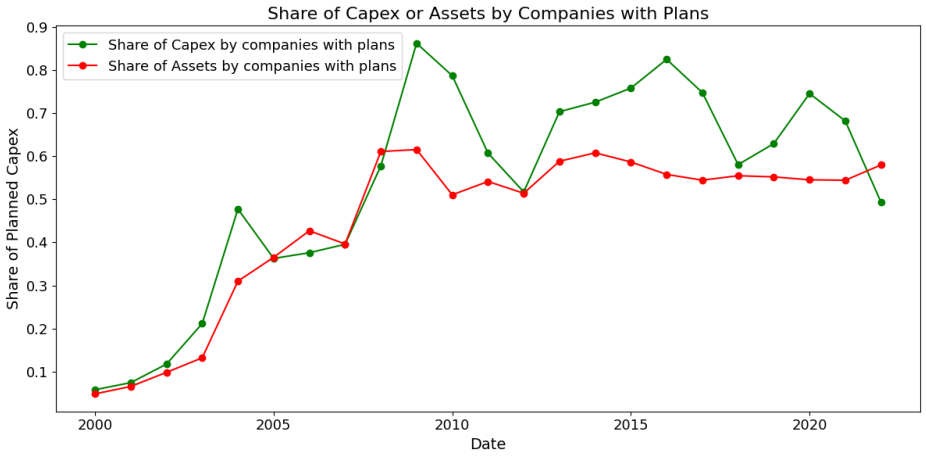
5 Conclusion

We hand-collect and construct a novel dataset on company investment plans and expectations that provides a unique window into corporate decision-making and how it relates to monetary policy transmission. We document that investment responses differ by horizon: short-term plans react less strongly overall compared to long-term plans. The stage of the project also matters – new investments are more responsive to contractionary monetary policy shocks, whereas ongoing projects are largely insulated – further evidence of the variation in flexibility across investment projects within a firm's portfolio. Our results are broadly consistent with a view of investment implementation with adjustment costs, in particular partial irreversibility [Abel and Eberly, 1994].

Our results provide new evidence explaining the well-documented empirical lag between monetary policy changes and realized output. We find that monetary policy immediately impacts the formation of new investment plans, with actual investment spending adjustments materializing only when projects begin execution with lags, given partial irreversibility of existing projects. We also find evidence in favor of a cost of capital channel as the primary mechanism for our sample of firms, alongside a smaller cash flow expectations channel—proxied by revenue expectations—that operates at longer horizons.

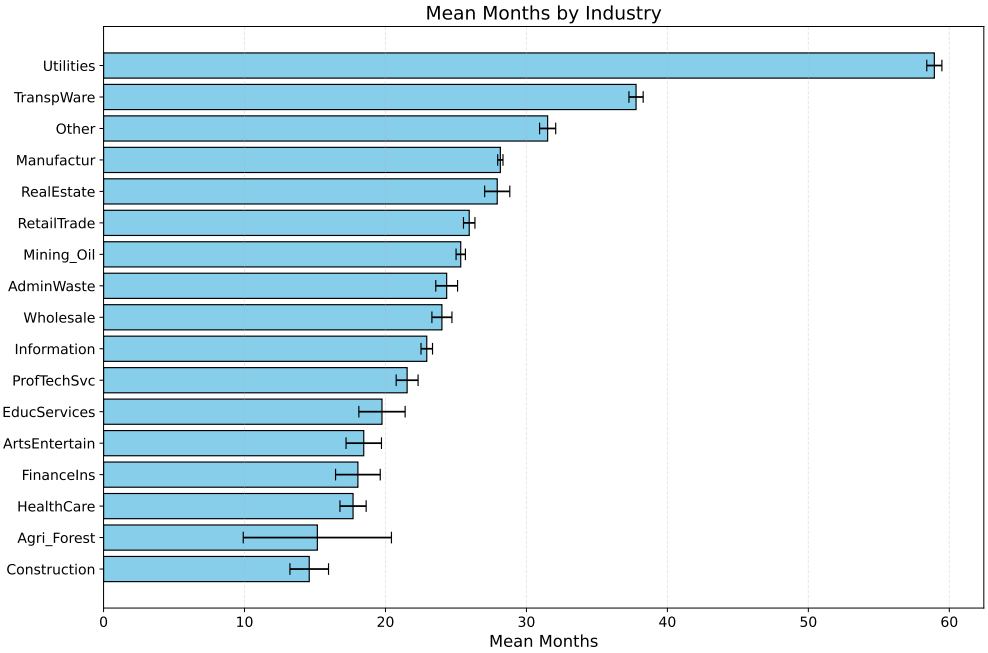
Overall, our evidence shows that analyzing corporate decision making is crucial for understanding the transmission of policy to the aggregate economy. Our findings imply that the composition of planned investment projects can affect how quickly and flexibly the corporate sector can respond to monetary policy through actual investment spending. While the focus of our paper is on monetary policy, our results may extend to firm responses to other shocks and policies, and our new data provides many opportunities to better understand corporate decision-making.

Figure 1: Share of Capex and Assets by Companies with Plans



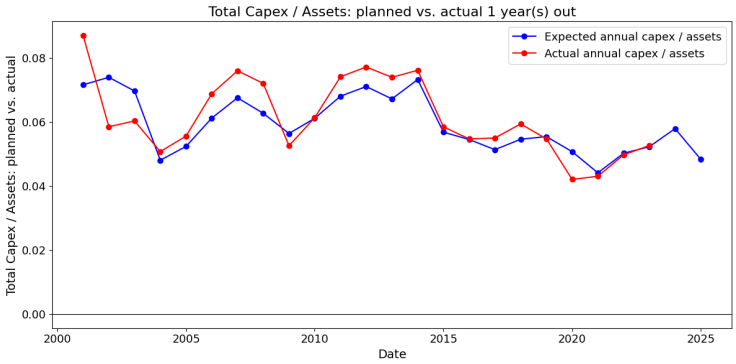
Notes: This figure plots the share of total assets in red and total capex in green across all U.S. Compustat non-financial companies that are covered by firms with investment plans in our sample.

Figure 2: Industry-level mean months to end of plan

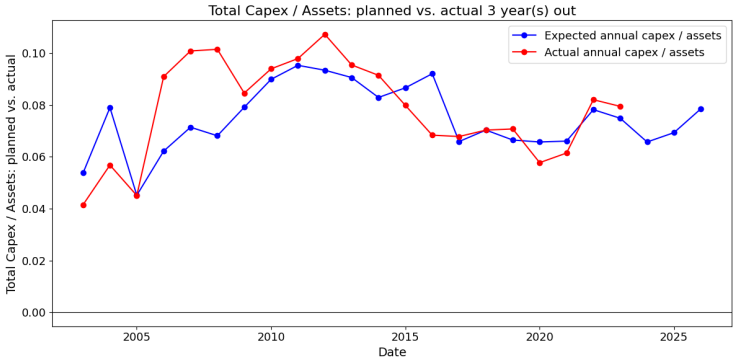


Notes: This figure summarizes the average projection period by industry across all firm quarters, conditional on the firm-quarter having an investment projection. Standard error bars are reported in black.

Figure 3: Comparing Planned vs. Actual Investment



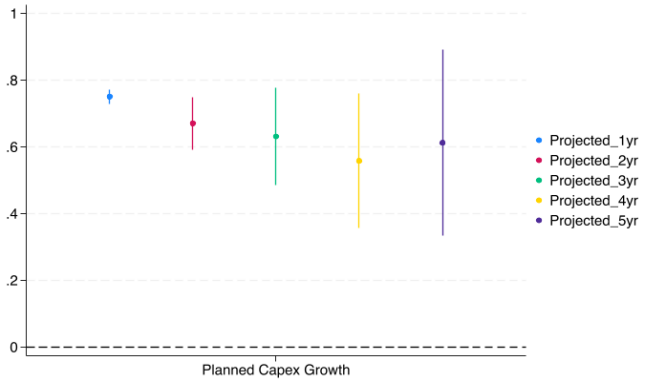
(a) Planned vs. Actual Capex / Assets: 1 Year Out



(b) Planned vs. Actual Capex / Assets: 3 Years Out

Notes: This figure compares total realized and planned capex as a share of lagged total assets. In Panel (a), the blue line plots aggregate planned capex as a share of assets for investment one year ahead, while the red line plots the realized capex share that materialized. Panel (b) plots the analogous comparison for plans three years ahead.

Figure 4: Predictiveness of Investment Plans at Different Projection Horizons

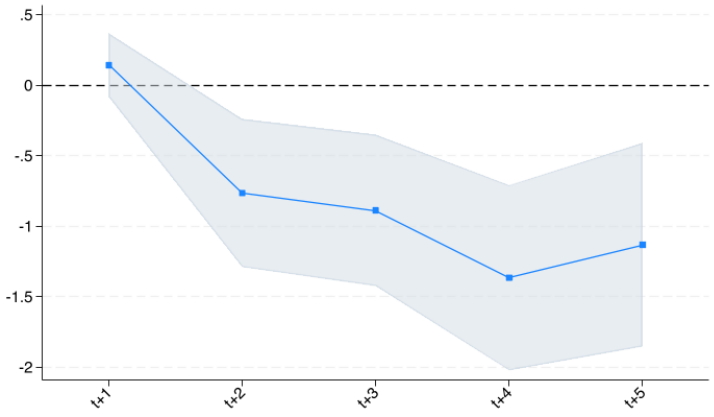


Notes: This figure plots the estimated coefficient β_h and 95% confidence intervals from horizon-specific regressions of realized nominal capital expenditure growth on planned nominal capital expenditure growth:

$$\frac{I_{i,t+h} - I_{i,t}}{I_{i,t}} = \beta_h \frac{\mathbf{F}_{i,t}[I_{i,t+h}] - I_{i,t}}{I_{i,t}} + \alpha_i^h + \varepsilon_{i,t}^h,$$

where $I_{i,t+h}$ is firm i's realized nominal capital expenditures in projection year $t+h$, $I_{i,t}$ is sum of last four quarters' realized nominal capital expenditures, and $\mathbf{F}_{i,t}[I_{i,t+h}]$ is the planned nominal capital expenditure for year $t+h$ disclosed in period t. The regression is estimated separately for each horizon $h \in \{1,2,3,4,5\}$, where $h=1$ corresponds to projection horizons ending 3–12 months after the announcement, $h=2$ to 13–24 months, $h=3$ to 25–36 months, $h=4$ to 37–48 months, and $h=5$ to 49–71 months. The sample is restricted to annual (12-month) projection periods ending at least 3 months after the announcement date. Both planned and realized nominal capital expenditure growth are trimmed at the 2nd and 98th percentiles. Firm fixed effects are included and standard errors are clustered at the firm level.

Figure 5: Impact of Monetary Policy on Investment Across Horizons

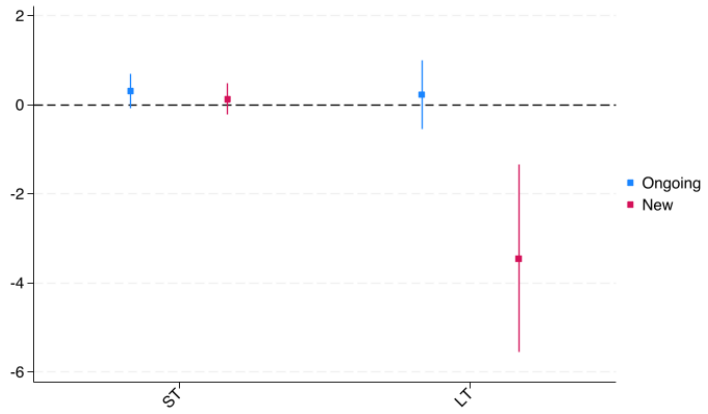


Notes: This figure depicts β_h and 90% confidence intervals for the following specification, for $h = 1, 2, 3, 4, 5$:

$$\text{Planned Investment}_{i,q,h} = \beta_h \, \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}$$

$\text{Planned Investment}_{i,q,h}$ is planned real investment for firm i in projection year y relative to the rolling sum of the real investment over the prior 4 quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets. h denotes the years from today that the plan is for. Here, $h = 1$ if the difference between the projection date and the end of the projection horizon is between 3-12 months, $h = 2$ if the difference is between 13-24 months, $h = 3$ if the difference is between 25-36 months, $h = 4$ if the difference is between 37-48 months, and $h = 5$ if the difference is 49 months or more. $\widehat{\Delta y}_q$ is the three month change in the 5-year U.S. Treasury yield, instrumented using the maturity-matched (5-year) high-frequency monetary policy shock that occurs during quarter q, during which the investment plan is made and at the end of which the plan is announced. Appendix Figure G.14 reports the analogous results instrumenting the 2- and 10-year U.S. Treasury yields with their maturity-matched high-frequency shocks and the 1-year yield with the Bauer and Swanson [2023] short-term (Eurodollar-futures) monetary policy surprise. The regression controls $X_{i,q-1}$ include firm-level characteristics (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q), the quarter change in the CFNAI index, the level of the CFNAI index, the 2-year U.S. Treasury yield and the 2-10 year Treasury yield curve slope, all as of quarter $q-1$, as well as four lags of GDP growth, the inflation rate and the unemployment rate. The outcome variable is trimmed at the 2nd and 98th percentiles. Firm fixed effects are included, and standard errors are clustered at the firm and calendar quarter level.

Figure 6: Effect of Monetary Policy on New versus Ongoing Investment Projects

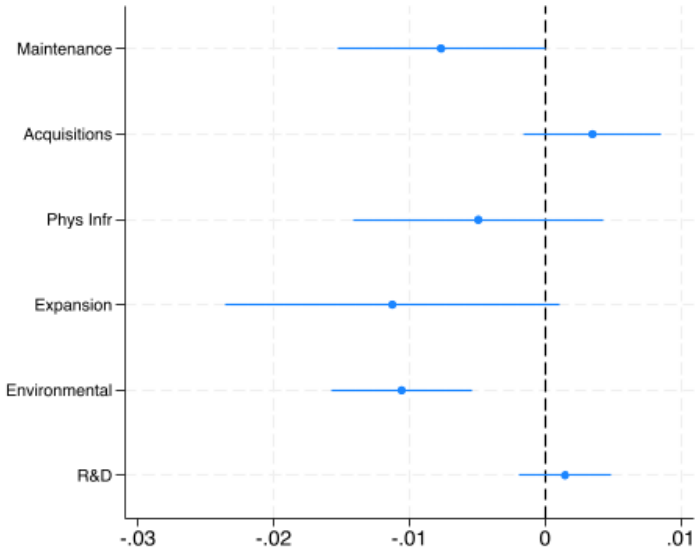


Notes: This figure depicts $\beta_{j,k}$, for $j = 0, 1$ and $k = 0, 1$, and 90% confidence intervals for the following specification:

$$\begin{aligned}\text{Planned Investment}_{i,q,h} = &\sum_j \sum_k \beta_{j,k} \widehat{\Delta y}_q \times \mathbb{1}\{\text{LT Plan}_{i,q,h} = j\} \times \mathbb{1}\{\text{New Plan}_{i,q,h} = k\} \\ &+ \sum_j \sum_k \delta_{j,k} \mathbb{1}\{\text{LT Plan}_{i,q,h} = j\} \times \mathbb{1}\{\text{New Plan}_{i,q,h} = k\} \\ &+ \gamma X_{i,q-1} + \alpha_i + \alpha_h + \varepsilon_{i,q,h}\end{aligned}$$

$\text{Planned Investment}_{i,q,h}$ is planned real investment for firm i in projection year y relative to the rolling sum of the real investment over the prior 4 quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets. $\mathbb{1}\{\text{New Plan}_{i,q,h}\} = 1$ if the investment plan exclusively concerns a new project, and = 0 if the investment plan exclusively concerns an ongoing project. $\mathbb{1}\{\text{LT Plan}_{i,q,h}\} = 0$ if the difference between the projection date and the end of the projection year is between 3 and 23 months, and equals one otherwise. $\widehat{\Delta y}_q$ is the quarterly change in the 5-year U.S. Treasury yield, instrumented with the maturity-matched (5-year) high-frequency monetary policy shock; Appendix Figure G.3 reports the analogous results instrumenting the 2- and 10-year U.S. Treasury yields with their maturity-matched high-frequency shocks and the 1-year yield with the Bauer and Swanson [2023] short-term (Eurodollar-futures) monetary policy surprise. The regression controls $X_{i,q-1}$ include firm-level characteristics (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q), the quarter change in the CFNAI index, the level of the CFNAI index, the 2-year U.S. Treasury yield and the 2-10 year Treasury yield curve slope, all as of quarter $q-1$, as well as four lags of GDP growth, the inflation rate and the unemployment rate. The outcome variable is trimmed at the 2nd and 98th percentiles. Firm fixed effects are included, and standard errors are clustered at the firm and calendar quarter level.

Figure 7: Heterogeneity in Responsiveness to Monetary Policy Across Investment Types

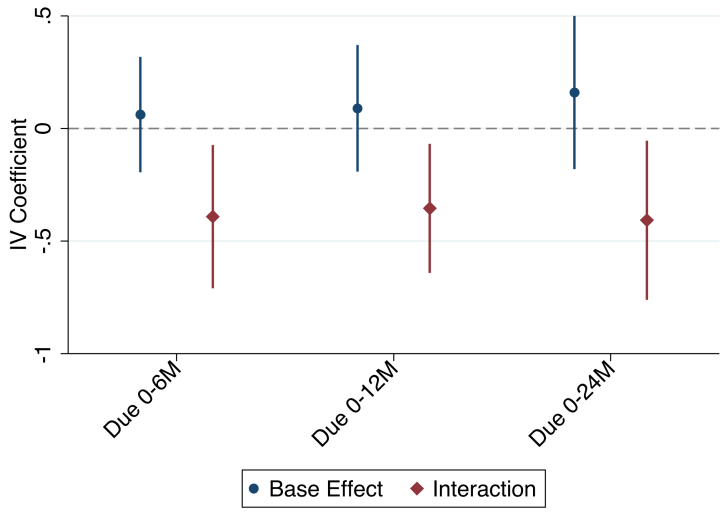


Notes: This figure reports the estimated coefficients and 90% confidence intervals from the IV regression:

$$\mathbb{1}\{\text{Investment Type}\}_{i,q} = \beta \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q}$$

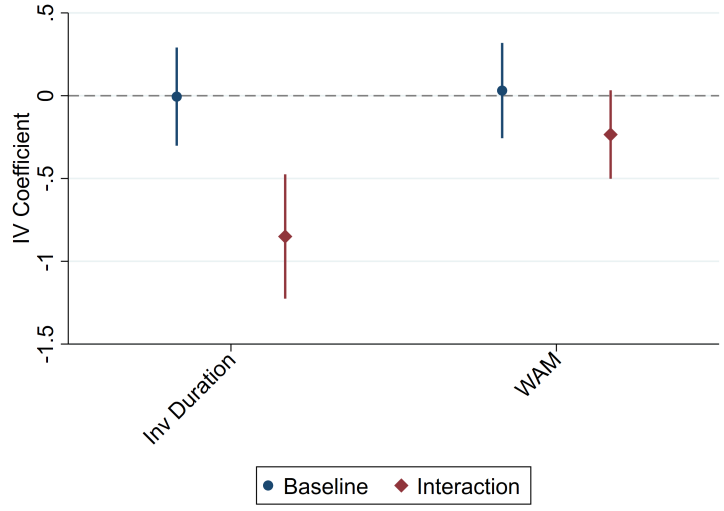
where $\widehat{\Delta y}_q$ is the quarterly change in the 5-year U.S. Treasury yield, instrumented using the maturity-matched (5-year) high-frequency monetary policy shock. $\mathbb{1}\{\text{Investment Type}\}_{i,q}$ equals 1 if an investment plan discusses a project of the type considered, and 0 otherwise. The sample is restricted to plans with projection horizons ending at least 3 months after announcement. The regressions control for quarterly firm-level characteristics, including lagged size (ln(Assets)), leverage (Total Debt/Assets), return on assets (NI/Assets), tangibility (PPE/Assets), cash-to-assets, and Tobin's Q. Macro controls include the lagged 2-year U.S. Treasury yield, the 2-10 year Treasury yield curve slope, the lagged quarter change and level of the CFNAI index, four lags of GDP growth, the inflation rate, and the unemployment rate. Firm fixed effects are included, and standard errors are clustered at the firm and calendar quarter level.

Figure 8: Heterogeneity in Responsiveness to Monetary Policy by Bond Market Exposure



Notes: This figure plots coefficients from the regression in Equation 12, where $\widehat{\Delta y}_q$ is the quarterly change in the 5-year U.S. Treasury yield, instrumented using the maturity-matched high-frequency monetary policy shock. The base effect on planned investment and the interaction effect are shown. Three measures of bond market exposure are tested: whether a firm has any debt maturing in the indicated windows (0-6 months, 0-12 months, or 0-24 months), measured in the quarter prior to the shock. The regressions control for quarterly firm-level characteristics, including lagged size (ln(Assets)), leverage (Total Debt/Assets), return on assets (NI/Assets), tangibility (PPE/Assets), cash-to-assets, and Tobin's Q. Macro controls include the lagged 2-year U.S. Treasury yield, the 2-10 year Treasury yield curve slope, the lagged quarter change and level of the CFNAI index, four lags of GDP growth, the inflation rate, and the unemployment rate. Standard errors are clustered by firm and year-quarter; 90% confidence intervals shown.

Figure 9: Heterogeneity in Responsiveness to Monetary Policy: Investment Duration

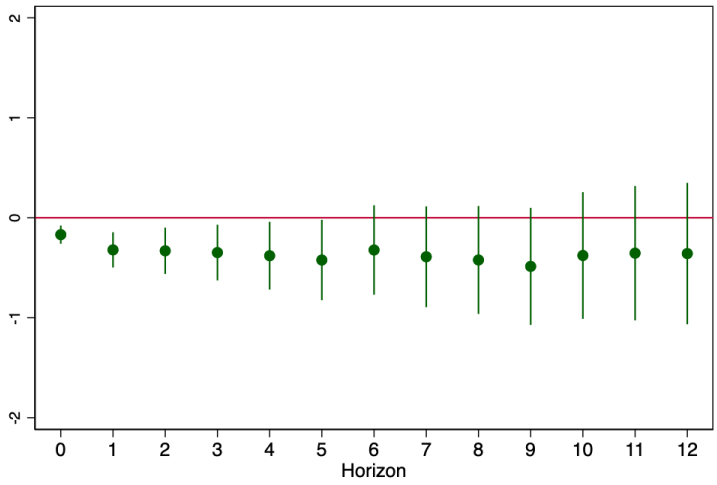


Notes: This figure reports, for each duration measure, two coefficients from the IV specification below, each with 90% confidence intervals: the base sensitivity β of the reference (bottom-75%) group to a contractionary 5-year monetary policy shock (navy circles, "Baseline") and the differential response ψ of the top-quartile group (maroon diamonds, "Interaction"). The duration measures are investment duration and the weighted-average maturity of outstanding bonds (WAM). The specification is

$$\text{Planned Investment}_{i,q,h} = \beta \cdot \widehat{\Delta y}_q + \psi \cdot \widehat{\Delta y}_q \times \mathbb{1}\{X_{i,q-1} \in \text{Top } 25\%\} + \delta \cdot \mathbb{1}\{X_{i,q-1} \in \text{Top } 25\%\} + \gamma X_{i,q-1} + \alpha_i + \alpha_h + \varepsilon_{i,q,h},$$

where the quarterly change in the 5-year U.S. Treasury yield $\widehat{\Delta y}_q$ is instrumented by the maturity-matched 5-year high-frequency monetary policy surprise, and $\mathbb{1}\{X_{i,q-1} \in \text{Top } 25\%\}$ indicates the top quartile of the duration measure, so β is the base effect (plotted as Baseline) and ψ the top-quartile differential (plotted as Interaction). Controls, fixed effects, sample, and clustering are the same as the baseline specification.

Figure 10: Cumulative Net Issuance Response to Monetary Policy



Notes: This figure plots the IV coefficients β_h and 90% confidence intervals from regressions of cumulative real net debt issuance, expressed as a percent of lagged total assets, on monetary policy shocks-driven changes in the 5-year UST yield. The change in the 5-year UST yield is instrumented using the 5-year monetary policy shock. Firm controls include lagged cash-to-assets, leverage, size, return on assets, tangibility, and log Tobin's Q. Macro controls include the lagged 2-year U.S. Treasury yield, the 2–10 year yield curve slope, the lagged change and level of the CFNAI index, and four lags of GDP growth, the inflation rate, and the unemployment rate. Cumulative real net issuance is winsorized at the 1st and 99th percentiles. Firm fixed effects are included and standard errors are clustered by firm and month.

Table 1: Summary Statistics for Firm Characteristics: All Plans vs Compustat

	Plans Sample					Compustat				
	Mean	Std	25th	Median	75th	Mean	Std	25th	Median	75th
Number of Quarters	50.47	24.78	30.00	53.00	70.00	61.88	32.21	34.00	61.00	98.00
Assets ($M)	9,554	22,560	864	2,426	7,577	4,566	15,261	41	370	2,036
Return on Assets	0.01	0.03	0.00	0.01	0.02	-0.22	1.24	-0.04	0.00	0.01
Log Tobin's Q	0.54	0.49	0.18	0.44	0.81	0.69	1.03	0.04	0.37	0.98
Investment Rate	-0.01	0.07	-0.02	-0.00	0.02	-0.05	0.25	-0.05	-0.01	0.01
Asset Tangibility	0.32	0.25	0.11	0.24	0.49	0.21	0.25	0.02	0.11	0.32
Leverage	0.29	0.21	0.13	0.28	0.41	0.54	1.92	0.03	0.20	0.41
Cash/Assets	0.12	0.14	0.02	0.07	0.17	0.20	0.26	0.03	0.08	0.28
Bond Share	0.44	0.36	0.00	0.46	0.76	0.34	0.38	0.00	0.12	0.71
Bank Debt Share	0.43	0.37	0.06	0.37	0.79	0.46	0.40	0.00	0.41	0.92
Distance to Default	7.53	5.22	3.78	6.67	10.30	5.64	4.69	2.25	4.74	8.02
Planned ΔCapex/Assets	0.06	2.84	-0.84	0.14	1.09					
Expected ΔRev/Assets	2.39	12.93	-2.48	1.51	7.58					

Notes: This table presents summary statistics comparing firms in our investment plans sample to the broader Compustat universe from 2000–2024. The plans sample includes all firms with at least one investment plan announcement. Assets are quarterly Compustat total assets in millions of dollars. Return on Assets is quarterly net income divided by total assets. Log Tobin's Q is $\ln(1+(\text{ME}-\text{CE})/\text{AT})$, where ME is market equity (stock price $\times$ shares outstanding), CE is book common equity, and AT is total assets. Investment Rate is capex net of depreciation, normalized by lagged PP&E. Tangibility is net PP&E divided by total assets. Leverage is total debt (long-term plus current) divided by total assets. Cash/Assets is cash and short-term investments divided by total assets. All firm characteristics are winsorized at the 1st and 99th percentiles. Bond Share and Bank Debt Share are constructed from Capital IQ capital structure data as the share of total debt outstanding in bonds and bank loans, respectively. The bottom panel reports plan-specific variables available only for the plans sample. Distance to Default is computed from the Merton model. Planned ΔCapEx/Assets is the real change in planned capital expenditures as a percentage of assets. Expected ΔRev/Assets is the real change in expected revenue as a percentage of assets. Planned ΔCapEx/Assets is trimmed at the 2nd and 98th percentiles, and Expected ΔRev/Assets is symmetrically truncated at ±50% of assets.

Table 2: Response of Investment Plans to Monetary Policy

	Year 1			Year 2			Year 3			Year 4			Year 5		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Δ y	0.522	0.162	0.127	-0.461	-0.712***	-0.691**	-0.495*	-0.716*	-0.878***	-0.901**	-1.368***	-1.459***	-0.724*	-1.113**	-1.133**
	(0.347)	(0.118)	(0.136)	(0.346)	(0.269)	(0.299)	(0.278)	(0.365)	(0.321)	(0.364)	(0.441)	(0.418)	(0.397)	(0.467)	(0.438)
Observations	56,616	56,616	53,785	8,829	8,829	8,192	2,568	2,568	2,190	1,280	1,280	1,171	930	930	846
First-stage F	14.64	24.70	24.83	17.48	17.44	17.44	22.03	18.32	18.02	23.53	18.96	18.67	23.74	20.19	18.86
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Macro controls		✓	✓		✓	✓		✓	✓		✓	✓		✓	✓
Firm controls			✓			✓			✓			✓			✓
Treasury yield	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year

Note: This table reports the results for the following regression specification:

$$\text{Planned Investment}_{i,q,h} = \beta_h \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}$$

Planned Investment$_{i,q,h}$ is planned real investment for firm i in projection year y relative to the rolling sum of the real investment over the prior 4 quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets. h denotes the years from today that the plan is for. Here, $h=1$ if the difference between the projection date and the end of the projection horizon is between 3-12 months, $h=2$ if the difference is between 13-24 months, $h=3$ if the difference is between 25-36 months, $h=4$ if the difference is between 37-48 months, and $h=5$ if the difference is 49 months or more. $\widehat{\Delta y}_q$ is the three month change in the Treasury yield, instrumented using the maturity-matched monetary policy shock that occur during quarter q, during which the investment plan is made and at the end of which the plan is announced. The 5-year UST yield is instrumented with the high frequency change in the 5-year UST yield. The regression controls $X_{i,q-1}$ include firm controls (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q) and macro controls (the quarter change in the CFNAI index, the level of the CFNAI index, the 2-year U.S. Treasury yield and the 2-10 year Treasury yield curve slope, all as of quarter $q-1$, as well as four lags of GDP growth, the inflation rate and the unemployment rate). The outcome variable is trimmed at the 2nd and 98th percentiles. Firm fixed effects are included, and standard errors are clustered at the firm and calendar quarter level.

Table 3: Persistence of Planned Investment to Realized Investment

	Short-Term ($h = 1$)			Long-Term ($h \geq 2$)		
	(1) OLS	(2) First Stage	(3) IV	(4) OLS	(5) First Stage	(6) IV
Planned Capex	0.732***		1.661**	0.699***		1.169***
	(0.0160)		(0.716)	(0.0447)		(0.368)
5Y MPS (BS)		0.455			-2.280***	
		(0.483)			(0.579)	
Firm Controls	✓	✓	✓	✓	✓	✓
Macro Controls	✓	✓	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓	✓	✓
Horizon FE				✓	✓	✓
Dep. Variable	Realized	Planned	Realized	Realized	Planned	Realized
Observations	53,087	53,718	52,394	11,770	13,024	11,735
R^2	0.577	0.269	-0.128	0.530	0.353	0.264
First-stage F			1.0			14.4

Note: This table examines whether monetary policy-driven changes in planned investment persist into realized investment. We regress realized real capital expenditure growth on planned real capital expenditure growth, both normalized by lagged assets, and instrument planned investment using the 5-year high-frequency monetary policy shock from Bauer and Swanson [2023]. Columns (1)–(3) report results for short-term plans ($h = 1$, projection horizons ending 3–12 months after announcement) and columns (4)–(6) for long-term plans ($h \geq 2$, projection horizons ending 13–71 months after announcement). For each horizon group, we report the OLS relationship (columns 1, 4), the first stage of planned investment on the monetary policy shock (columns 2, 5), and the IV second stage of realized investment on instrumented planned investment (columns 3, 6). The sample is restricted to annual (12-month) projection periods ending at least 3 months after the announcement date. The regression controls include firm-level characteristics (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q) and macro controls (the lagged 2-year U.S. Treasury yield, the 2–10 year yield curve slope, the lagged quarter change and level of the CFNAI index, and four lags of GDP growth, the inflation rate, and the unemployment rate). Planned (realized) real capital expenditure growth is trimmed at the 2nd and 98th (1st and 99th) percentiles. Firm fixed effects are included throughout; horizon fixed effects are additionally included for the long-term specifications. Standard errors are clustered at the firm and calendar quarter level.

Table 4: Heterogeneity in Response of Investment Plans to Monetary Policy by Maximum Planning Horizon

	Year 1			Year 2-3		Year 4-5
	(1)	(2)	(3)	(4)	(5)	(6)
Δ y	0.196	-0.695***	-1.706***	-0.610**	-1.038**	-1.344***
	(0.134)	(0.244)	(0.449)	(0.293)	(0.405)	(0.391)
Observations	50,010	2,589	765	8,154	2,365	2,064
First-stage F	25.09	26.28	25.91	17.64	19.01	19.33
Firm FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
Subsample	Max h=1	Max h=2-3	Max h=4-5	Max h=2-3	Max h=4-5	Max h=4-5

Note: This table reports the results for the following regression specification, for three sub-samples split by firm i's maximum planning horizon in quarter q:

$$\text{Planned Investment}_{i,q,h} = \beta_h \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}$$

$\text{Planned Investment}_{i,q,h}$ is planned real investment for firm i in projection year $q+h$ relative to the rolling sum of the real investment over the prior 4 quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets. h denotes the plan's horizon. $\widehat{\Delta y}_q$ is the three month change in the 5-year Treasury yield, instrumented using the maturity-matched monetary policy shock that occurs during quarter q, during which the investment plan is made and at the end of which the plan is announced. The regression controls $X_{i,q-1}$ include firm controls (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q) and macro controls (the quarter change in the CFNAI index, the level of the CFNAI index, the 2-year U.S. Treasury yield and the 2-10 year Treasury yield curve slope, all as of quarter $q-1$, as well as four lags of GDP growth, the inflation rate and the unemployment rate). The outcome variable is trimmed at the 2nd and 98th percentiles. Firm fixed effects are included, and standard errors are clustered at the firm and calendar quarter level.

Table 5: Implied Elasticity of Investment to the User Cost of Capital

ϕ_e	ϕ_d	$\frac{\partial \log I_1}{\partial \log c}$	$\frac{\partial \log I_2}{\partial \log c}$	$\frac{\partial \log I_3}{\partial \log c}$	$\frac{\partial \log I_4}{\partial \log c}$	$\frac{\partial \log I_5}{\partial \log c}$
0.75	0.75	-3.57	-5.99	-8.17	-8.43	-8.66
0.75	1.00	-3.31	-5.56	-7.59	-7.83	-8.04
0.75	1.25	-3.09	-5.19	-7.08	-7.31	-7.51
0.75	1.50	-2.90	-4.87	-6.64	-6.85	-7.04
1.00	0.75	-2.84	-4.77	-6.51	-6.71	-6.89
1.00	1.00	-2.67	-4.49	-6.13	-6.32	-6.50
1.00	1.25	-2.53	-4.25	-5.80	-5.98	-6.14
1.00	1.50	-2.40	-4.03	-5.50	-5.67	-5.82
1.25	0.75	-2.36	-3.96	-5.40	-5.57	-5.73
1.25	1.00	-2.24	-3.77	-5.14	-5.30	-5.45
1.25	1.25	-2.14	-3.59	-4.90	-5.06	-5.20
1.25	1.50	-2.05	-3.44	-4.69	-4.84	-4.97
1.50	0.75	-2.02	-3.39	-4.62	-4.77	-4.90
1.50	1.00	-1.93	-3.25	-4.43	-4.57	-4.69
1.50	1.25	-1.85	-3.12	-4.25	-4.38	-4.50
1.50	1.50	-1.78	-3.00	-4.09	-4.22	-4.33

Note: This table reports the implied macro elasticity of investment with respect to the user cost of capital at horizons $H = 1, \ldots, 5$ years. To obtain these, first Equation 3 is estimated separately for firm-quarters with a maximum reported plan horizon of $\overline{h}$=1, $\overline{h} \in \{2,3\}$, and $\overline{h} \in \{4,5\}$. Each industry is then assigned to a set of estimates based on the industry average of firms' maximum plan horizons as shown in Figure 2, and the macro coefficient is constructed as the CAPX-weighted average across industries. Conversion to the user-cost elasticity follows equation (5) with $I/A = 0.0604$, $\delta = 0.10$, $\omega = 0.30$, $\tau = 0.30$, $r = 0.07$. It is assumed that industries with a maximum planning horizon of $\overline{h}_i$ do not respond at longer horizons $h > \overline{h}_i$.

Table 6: Response of Different Horizon Investment Plans to Monetary Policy

	Normalized Planned Capex			
	(1)	(2)	(3)	(4)
MP Shock	0.956**	0.448	0.471	0.837
	(0.396)	(0.448)	(0.458)	(0.599)
Projection horizon (yrs)=2×MP Shock	-1.207**	-1.281	-1.797***	-2.071**
	(0.595)	(0.814)	(0.667)	(0.999)
Projection horizon (yrs)=3×MP Shock	-1.724*	-2.092*	-2.591**	-3.142**
	(1.008)	(1.247)	(1.025)	(1.363)
Projection horizon (yrs)=4×MP Shock	-2.453*	-3.820**	-3.990**	-4.602**
	(1.280)	(1.657)	(1.582)	(2.089)
Projection horizon (yrs)=5×MP Shock	-1.131	-1.912	-2.925	-4.195*
	(1.511)	(1.949)	(1.802)	(2.198)
Constant	2.711***	2.664***	2.683***	2.695***
	(0.727)	(0.722)	(0.720)	(0.719)
Firm Controls	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Projection horizon FE	Yes	Yes	Yes	Yes
Observations	67,414	67,414	67,414	67,414
R-squared	0.263	0.263	0.263	0.263
Shock maturity	1-Year	2-Year	5-Year	10-Year

Note: This table reports the results of the specification 14. We include dummy variables for investment plans extending 2, 3, 4, and ≥ 5 years ahead; the excluded category consists of plans for the subsequent fiscal year, conditional on the projected year ending at least 3 months after the plan announcement. Planned Investment$_{i,q,h}$ is planned real investment for firm i in projection year y relative to the rolling sum of the real investment over the prior 4 quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets. Column (1) uses the short-term shock. Columns (2)-(4) use the high-frequency change in the 2-, 5-, and 10-year UST yield, respectively. The regressions also control for quarterly firm-level characteristics, including lagged size (ln(Assets)), leverage (Total Debt/Assets), return on assets (NI/Assets), tangibility (PPE/Assets), cash-to-assets, and Tobin's Q. Macro controls include the lagged quarter change and level of the CFNAI index, the lagged 2-year U.S. Treasury yield and 2-10 year Treasury yield curve, four lags of GDP growth, the inflation rate, and the unemployment rate. Firm fixed effects and projection horizon fixed effects are included, and standard errors are clustered at the firm and calendar quarter level. The outcome variable is trimmed at the 2nd and 98th percentiles.

Table 7: Response of Revenue Expectations to Changes in Treasury Yields

	Expected Rev (Y1)			Expected Rev (Y2+)		
	(1)	(2)	(3)	(4)	(5)	(6)
Δ y	-0.844	-0.633	-1.045	-3.393***	-1.789*	-1.814**
	(1.502)	(1.077)	(1.031)	(1.238)	(0.947)	(0.870)
Observations	42,765	42,765	41,377	8,275	8,275	8,082
First-stage F	17.2	28.3	28.0	18.2	16.2	16.4
Firm FE	✓	✓	✓	✓	✓	✓
Macro controls		✓	✓		✓	✓
Firm controls			✓			✓
Horizon FE				✓	✓	✓
Treasury yield	5-Year	5-Year	5-Year	5-Year	5-Year	5-Year

Note: This table reports the results of regression 16. The outcome variable is firm i's expected real revenue for projection year y relative to the rolling sum of revenue over the prior four quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets, symmetrically truncated at ±50% of assets. $\widehat{\Delta y}_q$ is the quarterly change in the 5-year U.S. Treasury yield, instrumented by the maturity-matched 5-year Bauer and Swanson [2023] high-frequency monetary policy surprise. Columns (1)–(3) report contemporaneous, current-fiscal-year revenue expectations (for projection periods ending 3–12 months after announcement); columns (4)–(6) report longer-horizon expectations (more than one year ahead) and additionally include projection-horizon fixed effects. Controls are added cumulatively: macro controls (the lagged 2-year U.S. Treasury yield, the 2–10 year term spread, the level and quarterly change of the CFNAI index, and four lags each of GDP growth, the inflation rate, and the unemployment rate), then firm controls (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q). First-stage F-statistics are reported. Firm fixed effects are included, and standard errors are two-way clustered by firm and calendar quarter.

Table 8: Relationship between Revenue Expectations and Investment Plans

	Planned Capex (Y1)					Planned Capex (Y2+)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expected Rev (Y1)	0.0319***	0.0341***	0.0230***		-0.00333	0.00884		0.0000428
	(0.00239)	(0.00238)	(0.00189)		(0.0108)	(0.00713)		(0.0141)
Expected Rev (Y2)				0.0240***	0.0265**		0.0143**	0.0125
				(0.00587)	(0.0111)		(0.00569)	(0.0148)
Firm Controls			✓	✓	✓	✓	✓	✓
Firm FE		✓	✓	✓	✓	✓	✓	✓
Horizon FE						✓	✓	✓
Calendar quarter FE			✓	✓	✓	✓	✓	✓
Observations	42,891	42,422	41,046	2,571	2,417	5,280	7,964	3,659
R-squared	0.024	0.260	0.317	0.412	0.412	0.415	0.403	0.433

Notes: This table reports regressions of planned investment on expected revenue. The dependent variable is the planned real capex change (percent of lagged assets); the regressors, Expected Rev (Y1) and Expected Rev (Y2), are the firm's expected revenue change over the current-fiscal-year (Y1) and following-year (Y2) projection periods (percent of lagged assets), symmetrically truncated at ±50%. Columns (1)–(5) regress current-fiscal-year (Y1) planned investment on contemporaneous revenue expectations; columns (6)–(8) regress longer-horizon (Y2+, projection horizon ending more than one year after the announcement) planned investment on the same revenue expectations; within each block the regressor is Y1 expected revenue, Y2 expected revenue, or both. Planned capex is trimmed at 2–98%. Fixed effects and controls are added cumulatively across columns: firm fixed effects; then firm controls (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q) and calendar-quarter fixed effects; then macro controls (the 2-year U.S. Treasury yield and the 2–10 year Treasury yield curve slope, the quarter change and level of the CFNAI index, and four lags of GDP growth, the inflation rate, and the unemployment rate, all as of quarter $q-1$); the longer-horizon columns additionally include projection-horizon fixed effects. Standard errors are clustered at the firm and calendar quarter level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

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A Data Collection and Cleaning

We provide standardized instructions for our research assistants on how to collect the data. We created a protocol by first asking two MIT undergraduates to look through the websites and filings of publicly traded companies to identify the location of the data. Through this experience, we created a video and document with step-by-step instructions on how to collect this data that we shared with all subsequent research assistants. The instructions are below.

Goal

We are interested in every plan the company has published in its entire history, and every year that they project capital expenditures (also known as "investment plans", "capital spending", "capital investment plan", "capital program"). The goal is to collect for every company, every quarter, what it plans for investing every year. So each line in the spreadsheet should be a unique company, quarter, and projected plan year.

Instructions

We collect the data from two potential sources: (1) the company's Earnings Call Presentations (available on the Investor Relations portion of their website), and (2) their 10-K or 10-Q filing at the sec.gov.

1. Check if there is anything in their 10-K or 10-Q on the capital expenditure plans. This may be available by searching "Capital plan", "Capital expenditure", "Capital spending plan", etc.
   (a) If so, then enter in the numbers and surrounding text into the file provided.
   (b) If not, then search their earnings call presentations (also called "investor day presentations", "earnings presentations", "earnings announcements", etc).
      i. Google "[Company] Investor Relations"
      ii. Find "Earnings Call Presentations" or "Investor Day Presentations", click
      iii. Click on the presentation PDF
      iv. Search for the term "Capital expenditure" or "capital spending plan" or "Capital plan"
      v. Record the amount (in US billions) and any notes in the spreadsheet
      vi. Repeat for every Earnings Call Presentation that is listed in the company's website.
2. The columns are as follows:
   (a) **Date of transcript**: the date in which the document was published on the website. If there is no date, then put the last date in the quarter that the document refers.
   (b) **Year of projection**: this is the year that the investment plan is for.
   (c) **Source of information**: Include the year, quarter, and name of document. For example, "Q4 2018 News Release", "Q3 2022 Earnings Conference Call Presentation"
   (d) **Investment Plans**: copy and paste the text associated with the investment plan: for example, "Estimates Capex for FY22 will be between $5.5 billion and 6 billion."

(e) **Estimated Yearly Investment Amount**: Total amount for the year (or remainder of year), in billions of dollars. If the estimated Capex is a range of numbers (eg, 1.1-1.3bn), please report the midpoint (i.e., average). For example, for 1.1-1.3bn, you should report 1.2.

(f) **Years**: indicates for how many years does the projection include. For example, if the earnings presentation says "3 billion dollars over the next 4 years", then the "years" variable is 4.

(g) **Total investment amount**: the total amount that is projected. So the columns "Estimated yearly amount" x "Years" should equal "Total Investment Amount". If they publish a range of years, please use the midpoint of the range.

(h) **Lowpoint of Range**: If the estimated Capex is a range of numbers (eg, 1.1-1.3bn), please report the low point, i.e., 1.1. If there is no range, then set this equal to Estimated Yearly Investment Amount.

(i) **Highpoint of Range**: If the estimated Capex is a range of numbers (eg, 1.1-1.3bn), please report the high point, i.e., 1.3. If there is no range, then set this equal to Estimated Yearly Investment Amount.

(j) **Do They Mention an Investment / Capital Expenditure Plan**: this equals 1 if there is a plan, 0 if not.

(k) **Rest of year projection? 1 if yes, 0 if this is for a full year**: if the plan is for the remainder of the year, then set to 1; if it is for a full year, then set to 0.

(l) **If available on the 10K or 10Q, what text should we search for to find**: please make sure to add detail if possible so that I do not have to search so many times to find it.

(m) **If available on the 10K or 10Q, what text should we search for to find**: please make sure to add detail if possible so that I do not have to search so many times to find it.

(n) **Notes**: If anything was unclear, please mark it here

We have included two examples in the spreadsheet. The highlighted fields are the ones that need to be filled in for each quarter (or year, if the company only reports the data every year). Please let me know if anything is unclear.

A.1 Data Cleaning

One shortcoming of the exercise is that companies that no longer exist due to acquisition or bankruptcy no longer have company earnings call transcripts, investor day presentations available on their websites. As such, our data is a snapshot of all companies that still exist as of the collection of our data, which begins in March 2024 and ends in February 2025.

To determine the period for which the company is intending to project a plan, we use the date of announcement and the company's fiscal year end. We set the projection period end date to be the fiscal year end of the year of the announcement. If the fiscal year ended before the announcement, then we set the projection period end date to the following fiscal year end.[21] For 0.4% of observations, the projection period

[21] For example, Albertson's Companies Inc has a fiscal year that ends in February, and on April 28, 2021 it announced that it estimates Capex to be 1.9–2 billion for fiscal year 2021, so we set the projection end period to be February 2022.

is only for one quarter, so we fix the projection period end date to the next fiscal quarter end following the date of announcement. Then, we compute the start of the projection period. For those projections that are either for one quarter or the remainder of the fiscal year, we set the start of the projection period to be the start of the fiscal quarter in which the announcement occurs.[22] For all others, we have the project start date as one year prior to the projection end date. We the compute the projection period in months by subtracting the project start date from the project end date.

For all of our regressions, we exclude those plans that are clearly not for the full capital expenditure for the year. For example, U-Haul Holding Co stated in their 2008Q3 Form 10-Q that "The company has allocated $70.0 million to new acquisitions." Because this is likely a subset of company capex, we exclude this datapoint and the other similar datapoints in analyses that has total planned capital expenditure growth as an outcome variable; this accounts for 2.8% of the total data. We further exclude the 12.9% of observations where the projection horizon is less than one year, for example if a firm projects its next quarter capex.

B Why Use Data on Plans?

Estimating the causal effects of monetary policy on firm-level investment poses significant econometric challenges. In this section, we show that using company investment plans, rather than data on ex-post realized investment, greatly mitigates these concerns. Consider the following reduced-form regression equation to estimate β_h^R, the impact of monetary policy on horizon h realized investment:

$$Investment_{i,q+h} = \beta_h^R \text{MPS}_q + \gamma X_{i,q-1} + \nu_{i,q+h}^R \tag{18}$$

A substantial literature has worked on overcoming the potential omitted variable bias in the estimator $\hat{\beta}_h^R$ by improving the exogeneity of the monetary policy shocks on the right-hand side of the equation. For example, positive demand shocks may simultaneously raise investment and prompt the central bank to tighten monetary policy, biasing the coefficient towards zero and understating the contractionary effect of tighter monetary conditions. These potential biases put significant pressure on the exogeneity of the monetary policy shocks, and recent papers have made substantial progress on this front (see, e.g., Romer and Romer [2004], Gurkaynak et al. [2005], Kuttner [2001], Nakamura and Steinsson [2018], Jarociński and Karadi [2020], Bauer and Swanson [2023]).

[22] Across all observations, 0.7% are for remainder of the year.

Even with truly exogenous monetary policy shocks, two important issues remain, as illustrated in the following equation:

$$Investment_{i,q+h} = \beta_h^R \,\mathrm{MPS}_q + \gamma X_{i,q-1} + \sum_{s=1}^{h} \psi_{h,s}\, u_{q+s} + \sum_{s=1}^{\tau_{i,q}} \phi_{h,s} v_{q-s} + \eta_{i,q+h}^R \tag{19}$$

First, realized investment observed at quarter $q+h$ may respond not only to the original monetary shock in quarter q, but also to additional shocks occurring between q and $q+h$, where u_{q+s} represent any intervening demand shocks, cost shocks, or additional policy shocks. If $Cov\left(u_{q+s}, \mathrm{MPS}_q\right) = 0 \;\forall s$, the cumulative variance of u_{q+s} increases the residual of the regression and thus the noise of the estimator.

Second, unknown planning and time-to-build lags $\tau_{i,q}$ imply that even a purely exogenous monetary shock in quarter q generates systematically attenuated responses at shorter horizons. Thus, investment in quarter $q+h$ could reflect shocks v that occurred in quarter $q-s$, via long time-to-build lags. Consider a firm that in quarter $q-1$ began building a nuclear plant which has 10 years' time to build, and has plans to begin building a solar energy farm in quarter $q+1$. Given a large contractionary shock in quarter q, it is unlikely to change course and stop building the first plant; however, it may scale down plans for the solar project it had intended to begin building in quarter $q+1$. Using only realized data, the econometrician would miss the reduction in investment in the solar plant, thus underestimate the impact of the shock.

Using forward-looking investment plans alleviates these problems. We define revisions as changes in a given firm's investment plan about a specific projection year:[23]

$$Revision_{i,q,h} = \frac{\mathbf{F}_{i,q}[I_{i,y}] - \mathbf{F}_{i,q-1}[I_{i,y}]}{A_{i,q-1}}. \tag{20}$$

This explicitly isolates firms' contemporaneous responses to new information in quarter q. By construction, revisions to investment plans are unaffected by previously known demand shocks or trends in quarter $q-1$, since firms already incorporate these into prior expectations; this substantially reduces omitted variable bias arising from an imperfectly exogenous monetary policy shock, leaving only a minor residual bias from other variables evolving within the quarter from $q-1$ to q. Secondly, intervening shocks that occur between quarter q and projection year y are by construction excluded from the measure, reducing the noise of the

[23] This normalized forecast difference, $\frac{\Delta \mathbf{F}_{i,q}[I_{i,y}]}{A_{i,q-1}}$, maps (up to the first order) to the log-change in capital $\Delta \ln K_{i,q}$ used as the left-hand-side variable in standard empirical tests of investment response to monetary policy in the literature (e.g. Ottonello and Winberry [2020], Crouzet [2021]).

estimator. Finally, since plan revisions are measured precisely when firms adjust their expectations rather than when investment is physically realized, they do not suffer from the mechanical attenuation caused by unknown construction lags.

We can use the plans data to estimate:

$$Revision_{i,q,h} = \beta_h^{P,IV} \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}, \tag{21}$$

where $\widehat{\Delta y}_q$ is the change in yields instrumented by a monetary policy shock, $X_{i,q-1}$ are lagged firm- and macro-level controls, and α_i are firm fixed effects. The coefficient $\beta_h^{P,IV}$ measures the change in planned investment per dollar of capital in response to monetary policy shock-driven changes in yields.

In practice, some firms do not issue updated forecasts in consecutive periods. For those observations, we replace the missing prior forecast $\mathrm{F}_{i,q-1}[I_{i,y}]/A_{i,q-1}$ with the firm's annualized realized investment over the prior four quarters, $\sum_{s=q-4}^{q-1} I_{i,s}/A_{i,q-1}$ — i.e., its recent investment run-rate, scaled by lagged assets. This substitution rests on a simple assumption: in the absence of a new plan, the firm's own most recent investment run-rate serves as the best unbiased predictor of its planned future investment over the projection year. Crucially, the key advantages of using investment plans–explicitly isolating responses to monetary policy shocks in quarter q, unaffected by future intervening shocks occurring between q and the projection year, and addressing potential time-to-build concerns–remain fully preserved under this substitution.

B.1 Plans, realizations, and forecast errors

We can directly test if plans data improves upon realized data primarily by reducing noise or bias. Specifically, we can write realized investment as planned investment plus the forecast error:

$$I_{i,q+h} = F_q[I_{i,q+h}] + FE_{i,q+h}. \tag{22}$$

Because this is an identity, the coefficients from regressing each component on the monetary policy shock must satisfy:

$$\beta^{R,IV} = \beta^{P,IV} + \beta^{FE,IV}, \tag{23}$$

where $\beta^{R,IV}$ is the coefficient from the realized-investment regression, $\beta^{P,IV}$ is the coefficient from the plans regression, and $\beta^{FE,IV}$ is the coefficient from the forecast error regression, where all three outcome

variables are regressed on the same instrumented yield change. This decomposition provides a direct test of what plans data buys relative to realized data. If $\beta^{FE,IV} = 0$ but is noisy, then $\beta^{R,IV} = \beta^{P,IV}$ in population: plans and realizations estimate the same monetary policy elasticity, and the gain from plans is a reduction in residual variance that allows for a more precise estimate. If $\beta^{FE,IV} \neq 0$, then systematic forces between the planning date and realization that are correlated with the original shock drive a wedge between what firms plan and what they ultimately do.

We test this directly by regressing the forecast error on the instrumented yield change, pooling across all projection horizons and using the same controls as the baseline specification. Results in Table G.1 show that the coefficient on the policy-driven yield change is small and statistically insignificant at every maturity of the instrumented yield change: it is small and weakly positive across maturities (0.17 for the 1-year, 0.11 for the 2-year, 0.06 for the 5-year, and 0.05 for the 10-year yield change), with standard errors that comfortably contain zero in all cases. In other words, $\beta^{FE,IV} \approx 0$: the forecast error does not respond systematically to monetary policy shocks. Thus, conditional on the shock, plans are unbiased forecasts of realized investment. Overall, these results are consistent with a signal-to-noise story: the plans data allow us to estimate the optimal investment response to policy with greater precision.

B.2 MSE decomposition

Despite the benefits of the plans data, we still face a tradeoff: only a subset of firms for which we observe realized investment disclose planned investment. How many plans observations do we need to make the plans estimator more informative than the realized estimator? To compare the two estimators on the same footing, we evaluate both in reduced form, regressing each outcome directly on the monetary policy surprise MPS_q. The realized estimator is then the coefficient β_h^R in Equation 19, and the plans estimator is the coefficient β_h^P in the reduced-form plan-revision regression

$$Revision_{i,q,h} = \beta_h^P \,\text{MPS}_q + \gamma X_{i,q-1} + \alpha_i + \eta_{i,q,h}^P, \tag{24}$$

which is the reduced form of the instrumental-variables specification in Equation 21.[24] Writing both estimators on this common MPS_q scale keeps their variances and biases commensurable. If the total number

[24]Equation 21 reports the IV coefficient $\beta_h^{P,IV}$ on the instrumented yield change $\widehat{\Delta y}_q$; its reduced-form counterpart β_h^P in Equation 24 loads directly on MPS_q, and the two differ only by the common first stage. We write the reduced-form coefficient as β_h^P because the MSE comparison is invariant to this choice of scale.

of firms in the realized investment dataset is N_R, and only $N_P = rN_R$ firms report plans, the empirical variance terms of $\widehat{\beta}_h^R$ and $\widehat{\beta}_h^P$ can be written, respectively:

$$\text{var}(\widehat{\beta}_h^R \mid X) = \frac{\sigma_R^2}{N_R V (1-R^2)}, \qquad \text{var}(\widehat{\beta}_h^P \mid X) = \frac{\sigma_P^2}{N_P V (1-R^2)}. \tag{25}$$

where $V = \text{var}(\text{MPS}_q), R^2 = R^2_{\text{MPS}|X}, \sigma_P^2 \equiv \text{var}(\eta^P)$ is the residual variance of the reduced-form plan-revision regression (24), and $\sigma_R^2 \equiv \text{var}(\eta^R) = \sum_{s=1}^{h} \psi_{h,s}^2 \sigma_u^2 + \sigma_\nu^2$ is the variance of aggregate shocks between q and $q+h$. As the projection horizon h lengthens, the variance from intervening shocks accumulates, worsening the signal-to-noise ratio of the estimate. To evaluate clearly whether forward-looking plans improve the empirical IRF estimation, we compare the mean-squared errors (MSE) of the two estimators. Denote the bias in the realizations regression 19 as $\text{Bias}_R = \mathbb{E}[\widehat{\beta}_h^R] - \beta_h^R$, and similarly for bias in the plans regression. Then we can define:

$$\text{MSE}_R = \text{B}ias_R^2 + \text{var}\big(\widehat{\beta}_h^R\big), \qquad \text{MSE}_P = \text{Bias}_P^2 + \text{var}\big(\widehat{\beta}_h^P\big). \tag{26}$$

The plans-based estimator dominates if and only if:

$$\text{MSE}_P < \text{MSE}_R \quad \Longleftrightarrow \quad r > \frac{\sigma_P^2}{\sigma_R^2 + N_R V (1-R^2)\,(\text{Bias}_R^2 - \text{Bias}_P^2)}. \tag{27}$$

This defines the minimum ratio of observations in the plans data to the realizations data that makes the plans estimator more informative. In practice, we observe N_R and can estimate the variances $\sigma_P^2, \sigma_R^2, V$. We set $R^2 = 0$ to reflect exogenous monetary policy shocks. We use all planned investment for 12-month periods that end at least 3 months in the future, and we construct realized investment as a four-quarter rolling sum of quarterly capex over the projection period, subtract the trailing four quarters of realized capex (both expressed in time q dollars), and divide by lagged assets, exactly mirroring the plans-side normalization. We do not have a way of estimating the Bias term directly; instead, we plot the threshold for absolute bias values $b \in [0, 3]$ in the same reduced-form units as the coefficient β_h^P, i.e. the response of planned investment to a one-unit MPS_q surprise. The existing monetary policy literature provides some reasonable bounds on the bias:[25] Bauer and Swanson [2023] find that their improved identified MPS increases the magnitude of the

[25] These bounds are reported as responses to a 100 basis point change in the policy or Treasury rate, i.e. in instrumented-yield units. To place them on the reduced-form MPS_q axis used for b, they must be multiplied by the first-stage coefficient $\pi = \partial\widehat{\Delta y}_q / \partial \text{MPS}_q$; we use them only as an order-of-magnitude guide to the plausible size of the bias.

industrial production response to MPS by a factor of four, from a biased estimate of -0.35% to an improved estimate of -1.4%; the methods in Romer and Romer [2004] change the same responsiveness from a biased estimate of -2.4% to -4.3% in response to 100 basis increase in the Fed Funds Rate.

While plans data likely substantially reduces the bias present in the realized investment regression, Bias_P may still be nonzero. Firms that report plans may differ systematically in their responsiveness to monetary policy; we address this concern in the main paper's selection-bias robustness tests, and find that within firm, the decision to disclose is not significantly correlated with investment opportunities.

We then plot the minimum r, or ratio of plans data to realizations data, required for the plans-revision estimator (Eq. 20) to be more useful than the realizations estimator. Figure G.13 plots, for two horizons $h = 1$ and $h = 5$, the minimum fraction of firms $r = \frac{N_P}{N_R}$ required for the plans-based estimator to dominate the realized-data estimator as a function of an assumed upper bound on the bias. The plans-revision estimator dominates the realized-investment estimator on MSE at both horizons even when the realized estimator is assumed to be unbiased: the variance reduction from isolating the news component alone is enough to overcome the smaller plans sample.

In practice, we cluster standard errors by firm and fiscal quarter to account for within-cluster correlation. This means the effective number of independent observations is smaller than N_R and N_P. However, this affects both estimators similarly: both the numerator and denominator of the r threshold in Equation (27) scale by the same effective sample size adjustment, so the qualitative conclusion of the comparison is unchanged. Any advantage of the plans estimator coming from the bias reduction ($\text{Bias}_R^2 - \text{Bias}_P^2$) is unaffected by clustering corrections.

In summary, we find that for reasonable levels of bias, we have more than sufficient plans data in the universe of U.S. non-financial corporations in Compustat for the plans-based estimator to perform better than the realizations-based estimator.

C Discussion of Potential Selection Bias

We explore the representativeness of the sample by conducting several tests. Not all firms disclose investment plans. Of the firms in the Compustat universe, 31% are non-financial U.S. firms with data after 2000 and at least 2 quarters of data and non-missing characteristics. Of these, 23% disclose investment plans for projection periods ending at least three months from the announcement date and are thus included in our

analysis. We further restrict our baseline analyses to the 3,637 firms that report plans that are at least 3 months forward.

To understand what kinds of firms report planned investment, we regress an indicator variable for whether the firm disclosed at least one investment plan in our sample on firm-level characteristics. Larger firms with higher investment rates, higher Tobin's Q, more tangible assets, and lower profitability and cash balances are more likely to disclose investment plans, as reported in column 1 of Table G.2. We consider this a feature of the data, not a bug; collectively, our firms make up the majority of fixed business investment in the U.S. economy, as reported in Figure 1. Larger firms with higher investment rates and Tobin's Q, and less tangible assets, cash balances and profitability are more likely to have revenue expectations, either from management or analysts, as reported in column 3 of Table G.2.

For our analysis, the ideal scenario would be that firms that disclose plans do so regularly and systematically, and that disclosure itself is not sensitive to monetary policy surprises. To test how systematically firms disclose plans, we compute the mode of the number of quarters between investment plan announcements for each firm. In Figure G.1, we show that the vast majority of firms have a modal interval between announcements of one quarter, indicating they follow a regular pattern of disclosure.

Importantly, we test whether disclosure is sensitive to monetary policy surprises by regressing indicator variables for whether the firm disclosed plans on monetary policy surprises, with the same controls and fixed effects as our baseline regressions. Table G.3 shows that the unconditional probability of disclosure of 3+ month (and 9+ month) investment plans is insensitive to a litany of monetary policy surprises. Further, Table G.4 show that disclosure of long-term plans ($\geq$ 24 months) is not sensitive to monetary policy surprises conditional on the firm having a plan that quarter. In terms of magnitudes, a one standard deviation contractionary shock in the short rate reduces the unconditional probability of disclosing 9+ month capex plans by at most 0.6 percentage points at the 90% confidence level. [26] In addition, conditional on having a plan, the probability of including long-term projections changes by at most 0.02 percentage points per one standard deviation shock.[27] This result reduces concerns that our findings of the differential response of long-term versus short-term plans to monetary policy are confounded by firms strategically timing their

[26] The point estimate on the short rate shock is 0.05 and the standard error is 0.07, see Table G.3, Column (6). This implies a 90% confidence interval of [-0.067, 0.167] percentage points. One standard deviation of the short rate shock is 0.08, so the bounds on one standard deviation of the short rate is [-0.067 * 0.08, 0.167 * 0.08] = [-0.0054, 0.0134] percentage points. Thus, the reduction in the probability of disclosure in response to a one standard deviation positive shock in the short rate is at most 0.5 percentage points, which is quite small economically, and is in any case statistically insignificant.

[27] See Table G.4, Column (1).

disclosures of long-term plans.

Finally, we test if firms deviate from their pattern of disclosure when their fundamentals change. To do this, we regress an investment plan disclosure dummy on changes in firm-level characteristics, including firm by fiscal quarter fixed effects to capture firm-specific patterns of disclosure. Table G.5 shows that across the full sample of firms, disclosure of investment plans does not load significantly on changes in any firm-level characteristics, including investment opportunities (as proxied by Tobin's Q) or leverage. Disclosure of long-term plans across all firms (columns 2) or firms that disclose plans in that quarter (column 3) are similarly insensitive to changes in firm-level characteristics. Revenue expectations availability is also generally insensitive to changes in firm-level characteristics, except for a small negative effect of cash balances.

D A Simple Theoretical Framework: Derivations

The firm chooses investment and labor to maximize the present value of after-tax cash flows, discounted at its cost of capital ρ:

$$V(K_t) = \max_{I_t, L_t} \left\{ d_t + \tfrac{1}{1+\rho} E_t[V(K_{t+1})] \right\}, \qquad K_{t+1} = (1-\delta)K_t + I_t. \tag{28}$$

The date-t expectation $E_t[\cdot]$ is taken over the firm's stochastic future profitability, whose dependence we suppress from the value-function argument for brevity; revisions to it are the cash-flow-expectations channel. Dividends are the after-tax operating cash flow minus the adjustment cost and the purchase of investment goods, plus the depreciation tax shield:

$$d_t = (1-\tau)\big[F(K_t, L_t) - wL_t\big] \; - \; (1-\tau)\, C(I_t, K_t) \; - \; p_K\, I_t \; + \; \tau z\, p_K\, I_t, \tag{29}$$

where the first term is after-tax operating profit; the second is the (deductible) adjustment cost $C(I_t, K_t)$ of (8); $-p_K I_t$ is the purchase of investment goods at price p_K; and $\tau z\, p_K\, I_t$ is the present value of the depreciation tax shield, with z the present value of deductions per dollar of investment. We can also write the dividends as:

$$d_t = (1-\tau) \underbrace{\big[F(K_t, L_t) - wL_t - C(I_t, K_t)\big]}_{\text{cash flow before taxes}} - \hat{p}\, I_t, \tag{30}$$

the after-tax operating cash flow—revenue net of wages and adjustment costs, taxed at rate τ—less the effective acquisition price $\hat{p}$ per unit of investment.

Constant returns. Production is constant returns in (K, L), so with labor chosen flexibly each period (marginal product of labor = w) operating profit is linear in capital, $\Pi(K_t) \equiv F(K_t, L_t^\star) - wL_t^\star = \Pi_K K_t$, and marginal and average operating profit coincide [Hayashi, 1982]. In particular the marginal product Π_K is independent of K.

Adjustment-cost derivatives. Expanding (8), $C(I_t, K_t) = \frac{b}{2}\frac{I_t^2}{K_t} - ab\, I_t + \frac{a^2 b}{2} K_t$, so its marginal costs are

$$C_I = b\Big(\tfrac{I_t}{K_t} - a\Big), \qquad C_K = \tfrac{b}{2}\Big(a^2 - \tfrac{I_t^2}{K_t^2}\Big), \tag{31}$$

both of which equal 0 at the steady-state investment rate $I_t/K_t = a$.

Investment FOC. Installing I_t raises next period's capital one-for-one. Differentiating,

$$\frac{\partial d_t}{\partial I_t} + \frac{1}{1+\rho} E_t\left[\frac{\partial V}{\partial K_{t+1}}\right] = 0, \qquad \frac{\partial d_t}{\partial I_t} = -(1-\tau)\, C_I - p_K(1-\tau z). \tag{32}$$

Define the marginal value of installed capital $q_t \equiv \frac{1}{1+\rho} E_t[\partial V/\partial K_{t+1}]$ and the effective price $\hat{p} \equiv p_K(1-\tau z)$. The first-order condition is $q_t = \hat{p} + (1-\tau)\, b(I_t/K_t - a)$, which rearranges to the investment rule (9).

Envelope condition and the user cost. Differentiating the Bellman equation with respect to K_t, using $\partial K_{t+1}/\partial K_t = 1-\delta$ and the definition of q_t,

$$\frac{\partial V}{\partial K_t} = \frac{\partial d_t}{\partial K_t} + \frac{1-\delta}{1+\rho} E_t\left[\frac{\partial V}{\partial K_{t+1}}\right] = (1-\tau)\big(\Pi_K - C_K\big) + (1-\delta)\, q_t, \tag{33}$$

where $\partial d_t/\partial K_t = (1-\tau)(\Pi_K - C_K)$ and C_K is the marginal adjustment cost (31). In a stationary equilibrium ($q_t = q$, $I/K = a = \delta$, $q = \hat{p}$), $\partial V/\partial K = (1+\rho)q$, so

$$(1+\rho)\, q = (1-\tau)\big(\Pi_K - C_K\big) + (1-\delta)\, q \quad \Longrightarrow \quad (\rho+\delta)\, q = (1-\tau)\big(\Pi_K - C_K\big). \tag{34}$$

The adjustment-cost term vanishes at the replacement rate ($C_K = 0$ by (31)), so $\Pi_K = (\rho+\delta)q/(1-\tau)$; evaluating at $q = \hat{p}$ gives the user cost,

$$\boxed{\Pi_K = c = \frac{1-\tau z}{1-\tau}(\rho+\delta)\, p_K.} \tag{35}$$

The adjustment cost does not enter the long-run user cost—its marginal terms vanish at the replacement rate—but it governs the response along the transition, as we now show.

User-cost elasticity of investment. A unit of capital earns after-tax marginal product $(1-\tau)\Pi_K$ each period and depreciates at δ, so its marginal value is the perpetuity

$$q = \sum_{j\geq 1} \frac{(1-\tau)\Pi_K\,(1-\delta)^{j-1}}{(1+\rho)^j} = \frac{(1-\tau)\,\Pi_K}{\rho+\delta}, \qquad \Longrightarrow \qquad \frac{\partial q}{\partial \rho} = -\frac{q}{\rho+\delta}. \tag{36}$$

Our empirics map to the following semi-elasticity of investment to the discount rate:

$$\frac{\partial (I/K)}{\partial \rho} = \frac{1}{(1-\tau)b}\frac{\partial q}{\partial \rho}. \tag{37}$$

The expression (37) also clarifies how the monetary policy response we estimate from the planned investment maps to the q response to discount rate changes: the term $\frac{1}{(1-\tau)b}$, where b governs how costly it is to adjust investment.

We can write the investment elasticity to the user cost as:

$$\boxed{\frac{d(I/K)}{dc} = -\frac{1}{b}\cdot\frac{1}{\rho+\delta}} \qquad \text{and} \qquad \boxed{\varepsilon^c \equiv \frac{d\ln(I/K)}{d\ln c} = -\frac{c}{b\,\delta\,(\rho+\delta)} = -\frac{(1-\tau z)\,p_K}{(1-\tau)\,b\,\delta}} \tag{38}$$

where the elasticity is evaluated at the replacement steady state $I/K = a = \delta$.

D.1 Predictions

Duration. Suppose the firm's after-tax payoffs are $\{x_j\}$ with present value $q = \sum_j x_j/(1+\rho)^j$ and Macaulay duration $D = \frac{1}{q}\sum_j j\,x_j/(1+\rho)^j$. A uniform change in the discount rate then moves q by $\frac{dq}{d\rho} = -\frac{D}{1+\rho}q$, so by (9) the investment response scales with D: longer-duration projects respond more strongly to a given cost-of-capital change. The depreciating perpetuity is the special case in which $\frac{D}{1+\rho} = \frac{1}{\rho+\delta}$ exactly, which is

why δ appears in (10)—a slower-depreciating, longer-lived asset simply has higher D.

New versus ongoing plans. The response in Equation 37 scales with flexibility $1/b$, which we let vary by project type, $b^{(k)}$ for $k \in \{\text{new}, \text{ongoing}\}$. We assume $b^{(\text{new})} < b^{(\text{ongoing})}$, i.e., revising the scale or timing of a project already underway is more costly than revising a project not yet started.

A not-yet-started project has scale and timing still open [Dixit and Pindyck, 1994, Abel et al., 1996]; a project underway has supplier commitments, a workforce in place, and partially sunk capital whose resale value is well below cost [Kermani and Ma, 2023]—all of which raise the marginal cost of revision. Then by Equation (10), plans for new projects respond more to monetary policy than plans for ongoing projects, holding horizon fixed. While we do not explicitly model it, irreversibility of installed capital is a natural microfoundation for why $b^{(\text{ongoing})}$ is large.

Cost-of-capital pass-through. The response also scales with the policy pass-through $\phi_i = \partial \rho_i / \partial r_f$. In the frictionless benchmark every firm funds the marginal dollar at the market rate, so ϕ_i is common across firms. We assume that the discount rate ρ_i the firm applies in (9) is its perceived cost of capital: it is reset to the market rate when the firm transacts in external markets and is sticky between transactions. This is the one departure from the frictionless benchmark, and it is consistent with the idea that there is cross-firm variation in how sticky discount rates are [Fukui et al., 2024]. Under this assumption, firms refinancing maturing bonds are more likely to be in the active-borrowing region where market rates are internalized [Jeenas, 2024], so their ϕ_i is higher, and from Equation (10) their plans respond more strongly to monetary policy. Thus, in the cross-section of firms, those with more bond debt coming due would have larger policy responses than those with less bond debt coming due.

E Computing the Implied Elasticity of Investment to User Cost of Capital

This appendix recovers the user-cost elasticity (38) from the data. Monetary policy moves the cost of capital ρ (the WACC) through the risk-free rate r_f, so $\partial \log c / \partial r_f = \frac{1}{\rho+\delta} \partial \rho / \partial r_f$. Dividing the measured $\partial \log I_H / \partial r_f$ by this returns $\partial \log I_H / \partial \log c$, the model's ε^c measured rather than imposed; equating the two recovers b.

Let r denote the firm's cost of funds (the WACC, written ρ in the body) and δ the economic depreciation rate. The WACC can be written as $r = \omega (1-\tau) r^d + (1-\omega) r^e$, where r^d is the cost of debt, r^e is the cost of

equity and ω is the leverage ratio. We denote $\partial r^d/\partial r_f$ by ϕ_d, and $\partial r^e/\partial r_f$ by ϕ_e. Then the semi-elasticity of the user cost of capital with respect to the risk-free rate is $\partial \log c/\partial r_f = \frac{\omega(1-\tau)\phi_d+(1-\omega)\phi_e}{r+\delta}$.

We use our estimates of the responsiveness of investment with respect to risk-free rates in Table 4 to calculate an implied elasticity with respect to the user cost of capital.

In the neoclassical framework under no financial constraints, the user cost of capital is $c = \frac{1-\tau z}{1-\tau}(r+\delta)p$, where τ is the firm's tax rate, z is the present discounted value of depreciation deductions, r is the firm's cost of funds, δ is the economic depreciation rate, and p is the relative price of capital goods. The WACC r can be written as $r = \omega(1-\tau)r^d + (1-\omega)r^e$, where r^d is the cost of debt, r^e is the cost of equity and ω is the leverage ratio. We denote $\partial r^d/\partial r_f$ by ϕ_d, and $\partial r^e/\partial r_f$ by ϕ_e. Then the semi-elasticity of the user cost of capital with respect to the risk-free rate is $\partial \log c/\partial r_f = \frac{\omega(1-\tau)\phi_d+(1-\omega)\phi_e}{r+\delta}$.

To compute the elasticity of investment with respect to the user cost of capital, we next construct the semi-elasticity of investment with respect to the risk-free rate, $\partial \log I_H/\partial r_f$, where I_H represents cumulative investment over horizons $h = 1,\ldots,H$. To obtain the elasticity, we then divide $\partial \log I_H/\partial r_f$ by $\partial \log c/\partial r_f$. To summarize, our elasticities of horizon H-investment with respect to the user cost of capital are computed as follows:

$$\frac{\partial \log I_H}{\partial \log c} = \frac{\frac{1}{I/A}\sum_{h=1}^{H}(1-\delta)^{H-h}\widehat{\beta}_h}{\frac{\omega(1-\tau)\phi_d+(1-\omega)\phi_e}{r+\delta}} \tag{39}$$

In sample, the average leverage ratio is 30%. We assume an average cost of funds of 7%, corporate tax rate of 30%, and annual depreciation rate of 10%. Our elasticity estimates also depend on the pass-through of risk-free rates to the cost of debt and equity, ϕ_d and ϕ_e. The lower the pass-through is, the smaller these values are, and so the larger our elasticity estimates become. We conduct a sensitivity analysis in Table 5 of our estimates to these values, estimating elasticities for values of $\phi_e, \phi_d \in \{0.75, 1.0, 1.25, 1.5\}$ these parameters. The range of values for the parameters considered is motivated by previous findings in the literature studying how the cost of equity and the cost of debt respond to monetary policy-induced changes to the risk-free rate.

Under the CAPM, ϕ_e takes the following form:

$$\phi_e = 1 + \beta\frac{\partial[r_m - r_f]}{\partial r_f} \tag{40}$$

$\phi_e = 1$ follows directly from Nagel and Xu [2024], which finds that equity risk premia $r_m - r_f$ does not move in response to monetary policy. However, others argue that monetary-policy induced increases in risk-free rates may also result in increases in risk premia, implying values of $\phi > 1$. Bernanke and Kuttner [2005] find that the majority of the stock market's total response to monetary surprises operates through revisions in the equity risk premium. Drechsler et al. [2018] predict that higher nominal interest rates result in higher risk premia.

There is also evidence that monetary-policy induced increases in risk-free rates may also raise risk premia in bond markets. For example, Gertler and Karadi [2015] find that a monetary policy surprise raising the risk-free rate by 25bps also raises the excess bond premium by 10 basis points, implying $\phi^d = 1.4$, though this estimate includes firms that are financially constrained. Hanson and Stein [2015] find that changes in risk-free rates raise term premia in bond markets. We thus report a sensitivity analysis of our estimate of the elasticity to the values of ϕ_d and ϕ_e. Some firms may also have a ϕ of less than one, for example if they do not frequently update their perceived cost of capital in response to changes in market rates. This increases the implied elasticity.

The horizon-specific coefficient $\widehat{\beta}_h$ is constructed by assigning the sub-sample estimates in Table 4 to industries and then aggregating across industries. Specifically, we split firm-quarters into three sub-samples based on the firm's maximum reported plan horizon (h=1; $h \in \{2,3\}$; $h \in \{4,5\}$) and estimate Equation 3 separately within each group at every horizon $h \leq \overline{h}_j$, where $\overline{h}_j$ is the largest horizon observed in sub-sample j. We assume that the response of investment plans for horizons longer then the maximum reported plan horizon in each sub-sample is equal to zero. We assign each industry to a sub-sample based on the industry average of firms' maximum reported plan horizons, and compute $\widehat{\beta}_h$ as the CAPX-share-weighted average of industry-level $\widehat{\beta}_{j,h}$ vectors, using 2022 BEA Table 4a industry capital expenditures as weights. Estimates using different values of ϕ_d and ϕ_e are reported in Table 5. The average ratio of I/A in our sample is 0.0604, so to convert our estimates into a semi-elasticity of investment with respect to the risk-free rate, we divide our coefficients by this value and then cumulate across horizons.

F Further Robustness

De Fraisse et al. [2026] show that regressions of real outcomes on interest rate changes instrumented by high-frequency monetary policy shocks can be confounded by predictable variation in the interest rate path.

To address this concern, we test whether our baseline facts survive the inclusion of 8 quarterly lags of one-year Treasury yield changes. Including these lags is a stringent way to absorb predictable components of yield movements in the quarter of interest. Our results, shown in Figure G.2, demonstrate that the baseline facts are robust to this specification and are therefore unlikely to be driven by predictable interest rate dynamics. Panel (a) shows that the local projection specification remains robust with 8 yield lags. Panel (b) shows that the same robustness holds for the new versus ongoing project decomposition. Panel (c) shows that the term structure of planned investment responses—where longer-horizon plans respond more strongly to yield changes—also remains robust with 8 yield lags. Across all specifications, the point estimates and confidence intervals remain close to the baseline. If anything, the results are even stronger. These tests indicate that the investment plan responses we document reflect the causal effect of unanticipated monetary policy-induced yield movements rather than predictable interest rate dynamics.

In the main text, Figures 5 and 6 report the baseline horizon and new-versus-ongoing results for the 5-year monetary policy shock. Figures G.14 and G.3 report the analogous results for shocks to the 1-, 2-, and 10-year points of the yield curve; the 2- and 10-year yields are instrumented by their maturity-matched high-frequency shocks and the 1-year yield by the Bauer and Swanson [2023] short-term (Eurodollar-futures) monetary policy surprise. The term structure of responsiveness—near-term plans relatively unresponsive and longer-horizon plans more responsive—holds across the maturity of the shock.

G Additional Tables and Figures

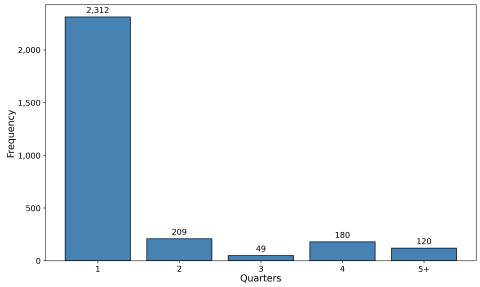
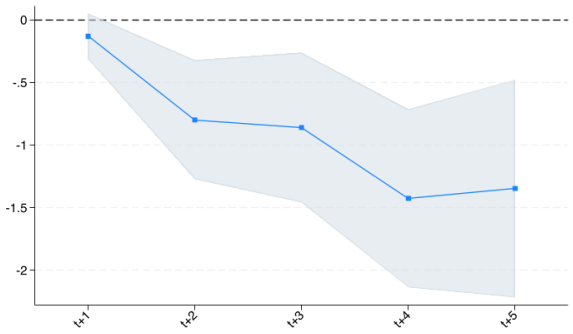
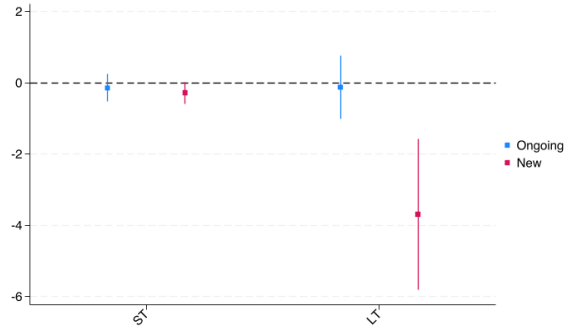


Figure G.1: Firm-Level Mode: Quarters Between Investment Plans Announcements

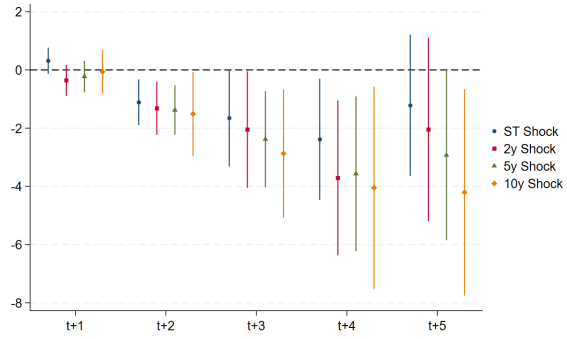
Notes: The figure plots the distribution of the mode of quarters between investment plans announcements for each firm, where the projection period ends at least 3 months from the announcement date.



(a) Local Projection IV: 8 Yield Lags



(b) New vs. Ongoing IV: 8 Yield Lags

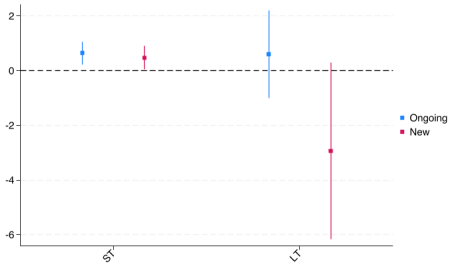


(c) Term Structure Reduced-Form Coefplot: 8 Yield Lags

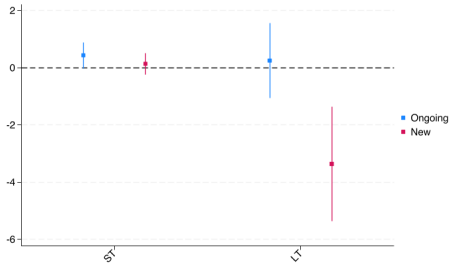
Figure G.2: Robustness of Main Results to Yield Lag Controls

Notes: This figure presents robustness checks following De Fraisse et al. [2026], who show that instrumenting real outcomes with high-frequency monetary policy shocks can produce spurious results if lagged yield changes predict future yield movements. All panels include 8 quarterly lags of one-year Treasury yield changes. Panel (a) reports the local projection IV impulse response of planned investment at horizons $h = 1, \ldots, 5$ to the instrumented 5-year yield change. Panel (b) shows the new versus ongoing project IV specification, where the 5-year yield change (instrumented by the 5-year Bauer and Swanson [2023] high-frequency shock) is interacted with a 2×2 grid of short-term versus long-term and new versus ongoing plan indicators (ST $\leq$ 23 months). Panel (c) reports the term-structure coefplot, where each point corresponds to a projection horizon h and plots $\hat{\beta}_h$ from regressing planned investment growth on the monetary policy shock interacted with horizon dummies. All specifications include firm fixed effects and lagged firm and macro controls. Standard errors are clustered by firm and calendar quarter; 90% confidence intervals are shown.

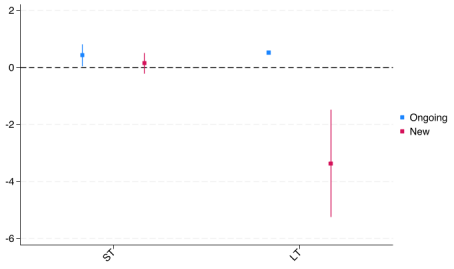
Figure G.3: Effect of Monetary Policy on New versus Ongoing Investment Projects: Other Yield Maturities



(a) ST Shock



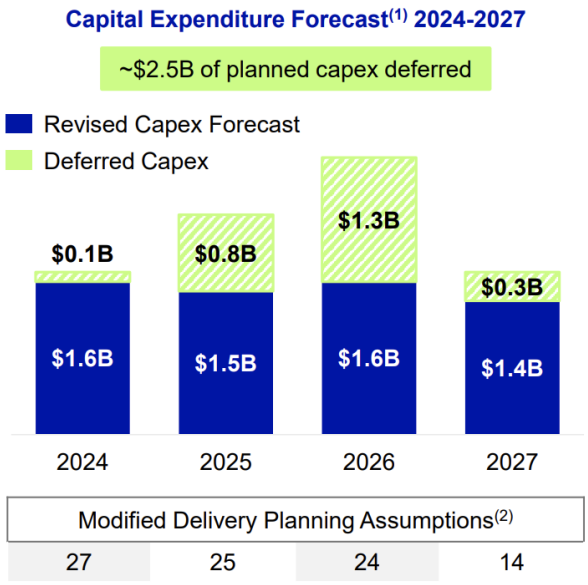
(b) 2y Shock



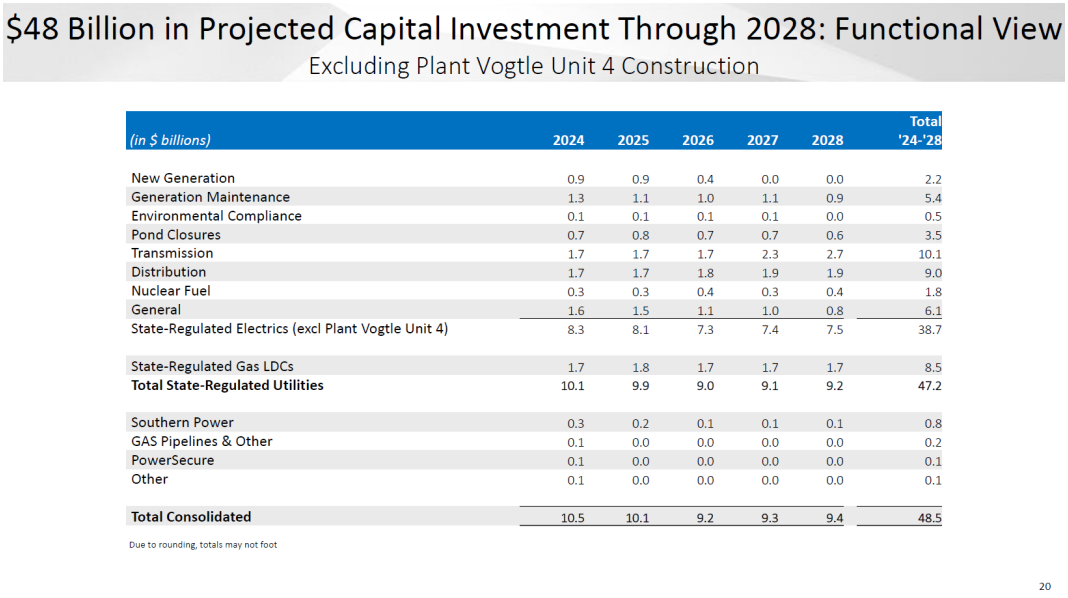
(c) 10y Shock

Notes: This figure replicates the main-text new-versus-ongoing result (Figure 6) for monetary policy shocks at other points of the yield curve. Each panel plots $\beta_{j,k}$ $(j,k \in \{0,1\})$ and 90% confidence intervals from the new-versus-ongoing specification, instrumenting the 2-year (Panel b) and 10-year (Panel c) U.S. Treasury yields with their maturity-matched high-frequency shocks and the 1-year yield (Panel a) with the Bauer and Swanson [2023] short-term (Eurodollar-futures) monetary policy surprise. Controls, fixed effects, trimming, and clustering are identical to Figure 6.

Figure G.4: Examples of Investment Plan Disclosures



(a) Jetblue 2023 Q4 Earnings presentation



$48 Billion in Projected Capital Investment Through 2028: Functional View

Excluding Plant Vogtle Unit 4 Construction

(in $ billions)	2024	2025	2026	2027	2028	Total '24-'28
New Generation	0.9	0.9	0.4	0.0	0.0	2.2
Generation Maintenance	1.3	1.1	1.0	1.1	0.9	5.4
Environmental Compliance	0.1	0.1	0.1	0.1	0.0	0.5
Pond Closures	0.7	0.8	0.7	0.7	0.6	3.5
Transmission	1.7	1.7	1.7	2.3	2.7	10.1
Distribution	1.7	1.7	1.8	1.9	1.9	9.0
Nuclear Fuel	0.3	0.3	0.4	0.3	0.4	1.8
General	1.6	1.5	1.1	1.0	0.8	6.1
State-Regulated Electrics (excl Plant Vogtle Unit 4)	8.3	8.1	7.3	7.4	7.5	38.7
State-Regulated Gas LDCs	1.7	1.8	1.7	1.7	1.7	8.5
Total State-Regulated Utilities	10.1	9.9	9.0	9.1	9.2	47.2
Southern Power	0.3	0.2	0.1	0.1	0.1	0.8
GAS Pipelines & Other	0.1	0.0	0.0	0.0	0.0	0.2
PowerSecure	0.1	0.0	0.0	0.0	0.0	0.1
Other	0.1	0.0	0.0	0.0	0.0	0.1
Total Consolidated	10.5	10.1	9.2	9.3	9.4	48.5

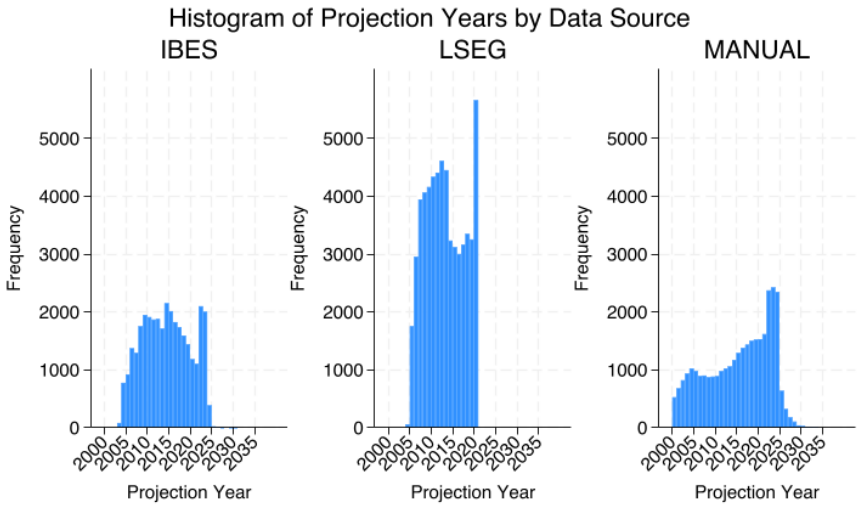
Due to rounding, totals may not foot

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(b) Southern Company's 2023Q4 Earnings Call

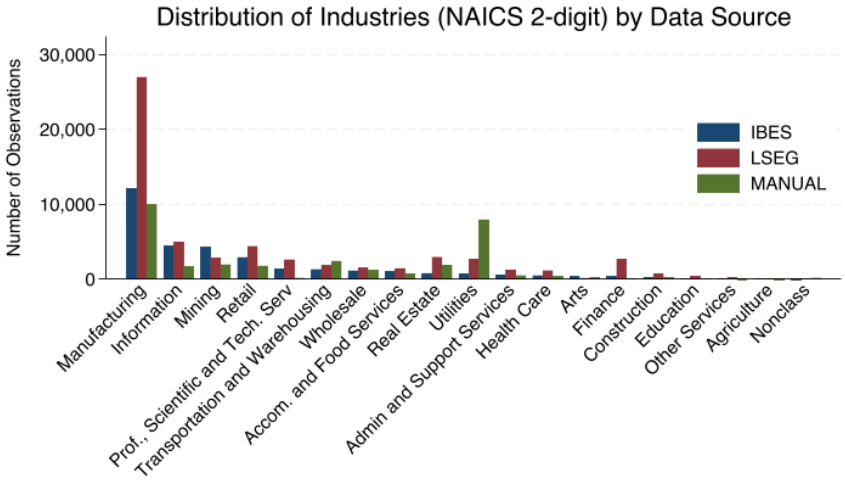
Source: The top image is from page 9 of the Jetblue 2023 Q4 Earnings presentation. The bottom image is from page 20 of Southern Company's 2023Q4 Earnings Call.

Figure G.5: Coverage of Projected Years Across Sources



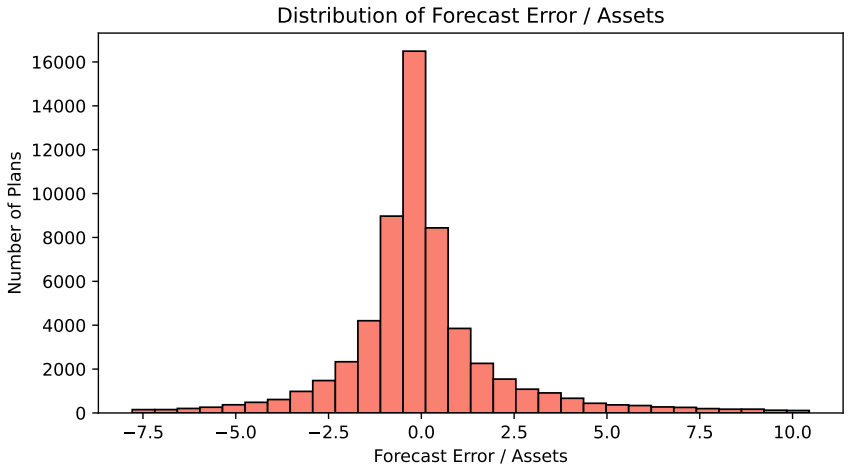
Notes: These three histograms each show the distribution of firm-announcement date observations for a given source.

Figure G.6: Coverage of Industries Across Sources



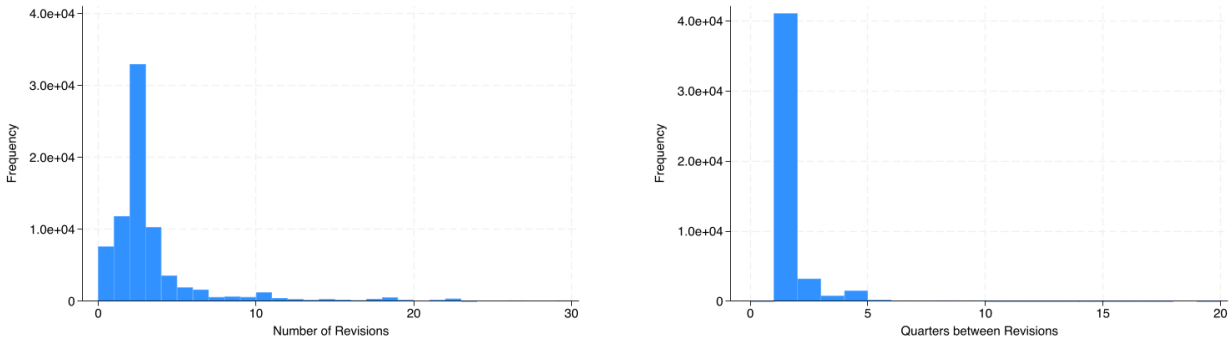
Notes: This histogram shows the distribution of investment plans (firm-announcement date-projection year observations) present for across industries in the dataset, indicating the source of the data.

Figure G.7: Histogram: 1-year Projection Period Investment Forecast Errors



Notes: This figure plots the distribution of 1-year projection period capex forecast errors. Capex forecast errors in year t are computed as the difference between realized capex in fiscal year t and capex plans for year t announced within 3 to 12 months of the end of the year, normalized by lagged total assets. Forecast errors are trimmed at the 2nd and 98th percentiles.

Figure G.8: Revisions to Investment Plans

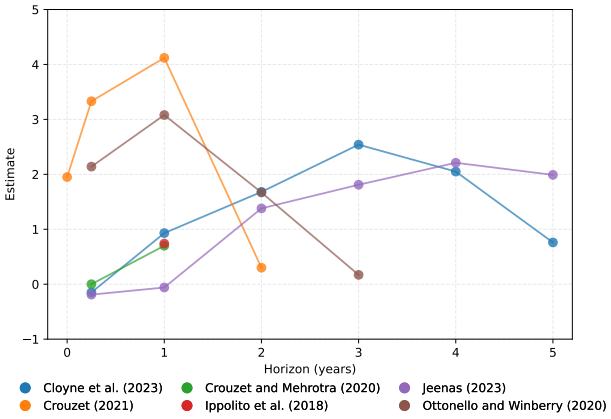


(a) Number of Revisions to a Given Plan

(b) Quarters between Revisions

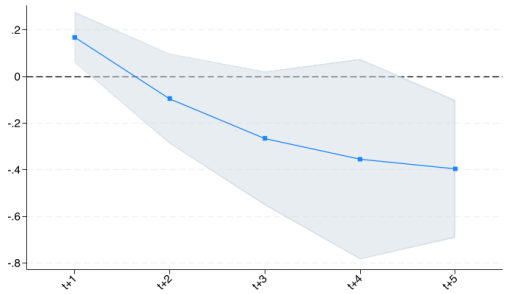
Notes: Panel (a) shows the distribution of the number of revisions to a given plan (for a given firm and projection period). Panel (b) shows the distribution of the number of quarters between consecutive revisions to a given plan. Both panels include IBES, LSEG, and manually collected data.

Figure G.9: Summary of Estimates of the Responsiveness of Capital Expenditures to Interest Rates



Notes: This figure plots existing estimates from the literature of the cumulative effect of a monetary policy shock on capital expenditures over different horizons. The figure is scaled to show the effect of a 1pp monetary policy shock on the change in capital stock, as a percentage of prior capital stock.

Figure G.10: OLS: Impact of Monetary Policy on Investment Across Horizons

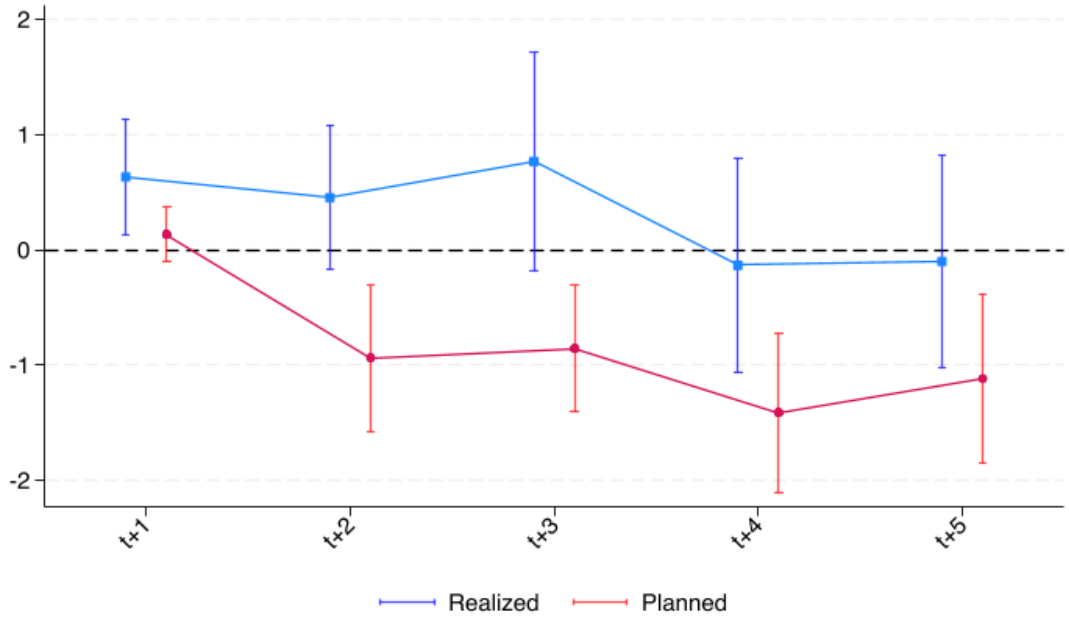


Notes: This figure depicts β_h and 90% confidence intervals for the following specification, for $h = 1, 2, 3, 4, 5$:

$$\text{Planned Investment}_{i,q,h} = \beta_h \ \Delta y_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}$$

$\text{Planned Investment}_{i,q,h}$ is planned real investment for firm i in projection year y relative to the rolling sum of the real investment over the prior 4 quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets. h denotes the years from today that the plan is for. Here, $h = 1$ if the difference between the projection date and the end of the projection horizon is between 3-12 months, $h = 2$ if the difference is between 13-24 months, $h = 3$ if the difference is between 25-36 months, $h = 4$ if the difference is between 37-48 months, and $h = 5$ if the difference is 49 months or more. Δy_q is the three month change in the Treasury yield for the 5-year yield. The regression controls $X_{i,q-1}$ include firm-level characteristics (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q), the quarter change in the CFNAI index, the level of the CFNAI index, the 2-year U.S. Treasury yield and the 2-10 year Treasury yield curve slope, all as of quarter $q-1$, as well as four lags of GDP growth, the inflation rate and the unemployment rate. The outcome variable is trimmed at the 2nd and 98th percentiles. Firm fixed effects are included, and standard errors are clustered at the firm and calendar quarter level.

Figure G.11: Comparing Estimates of Investment's Sensitivity to Monetary Policy using Realized vs Planned Investment

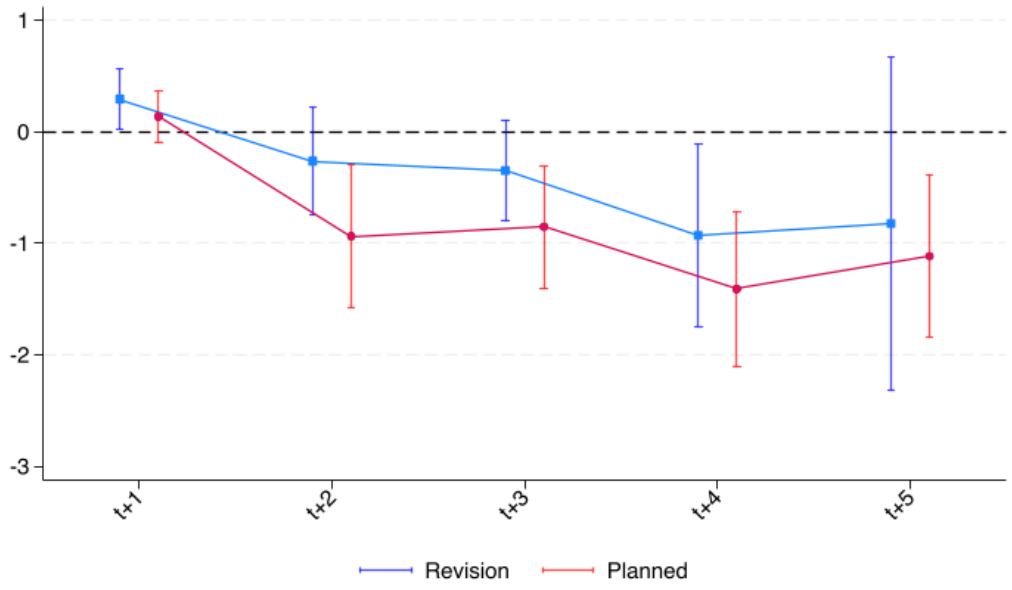


Notes: This figure depicts β_h and 90% confidence intervals for the following specification, for $h = 1, 2, 3, 4, 5$:

$$\text{Investment}_{i,q,h} = \beta_h \, \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}$$

The red lines represent results where the left-hand side variable is Planned $\text{Investment}_{i,q,h}$, which is planned real investment for firm i in projection year y relative to the rolling sum of the real investment over the prior 4 quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets. The blue lines represent results where the left-hand side variable is Realized $\text{Investment}_{i,q,h}$, which is actual real investment for firm i in projection year y relative to the rolling sum of the real investment over the prior 4 quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets. $\widehat{\Delta y}_q$ is the three month change in the five year Treasury yield, instrumented using the maturity-matched monetary policy shock that occur during quarter q, during which the investment plan is made and at the end of which the plan is announced. The regression controls $X_{i,q-1}$ include firm-level characteristics (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q), the quarter change in the CFNAI index, the level of the CFNAI index, the 2-year U.S. Treasury yield and the 2-10 year Treasury yield curve slope, all as of quarter $q-1$, as well as four lags of GDP growth, the inflation rate and the unemployment rate. The outcome variable is trimmed at the 2nd and 98th percentiles. Firm fixed effects are included, and standard errors are clustered at the firm and calendar quarter level.

Figure G.12: Impact of Monetary Policy on Investment Across Horizons: Robustness with Revisions

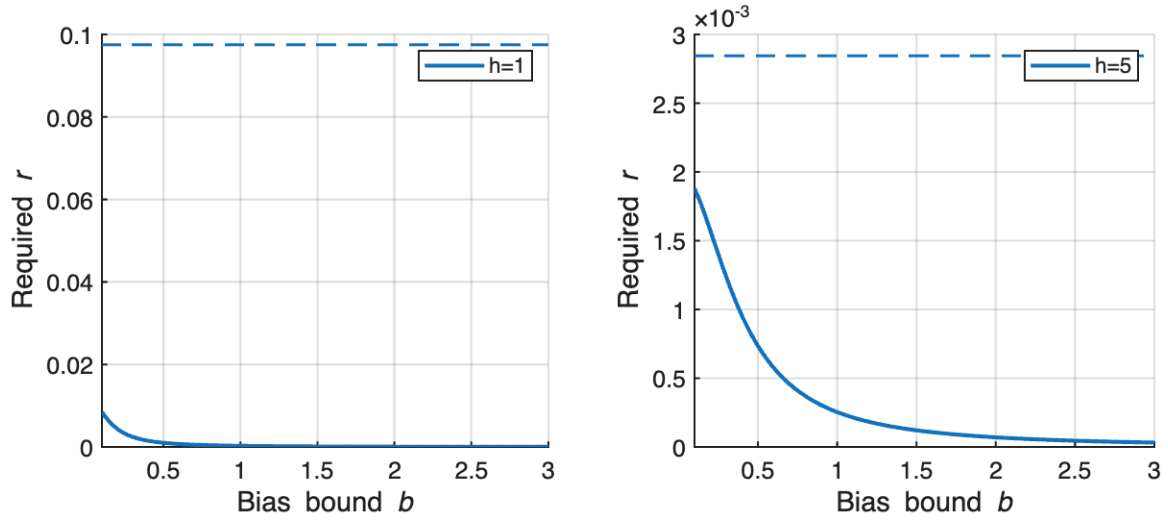


Notes: This figure depicts β_h and 90% confidence intervals for the following specification, for $h = 1, 2, 3, 4, 5$:

$$\text{Revision}_{i,q,h} = \beta_h \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}$$

$\text{Revision}_{i,q,h}$ is planned real investment for firm i in projection year y relative to the previous planned real investment for the same firm and projection year, divided by quarter $q-1$ assets, where plans can be made up to one year apart. h denotes the years from today that the plan is for. Here, $h = 1$ if the difference between the projection date and the end of the projection horizon is between 3-12 months, $h = 2$ if the difference is between 13-24 months, $h = 3$ if the difference is between 25-36 months, $h = 4$ if the difference is between 37-48 months, and $h = 5$ if the difference is 49 months or more. $\widehat{\Delta y}_q$ is the three month change in the 5 year Treasury yield, instrumented using the maturity-matched monetary policy shock that occur during quarter q, during which the investment plan is made and at the end of which the plan is announced. The regression controls $X_{i,q-1}$ include firm-level characteristics (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q), the quarter change in the CFNAI index, the level of the CFNAI index, the 2-year U.S. Treasury yield and the 2-10 year Treasury yield curve slope, all as of quarter $q-1$, as well as four lags of GDP growth, the inflation rate and the unemployment rate. Firm fixed effects are included, and standard errors are clustered at the firm and calendar quarter level.

Figure G.13: Required r Across Bias Levels

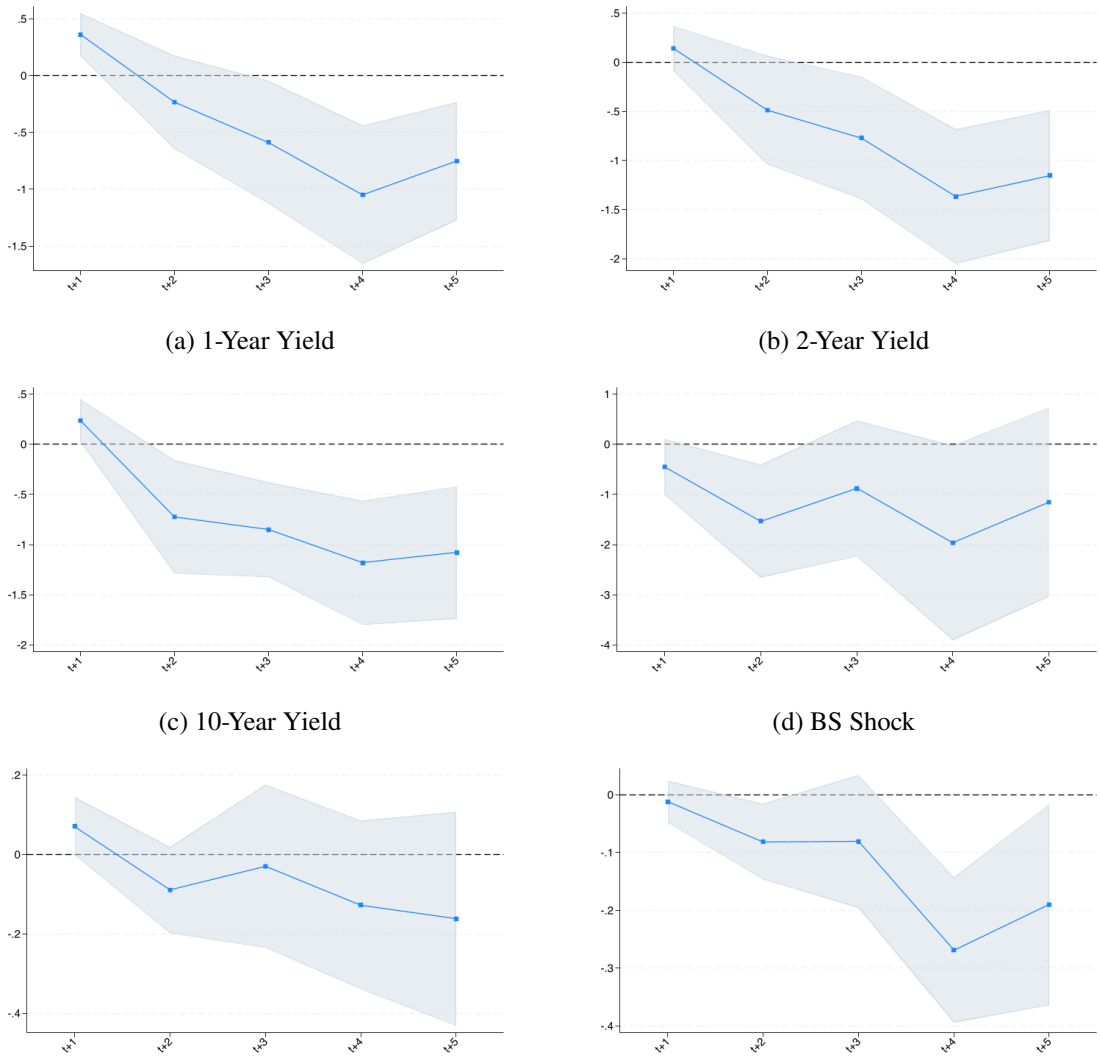


(a) Plan horizon: 1 Year

(b) Plan horizon: 5 Years

Notes: This figure plots, as a function of the assumed upper bound on bias b (x-axis), the minimum sample ratio $r = N_P/N_R$ (y-axis) required for the plans-revision estimator (Eq. 21 with outcome $\text{Revision}_{i,q,h}$ from Eq. 20) to deliver lower MSE than the realized-investment estimator (Eq. 19) at horizon h, per Eq. 27. The dashed horizontal line is the actual sample ratio r for that horizon — plans dominate wherever the dashed line sits above the curve.

Figure G.14: Impact of Monetary Policy on Investment Across Horizons: Alternative Yield Maturities and Shock Measures



(a) 1-Year Yield

(b) 2-Year Yield

(c) 10-Year Yield

(d) BS Shock

(e) FFR Shock

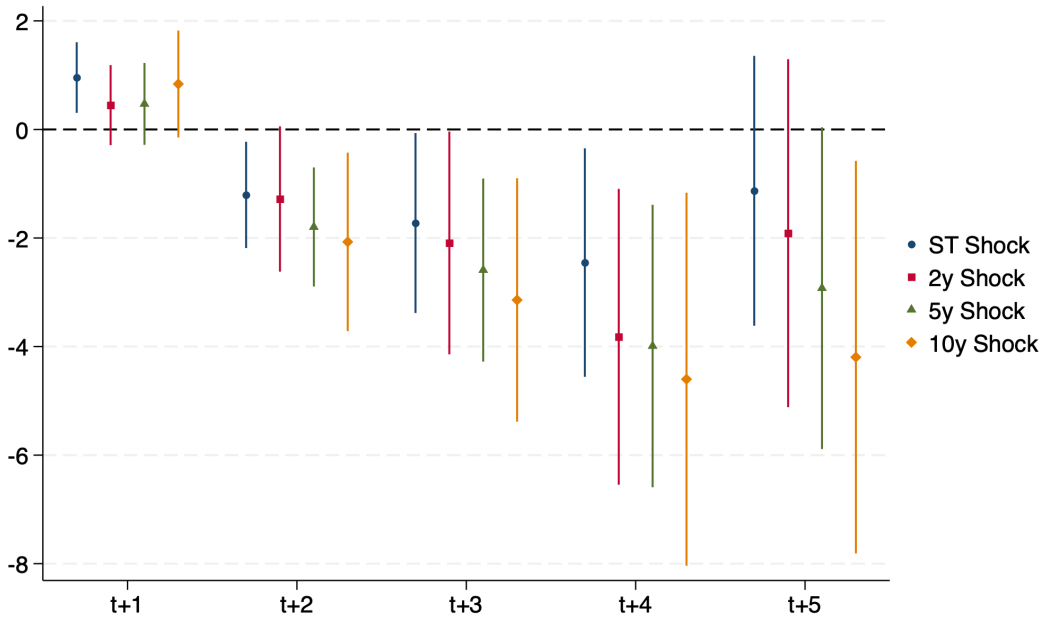
(f) Forward Guidance Shock

Notes: This figure reports robustness of the baseline horizon results (Figure 5) to alternative monetary policy shocks, plotting β_h and 90% confidence intervals for $h = 1, \ldots, 5$. Panels (a)–(c) instrument the 1-, 2-, and 10-year U.S. Treasury yields with high-frequency monetary policy shocks, estimating

$$\text{Planned Investment}_{i,q,h} = \beta_h \widehat{\Delta y}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h};$$

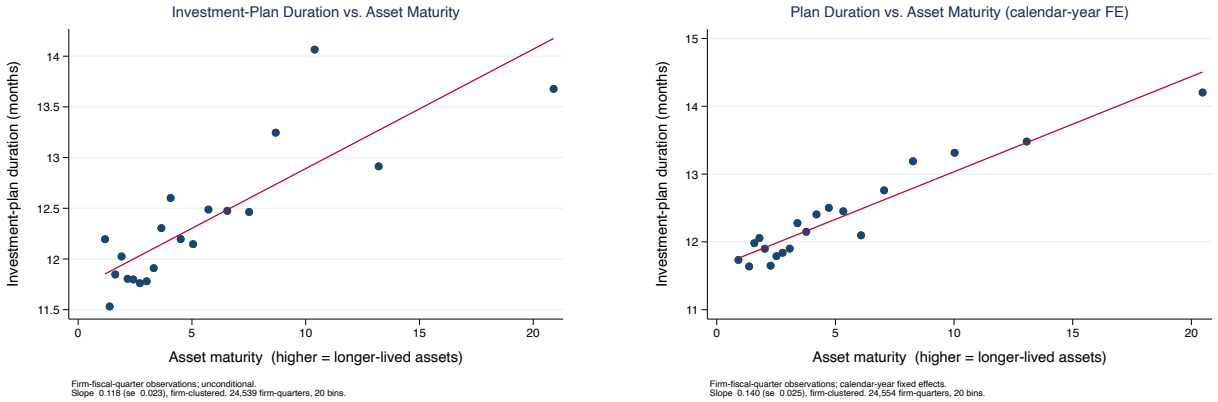
Panel (a) instruments the 1-year yield with the Bauer and Swanson [2023] short-term (Eurodollar-futures) monetary policy surprise, while Panels (b) and (c) use the maturity-matched 2- and 10-year Treasury-futures shocks. Panels (d)–(f) instead regress planned investment directly on alternative monetary policy shock series,
$\text{Planned Investment}_{i,q,h} = \beta_h \text{MPS}_q + \gamma X_{i,q-1} + \alpha_i + \varepsilon_{i,q,h}$: Panel (d) uses the residualized short-term shock from Bauer and Swanson [2023], and Panels (e)–(f) use the Fed Funds Rate and Forward Guidance shocks extracted using a principal components analysis from Swanson [2021]. $\text{Planned Investment}_{i,q,h}$ is planned real investment for firm i in projection year y relative to the rolling sum of the real investment over the prior 4 quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets; $h = 1$ corresponds to 3-12 months to the end of the projection period, $h = 2$ to 13-24 months, $h = 3$ to 25-36 months, $h = 4$ to 37-48 months, and $h = 5$ to 49 months or more. The regression controls $X_{i,q-1}$ include firm-level characteristics (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q), the quarter change in the CFNAI index, the level of the CFNAI index, the 2-year U.S. Treasury yield and the 2-10 year Treasury yield curve slope, all as of quarter $q-1$, as well as four lags of GDP growth, the inflation rate and the unemployment rate. The outcome variable is trimmed at the 2nd and 98th percentiles. Firm fixed effects are included, and standard errors are clustered at the firm and calendar quarter level.

Figure G.15: Planned Investment Response to Monetary Policy by Horizon



Note: This figure plots the coefficients and 90% confidence intervals from the reduced-form regressions reported in Table 6, where planned investment is regressed directly on the maturity-matched Bauer and Swanson [2023] high-frequency monetary policy surprises. For the 2-, 5-, and 10-year, the surprise is the change in the corresponding Treasury yield in the 30-minute windows around FOMC announcements, summed over the quarter; for the 1-year, it is the raw, non-orthogonalized Bauer and Swanson [2023] short-rate surprise ("the first principal component of the changes in [Eurodollar futures] ED1-ED4, scaled so that the impact on ED4 is unity"). The horizons are shown as $q+1$ to $q+5$ on the x-axis. Planned capital expenditure change is computed relative to the realized capital expenditure of four quarters ending one (two) fiscal quarter before the announcement, normalized for inflation and divided by the rolling sum of the real assets over the prior 4 quarters ($q-4$ to $q-1$). The regressions also control for quarterly firm-level characteristics, including lagged size (ln(Assets)), leverage (Total Debt/Assets), return on assets (NI/Assets), tangibility (PPE/Assets), cash-to-assets, and Tobin's Q. Macro controls include the lagged quarter change and level of the CFNAI index, the lagged 2-year U.S. Treasury yield and 2-10 year Treasury yield curve, four lags of GDP growth, the inflation rate, and the unemployment rate. Firm fixed effects and projection horizon fixed effects are included, and standard errors are clustered at both the firm and calendar quarter levels. The outcome variable is trimmed at the 2nd and 98th percentiles.

Figure G.16: Investment-Plan Duration and Asset Maturity



(a) Unconditional

(b) Calendar-year fixed effects

Notes: This figure presents binned scatter plots of investment-plan duration against asset maturity at the firm–fiscal-quarter level (20 quantile bins; the line is the linear fit). Investment-plan duration is the dollar-weighted average horizon of the firm's outstanding investment plans in the quarter, $\sum_p \text{months-to-end}_p \times I_p^{plan} / \sum_p I_p^{plan}$, in months. Asset maturity is computed based on Stohs and Mauer [1996]: the value-weighted average of the maturity of current assets (one year) and of net property, plant, and equipment (gross PP&E divided by depreciation expense, i.e. remaining useful life), with weights $CA/(CA+PPE)$ and $PPE/(CA+PPE)$, in years. Both variables are trimmed at the 1st and 99th percentiles. Panel (a) plots the raw relationship; panel (b) residualizes both variables on calendar-year fixed effects.

Table G.1: Forecast-Error Response to Monetary Policy: Pooled IV

	LHS: Forecast Error (Realized − Planned)			
	(1)	(2)	(3)	(4)
	IV RHS: Δ UST 1y	IV RHS: Δ UST 2y	IV RHS: Δ UST 5y	IV RHS: Δ UST 10y
Δ UST	0.170	0.107	0.0577	0.0549
	(0.116)	(0.123)	(0.0998)	(0.0962)
Firm Controls	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Projection horizon FE	Yes	Yes	Yes	Yes
Observations	64,672	64,672	64,672	64,672
R-squared	0.016	0.016	0.015	0.015

Notes: IV regression of the forecast error $FE_{i,q+h} = I_{i,q+h} - F_q[I_{i,q+h}]$ (realized minus planned real capex change, percent of lagged assets) on the quarterly U.S. Treasury yield change at the indicated maturity. The 2-, 5-, and 10-year yield changes are instrumented by the maturity-matched Bauer and Swanson [2023] high-frequency surprise (the change in the corresponding Treasury yield in the 30-minute windows around FOMC announcements, summed over the quarter); the 1-year UST yield change is instrumented by the raw, non-orthogonalized Bauer and Swanson [2023] short-rate surprise ("the first principal component of the changes in [Eurodollar futures] ED1-ED4, scaled so that the impact on ED4 is unity"). The specification is pooled across all projection horizons. Realized capex is winsorized at 1–99%, planned capex is trimmed at 2–98%. Sample restricted to 12-month projection periods with at least 3 months remaining to projection end. The regression controls include firm-level characteristics (cash-to-assets, leverage, log assets, return on assets, tangibility, and Tobin's Q), the quarter change in the CFNAI index, the level of the CFNAI index, the 2-year U.S. Treasury yield and the 2-10 year Treasury yield curve slope, all as of quarter $q - 1$, as well as four lags of GDP growth, the inflation rate and the unemployment rate. Firm and projection year fixed effects are included, and standard errors are clustered at the firm and calendar quarter level.

Table G.2: Which Firms Disclose Investment Plans?

	Has Capex Plans	Has LT Capex Plans	Has Rev. Expectations
	(1)	(2)	(3)
Log assets	0.109***	0.0198***	0.111***
	(0.00144)	(0.00106)	(0.00143)
Net investment rate	0.0841***	-0.0153***	0.0816***
	(0.0100)	(0.00283)	(0.0102)
Leverage	0.000408	0.00145***	-0.000688
	(0.00135)	(0.000393)	(0.00136)
Log Tobin's Q	0.0883***	0.0152***	0.101***
	(0.00352)	(0.00136)	(0.00350)
Return on assets	-0.0347***	-0.00979***	-0.0332***
	(0.00218)	(0.000838)	(0.00222)
Tangibility	0.0395**	0.107***	-0.0342*
	(0.0181)	(0.0103)	(0.0179)
Cash / assets	-0.273***	-0.0182***	-0.278***
	(0.0123)	(0.00396)	(0.0121)
Sample	Full Sample	Full Sample	Full Sample
Observations	11663	11663	11663
R^2	0.375	0.0978	0.378

Notes: This table reports cross-sectional regressions of firm-level disclosure indicators on average firm characteristics (2000–2024). The dependent variable is an indicator for whether a firm ever discloses: (1) investment plans at 3+ months horizon, or (2) long-term plans that end at least 24 months after the announcement. The outcome variable in Column (3) is a binary indicator for whether there is a manager guidance or analyst forecast in that quarter. Includes all non-financial U.S. firms in Compustat. Standard errors are heteroskedasticity-robust.

Table G.3: Selection Bias Check: Disclosure Dummy on MPS

	Capex plans disclosed (3+ months)			
	(1)	(2)	(3)	(4)
ST Shock (Raw)	-0.00721			
	(0.0696)			
MPS 2y		0.0351		
		(0.0635)		
MPS 5y			0.0552	
			(0.0766)	
MPS 10y				0.0841
				(0.100)
Firm Controls	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	363512	363512	363512	363512
R-squared	0.406	0.406	0.406	0.406

Notes: This table reports linear probability models examining whether monetary policy surprises (MPS) predict disclosure of investment plans. The dependent variable is a binary indicator for whether a firm discloses plans in a given quarter. The independent variables are various monetary policy surprises: the Bauer and Swanson [2023] short-term (Eurodollar-futures) surprise and the high-frequency 2-, 5-, and 10-year U.S. Treasury yield surprises, one per column. All specifications include firm fixed effects and lagged firm-level and macro controls (size, Tobin's Q, leverage, cash/assets, ROA, tangibility). Standard errors are clustered by firm and calendar quarter.

Table G.4: Selection Bias Check: Disclosure Dummy on MPS (Conditional on Having a Plan)

	Capex plans disclosed (long-term)			
	(1)	(2)	(3)	(4)
ST Shock (Raw)	0.000877			
	(0.0109)			
MPS 2y		-0.00335		
		(0.0156)		
MPS 5y			-0.0102	
			(0.0161)	
MPS 10y				-0.0105
				(0.0199)
Firm Controls	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	53369	53369	53369	53369
R-squared	0.546	0.546	0.546	0.546

Notes: This table reports linear probability models examining whether MPS predict disclosure of long-term plans, conditional on the firm having any plan that quarter. The dependent variable is a binary indicator for whether a firm discloses long-term investment plans that end at least 24 months after the announcement The sample is restricted to firm-quarters where the firm discloses at least one plan ending 3+ months after announcement. All specifications include firm fixed effects and lagged firm-level and macro controls. Standard errors are clustered by firm and calendar quarter.

Table G.5: When Do Firms Disclose Investment Plans?

	Investment plans disclosed	Has long-term plans		E[Revenue] disclosed
	(1)	(2)	(3)	(4)
Δ Size	-0.000974	-0.0000198	-0.00187	-0.00102
	(0.00275)	(0.000332)	(0.00613)	(0.00358)
Δ Investment rate	0.000528	0.000184	0.00222	0.00177
	(0.00136)	(0.000116)	(0.00610)	(0.00178)
Δ Leverage	0.000268	0.0000146	-0.00360	0.0000946
	(0.000286)	(0.0000385)	(0.0143)	(0.000393)
Δ Log Tobin's Q	-0.00465	-0.0000417	0.00199	-0.00571
	(0.00339)	(0.000280)	(0.00494)	(0.00453)
Δ ROA	-0.000281	-0.0000262	0.00105	-0.000425
	(0.000242)	(0.0000272)	(0.00725)	(0.000321)
Δ Tangibility	0.0130	-0.00197	-0.0154	0.0100
	(0.00812)	(0.00186)	(0.0319)	(0.00769)
Δ Cash/Assets	-0.00418	-0.0000290	0.0190	-0.0181***
	(0.00388)	(0.000845)	(0.0158)	(0.00433)
Calendar Quarter FE	✓	✓	✓	✓
Firm x Fqtr FE	✓	✓	✓	✓
Sample	Full sample	Full sample	Curr. has plan = 1	Full sample
Observations	342664	342664	51670	342664
R-squared	0.535	0.441	0.621	0.568

Notes: This table reports linear probability models for when firms disclose plans. The dependent variable is a binary indicator for whether a firm discloses investment plans (col. 1) or long-term investment plans (cols. 2–3); Column 4 has a binary indicator for whether there is a manager guidance or analyst forecast in quarter t. Independent variables are changes in firm characteristics: size, log Tobin's Q, investment rate, leverage, ROA, tangibility, and cash/assets. Columns 1 and 2 use the full sample of non-financial U.S. firms in Compustat. Column 3 is restricted to firms that currently have a plan. All specifications include calendar quarter fixed effects and firm × fiscal quarter fixed effects. Standard errors are clustered by firm and calendar quarter.

Table G.6: Predictiveness of Investment Plans

	Capex Growth Rate			Capex Growth / Assets		Capex (log)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Planned Capex Growth	0.827***	0.795***	0.782***				
	(0.0158)	(0.0157)	(0.0161)				
Over 1yr plan × Planned Capex Growth			-0.0514				
			(0.0352)				
Over 1yr plan			13.88***		0.662***		
			(1.951)		(0.131)		
Planned Capex / Assets				0.820***	0.798***		
				(0.0173)	(0.0178)		
Over 1yr plan × Planned Capex / Assets					-0.0860**		
					(0.0427)		
Log(Planned Capex)						0.919***	0.494***
						(0.00528)	(0.0196)
Year FE		✓	✓	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓	✓		✓
Observations	19346	19342	25185	19308	25212	20623	20026
R-squared	0.529	0.545	0.502	0.565	0.493	0.857	0.943

Notes: This table presents OLS estimates relating planned to realized capital expenditure outcomes. Columns labeled "Capex growth rate" report coefficients from regressions of realized capital expenditure growth on planned capital expenditure growth; columns labeled "Capex / Assets" report coefficients from regressions of realized capital expenditure growth scaled by lagged total assets; columns labeled "Capex (log)" report coefficients from regressions of log actual capital expenditure on log planned capex. Regressions 1, 2, 4, 6, and 7 focus on the one-year projection horizon, while Regressions 3 and 5 include all plans. We winsorize realized growth at the 1st and 99th percentiles. We include firm and year fixed effects, and cluster standard errors at the firm and quarter level.

Table G.7: Classification of Investment Plan Types

Category	Words
Environmental	environmental, environment, clean, emissions, renewable, solar, wind, green, carbon, sustainability, sustainable
Research_Development	research, new product, innovation, innovative, ai, machine learning, research and development, artificial intelligence, R&D (abbrev.), product development, software development, development of new..., developing new..., technology development, new [...] development, exploration (non-E&P only)
Expansion_Growth	expansion, expand, grow, growth, new stores, new, expanding
Acquisitions	acquisitions, redevelopment, acquisition
Physical_Infrastructure	property, equipment, manufacturing, nuclear, aircraft, ppe, infrastructure, operating assets, drilling, oil, coal, refining, mining
Maintenance	maintenance, maintain, repair, renovations, renovation, upgrades, reliability, cost reduction, modernize, routine

Category	Words
New	establish, establishing, greenfield, open, new, expanding, openings, growth opportunities, brand-new, construct, acquisition of sites, expand, acquire, build, growth, buy, purchase, additional, addition, acquisition, buying
Ongoing	maintain, continue, upgrade, maintenance, renovation, remodel, redevelopment, improvement, renovate, existing, completion, continue to, redevelop, drilling & completion, improve, rehab, restructuring, continuing, complete, ongoing, capacity expansion, enhance, pipeline upgrades, increase, recurring, replace, modernize, improving

Note: These tables list the categories of investment plan types and the corresponding words within investment plans that map to each category. Categories are not mutually exclusive.

Table G.8: First Stage: Changes in Treasury Yields on Monetary Policy Shocks

	(1)	(2)	(3)	(4)
2y Shock	2.242***			
	(0.420)			
5y Shock		1.897***		
		(0.444)		
10y Shock			2.155***	
			(0.537)	
ST Shock				2.577***
				(0.384)
Observations	306	306	306	306
R-squared	0.230	0.166	0.171	0.309
F-statistic	28.5	18.3	16.1	45.0
Macro controls	✓	✓	✓	✓
Treasury yield	2-Year	5-Year	10-Year	1-Year

Note: This table reports the first-stage results from IV regressions of planned capital expenditure growth on changes in U.S. Treasury yields over the prior fiscal quarter. In the first stage, we instrument the changes in yields using high-frequency monetary policy-driven shocks to a maturity-matched U.S. Treasury future. Macro controls include the prior-quarter change in the CFNAI index, the prior-quarter level of the CFNAI index, as well as the prior-quarter-end two-year yield level $2y_{q-1}$ and the prior-quarter-end yield curve slope $2-10y_{q-1}$, both measured on the day of the announcement. Four lags of GDP growth, the inflation rate, and the unemployment rate are also included. The first stage is estimated by OLS with heteroskedasticity-robust standard errors on a single observation per fiscal quarter (the first disclosed plan), using only the macro controls listed above, with no firm fixed effects or firm controls.

Table G.9: Examples of Firms Revising Capital Expenditure Plans During the 2022-23 Tightening Cycle

Firm	Date	Prior Plan ($B)	Revised Plan ($B)	Change (%)	Earnings Call Excerpt
NiSource	2022Q2	2.6	2.0	−22	"Weighted average **interest rate** of approximately 3.7% . . . we maintained net available liquidity of about $1.9 billion . . . we also continue our commitment to retaining our current **investment-grade credit ratings**. And I would note that Fitch has completed their 2022 annual credit review with no change to our rating or outlook."
Norwegian Cruise	2022Q3	2.1	1.1	−48	"Given the volatility in the **capital markets** in recent months, we felt extending the facility was the prudent choice to enhance our financial flexibility . . . [we undertook] measures . . . to optimize our **debt maturity** profile. We resumed **debt amortization** payments in April, which were previously deferred during the pandemic."
Ring Energy	2022Q4	0.13	0.04	−66	"We anticipate fourth quarter **capital expenditures** of $42 million to $46 million, which is approximately **15% lower than our prior estimate** . . . **Interest expense** was $7 million versus $3.3 million for the second quarter . . . contributing to the increase were **higher interest rates** and the write-off of the unamortized deferred financing costs."
Transocean	2023Q1	0.3	0.0	−94	"A $525 million secured financing of the Deepwater Titan and a $1.175 billion refinancing of our . . . senior notes . . . In the context of today's **interest rate** and broader **capital market environment**, these two transactions materially improved our medium-term liquidity."
Primoris Services	2023Q4	0.05	0.02	−70	"There's been a great deal of industry discussion and some concern regarding how **higher interest rates** may affect the financing of solar projects . . . **higher rates** and lower access to capital has the potential to negatively impact developer returns or lead to projects being delayed or canceled due to these **higher costs** or challenges."
Darling Ingredients	2023Q4	0.33	0.18	−44	"Some of [these new plants] get delayed for a myriad of reasons. One of the other thing we really haven't talked about lately is . . . this **increase in interest rates** that we've seen, **CapEx** and the money it takes to build and operate . . . has gone up. So that—I mean that's just the reality of the business."

Note: This table presents examples of firms in our sample that revised their capital expenditure plans downward during the 2022-2023 monetary tightening cycle and discussed interest rates, borrowing costs, or capital market conditions in contemporaneous earnings calls. Plan revisions are computed as the change in projected annual capital expenditure for the same projection year relative to the prior quarter's announcement. Earnings call transcripts are sourced from S&P Capital IQ. Boldface indicates interest rate or financing cost language.

Table G.10: Response of Different Horizon Investment Plans to Monetary Policy: IV

	Normalized Planned Capex			
	(1)	(2)	(3)	(4)
Δ y	0.346***	0.152	0.172	0.285**
	(0.110)	(0.135)	(0.130)	(0.126)
Projection horizon (yrs)=2×Δ y	-0.366*	-0.485	-0.721**	-0.774**
	(0.206)	(0.312)	(0.283)	(0.299)
Projection horizon (yrs)=3×Δ y	-0.512*	-0.589*	-0.791**	-0.916***
	(0.300)	(0.343)	(0.310)	(0.278)
Projection horizon (yrs)=4×Δ y	-0.677*	-0.885*	-1.000**	-1.034**
	(0.391)	(0.454)	(0.489)	(0.508)
Projection horizon (yrs)=5×Δ y	-0.401	-0.543	-0.861*	-1.137**
	(0.435)	(0.461)	(0.469)	(0.512)
Firm Controls	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Projection horizon FE	Yes	Yes	Yes	Yes
Observations	67,342	67,342	67,342	67,342
R-squared	0.078	0.077	0.076	0.076
First-stage F	3.0	3.5	2.9	1.3
Treasury yield	1-Year	2-Year	5-Year	10-Year

Note: This table reports the results of the following specification:

$$\text{Planned Investment}_{i,q,h} = \beta_1 \widehat{\Delta y}_q + \sum_{x=2}^{5} \beta_h \widehat{\Delta y}_q \times \mathbb{1}\{h = x\} + \alpha_i + \alpha_h + X_{i,q-1} + \varepsilon_{i,q,h}$$

We include dummy variables for investment plans extending 2, 3, 4, and ≥ 5 years ahead; the excluded category consists of plans for the subsequent fiscal year, conditional on the projected year ending at least 3 months after the plan announcement. Planned Investment$_{i,q,h}$ is planned real investment for firm i in projection year y relative to the rolling sum of the real investment over the prior 4 quarters ($q-4$ to $q-1$), divided by quarter $q-1$ assets. column (1) instruments the 1-year yield with the Bauer and Swanson [2023] short-term (Eurodollar-futures) surprise, and columns (2)–(4) instrument the 2-, 5-, and 10-year quarterly yield changes with their maturity-matched Treasury-future surprises, also constructed in Bauer and Swanson [2023]. The regressions also control for quarterly firm-level characteristics, including lagged size (ln(Assets)), leverage (Total Debt/Assets), return on assets (NI/Assets), tangibility (PPE/Assets), cash-to-assets, and Tobin's Q. Macro controls include the lagged quarter change and level of the CFNAI index, the lagged 2-year U.S. Treasury yield and 2-10 year Treasury yield curve, four lags of GDP growth, the inflation rate, and the unemployment rate. Firm fixed effects and projection horizon fixed effects are included, and standard errors are clustered at the firm and calendar quarter level. The outcome variable is trimmed at the 2nd and 98th percentiles.