Undisclosed Material Inflation Risk*

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Abstract

This paper provides a systematic analysis of the disclosure practices of major U.S. publicly listed corporations exposed to inflation risk. First, as of 2021, inflation risk is material and pervasive among U.S. corporations. Yet, although SEC's Regulation S-K requires disclosing possible risk factors, more than 60% inflation exposed corporations do not disclose inflation risk, and the probabilities of such disclosure are similar for exposed and unexposed firms. Second, the inadequate inflation risk disclosure holds after we allow risk to be time varying, control for firm and industry characteristics, and exploit a quasi-natural experiment to identify a causal effect from risk to disclosure. Third, exposed firms are significantly more likely to disclose inflation risk after being sued in a securities class action lawsuit. Fourth, managers of exposed firms are more likely to discuss future input costs after being sued. Fifth, simulating 2%-6% inflation shocks over the subsequent three years reveals an aggregate valuation destruction of $0.9 trillion to $2.8 trillion for shareholders of exposed firms. Overall, we identify major U.S. corporations that are highly exposed to inflation risk but do not adequately disclose it. Our findings indicate that firm managers pay inadequate attention to inflation risk.

Keywords: Managerial Inattention; Inflation; Risk Exposure; Disclosure; Regulation S-K

JEL Classification: D83; E31; E70; G10; M40

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1 Introduction

This paper provides a systematic analysis of the disclosure practices of major U.S. corporations exposed to material inflation risk — the risk of a substantial reduction in shareholders' value in response to an inflation shock. In 2021, as countries around the globe have lifted lockdowns caused by the coronavirus pandemic, a new pandemic fear has hit capital markets — inflation. A combination of unprecedented stimulus packages, historically low interest rates, rare spikes in the U.S. deficit amount and its share in gross domestic product, as well as the substantial increase in national debt, have triggered inflation concerns that have rattled capital markets and the U.S. economy. Indeed, in mid-2021 inflation overtook COVID-19 for the first time as the top investor risk, recently reaching three to four times as much as the annual inflation target of 2% dictated by the Federal Reserve's monetary policy (indeed, during 2021-2022, inflation reached the highest levels in over four decades, with annual rates in excess of 8%).

Even though inflation can cause substantial negative economic consequences for firms, whether firms facing material inflation risk adequately disclose this risk in their financial reports is unclear. Legally, since the U.S. Securities and Exchange Commission (SEC) released the Securities Act Release No. 7386 in 1997, firms are required to disclose certain quantitative and qualitative information about forward-looking market risk exposures, including risks arising from changes in various prices and other market changes that affect market-risk-sensitive instruments.[1] Beginning in 2005, the SEC extended the risk factor disclosure requirements by mandating firms to discuss a variety of risk factors in their 10-K annual reports (Regulation S-K).[2] For example, Regulation S-K requires firms to "provide under the caption, Risk Factors, a discussion of the material factors that make an investment in the registrant or offering speculative or risky. This discussion must be organized logically with relevant headings and each risk factor should be set forth under a subcaption that adequately describes the risk."

Despite such a time-tested, principles-based disclosure framework, several factors might prevent managers from disclosing inflation risks, intentionally or unintentionally. First, due to a modest inflationary environment since the 1980s, today's top managers of Corporate America

[1] See SEC's Securities Act Release No. 7386.

[2] This extended disclosure required that risk factor disclosure in Form 10-K should describe "factors that make the company speculative or risky" and "risk factors that may adversely affect the issuer's business, operations, industry or financial position, or its future financial performance." See Rule 421 under the Securities Act of 1933 (SEC's Regulation S-K, Item 105 for periodic detailed disclosure, Item 503 for prospectus summary in registration statements – with follow-up updates until 2020); for more information on the relevant most updated part of Regulation S-K, see SEC's Regulation S-K, Part 229).

lack recent personal experience of living through periods of high inflation (e.g., Malmendier and Nagel, 2011, 2016), which might contribute to the perceived low possibility that unexpectedly high inflation can pose a litigation risk to firms.[3] Second, systematic managerial inadequate attention to macroeconomic conditions such as inflation may exist, as proposed by a host of rational inattention models and tested by recent empirical works (e.g., Coibion et al., 2018; Candia et al., 2021b).[4] Third, firm managers costly learn from noisy signals indicating inflation risk, and thus they encounter subjective errors due to limited ability (e.g., Sims, 2003), overconfidence (e.g., Malmendier and Tate, 2005, 2008), or a lack of incentives to collect and process information about inflation (e.g., Coibion et al., 2018).

The importance of understanding U.S. managers' attitudes toward inflation — a key driver of firms' intertemporal choice regarding when to reset prices and wages or when to finance projects — is grounded in macroeconomic theories. These theories commonly ascribe a central role to firms' inflation expectations in deriving a Phillips curve, a predicted relationship linking inflation to the real side of the economy conditional on firms' awareness of inflation (e.g., Friedman, 1968; Phelps, 1968; Lucas, 1972; Coibion, 2010). Recent survey-based evidence suggests the existence of systematic managerial inattention to inflation dynamics (e.g., Coibion et al., 2018, 2020; Candia et al., 2021a,b; Savignac et al., 2021).

This paper extends recent research on managers' inattention to inflation. We complement notable prior work on firms' attitudes toward inflation dynamics (often relying on surveys of relatively small firms), by introducing into this scarce line of research the analysis of inadequate attention to inflation risk and leveraging vast archival data of publicly listed corporations. Specifically, we conduct a systematic analysis of whether managers of U.S. publicly listed corporations adequately disclose inflation risk. We gauge managerial attention to inflation risk through the lens of risk factor disclosure as a mitigating factor in securities lawsuits — managers who are attuned to inflation risk should disclose such risk when necessary to invoke safe harbor protection, even if such risk is fully priced by the stock market. Broadly, we investigate the following research questions employing multivariate regression analysis, difference-in-differences

[3] As of 2019, the median age of a chief executive in the S&P 500 is 58 (e.g., "CEOs Under 50 Are a Rare Find in the S&P 500" (Wall Street Journal, May 22, 2019)), suggesting U.S. executives of the largest corporations experienced the Great Inflation during the earliest 20% of their lifetime history. Such a remote personal experience of hyperinflation is unlikely to trigger high awareness of inflation risk.

[4] For models on the connection between firms' inattention to inflation and macroeconomy, see Sims (2003), Mačkowiak and Wiederholt (2009), Reis (2006), Bhattarai and Schoenle (2014), Pasten and Schoenle (2016), Afrouzi (2020), Afrouzi and Yang (2021), and Yang (2022).

(DiD) analysis, and textual analysis: (1) How pervasive is material inflation risk and does it vary in the cross section of firms? (2) Do managers of firms exposed to material inflation risk adequately disclose this risk in their financial reports? (3) Is there a triggering event causing firms to disclose inflation risk? and (4) What is the shareholders' value destruction in response to simulated scenarios of future increases in inflation?

The first question we address is whether material inflation risk is pervasive and varies cross-sectionally. Economic theory suggests a vast array of factors, whether observable or not, that affect a differential response to inflation on part of firms' financial performance and stock valuation. For example, firms vary with respect to their ability to increase sale prices in response to increased material costs. Regulation also generates differential effects of inflation on firms. For instance, utility firms cannot increase utility prices in response to increased costs without the regulator's approval. Accordingly, to identify the extent to which inflation poses a material risk that varies cross-sectionally based on firms' factors, or determinants, we adopt a shareholder's point of view and define a firm's inflation risk as a firm's shareholders' value destruction in response to an inflation shock.

Indeed, we operationalize a firm's exposure to inflation risk by constructing a metric that focuses on the abnormal stock price impact in response to a shock to inflation expectations. We focus on refined, very short events that accurately capture the time when inflation news is announced to address the concern raised by Fama (1981) that inflation shocks can be correlated with business activities. That is, we measure the short-window change in a firm's abnormal return triggered by unexpected inflation announced during that short window, where unexpected inflation is actual inflation minus the most recent inflation expectation from the Fed's Survey of Professional Forecasters (SPF). We evaluate different options to gauge inflation expectations and choose the SPF expectation for a number of reasons, including its extensive use in the literature as a high quality measure of macroeconomic expectations, its availability at no cost through the Philadelphia Fed's website, and its timing, which is aligned with our research design focusing on the surprise to the equity market when the Bureau of Labor Statistics (BLS) releases its actual inflation rate. To extract the unexpected inflation component, we closely follow the SPF and BLS timelines for releasing macroeconomic data. In external validity analysis, we document that the cross-industry distribution of inflation risk exposure is consistent with expectations on how varying economic forces drive the inflation effect across industries.

We operationalize inflation disclosure as the firm's financial disclosure in its annual report, that is, whether a firm provides any disclosure that mentions inflation-related threats of shareholder wealth in its annual financial reports filed with the SEC. More specifically, we use the SEC Analytics Suite database to collect 65,328 documents consisting of complete textual disclosures, as reported on Item 1A "Risk Factors" in 10-K annual reports filed by all U.S. firms over our sample period. From each Item 1A, we first use textual analysis techniques to extract sentences that could relate to disclosures of inflation-related matters. Indeed, for each firm, we identify all sentences that include one or more keywords related to inflation (e.g., "inflation" and "hyperinflation"). In addition, we manually read each of the inflation-related sentences to exclude those that do not relate to any aspect of inflation risk.

Because inflation can produce a myriad of consequences at both the macro and micro levels, which can result in widely varying contents of disclosures that may not directly mention keywords such as "inflation" but can nonetheless be informative about the impact of inflation on a firm, we evaluate various inflation-related keywords and phrases including those related to "monetary policy risk," "oil and natural gas risk," and topic modeling. We also recognize the theoretical possibility that firms might have hedged inflation risk by using derivative instruments, rendering it unnecessary for such firms to inform investors about their inflation risk exposure.

In the next stage, we conduct a number of analyses to shed light on the inflation disclosure practices of U.S. corporations. As for our main analysis, we investigate whether and how firms exposed to material inflation risk adequately disclose this risk in their financial reports. In particular, we compare the likelihoods of inflation risk disclosure between exposed and unexposed firms to check whether real data accept or reject a credible null hypothesis; that is, inflation-exposed firms are more likely than unexposed firms to disclose inflation risk.

Turning to the results, we find inflation risk is material and pervasive among U.S. publicly listed corporations. Yet, in contrast to the SEC's mandated disclosure of possible market risks, most exposed U.S. corporations do not mention this type of risk in their annual reports. Overall, the major findings can be summarized as follows: (a) About 18% of all sample firms, across almost all industries, are exposed to material inflation risk over the period of 2005 – 2020, and 61% of these high-inflation-risk corporations have never mentioned, even once over the sample period, inflation or inflation-related words in the risk-disclosure section of their

Form 10-Ks (hereafter, we denote firms with material inflation risk that is undisclosed in the financial statements as exposed-nondisclosing); (b) the population of exposed-nondisclosing firms increases to 81% after we allow inflation risk to be time varying; (c) our multivariate regression analysis suggests that exposed and unexposed firms are equally likely to initiate a disclosure of inflation risk, and our inference is robust to using a quasi-natural experiment to identify the causal effect from risk to disclosure; and (d) compared with unexposed firms, exposed firms are neither more likely to mention "monetary policy" and "oil and gas" risks nor more likely to disclose their usage of financial derivatives.

One theoretical possibility is that, in the absence of a strong-form market efficiency, stock prices might not fully reflect managers' private information about the forward-looking risk. To examine this possibility, we compare changes in the likelihood of initiating inflation risk disclosure before and after a securities class action lawsuit, across exposed and unexposed firms. A securities class action is a lawsuit filed by investors who suffer economic damages from firms' alleged misstatements or omissions. If managers of non-disclosing firms are confident about their private information, they will not correct their practices along the dimension of inflation risk disclosure. If, however, the stock-market assessment of inflation risk is mostly correct but managers are inattentive to this risk, following lawsuits, only inflation-exposed corporations are likely to start to disclose such risk.

We find striking evidence that inflation-exposed firms are more likely to disclose inflation risk immediately following a lawsuit relative to other periods and relative to unexposed firm, further supporting our inference of managerial inadequate attention to inflation risk. Compared with other firms, inflation-exposed firms are 1.2% more likely, and significantly so, to start to disclose inflation risk after experiencing a lawsuit, where the economic magnitude is about 36% of the sample mean. In a placebo test, we also find that, subsequent to lawsuits: (a) both exposed and unexposed firms are equally likely to expand the length of the risk section in Item A1, which is consistent with our expectation, and (b) only exposed firms disclose the particular risk of inflation. Together, these results suggest that our measure of inflation risk exposure does not capture other, non-inflation-risk factors that drive the general risk factor section expansion in response to lawsuits. Notably, these results serve as an additional validity that our inflation risk exposure represents what it purports to represent — exposure to inflation risk.

To further check whether managerial attention to inflation risk affects managers' actions,

we use the richness of the linguistic content available from transcripts of firms' earnings conference calls to test whether, after class action lawsuits, managers of inflation-exposed firms communicate more inflation-related topics. Specifically, we perform textual analysis on conference call transcripts to gauge the extent to which managers quantitatively discuss their company's cost trends (e.g., "we anticipate a 5% increase" or "costs will decrease by $1.2 million"). The managerial speech on future costs is measured in a spirit similar to the Atlanta Fed's Business Inflation Expectations survey in which respondents (i.e., firm managers) are asked about their firm's expected unit costs.[5] Using our sample of 83,521 earnings call transcripts, we find that exposed firms' managers are more likely to voluntary discuss certain input costs in earnings conference calls. This result demonstrates that inflation risk disclosure is meaningful because inflation risk disclosure also translates into managers' attention to input costs.

In the last analysis, we evaluate possible damages for shareholders of firms that are exposed to inflation risk but fail to disclose it. Specifically, we simulate scenarios of future possible inflation increases and calculate the shareholders' value destruction in response to the inflation increase in each scenario. We find exposed-nondisclosing firms possess a high possible inflation loss to their shareholders; for example, simulating annual inflation shocks of 2%-6% over the coming three years (2022-2024) reveals an aggregate damage between $0.9 trillion and $2.8 trillion for shareholders of exposed-nondisclosing firms.

Viewed as a whole, our empirical findings suggest that U.S. managers of publicly listed corporations are not fully attuned to inflation risk. Indeed, we show that managers of inflation-exposed firms do not adequately disclose inflation risk, although they are required to do so, and they become more attentive to inflation risk after securities class action lawsuits. Our work contributes to research in finance and economics on inflation, corporate behavior, capital markets, and behavioral finance. For example, by documenting managers' inadequate attention to inflation risk, our work complements the recently burgeoning literature on managerial inattention to inflation dynamics (e.g., Coibion et al., 2018; Candia et al., 2021b) and the notable stream of research on limited attention and information disclosure in capital markets (e.g., Hirshleifer and Teoh, 2003; Hirshleifer et al., 2009, 2011).

[5]For standard questions used by the Federal Reserve Bank of Atlanta, see "Business Inflation Expectations (BIE) Frequently Asked Questions."

2 Literature review

Our study contributes to research in finance and economics in the areas of inflation, corporate behavior, capital markets, and behavioral finance. First, we provide evidence consistent with U.S. managers being not fully attuned to inflation risk. In a related recent research, Coibion et al. (2018) find that New Zealand firms do not perceive inflation as important to business decisions and devote few resources to collecting and processing information about inflation. Coibion et al. (2020) find that providing publicly available information about recent inflation to firms leads them to significantly revise their beliefs, which in turn leads them to increase prices, increase demand for credit, as well as reduce employment and capital. Candia et al. (2021a,b) provide striking evidence on how uninformed U.S. firms, or firms in countries with a history of low inflation, are with respect to both inflation and monetary policy. Savignac et al. (2021) find French CEOs/CFOs have significantly lower inflation expectations than those at lower levels within the firm or with positions unrelated to finance.

As an alternative approach to using surveys, several scholars use structural models and indirect inferences to relate the degree of inattention to inflation. Afrouzi and Yang (2021) analytically derive a flatter Phillips curve with firms being less attentive to inflation. Bhattarai and Schoenle (2014), Pasten and Schoenle (2016), and Yang (2022) examine whether multi-product firms are more attentive than single-product firms. Mačkowiak et al. (2009) examine sectoral variation in the sensitivity of prices to shocks and relate the estimated sensitivity to incentives to pay attention to aggregate shocks. These studies yield results that are consistent with the direct evidence in firm surveys.

Second, our study contributes to finance research on the connection between fluctuations in general price level and capital markets. A large body of the literature examines the relation between inflation and asset price (e.g., Fama and Schwert, 1977; Fama, 1981; Schwert, 1981; French et al., 1983; Chen et al., 1986; Boudoukh and Richardson, 1993; Buraschi and Jiltsov, 2005; Ang et al., 2008; Bekaert and Wang, 2010; Fang et al., 2021), deflation risk (Fleckenstein and Lustig, 2017), the real effect of inflation through nominal liabilities (Kang and Pflueger, 2015; Gomes et al., 2016; Bhamra et al., 2021; Corhay and Tong, 2021), inflation risk and returns of durable goods-producing firms (Eraker et al., 2016), monetary illusion and asset price (Modigliani and Cohn, 1979; Ritter and Warr, 2002; Campbell and Vuolteenaho, 2004; Cohen et al., 2005; Brunnermeier and Julliard, 2008; Basak and Yan, 2010; Braggion et al.,

2022), personal inflation experience and financial-market decisions (Malmendier and Nagel, 2016; Malmendier and Steiny, 2017; Botsch and Malmendier, 2021), inflation expectation and intertemporal household choice (D'Acunto et al., 2020, 2022b,a), inflation and discount rate (Katz et al., 2017), inflation origination and bank regulation (Drechsler et al., 2021), and option-implied inflation uncertainty (Nagel, 2016). Our tight-window event study provides a novel measure for firm-level exposure to macro risks.

Third, our paper relates to influential financial economics research on limited attention and information disclosure in capital markets (e.g., Hirshleifer and Teoh, 2003; Hirshleifer et al., 2009, 2011). For example, Hirshleifer et al. (2012) test whether limited investor attention causes market underreactions. They find that the immediate price and volume reaction to a firm's earnings surprise is much weaker, and post-announcement drift much stronger, when a greater number of same-day earnings announcements are made by other firms. This research mainly focuses on investor attention in the stock market. Our work identifies another dimension of attention, on part of managers, regarding how inflation affects their firms.

Fourth, our paper contributes to understanding the economic consequences of the interaction between inflation and corporate financial reporting. Such research was extensive when inflation spiked in the 1970s – 1980s (e.g., Bernard, 1986), but it has since been relatively scarce, especially given the continued relatively moderate inflation. With the recent renewed increase in inflation, understanding the valuation, disclosure, and other economic consequences of how inflation affects corporate financial numbers is important — these factors tend to rise sharply with the level of inflation. Our paper contributes to this line of research by identifying a material valuation effect of inflation that is not adequately disclosed by many U.S. public corporations.

3 Data

3.1 Sample

Our sample consists of all U.S.-headquartered firms that filed financial reports from January 1, 2005, through April 14, 2021, and with fiscal years spanning 2005 through 2020. We start the sample in 2005 because this year is the first one for which the SEC extended its risk disclosure requirement such that firms are required to discuss "the most significant factors that make the

company speculative or risky" (Regulation S-K, Item 105(c), SEC 2005) in Item 1A of their 10-K annual reports. We exclude firms with market value of equity less than $10 million or with a fiscal-year-end stock price lower than $1 at least once over our sample period.

3.2 Inflation forecasts

We calculate unexpected inflation as actual inflation minus the most recent inflation expectation, which we operationalize using the SPF. We evaluate different options to gauge inflation expectations and choose the SPF expectation for a number of reasons. First, it has been extensively used in the literature as a high quality measure of macroeconomic expectation. Indeed, as stated on the Philadelphia Fed's website, the SPF is the oldest quarterly survey of macroeconomic forecasts in the U.S. In addition, the SPF is available at no cost through the Philadelphia Fed's website, and its timing is aligned with our research design focusing on the surprise to the market when the BLS releases its actual inflation figures. To extract the unexpected inflation component, we closely follow the timeline of macroeconomic data releases. In terms of expectations, the SPF has four surveys per year: first, second, third, and fourth quarter. The survey results of each calendar quarter are released between the middle to the end of the second month within that quarter (see Federal Reserve Bank of Philadelphia, 2021, p. 8).

In terms of actual inflation, the BLS releases its actual inflation realization for each month around the middle of the subsequent month (usually between the 10th and 14th). Hence, to estimate unexpected inflation, we focus on the third month of each calendar quarter and employ the actual inflation announced in the subsequent month minus the most recent SPF expectation that was released in the middle to the end of the previous month.

3.3 Text-based measure of risk disclosure

To identify firms' disclosures of inflation loss risk, we use textual analysis to extract risk factor disclosures appearing in Item 1A of firms' 10-Ks. To do so, we collect 10-K annual reports filed with the SEC using the SEC Analytic Suite platform available through Wharton Research Data Services (WRDS), where we extract reports filed from January 1, 2005, until April 14, 2021. Our textual analysis procedure results in a dataset consisting of 65,328 documents. Figure 1 shows the first page of "Item 1A. Risk Factors" disclosed in Starbucks Corporation

10-K 2019 annual report. Starbucks mentioned inflation loss risks in the second paragraph, titled "economic conditions in the U.S. and international markets that could adversely affect our business and financial results."

From each Item 1A, we extract sentences that include at least one of the following keywords: "inflation," "deflation," "inflationary," "hyperinflation," and "hyperinflationary." We manually read all extracted sentences to exclude those that include our words of interest but do not have a tangible meaning for inflation risk.[6] More specifically, as part of our textual analysis procedure, we also add to our consideration additional keywords and terms such as "product price," "CPI," "consumer price index," "PPI," "producer price index," "output price," "sale price," "service price," "input price," "commodity price," "raw materials price," "purchase price," "supplier price," and "manufacturer price."[7] We then evaluate the validity of our selected keywords/terms by randomly selecting examples from Form 10-K's Item 1A disclosures that include any specific keyword/term, and then manually reading the disclosures to determine whether the keyword/term captures content related to inflation risk. Figure A.1 illustrates several examples of inflation risk factors disclosed by several well-known companies.

3.4 Topic-modeling measures of risk disclosure

We further verify whether our list of keywords fails to identify certain textual parts of Item 1A that include inflation-related disclosures. Specifically, we resort to textual analysis techniques

[6] One example is "payments of approximately 109,000, to be adjusted for inflation in future years."

[7] After checking all the possible keywords/terms, we reach a number of conclusions. First, most of the sentences containing "Consumer Price Index" or "Producer Price Index" simply introduce rate adjustments, indexing methodologies, and/or regulation of the Federal Energy Regulatory Commission (FERC) without mentioning how the fluctuation of prices could affect firms' operating or other risks. For instance: (a) "Reimbursement rates between January 1, 2019 and December 31, 2020 will be set at the current pricing level throughout the United States for all Medicare patients, subject to Consumer Price Index CPI and budget neutrality adjustments." (b) "Under this indexing methodology, pipeline rates are subject to changes in the Producer Price Index for Finished Goods, minus 1%." (c) "In December 2015, FERC amended its regulations to change the index to the Producer Price Index finished goods plus 1.23% effective July 1, 2016." Second, for sentences containing additional related keywords/terms (e.g., "product price," "raw materials price," "commodity price"), our external validity analysis via eyeballing finds they do express concerns that changes in price levels would affect the firm's performance, such as "In the event of significant price increases for raw materials, we may have to pass the increased raw materials costs to our customers," but they do not often explain in the disclosure whether the price fluctuations stem from inflation. Thus, to ensure the accuracy of our textual analysis procedure, we focus only on keywords/terms that truly represent what they purport to represent — disclosure of inflation-related risk. Third, on some occasions the keywords "CPI" and "PPI" have multiple meanings beyond "consumer price index" and "producer price index." For example, they might be abbreviations of firms' names (e.g., Corvus Pharmaceuticals, Inc.) or names of some products (e.g., OTC PPI products). Therefore, identifying which sentence in the market risk disclosure precisely discusses risk-related content driven by "CPI" or "PPI" is difficult. We adjust our keywords to ensure the accuracy of our procedure capturing risk-related content.

and build on the Latent Dirichlet Allocation (LDA) developed by Blei et al. (2003). Collapsing the dimension of linguistic data of Item 1A of 10-K annual reports into the number of topics is meaningful, because the description of various sources of risk factors, contrary to narrative texts such as news, display standardized structures and semantics. Adding a topic to Item 1A means the company faces additional sources of risks. Also, each unique word has a specific legal meaning that identifies one concept contrary to the frequent use of synonyms and rhetorical stylistic tools such as metaphors in narrative texts and news articles (D'Acunto et al., 2021).

We perform the LDA algorithm on the full universe of Item 1A of 10-K annual reports to identify "firms' self-identified risk factors" (topics). Each factor, or topic, is a matrix that contains two types of elements — a set of words that the procedure identifies as related to each other in terms of their meaning, as well as the probability that the word is indeed semantically related to the other words within the topic. Based on word co-occurrences, LDA reduces the dimensionality of linguistic data from words to topics in two steps. First, LDA assumes each section has its own topic distribution, from which a topic is randomly drawn. Second, LDA assumes each topic has its own word distribution, from which a word is randomly drawn from the word distribution of the topic selected in the previous step. The algorithm discovers the topic distribution for each Item 1A and the word distribution of each topic iteratively, by fitting this two-step generative model to the observed words in the sections until it finds the best set of variables describing the topic and word distributions.

Figure A.2 provides a visual representation of 31 risk topics that the LDA identifies. For a criterion, we use the number of topics that minimizes the perplexity score locally, namely, 31 risk topics in our universe of 10-K annual reports (see Blei et al., 2003; Lopez-Lira, 2020; Lopez-Lira, 2021). Each graph in Figure A.2 is a cloud representation of two crucial elements of each risk topic — the words that are related enough to constitute a topic and the probabilities attached to each word (font size). Compared with the 25 risk topics reported by Lopez-Lira (2020), our 31 risk topics are similar in terms of substance.

3.5 Other data

We download data on firms' product-similarity scores from the Hoberg-Phillips Data Library. We collect stock returns, stock prices, and shares outstanding from the daily and monthly stock return datasets from the Center for Research in Security Prices (CRSP). We download

financial and balance sheet variables from Compustat. We download data on securities class action lawsuits from the Audit Analytics Legal case feed, which provides case data on civil litigation filed in federal district court (excluding New Mexico). Information about a company's pending litigation is supplemented with securities class action cases and SEC actions filed after January 2000. We collect the transcripts of earnings calls between 2002 and 2016 from Thomson Reuters' StreetEvents.

4 Material inflation risk: Measurement

We employ an event-study methodology to gauge the extent to which a firm is exposed to material inflation loss risk — its shareholders' value destruction in response to an unanticipated inflation shock.

4.1 Measurement

For the sample period of 2005Q1-2020Q3, we specify the following firm-by-firm regression to (a) identify whether each firm is exposed to material inflation risk and (b) measure the extent to which the firm is exposed:

$$CAR_{i,t} = \alpha + \beta_i \times \textit{Unexpected Inflation}_t + \epsilon_{i,t}, \tag{1}$$

where $CAR_{i,t}$ is the cumulative daily market-adjusted returns for firm i [-1, +1] days relative to the date on which BLS releases the preliminary consumer price index (CPI) corresponding to the third month of quarter t. Our results are robust to using abnormal returns adjusted by the market model, by Fama-French three factors, and by Fama-French/Carhart four factors. $\textit{Unexpected Inflation}_t$ is the actual inflation minus the most recent inflation expectation from the SPF. Because $\textit{Unexpected Inflation}_t$ is expressed in annualized terms but the stock market reacts to quarterly news about inflation, we multiple $\hat{\beta}$ estimated from equation (1) by a factor of 4.[8]

[8] A negative estimated β_i might be driven by some firms benefiting from deflation shocks (i.e., negative unexpected inflation) rather than being hurt by inflation shocks. For a robustness check, we regress the cumulative daily market-adjusted returns on $\textit{Unexpected Inflation} \geq 0$, which is a dummy variable equal to 1 if *Unexpected Inflation* is positive, and 0 otherwise. Our main results are not materially altered by such a change in specification.

Figure 2 plots the time series of actual and expected inflation, as well as forecast errors. Over the period of 1996Q1 - 2020Q3, both actual and expected rates hover around the central bank's inflation target of 2%. Unexpected inflation ranged from -2% to 2%, and positive and negative errors took turns occurring. The number reached unprecedentedly high levels of 2.7% and 2.8% in 2011Q1 and 2020Q3, respectively, and an unprecedentedly low level of -6.6% in 2008Q4.

To ensure our estimates have both statistical power and accuracy, we require each firm to have nonmissing event returns for at least 20 events. We base our statistical inferences on Newey and West (1987) heteroskedasticity- and autocorrelation-consistent standard errors.[9]

Our approach to estimating the impact of unexpected inflation on shareholder value has a number of econometric merits. First, it captures the essence reflected from numerous case studies and news articles describing how unexpected inflation affects valuation. On May 11, 2021, for example, The Dow Jones Industrial Average fell by 2% as higher-than-expected inflation data triggered a massive investor sell-off.[10] Indeed, we measure the most direct effect of unexpected inflation on shareholders' value.

Second, our research design focuses on a tight window for measuring the short-window effect of unexpected inflation on a firm's valuation. Econometrically, the length of our event window involves trading off type I and type II errors. Whereas increasing the event window increases the possibility of adding confounding events (because the longer the event window, the more difficult it is to ensure potential confounding events are controlled for), decreasing the event window increases the power of the examined signal — unexpected inflation — and the validity of unexpected inflation causing the change in firm value (e.g., Summers, 1981; Bernard, 1986). We note that, even though measuring risk exposure over tight windows provides econometric merits, it may also introduce a type II error, namely, that a number of exposed firms are treated as unexposed, either because investors react too early due to predictable inflation forecast errors (e.g., Coibion and Gorodnichenko, 2012, 2015; Jean-Philippe et al., 2019; Bordalo et al., 2020; Afrouzi et al., 2021) or because investors react too late due to a subset of them sluggishly adjusting to inflation news (e.g., Katz et al., 2017). However, our research question

[9]We use 8 lags for the Newey-West procedure. We also examine lags from 4 to 8, all resulting in the same inferences.

[10]For examples of news articles on this matter, see "Dow Tumbles 680 Points in Worst Decline since January as Hot Inflation Reading Spooks Investors" (CNBC, May 11, 2021), and "Inflation Challenges Stock-market Underpinnings as Investors Look Ahead to Fed Meeting" (MarketWatch, September 18, 2021).

concerns the disclosure practices of firms whose stock-price drops are unambiguously triggered by unexpected inflation. In addition, our approach overcomes challenges introduced by possible correlated omitted variables discussed in prior research that attempts to estimate unexpected inflation effects, focusing on long windows such as quarterly or annually (e.g., Fama, 1981; Schwert, 1981; French et al., 1983; Fang et al., 2021). We empirically examine the robustness of our event window choice to include combinations of two to five days prior to the date when unexpected inflation is revealed until two to five after this date, with unchanged inferences throughout.

Third, even though this research design choice operates against us finding more firms exposed to value drops during unexpected inflation episodes in the first and second month of each calendar quarter, we restrict the measurement of unexpected inflation to only focus on actual inflation announced after the end of each calendar quarter (and compared with the last SPF expectation for that quarter). This research design prioritizes using the most accurate measure of unexpected inflation rather than alternative expectations. For this reason, our analysis employs a respected measure of quarterly inflation expectation from the Fed's SPF that is accurate, freely available, and commonly used in academia and practice.

Overall, we follow these conservative research design choices that prioritize accuracy over potentially identifying more firms exposed to inflation, and thus, our analysis provides a lower bound for the actual effects of inflation exposure. In other words, dropping exposed firms because we focus on (a) short window effects and (b) quarterly unexpected inflation operates against us finding a large number of exposed firms.

We next use the following rule to identify a firm's exposure to inflation risk:

$$\text{whether firm is exposed} = \begin{cases} \text{Yes} & \text{if } \beta < 0, \ \text{ t-statistic} < -1.96 \\ \text{No} & \text{otherwise.} \end{cases} \tag{2}$$

In other words, we look for negative coefficients that are significant at the 2.5% level, and we might expect to find about 150 firms misclassified by chance. To alleviate this concern, we also report main results by defining "inflation-exposed" firms if estimated βs in equation (1) are significant at the 1% level, and we arrive at the same conclusion.

Panel A of Table 1 provides descriptive statistics of our estimates on the pooled sample. About 1,114 (18%) firms are exposed to inflation risk over the sample period of 2005Q1 –

2020Q3. The mean (median) of estimated coefficients is -0.796 (-0.711) and the mean (median) of estimated t-statistics is -0.636 (-0.628). The first three columns of Table 2 show substantial variation in exposure rates across Fama-French-48-industry classification. The three most exposed industries are health care (37.6%), agriculture (33.3%), and utilities (29.4%); the three least exposed industries are shipping containers (0%), tobacco products (0%), and aircraft (4.0%). The cross-industry distribution of inflation risk exposure is broadly consistent with real-life intuition, as evidenced by several high profile news articles.[11]

In untabulated tables, we examine whether connections between firms' inflation risk exposure and a set of firm- or industry-level characteristics are in line with theoretical predictions on how unexpected inflation affects the wealth distribution between shareholders and contracting parties (e.g., creditors and consumers) through different mechanisms. Several important patterns emerge. First, firms with rigid output prices, facing more threats from competitors, and operating in the regulated utilities industry are more exposed to inflation risk (e.g., Weber, 2015; Coibion et al., 2018; Afrouzi, 2020; Lin et al., 2021).[12] Second, firms with more maturing debt are less exposed, with negative estimated coefficients as we predict given that inflation erodes the maturing liabilities of firms (e.g., Gomes et al., 2016). However, even though the signs are negative as predicted, these effects are only weakly significant.[13] Third, exposure to inflation risk is decreasing with firm size. Fourth, we find banks are less likely to be exposed because they have high leverage but, due to the so-called Regulation Q, banks do not change deposit rates quite often in response to monetary policy.[14]

In equation (1), we ignore the time-varying nature of risk exposure. However, Boons et al. (2020) find inflation risk premia in the cross-section and the aggregate market vary over time. We now estimate risk exposure on a rolling-window basis. For each firm i from quarter t-19 to t, we estimate the following regression model by extending the sample period to 1996Q1-2020Q3

[11] For examples of anecdotal evidence, see "Where Inflation Is Hitting Hardest: Prices of Groceries, Utilities, Rent Jump" (Wall Street Journal, February 10, 2022); "Farmers Feel the Squeeze of Inflation" (Wall Street Journal, February 15, 2022); "Inflation Gives Big Tobacco a Handy Drag" (Reuters, February 11, 2022).

[12] We thank Michael Weber for sharing his proprietary dataset covering the frequency of price adjustment at the sector level.

[13] To understand the insignificant effect of leverage on firms' exposure to inflation risk, we recognize the fact that leverage has both principle and interest rates, and these two components are affected differently by inflation. Although inflation redistributes wealth from debt holders to equity holders through eroding the principle amount, interest rates might hike as a result of monetary policy tightening. Indeed, most bank loans have floating rates mechanically tied to monetary policy rates (e.g., Faulkender, 2005; Vickery, 2008; Ippolito et al., 2018).

[14] The original rule was created in 1933, in accordance with the Glass-Steagall Act. The regulation imposed binding deposit rate ceilings on savings deposits (e.g., Drechsler et al., 2021).

so that the rolling-window estimates are available for firms starting from 2005Q1:

$$CAR_{i,t} = \alpha + \beta_{i,t} \times Unexpected\ Inflation_t + \epsilon_{i,t}, \tag{3}$$

where $\beta_{i,t}$ is the estimated risk exposure. We identify whether a firm is exposed to material inflation risk as of year t by the following rule:

$$\text{whether firm is exposed in year } t = \begin{cases} \text{Yes} & \text{if } \beta_{i,t} < 0, \ \text{t-statistic} < -1.96 \\ \text{No} & \text{otherwise.} \end{cases} \tag{4}$$

Panel B of Table 1 provides descriptive statistics of our estimates on the pooled sample. The last three columns of Table 2 again verify the substantial variation in exposure rates across the Fama-French-48-industry classification, and the pattern is similar to the distribution drawn from the static estimates following equation (1).

5 Inadequate disclosure of material inflation risk

5.1 Descriptive statistics

Before moving on to the regression analysis, we first present some descriptive statistics to better understand raw data. In Panel A of Table 3, we tabulate the composition of sample firms based on their non-time-varying inflation risk exposures. Out of 6,289 firms, 1,114 (17.7%) are exposed to material inflation risk, but the remaining 5,175 are not. Next, we tabulate the composition of exposed firms based on whether they disclose inflation risk in their financial reports. Out of 1,114 exposed firms, 680 (61%) have never mentioned inflation in Item 1A of 10-K annual reports, whereas 434 (39%) have mentioned inflation at least once. We also obtain the composition of unexposed firms based on disclosure status. Out of 5,175 unexposed firms, 2,205 firms (42.6%) mention words/phrases about inflation risk in their financial reports at least once. Our untabulated statistics suggest exposed and unexposed firms exhibit a similar tendency to include inflation as a risk factor in Item 1A.

The first column of Table A.1 presents a list of 30, of the largest exposed firms that have disclosed inflation risk at least once over the sample period of 2005-2020. The rank is based on market capitalization as of the end of fiscal year 2019. We observe several popular firm names

(e.g., COMCAST, IBM, T-Mobile, United Parcel Service, and Duke Energy) operating in a wide variety of industries. The second column of Table A.1 lists the 30 largest exposed firms that have not included any inflation-related words in Item 1A by the end of 2020. Examples of such firms include AT&T, Verizon Communications, CVS Health, Automatic Data Processing, and Johnson Controls.

In Panel B of Table 3, we also tabulate the composition of exposed firms based on whether they are exposed to time-varying inflation risk. Out of 49,342 sample units (firm-year observations), we identify 6,817 exposed units, and the remaining 42,525 are unexposed units. We then tabulate the composition of sample units based on whether they have disclosed inflation risk in quarter t. Out of 6,817 exposed firm-year observations, only 1,287 (18.9%) have exposed units disclosed inflation risk as of quarter t, whereas 5,530 (81.1%) do not disclose. As for unexposed units, 21% of them disclosed inflation risk, but untabulated results suggest the difference in disclosing rates between exposed and unexposed units is not statistically different from zero.

5.2 Regression analysis

We focus on the sample period post the Regulation S-K. The SEC mandate took effect for fiscal years ending after December 1, 2005. We stratify our sample into pre- and post-mandate periods based on whether firms' 2005 fiscal year ended before or after December 1, 2005. Specifically, for firms with a fiscal year-end from December to May 2005, fiscal year 2005 is set as the first year in which Regulation S-K is binding; for firms with a fiscal year-end from June to November 2005, fiscal year 2006 is set as the first year.

We estimate the following regression model to gauge the mapping between return-based risk exposure and text-based risk disclosure:

$$FirstInflation_{i,t} = \alpha + \beta_1 \times InflationExposure_{i,t} + X'_{i,t} \times \theta + \gamma_j + \gamma_t + \epsilon_{i,t}, \tag{5}$$

where $FirstInflation_{i,t}$ is a dummy variable equal to 1 if firm i mentions inflation for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. Because of the boilerplate nature of risk factor disclosure (e.g., Campbell et al., 2014; Lopez-Lira, 2021), as well as a time persistent feature of firm-level characteristics (e.g., Cohen et al., 2020), we focus on

the determinant of firm i's *initiation* of inflation risk disclosure.[15] That is, are firms more likely start to disclose inflation risk when they are more exposed? If yes, we expect the estimated β_1 to be positive.

Because the main independent variable of our interest ($InflationExposure_{i,t}$) is estimated from equation (4), we bootstrap the standard errors by resampling observations (with replacement) from the data in memory 200 times. We draw the cluster units with replacement at the level of Fama-French-48-industry classification.

Column (1) of Table 5 presents results from this regression analysis. In our sample, 13.7% of firms are exposed to material inflation risk as identified by equation (4). The estimated coefficient of *InflationExposure* is -0.003 (t=-1.26), suggesting a virtually zero contemporaneous relation between inflation risk exposure and an initiation of inflation risk disclosure.

The result in column (1), however, might be contaminated by an omitted-variable bias. We add several sets of control variables, and Table 4 provides descriptive statistics of these variables.

The first set is a forecast-dispersion variable with quarterly horizons of t+1, t+2, and t+3. Dispersion is the 75th percentile minus the 25th percentile of the forecasts for levels of the CPI. Forecast dispersion has been used as a direct measure of market-perceived inflation risk (e.g., Cukierman and Wachtel, 1979; Zarnowitz and Lambros, 1987; Hong et al., 2017). The second set is motivated by the idea of "nominal contracts" (French et al., 1983). To the extent that normal assets and liabilities often do not have inflation-adjustment clauses, unexpected inflation affects the wealth distribution between contracting parties. We use long-term debt, because inflation erodes the real value of long-term debt to benefit shareholders (Gomes et al., 2016; Corhay and Tong, 2021). We also use short-term monetary position, property, plant, and equipment (PPE), and inventory.

The third set relates to competition. Firms operating in industries with different levels of competition have different abilities/incentives to insulate profits from inflation shocks.[16] Competition is also a key determinant of whether firm managers are informed about inflation (Afrouzi, 2020; Coibion et al., 2018). The first is a text-based measure of product similarity used by Hoberg et al. (2014) to assess the degree of substitution across products. The second

[15] Eighty percent of firms in our sample never withdraw an inflation risk disclosure after the initiation; since its initiation, more than 90% firms have maintained the inflation risk disclosure over 75% of their Compustat life.
[16] For related studies, see Carlton (1986), Neumark and Sharpe (1992), Borenstein et al. (1997), and Peress (2010).

is the Herfindahl-Hirschman Index (HHI). The third is profitability. Firms with higher profit margin are likely to have higher market power to pass inflation shocks to consumers.

The fourth set accommodates firm-level characteristics that are associated with risk disclosures in general (e.g., Glaeser, 2018; Hail et al., 2021; Florackis et al., 2022), including firm size, book-to-market, R&D intensity, missing R&D reporting, the presence of institutional blockholders, and whether the firm is an S&P 500 constituent.

Fifth, we include year fixed effects (γ_t) to absorb time-varying macro shocks, as well as Fama-French-48-industry fixed effects (γ_j) to absorb time-invariant unobservables. For example, price rigidity — firms' inability to reset product prices — is a persistent industry-level characteristic (e.g., Nakamura et al., 2016; D'Acunto et al., 2018).

Column (2) of Table 5 reports our estimation from the multivariate regression analysis. Again, the sign of *InfaltionExposure* is negative but not statistically significant, and the economic magnitude is close to zero, suggesting the estimation in column (1) is less likely to be biased by omitted variables. As for our proposed sets of control variables, most of them fail to explain the likelihood of firms introducing an inflation risk factor into 10-K files. Exceptions are three-quarter-ahead dispersion of CPI forecasts (positive connection), product similarity (positive connection), R&D (negative connection), and missing R&D reporting (negative connection).

In columns (1)-(2) of Table A.2, we repeat the same analysis in equation (5) but redefine "inflation-exposed firms" if negative coefficients ($\beta_{i,t}$) estimated from equation (3) are significant at the 1% level (t-stat $\leq$ 2.57). Although by doing so we end up with 7.34% exposed firm-year observations, we still find exposed firms are not more likely than unexposed firms to disclose inflation risks.

Disclosure of monetary policy risk. We now examine the possibility that our text-based measure might omit some indirect inflation-related textual parts of Item 1A that are (a) related to risks caused by inflation but (b) do not use a word/phrase directly related to inflation. The basic idea is that inflation can produce a myriad of consequences at both the macro and micro levels, which can result in widely varying contents of disclosures that may not directly mention keywords such as "inflation" but can nonetheless be informative about the impact of inflation on a firm. Thus, in addition to considering various inflation-related keywords and phrases, we

address indirect keywords and phrases related to monetary policy risk.

Specifically, when inflation increases above the U.S. central bank's target rate, the Federal Reserve increases interest rates to influence the real economy (e.g., Romer and Romer, 2004; Coibion, 2012).[17] Because stock prices plummet in anticipation of monetary policy tightening, shareholders experience a loss of wealth. We extract sentences from Item 1A consisting of at least one keyword from the keywords list including "monetary policy," "money (or monetary) supply," "fed," "federal reserve," "central bank," "federal funds rate," "federal open market committee," "fomc," "overnight (financing or funding or finance) rate," "london interbank offer rate," and "libor." Figure A.3 illustrates several examples of monetary-policy-risk-related risk factors.

Columns (3)-(4) of Table 5 report our estimates of the effect of inflation risk exposure on the likelihood of firms initiating monetary policy risk disclosures. The estimates suggest exposed firms do not omit the inflation risk factor in Section A1 because they have disclosed monetary policy risk. In columns (3)-(4) of Table A.2, we repeat the estimation but require exposed firms to have βs that are significantly negative at the 1% level. We reach the same conclusion.

Disclosure of oil & natural gas risk. Our *Unexpected Inflation* in equation (3) is the unexpected headline inflation that consists of two surprise components — unexpected changes in core inflation and energy cost (e.g., oil and natural gas). Fang et al. (2021) decompose headline inflation into core and non-core components and find core and energy inflation series have different statistical and economic properties. These authors also show that at the portfolio level, only core inflation carries risk. At the level of individual stocks, however, the negative stock-price reaction to unexpected inflation is likely driven by firms' exposure to energy-cost risk, and if exposed firms do disclose oil & gas risks, we cannot conclude that managers ignore inflation risks.

To check whether inflation-exposed firms disclose risk factors related to energy costs, we extract sentences from Item 1A consisting of at least one keyword from the keywords list including "price of oil," "price of crude oil," "oil price," "crude oil price," "price of natural gas," "natural gas price," "price of petroleum products," "petroleum price," "fossil gas price,"

[17] "Prepare for an Unsettling Monetary Tightening Cycle" (Wall Street Journal, January 27, 2022).

"price(s) of fossil gas," "price(s) of fuel oil," and "fuel oil price." Figure A.4 illustrates several examples of oil & gas risk factors.

Columns (5)-(6) of Table 5 report the regression estimates of the effect of inflation risk exposure on the likelihood of firms including oil & gas risk factors into their annual reports for the first time. We find little support for the notion that exposed firms disclose oil & gas risks in response to their inflation risk exposures. We obtain similar results from columns (5)-(6) of Table A.2, where we use a stricter criterion to select inflation-exposed firms.

Disclosure of financial derivative instruments. Another alternative explanation for our findings is that exposed firms do not disclose, because they have hedged against inflation risk by using financial derivatives, and according to disclosure standards, such firms should have disclosed hedging positions in their financial statements.

We therefore also examine the theoretical possibility that exposed firms do not disclose material inflation risk, because they have hedged against this risk via their use of financial instruments such as derivatives. In fact, prior research shows cases of firms hedging market risks; for example, managers of oil- and gas-producing firms use derivatives to hedge oil-price risk (Pincus and Rajgopal, 2002). Furthermore, according to disclosure standards, firms that engage in hedging activities are, for the most part, required to disclose their hedge positions in their financial statements.[18]

In columns (7)-(8) of Table 5, we confirm that exposed and unexposed firms are equally likely to report hedging activities in financial statements. Our results are not materially altered if we set a stricter criterion to select inflation-exposed firms (see columns (7)-(8) of Table A.2). Indeed, much of the risk that non-financial firms face cannot be managed through derivatives, suggesting firms might use derivatives for purposes other than those predicted by traditional risk management theory (e.g., Brown, 2001; Guay and Kothari, 2003). In particular, Fang et al. (2021) document that inflation-hedging properties of conventional "real assets" provide almost no protection against the core inflation risk.

Disclosure with longer horizons. In Table 6, we repeat the same procedure as in equa-

[18]Issued in 1994, the Statement of Financial Accounting Standards No. 119 (SFAS 119) reads, "Disclosure about derivative financial instruments and fair value of financial instruments" requires disclosures about derivative financial-instruments-futures, forward, swap, and option contracts, and other financial instruments with similar characteristics.

tion (5) but estimate the effect of inflation risk exposure as of year t on disclosures for inflation risk, monetary policy risk, oil & gas risk, and financial derivatives in year t+1, t+2, and t+3, respectively. Viewed as a whole, Table 6 suggests firms' inflation risk exposure predicts neither future disclosure of this risk nor future disclosures along other dimensions, which high inflation might draw attention to.

5.3 Does exposure intensity explain disclosure intensity?

In the main analysis, we find firms' inflation risk disclosure is unrelated to whether they are exposed to material inflation risk. In this section, we check whether disclosure responds to the extent to which firms are exposed — the size of a stock-price drop for exposed firms that corresponds to a one-unit increase in unexpected inflation.

We estimate the following regression model only on inflation-exposed sample units:

$$FirstInflation_{i,t} = \alpha + \beta_1 \times SizeInflationExposure_{i,t} + X'_{i,t} \times \theta + \gamma_j + \gamma_t + \epsilon_{i,t}, \tag{6}$$

where *SizeInflationExposure* is the absolute value of $4 \times \hat{\beta_{i,t}}$ estimated from equation (3).

As Panel A of Table 7 suggests, the likelihood that exposed firms initiate the disclosure of various related risk factors as of year t, including inflation, monetary policy, and oil & gas, does not increase with the extent to which firms are exposed in year t. In addition, more exposed firms are also not more likely than less exposed firms to disclose financial derivatives. In addition, firms' future disclosure practices do not respond to the size of current risk exposure (see Panels B-D of Table 7).

Table A.3 reports our reestimation of equation (6) except that we regard coefficients (β) estimated from equation (4) to be negative if they are significant at the 1% level. Although the size of the regression sample shrinks by 47% compared with Table 7, we fail to detect any systematic patterns suggesting a positive contemporaneous, or lead-lag, correlation between the size of risk exposure and the likelihood of firms initiating risk factor disclosures that are related to inflation.

5.4 Regulation S-K

An emerging body of literature suggests investors are uninformed about firm specific exposures to systematic risk, and hence, risk factor disclosures change firms' expected return (e.g., Heinle et al., 2018; Cohen et al., 2020; Beyer and Smith, 2021). In this section, we show our main results hold even if we exclude the possibility that risk factor disclosures have real effects on asset prices.

Specifically, we identify a causal effect from risk to disclosure by exploiting Regulation S-K as a quasi-natural experiment. To do so, over the period of 1996-2005, we estimate firms' exposure to inflation risk prior to Regulation S-K (pre-regulation risk exposure). Before 2005, Item 503(c) of Regulation S-K was not mandated and almost no firms disclosed any risk factors. Our estimates suggest that during 1996-2005, about 8.6% of sample firms were exposed to material inflation risk. As Table A.4 suggests, the mean (median) of estimated coefficients is -0.153 (-0.102) and the mean (median) of estimated t-statistics is -0.159 (-0.183).

In Panel A of Figure 3, we first compare the likelihoods of firms initiating inflation risk disclosure before and after Regulation S-K, across exposed and unexposed firms. We plot the time series of disclosure frequencies (*InflationDisclosure* in Table 4) following Regulation S-K. About 10% of inflation-exposed firms and 14% of unexposed firms mentioned inflation in Item 1A of their 10-Ks in the first year after the regulation. The two trends of disclosure frequencies converge until the fifth year and onwards.

In Panel B of Figure 3, we next employ a DiD research design to estimate firms' propensity to initiate inflation risk disclosure in response to their inflation risk exposures during 1996-2005. Specifically, we plot $\hat{\beta}$ and the 95% confidence interval estimated from the following regression model. Circles represent the estimated β. The segments around each point represent two-standard-error confidence bounds:

$$\begin{aligned} FirstInflation_{i,t} = \alpha + \sum_{t=-5}^{5} \beta_t \times \underbrace{InflationExposure_i}_{1996-2005} + \delta \times \underbrace{InflationExposure_i}_{1996-2005} \\ + X_i' \times \theta + \gamma_t + \gamma_j + \epsilon_{i,t}, \end{aligned} \tag{7}$$

which estimates event-year-specific coefficients of $\underbrace{InflationExposure_i}_{1996-2005}$ for five years before and five years after the regulatory mandate. We drop the interactions with event year 0, which serves

as the base period. Thus, the estimated β coefficients represent the change in the difference between treatment (i.e., firms exposed to inflation risk over 1996 – 2005) and control (i.e., firms not exposed to inflation risk over 1996 – 2005) groups between event year and the given period. γ_t and γ_j are event-year and industry fixed effects.

Panel B shows, unsurprisingly, that the pre-trend between the exposed and unexposed firms is parallel and those estimated $\hat{\beta}$s are virtually zero, because the entire risk-factor section was introduced only after Regulation S-K. However, $\hat{\beta}$ is not statistically different from zero even after the event year, suggesting exposed and unexposed firms exhibit a similar tendency of to initiate inflation risk disclosure after the mandate.[19]

In Panel A of Figure 4, we repeat the same analysis in Figure 3 but to compare the likelihoods of firms initiating monetary policy risk disclosure before and after Regulation S-K, across exposed and unexposed firms. In Panel B of the figure, we fail to reject the null hypothesis that any of the estimated β differ from zero, either economically or statistically, after Regulation S-K.

In Panel A of Figure 5, we show the treated and control groups had the same tendency to discuss oil & natural gas in Item A1 following the regulatory mandate. Although disclosure rates experienced a spike during the event year, the difference between exposed and unexposed firms is zero. In Panel B, our DiD estimates suggest firms were not more likely to disclose oil & gas risks if they were exposed to inflation risk during 1996-2005.

In Figure 6, because firms started to report unrealized derivative gains or losses well before 2005, a jump in the disclosure likelihood occurred four years prior to Regulation S-K. However, disclosures by exposed and unexposed firms followed the same time trend from event year -4 until year +10. In Panel B, DiD estimates suggest a "post-shock parallel trend" — exposed and unexposed firms are equally likely to report hedging activities after Regulation S-K.

6 Extensions

In this section, we first show that managers of inflation-exposed firms are more likely to initiate inflation risk disclosure after being used in a securities class action lawsuit. We then show that after a lawsuit, managers of exposed firms are more likely to quantitatively discuss their own

[19] Occasionally, several firms voluntarily added a risk factor section before Regulation S-K, and hence, also mentioned inflation-related risk. For this reason, the size of the point estimate is not zero in year t=-1.

firms' input costs. Lastly, we estimate the aggregate valuation destruction for shareholders of inflation-exposed firms over the coming next three years.

6.1 Securities class action lawsuits

A securities class action is a lawsuit filed by investors who bought (or sold) a firm's publicly traded securities within a "class period" and suffered economic injury as a result of violations of the securities laws. In cases involving misleading statements or omissions, a class period starts when a firm makes an untrue statement of material fact; the period ends when the truth is fully disclosed to the public. The statement, or action, that reveals the truth related to a specific alleged misstatement or omission is known as a "corrective disclosure."

We examine whether managers of inflation-exposed firms start to disclose inflation risks after firms face class action lawsuits. We do not distinguish between cases that are settled, dismissed, or ongoing, because our primary purpose is to test whether managers become aware of omitted risk factors after litigations. Even if plaintiffs abuse the class-action system by bringing low quality cases against firms, and such meritless litigations are ex-post dismissed by the court, these legal events are still salient enough to direct managers' attention toward inflation or sober, and thus discipline, their reporting behavior (e.g., D'Acunto et al., 2022).[20]

Specifically, we estimate the following regression model:

$$\begin{aligned} FirstInflation_{i,t} = \alpha + \beta_1 \times InflationExposure_{i,t} + \beta_2 \times InflationExposure_{i,t} \times \\ Lawsuits_{i,t} + \beta_3 \times Lawsuits_{i,t} + X'_{i,t} \times \theta + \gamma_j + \gamma_t + \epsilon_{i,t}, \end{aligned} \tag{8}$$

where $Lawsuits_{i,t}$ is a dummy variable equal to 1 if firm i is sued in a securities class action lawsuit either during year t or year t-1, and 0 otherwise.[21] Note our empirical design does not make the implausible assumption that the timing of lawsuits is randomly assigned, which would suggest lawsuits are shocks exogenous to firm-level unobservable characteristics. Instead, our design studies the differential reactions to lawsuits across exposed and unexposed firms that face similar unobservables that attract lawsuits (e.g., Kim and Skinner, 2012). If we wanted to

[20] A more recent illustration is the Lawsuit Abuse Reduction Act (LARA) of 2017, which aimed at curbing meritless litigation by holding plaintiff lawyers accountable for the cases they bring (Seligman, 2004; Kempf and Spalt, 2022).

[21] Between 1997 and 2020, 14,588 class actions were filed, and during the period of 2005-2020, about 27% of sample firms were sued in a securities class action lawsuit at least once.

interpret our results in a causal way, we would need to assume the lawsuit events are exogenous.

A remaining concern with the design in equation (A.3) is that exposed and unexposed firms might differ in many aspects, which might trigger different reactions to lawsuits. The most likely case is that exposed and unexposed firms operate in different industries. To tackle this concern, we account for systematic differences within industry by years to control for different industry-level business cycles and economic shocks.

The first three columns of Table 8 compare corrective inflation risk disclosures between exposed and unexposed firms after facing class action lawsuits. Strikingly, compared with unexposed firms, exposed firms are 1.2-percentage-points more likely to initiate inflation risk disclosure in year t, and the economic magnitude is 37% of the sample mean.

One alternative hypothesis is that our estimates of inflation risk exposure might capture firms' exposure to other macro risks, and hence, for precaution, managers insert all related boilerplate paragraphs into Item A1 of an annual report. We therefore examine whether changes in the length of Item A1 differ across exposed and unexposed firms. In columns (4)-(6), we estimate the following regression model:

$$\begin{aligned} \Delta Length \geq 15\%_{i,t} = \alpha + \beta_1 \times InflationExposure_{i,t} + \beta_2 \times InflationExposure_{i,t} \times \\ Lawsuits_{i,t} + \beta_3 \times Lawsuits_{i,t} + X'_{i,t} \times \theta + \gamma_j + \gamma_t + \epsilon_{i,t}, \end{aligned} \tag{9}$$

where $\Delta Length \geq 15\%_{i,t}$ is a dummy variable equal to 1 if firm i experiences more than a 15% change in Item 1A of the 10-K annual report from fiscal year t-1 to t, and 0 otherwise.[22] As columns (4)-(6) show, although Item A1 on average indeed grows in year t relative to t-1, exposed and unexposed firms experience the same likelihood of such growth, suggesting our results in columns (1)-(3) are not driven by managers boilerplating non-inflation-related sentences into Item A1.

6.2 Managerial conference-call speech

The results in Table 8 do not tell us whether managers' awareness of inflation risk translates into managers' attention to firm operations that inflation might affect. Ultimately, policymakers care about managerial attention to inflation, because models predict that their attention affects

[22] This number is located at the 75th percentile of the sample distribution. Our results are similar if we use other cutoffs (e.g., mean and median).

firm decisions (e.g., Coibion et al., 2018; Kumar and Wesselbaum, 2021).

To shed light on the issue, we resort to rich linguistic content from conference call transcripts. A conference call is a teleconference, or webcast, through which security analysts have access to management's private information. The prescriptions of Regulation FD require public firms to use conference calls to prompt documentation and dissemination of material information to all analysts. Managerial discussions during conference calls provide us a unique setting to gauge the mapping between their attention to inflation risk and their incentives to collect and process information about inflation.

We construct a text-based measure of managerial attention to changes in firms' input costs to match with the spirit of the Atlanta Fed's Business Inflation Expectations survey in which respondents (firm managers) are asked about what will happen to their firm's unit costs.[23] Following several criteria, we count the number of sentences from each transcript that are related to a manager's outlook for the input cost of his own company. First, the cost-related-word list includes "cost(s)," "expense(s)," "expenditure(s)," "spend," and "spending." Because we focus only on managers' discussion about input costs, we exclude wordings indicating expenses related to "capital expenditure," "compensation," "mergers and acquisitions," and "pensions." Second, cost-related sentences are in future tense. Third, we require exact numbers to be paired with cost-related words. For example, the sentence "we obviously will have an input cost inflation of about 3% to 4% throughout the Group" satisfies our criteria. Figure 7 lists 10 sentences, extracted from 10 distinct conference call transcripts, that satisfy our searching criteria.

We estimate the following regression model:

$$\begin{aligned} CostDiscussion_{i,n,t} = \alpha + \beta_1 \times InflationExposure_{i,t} + \beta_2 \times InflationExposure_{i,t} \times \\ Lawsuit_{i,t} + \beta_3 \times Lawsuit_{i,t} + X'_{i,t} \times \theta + \gamma_i + \gamma_t + \epsilon_{i,n,t}, \end{aligned} \tag{10}$$

where $CostDiscussion_{i,n,t}$ is a dummy variable equal to 1 if managers of firm i quantitatively discuss their own companies' future input costs during the presentation session of the nth earnings conference call hosted by the firm in year-quarter t, and 0 otherwise.[24]

Table 9 reports the descriptive statistics on the conference-call-transcript sample over the

[23] For standard questions used by the Federal Reserve Bank of Atlanta, see "Business Inflation Expectations (BIE) Frequently Asked Questions." For related literature, see Afrouzi and Yang (2021).

[24] To prevent calls with unusual lengths from influencing our results, we exclude scripts with less than 500 words and scripts with more than 5,000 words. Our results are similar if we impose other cutoffs.

period of 2002-2016. About 12.6% of sample units are exposed to inflation risk according to equation (4), 10.2% of sample units are targeted by lawsuits in either year t or t-1, 17% of calls contain contents about managers' quantitative discussion about future input costs, and the length of presentation sessions is 2,800 words, on average.

The first three columns of Table 10 report estimates of the effect of lawsuits on the likelihood that managers quantitatively discuss own company's future input costs. In column (1), the interaction term *InflationExposure* × *Lawsuit* is strongly positive and the economic magnitude is such that managers of exposed firms are 3.7-percentage-points more likely to discuss future input costs. This number is about 22% of the sample mean. In column (2), we further control for industry-time fixed effects, and the estimates remain similar. In columns (3)-(4), we exclude the possibility that our results in columns (1)-(2) are driven by managers of inflation-exposed firms discussing more issues in general, which is measured by a change in the length of a presentation session.

6.3 Value-destruction analysis

Our last effort is to project shareholders' value destruction due to an unexpected rise in inflation. Since the Securities Act of 1933, the SEC has stepped in when the need for the disclosure of information relevant to investors' decisions is significant. The projection serves the purpose of estimating an aggregate "litigation bill" public companies would receive if the SEC were to mandate inflation risk disclosure over the coming years.[25] However, because securities class action lawsuits rarely go to trial, court practices rarely address directly how damages are calculated. Despite this challenge, event-study analysis is the court-accepted methodology for evaluating the degree of informational efficiency — the difference between the defendant company's actual stock price and what the price would have been absent the alleged fraud — during an alleged class period.

For firms exposed to material inflation risk but that have not yet disclosed it by the fiscal end of 2020, we estimate the dollar amount of their aggregated value to be destructed by unexpected inflation over different horizons. Due to the recent debate on how much inflation

[25]For example, pressed by investors, the SEC recently proposed mandating climate-risk disclosures by public companies (e.g, "Statement on Proposed Mandatory Climate Risk Disclosures" (US. Securities and Exchange Commission, March 21, 2022). Lawyers said the proposal could be a potential source of securities fraud litigation, which targets companies over alleged lies or even half-truths told to the investing public (e.g, "SEC Climate Disclosure Proposal Looms as Litigation Risk" (Wall Street Journal, March 26, 2022).

can be generated under the Biden administration's $1.9 trillion coronavirus relief plan (e.g., Ball et al., 2021; Blanchard, 2021; Gagnon, 2021; Daly and Chankova, 2021; D'Acunto and Weber, 2022), we choose a maximum of a three-year horizon to match the expected duration of the temporary pandemic relief package currently being implemented. We vary unexpected inflation rates from 2% to 6% per annum, which corresponds to 0.5% to 1.5% at the quarterly basis. We emphasize the upside risk that unexpectedly high inflation would jeopardize shareholder value. We set the lower bound at 2% based on the IMF's estimates that median CPI inflation would increase to 2.4% by 2023 (Ball et al., 2021). Inflation, however, could increase substantially more than what is estimated by the Phillips curve. For example, Blanchard (2021) argues the sharp fall in unemployment could de-anchor inflation expectations and steepen the Phillips curve, resulting in a self-perpetuating increase in inflation. Blanchard (2021) cites the example of the 1960s, when unemployment persisted below its natural rate and inflation rose from below 2% in 1961 to nearly 6% by 1969.

In Table 11, we tabulate the projected value destruction in different hypothetical scenarios. Specifically, we simulate scenarios of inflation increases over the next three years to estimate an aggregate litigation bill for exposed-nondisclosing firms. To do so, we follow a number of steps, with the goal of estimating the aggregate shareholders' value decrease in response to unexpected inflation. First, for firms exposed to inflation risk in their last fiscal year covered by Compustat, we separately aggregate market values (measured as of December 31, 2020) for disclosing and nondisclosing stocks. As shown by the columns titled "Calibration Parameters for Destruction Analysis," as of December 31, 2020, the exposed nondisclosing and exposed disclosing portfolios are valued at $4,017 billion and $500 billion, respectively. Second, we average stock-price-response coefficients to unexpected inflation (see equation (4)) across stocks within each portfolio. As the numbers suggest, a 1% increase in unexpected inflation on average reduces value by 4.78% and 4.16%, respectively, for nondisclosing and disclosing portfolios.

We illustrate our calculation using two extreme values of unexpected inflation. A 2% increase in inflation reduces the value of exposed nondisclosing portfolios by $384 billion (= 2% × -4.78 × 4,017) within one year, by $768 billion within two years, and by $1,152 billion within three years. A 6% increase in inflation reduces the value of exposed nondisclosing portfolios by $1,152 billion (= 6% × -4.78 × 4,017) within one year, by $2,304 billion within two years, and by $3,456 billion within three years.

Table 11 suggests inflation shocks of 2%-6% over the coming three years will cause an aggregate loss of between $0.9 trillion and $2.8 trillion for shareholders investing in firms that are exposed to inflation risk but have not disclosed such risk as of 2020.

7 Conclusion

This paper addresses the following main question: Are public U.S. corporations exposed to inflation risk disclosing it in their financial reports, as required by the SEC? This question is of major importance, especially today when actual and expected inflation are rattling economies and capital markets around the globe.

We investigate managerial attitudes toward inflation risk through the lens of financial disclosure, by using archival records of U.S. public firms over the past 15 years. We find inflation risk — measured by a stock-price drop in response to unexpected inflation — is material and pervasive among major U.S. corporations. Yet, most of these exposed corporations do not disclose this risk in the risk-disclosure section of their annual financial statements as required by the SEC, and exposed firms are not more likely than unexposed firms to initiate the disclosure of inflation risk. Notably, exposed firms are more likely to initiate inflation-risk disclosures and pay more attention to the trend of input costs after being sued in a securities class action lawsuit.

Among other contributions to research on inflation, capital markets, behavioral finance, and risks exposing the corporate sector of the macroeconomy, we complement two research streams. First, we extend research on limited attention and information disclosure in capital markets (e.g., Hirshleifer and Teoh, 2003; Hirshleifer et al., 2009, 2011) by identifying another dimension of attention, on part of managers, regarding how inflation affects their firms. Second, we extend recent research on managers' inattention to inflation. Specifically, we find firm managers do not disclose inflation risks, complementing recent research on managerial attention to inflation dynamics (e.g., Coibion et al., 2018; Candia et al., 2021b). Our empirical results may suggest that central banks' communication and forward guidance are not effective in managing firms' inflation expectations. This issue has been increasingly important since the onset of the effective lower bound on policy interest rates, which spurs policymakers' and academics' interest in policies that operate through expectations channels.

A possible fruitful future research direction, which is outside the scope of the current paper, could be to examine whether managerial inattention to inflation risk translates into firm-level intertemporal decisions, including product pricing, hiring, capital investment, and financing (e.g., Weber et al., 2022).

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Figure 1: **Excerpt from Item 1A: Risk Factors in Starbucks Annual Report**

Item 1A. ***Risk Factors***

You should carefully consider the risks described below in addition to the other information set forth in this Annual Report on Form 10-K, including the Management's Discussion and Analysis of Financial Conditions and Results of Operations section and the consolidated financial statements and related notes. If any of the risks and uncertainties described in the cautionary factors described below actually occur or continue to occur, our business, financial condition and results of operations, and the trading price of our common stock could be materially and adversely affected. Moreover, the risks below are not the only risks we face and additional risks not currently known to us or that we presently deem immaterial may emerge or become material at any time and may negatively impact our business, reputation, financial condition, results of operations or the trading price of our common stock.

- ***Economic conditions in the U.S. and international markets could adversely affect our business and financial results.***

As a retailer that is dependent upon consumer discretionary spending, our results of operations are sensitive to changes in or uncertainty about macro-economic conditions. Our customers may have or in the future have less money for discretionary purchases and may stop or reduce their purchases of our products or switch to Starbucks or competitors' lower-priced products as a result of various factors, including job losses, inflation, higher taxes, reduced access to credit, changes in federal economic policy and recent international trade disputes. Decreases in customer traffic and/or average value per transaction without a corresponding decrease in costs would put downward pressure on margins and would negatively impact our financial results. There is also a risk that if negative economic conditions or uncertainty persist for a long period of time or worsen, consumers may make long-lasting changes to their discretionary purchasing behavior, including less frequent discretionary purchases on a more permanent basis or there may be a general downturn in the restaurant industry.

- ***Our success depends substantially on the value of our brands and failure to preserve their value could have a negative impact on our financial results.***

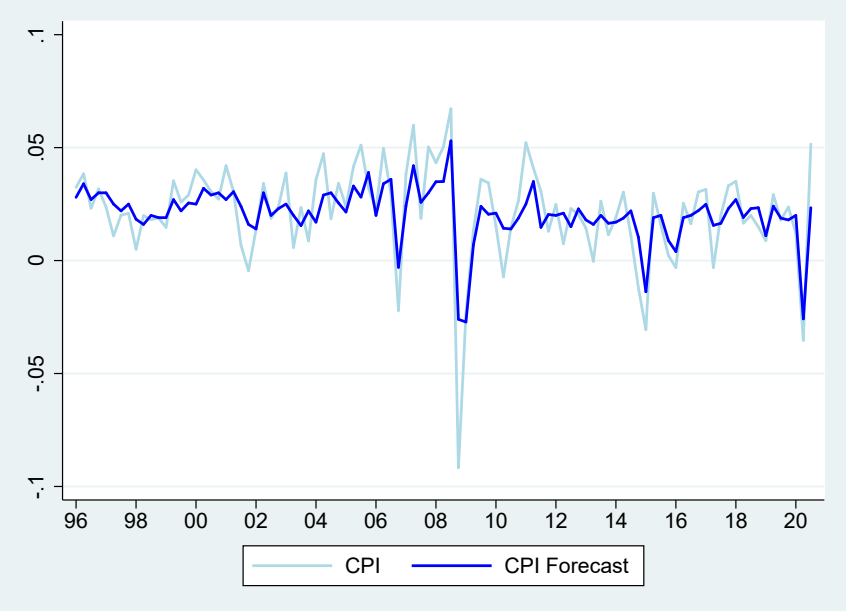
We believe we have built an excellent reputation globally for the quality of our products, for delivery of a consistently positive consumer experience and for our global social impact programs. The Starbucks brand is recognized throughout the world, and we have received high ratings in global brand value studies. To be successful in the future, particularly outside of the U.S. where the Starbucks brand and our other brands are less well-known, we believe we must preserve, grow and leverage the value of our brands across all sales channels. Brand value is based in part on consumer perceptions on a variety of subjective qualities.

Business incidents, whether isolated or recurring and whether originating from us or our business partners, that erode consumer trust can significantly reduce brand value, potentially trigger boycotts of our stores or result in civil or criminal liability and can have a negative impact on our financial results. Such incidents include actual or perceived breaches of privacy or violations of domestic or international privacy laws, contaminated food, product recalls, store employees or other food handlers infected with communicable diseases or other potential incidents discussed in this risk factors section. The impact of such incidents may be exacerbated if they receive considerable publicity, including rapidly through social or digital media (including for malicious reasons) or result in litigation. Consumer demand for our products and our brand equity could diminish significantly if we, our employees, licensees or other business partners fail to preserve the quality of our products, act or are perceived to act in an unethical, illegal, racially-biased, unequal or socially irresponsible manner, including with respect to the sourcing, content or sale of our products, service and treatment of customers at Starbucks stores, or the use of customer data for general or direct marketing or other purposes. Additionally, if we fail to comply with laws and regulations, publicly take controversial positions or actions or fail to deliver a consistently positive consumer experience in each of our markets, including by failing to invest in the right balance of wages and benefits to attract and retain employees that represent the brand well, our brand value may be diminished.

Figure 2: **Inflation Rates over Time: Actuals, Forecasts, and Forecast Errors**

This figure plots the time series of actual CPI, forecasted CPI, and forecast errors. The sample period is 1996Q1–2020Q3.

Panel A: Actuals and Forecasts



Panel B: Forecast Errors

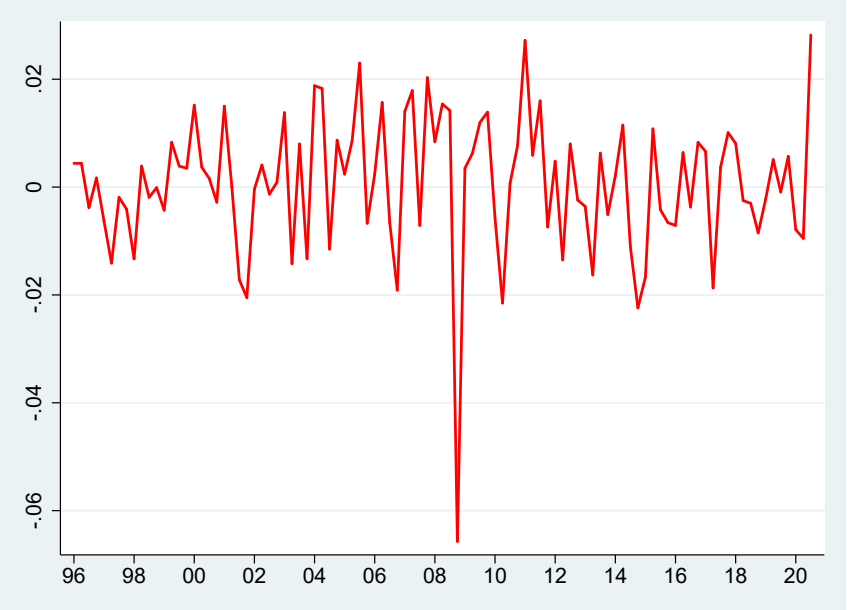


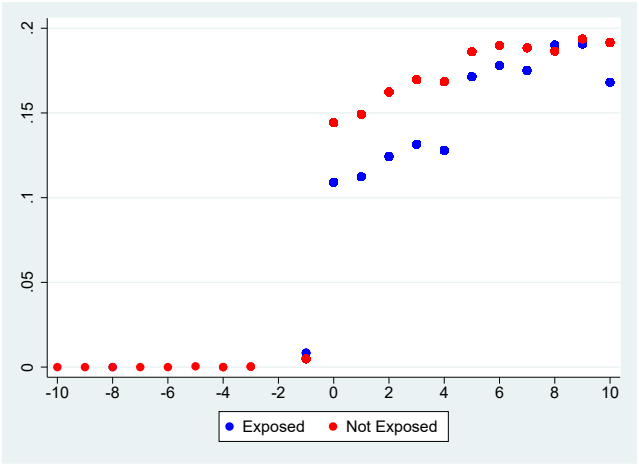
Figure 3: **Material Inflation Risk and Its Financial Disclosure: Exposed vs. Unexposed Firms around Regulation S-K**

This figure compares the probabilities of firms initiating inflation risk disclosures following Regulation S-K between firms exposed and firms not exposed to material inflation risk (see subsection (5.4) for a detailed description). For firms with a fiscal year-end from December to May 2005, fiscal year 2005 is set as year 0; for firms with a fiscal year-end from June to November 2005, fiscal year 2006 is set as year 0. We identify firms that are exposed to material inflation risk over the sample period of 1996 – 2005. Panel A plots the likelihood of firms disclosing inflation risk over event years. Panel B plots estimated $\hat{\beta}$ and confidence intervals at the 95% level from the following linear regression:

$$FirstInflation_{i,t} = \alpha + \sum_{t=-5}^{5} \beta_t \times \underbrace{InflationExposure_i}_{1996-2005} + X_i' \times \theta + \gamma_t + \gamma_j + \epsilon_{i,t},$$

where $FirstInflation_{i,t}$ is a dummy variable equal to 1 if firm i mentions inflation for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. $\underbrace{InflationExposure_i}_{1996-2005}$ is firm i's inflation risk exposure estimated over the period of 1996 – 2005 according to equation (1). The excluded event year is year 0. γ_t is a set of event-year fixed effects. γ_j is a set of Fama-French 48-industry fixed effects. Standard errors are clustered at the level of Fama-French 48-industry classification.

Panel A: Disclosure Trend



Panel B: Estimation of Difference

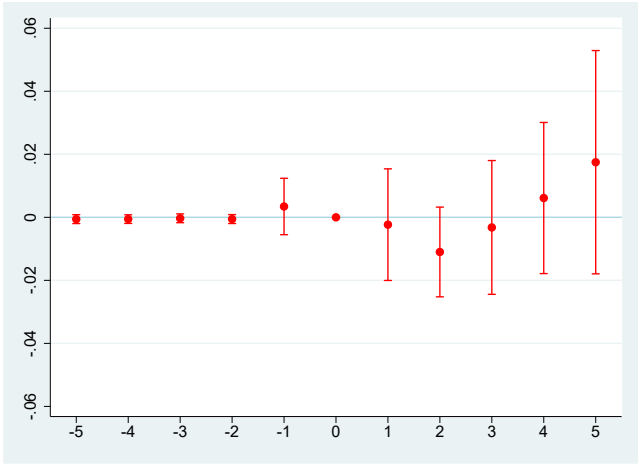


Figure 4: **Material Inflation Risk and Monetary Policy Risk Disclosure: Exposed vs. Unexposed Firms around Regulation S-K**

This figure compares the probabilities of firms initiating monetary-policy risk disclosures following Regulation S-K between firms exposed and firms not exposed to inflation risk (see subsection (5.4) for a detailed description). For firms with a fiscal year-end from December to May 2005, fiscal year 2005 is set as year 0; for firms with a fiscal year-end from June to November 2005, fiscal year 2006 is set as year 0. We identify firms that are exposed to material inflation risk over the sample period of 1996 – 2005. Panel A plots the likelihood of firms disclosing monetary policy risk over event years. Panel B plots estimated $\hat{\beta}$ and confidence intervals at the 95% level from the following linear regression:

$$FirstMonetary_{i,t} = \alpha + \sum_{t=-5}^{5} \beta_t \times \underbrace{InflationExposure_i}_{1996-2005} + X_i' \times \theta + \gamma_t + \gamma_j + \epsilon_{i,t},$$

where $FirstMonetary_{i,t}$ is a dummy variable equal to 1 if firm i mentions monetary policy risk for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. $\underbrace{InflationExposure_i}_{1996-2005}$ is firm i's inflation risk exposure estimated over the period of 1996 – 2005 according to equation (1). The excluded event year is year 0. γ_t is a set of event-year fixed effects. γ_j is a set of Fama-French 48-industry fixed effects. Standard errors are clustered at the level of Fama-French 48-industry classification.

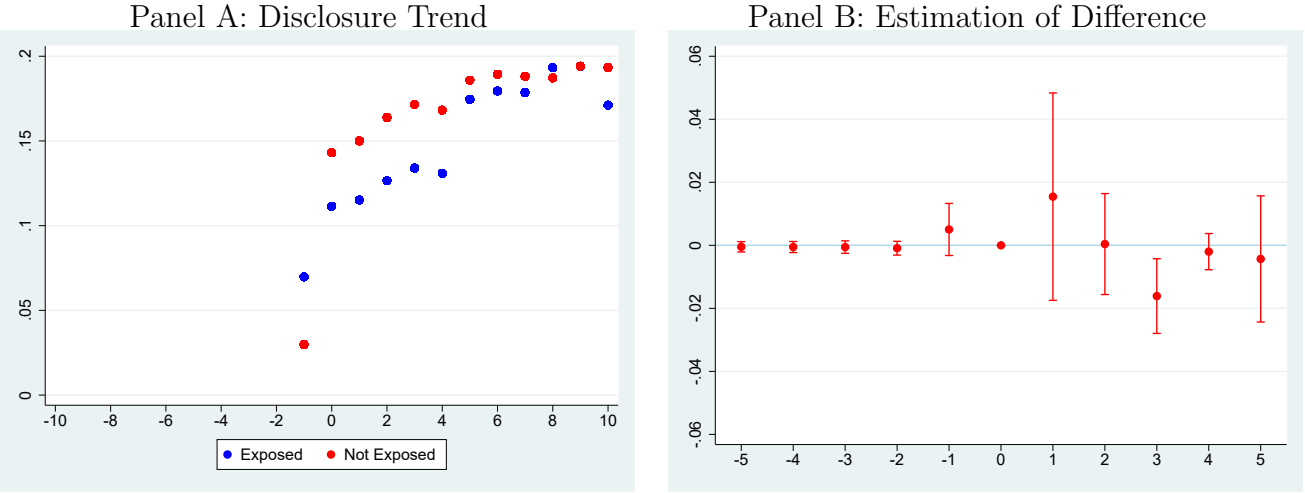


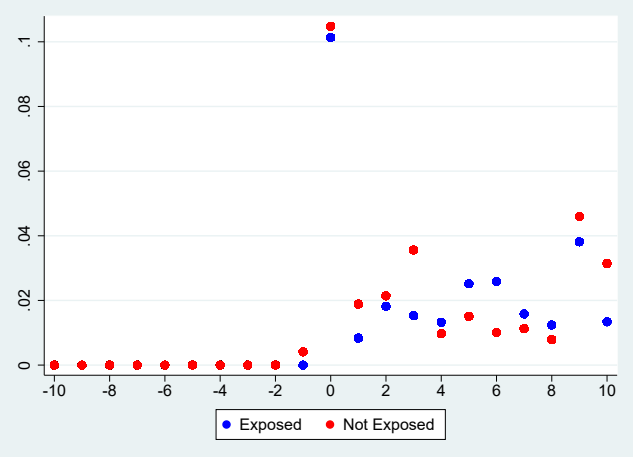
Figure 5: **Material Inflation Risk and Oil & Gas Risk Disclosure: Exposed vs. Unexposed Firms around Regulation S-K**

This figure compares the probabilities of firms initiating oil & gas risk disclosures following Regulation S-K between firms exposed and firms not exposed to material inflation risk (see subsection (5.4) for a detailed description). For firms with a fiscal year-end from December to May 2005, fiscal year 2005 is set as year 0; for firms with a fiscal year-end from June to November 2005, fiscal year 2006 is set as year 0. We identify firms that are exposed to inflation risk over the sample period of 1996 – 2005. Panel A plots the likelihood of firms disclosing either oil or natural gas risk over event years. Panel B plots estimated $\hat{\beta}$ and confidence intervals at the 95% level from the following linear regression:

$$FirstOilGas_{i,t} = \alpha + \sum_{t=-5}^{5} \beta_t \times \underbrace{InflationExposure_i}_{1996-2005} + X_i' \times \theta + \gamma_t + \gamma_j + \epsilon_{i,t},$$

where $FirstOilGas_{i,t}$ is a dummy variable equal to 1 if firm i mentions oil or gas risk for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. $\underbrace{InflationExposure_i}_{1996-2005}$ is firm i's inflation risk exposure estimated over the period of 1996 – 2005 according to equation (1). The excluded event year is year 0. γ_t is a set of event-year fixed effects. γ_j is a set of Fama-French 48-industry fixed effects. Standard errors are clustered at the level of Fama-French 48-industry classification.

Panel A: Disclosure Trend



Panel B: Estimation of Difference

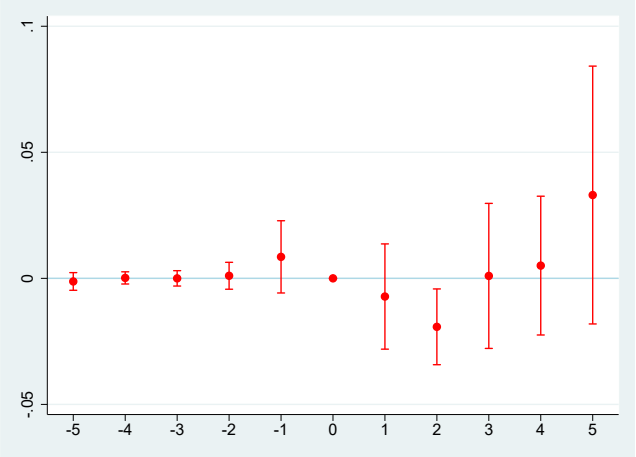


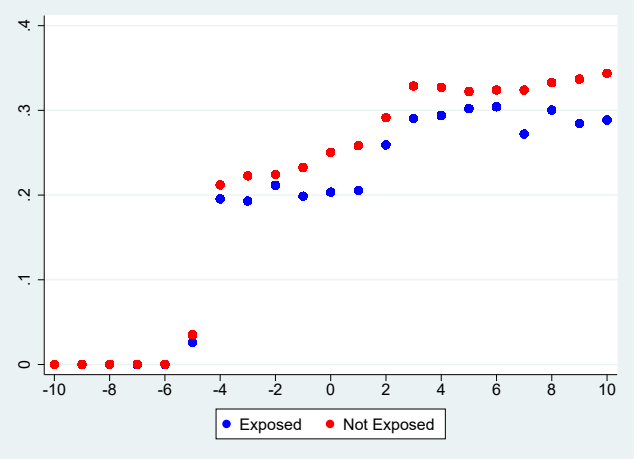
Figure 6: **Material Inflation Risk and Financial Derivative Disclosure: Exposed vs. Unexposed Firms after Regulation S-K**

This figure compares the probabilities of firms disclosing unrealized derivative gain or loss following Regulation S-K between firms exposed and firms not exposed to material inflation risk (see subsection (5.4) for a detailed description). For firms with a fiscal year-end from December to May 2005, fiscal year 2005 is set as year 0; for firms with a fiscal year-end from June to November 2005, fiscal year 2006 is set as year 0. We identify firms that are exposed to material inflation risk over the sample period of 1996 – 2005. Panel A plots the likelihood of firms reporting non-zero unrealized derivative gain or loss over event years. Panel B plots estimated $\hat{\beta}$ and confidence intervals at the 95% level from the following linear regression:

$$Derivative_{i,t} = \alpha + \sum_{t=-5}^{5} \beta_t \times \underbrace{InflationExposure_i}_{1996-2005} + X_i' \times \theta + \gamma_t + \gamma_j + \epsilon_{i,t},$$

where *Derivative* is a dummy variable equal to 1 if a firm reports non-zero unrealized derivative gain or loss, and 0 otherwise. $\underbrace{InflationExposure_i}_{1996-2005}$ is firm i's inflation risk exposure estimated over the period of 1996 – 2005 according to equation (1). The excluded event year is year 0. γ_t is a set of event-year fixed effects. γ_j is a set of Fama-French 48-industry fixed effects. Standard errors are clustered at the level of Fama-French 48-industry classification.

Panel A: Disclosure Trend



Panel B: Estimation of Difference

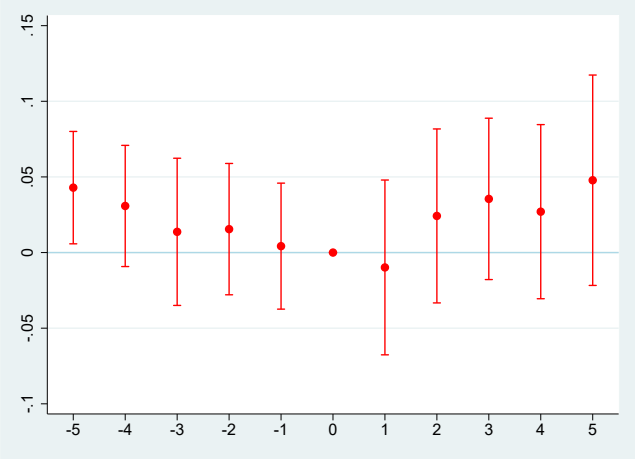


Figure 7: **Examples of Sentences Extracted from Conference Call Transcripts**

This figure uses 10 examples to illustrate sentences that we extract from earnings conference calls. These sentences are proxies for managers' quantitative forecast about future input costs.

1. "Second quarter was 67 cents and, you know, if prices stay where they are, if – if crude oil stays in the $30/31 a barrel range, I think we will be seeing jet fuel costs all end somewhere around 70, 71 cents." — Southwest Airlines, Jul 21, 2003

2. "We anticipate that the overall streamlining cost that would be incurred in this year we have previously talked about, about $400 million, and we now think that it will be about $500 million for the year." — Coca-Cola , Oct 16, 2003

3. "Increased costs caused by the stronger Canadian dollar have increase cartridge costs by 17 cents or about 7% per cartridge this year, and represent a cost element that we anticipate will continue." —Abbott Laboratories, Oct 23, 2003

4. "We will continue to control our capital expenditures and expect our spending for the year to be around $125 million to $135 million; with substantially higher cash flow from operations combined with aggressively managing cast investments we expect to make good progress on debt reduction in 2004." —Cummins, Jan 27, 2004

5. "As a result, despite the fact that cost of goods was 17% for the quarter, we continue to expect cost of goods as a percent of sales to be approximately 15% for the full year." — Pfizer, Jul 18, 2007

6. "In the second quarter we plan to increase our expense levels to drive select new product introductions, which we anticipate will total $3 million to $4 million in the quarter." — Honeywell, Apr 29, 2010

7. "And our outlook is that during the third quarter raw material prices will have stabilized and will be somewhere plus or minus a couple points from 200." — Cooper Tire & Rubber, Aug 5. 2010

8. "We expect on unit cost, our unit cost to be below 2%." — Delta Air Lines, Dec 17, 2015

9. "We now expect total costs of 1.75% to 3%, while continuing to expect script comps of 3.5% to 4.5%." — CVS Health, May 3, 2016

10. "Based on this work we believe that the cost for a full battery cell will go below $100 by 2025 as we reach the optimal scale." — Ford Motor, Sep 14, 2016

Table 1: **Estimation of Inflation Exposure: Summary of Regressions**

This table reports the descriptive statistics for our estimation of firms' exposure to material inflation risk. The sample is restricted to Compustat firms headquartered in the U.S. We exclude firms with market value of equity less than $10 million or with a fiscal-year-end stock price less than $1 at least once over our sample period. In Panel A, we specify the following firm-by-firm regression model over the sample period of 2005Q1 – 2020Q3 to estimate firm i's exposure to material inflation risk:

$$CAR_{i,t} = \alpha + \beta \times \textit{Unexpected Inflation}_t + \epsilon_{i,t},$$

where $CAR_{i,t}$ is the cumulative daily market-adjusted returns (CAR) in the event window of [-1, +1] days relative to the date CPI of the last month of quarter t is released. *Forecast Error*$_t$ is the difference between CPI and the median value of CPI projected by professional forecasters. In Panel B, for each firm i from quarter t-19 to t, we estimate the following regression model:

$$CAR_{i,s} = \alpha + \beta_{i,t} \times \textit{Unexpected Inflation}_s + \epsilon_{i,s},$$

where $\beta_{i,t}$ is the estimated risk exposure. *Coefficient* and *t-statistic* refer to estimated $4 \times \beta$ and t-statistics. *InflationExposure* is a dummy variable equal to 1 if *t-statistic* is below -1.96, and 0 otherwise. Standard errors are adjusted by the Newey-West method.

Panel A: Static Inflation Risk Exposure

	Mean	Std	p5	p10	p25	p50	p75	p90	p95	N
InflationExposure	0.177	0.382	0.000	0.000	0.000	0.000	0.000	1.000	1.000	6,289
Coefficient	-0.797	2.664	-4.814	-3.496	-1.933	-0.711	0.458	1.861	2.909	6,289
t-statistic	-0.636	1.619	-3.186	-2.530	-1.583	-0.628	0.370	1.276	1.932	6,289

Panel B: Time-Varying Inflation Risk Exposure

	Mean	Std	p5	p10	p25	p50	p75	p90	p95	N
InflationExposure	0.138	0.345	0.000	0.000	0.000	0.000	0.000	1.000	1.000	49,342
Coefficient	-0.562	4.798	-4.494	-3.250	-1.742	-0.491	0.733	2.164	3.362	49,342
t-statistic	-0.416	2.451	-2.939	-2.278	-1.323	-0.373	0.546	1.448	2.046	49,342

Table 2: **Firms Exposed to Material Inflation Risk across Industries**

This table reports the distribution of sample firms that are exposed to material inflation risk across the Fama-French 48 industries. Firms exposed to material inflation risk in columns (1)-(3) are identified by the rule in equation (2). Firms exposed to material inflation risk in columns (4)-(6) are identified by the rule in equation (4). Subsection 4.1 provides detailed procedures for how we identify firms' exposure to material inflation risk.

	Static Window			**Rolling Window**		
	Total#	Exposed#	%	Total#	Exposed#	%
	(1)	(2)	(3)	(4)	(5)	(6)
Agriculture	12	4	33.3%	98	29	29.6%
Food Products	67	7	10.4%	386	55	14.2%
Candy & Soda	12	1	8.3%	57	5	8.8%
Beer & Liquor	16	1	6.3%	151	26	17.2%
Tobacco Products	4	0	0.0%	39	5	12.8%
Recreation	26	5	19.2%	211	41	19.4%
Entertainment	56	7	12.5%	476	79	16.6%
Printing and Publishing	27	6	22.2%	196	42	21.4%
Consumer Goods	50	5	10.0%	461	67	14.5%
Apparel	51	3	5.9%	283	25	8.8%
Healthcare	85	32	37.6%	664	149	22.4%
Medical Equipment	164	36	22.0%	1,147	225	19.6%
Pharmaceutical Products	487	89	18.3%	2,891	398	13.8%
Chemicals	88	10	11.4%	775	67	8.6%
Rubber and Plastic Products	21	2	9.5%	223	25	11.2%
Textiles	8	1	12.5%	49	11	22.4%
Construction Materials	73	9	12.3%	634	59	9.3%
Construction	55	7	12.7%	526	29	5.5%
Steel Works Etc	40	2	5.0%	358	13	3.6%
Fabricated Products	8	1	12.5%	73	2	2.7%
Machinery	126	12	9.5%	1,149	88	7.7%
Electrical Equipment	68	8	11.8%	541	58	10.7%
Automobiles and Trucks	60	11	18.3%	551	65	11.8%
Aircraft	25	1	4.0%	236	9	3.8%
Shipbuilding, Railroad Equipment	11	3	27.3%	92	10	10.9%
Defense	9	1	11.1%	106	6	5.7%
Precious Metals	17	3	17.6%	110	10	9.1%
Non-Metallic and Industrial Metal Mining	29	2	6.9%	203	26	12.8%
Coal	18	2	11.1%	104	11	10.6%
Petroleum and Natural Gas	237	24	10.1%	1,571	144	9.2%
Utilities	136	40	29.4%	1,304	184	14.1%
Communication	137	40	29.2%	999	240	24.0%
Personal Services	49	5	10.2%	378	70	18.5%
Business Services	559	103	18.4%	4,027	548	13.6%
Computers	125	22	17.6%	930	164	17.6%
Electronic Equipment	268	49	18.3%	1,733	260	15.0%
Measuring and Control Equipment	81	16	19.8%	765	139	18.2%
Business Supplies	37	5	13.5%	298	52	17.4%
Shipping Containers	12	0	0.0%	145	5	3.4%
Transportation	115	22	19.1%	991	157	15.8%
Wholesale	133	30	22.6%	1082	144	13.3%
Retail	206	23	11.2%	882	143	16.2%
Restaurants, Hotels, Motels	85	9	10.6%	287	18	6.3%
Banking	1,235	250	20.2%	10,952	1,871	17.1%
Insurance	301	62	20.6%	2,972	314	10.6%
Real Estate	56	14	25.0%	400	102	25.5%
Trading	651	93	14.3%	5,725	465	8.1%
Almost Nothing	153	36	23.5%	1,111	162	14.6%
Total	6,289	1,114	17.7%	49,342	6,817	13.8%

Table 3: **Material Inflation Risk and Its Financial Disclosure**

This table reports the descriptive statistics on firms' disclosure of material inflation risk. In Panel A, disclosing firms are firms that disclosed material inflation risk at least once in Item 1A of the 10-K annual report over the period of 2005 – 2020. Firms exposed to material inflation risk in Panel A are identified by the rule in equation (2). In Panel B, disclosing firms are firms that disclosed material inflation risk at least once in Item 1A of the 10-K annual report in quarter t over the period of 2005 – 2020. Firms exposed to material inflation risk in Panel B are identified by the rule in equation (4). Subsection 4.1 provides detailed procedures for how we identify firms' exposure to material inflation risk.

Panel A: Static Inflation-Risk Exposure

Total Firms = 6,289
- Not Exposed = 5,175 (82.3%), of which
* Disclosing firm = 2,205 (42.7%)
- Exposed = 1,114 (17.7%), of which
* Disclosing firm = 434 (39.0%)

Panel B: Time-Varying Inflation-Risk Exposure

Total Obs = 49,342
- Not Exposed = 42,525 (86.2%), of which
* Disclosing firm 8,909 (21.0%)
Exposed =6,817 (13.8%), of which
* Disclosing firm 1,287 (18.9%)

Table 4: **Descriptive Statistics**

This table reports descriptive statistics over the sample period of 2005 – 2020. The sample is restricted to Compustat firms headquartered in the U.S. We exclude firms with market value of equity less than $10 million or with a fiscal-year-end stock price less than $1 at least once over our sample period. *InflationExposure* is a dummy variable equal to 1 if a firm is exposed to material inflation risk as identified by equation (4), and 0 otherwise. *InflationDisclosure* is a dummy variable equal to 1 if a firm discloses material inflation risk in Item 1A of the 10-K annual report in a given year, and 0 otherwise. *MonetaryDisclosure* is a dummy variable equal to 1 if a firm discloses monetary policy risk in Item 1A of the 10-K annual report in a given year, and 0 otherwise. *OilGasDisclosure* is a dummy variable equal to 1 if a firm discloses oil & gas risk in Item 1A of the 10-K annual report in a given year, and 0 otherwise. *FirstInflation* is a dummy variable equal to 1 if a firm mentions inflation for the first time in Item 1A of the 10-K annual report in a year, and 0 otherwise. *FirstMonetary* is a dummy variable equal to 1 if a firm mentions monetary policy for the first time in Item 1A of the 10-K annual report in a year, and 0 otherwise. *FirstOilGas* is a dummy variable equal to 1 if a firm mentions oil and natural gas for the first time in Item 1A of the 10-K annual report in a year, and 0 otherwise. *Derivative* is a dummy variable equal to 1 if a firm reports non-zero unrealized derivative gain or loss, and 0 otherwise. *Lawsuit* is a dummy variable equal to 1 if the firm is sued in a securities class action lawsuit either in the current or previous fiscal year, and 0 otherwise. *CPI_D1(t+1)*, *CPI_D1(t+2)*, and *CPI_D1(t+3)* are forecast dispersion with quarterly horizons of t+1, t+2, and t+3, respectively. Dispersion is the 75th percentile minus the 25th percentile of the forecasts for levels of consumer price index (CPI). *LongTermDebt* is long-term debt over assets. *ShortTermMoney* is the short-term monetary position measured as the sum of cash and receivables minus current liabilities, scaled by assets. *Inventory* is total inventory over assets. *PPE* is the gross value of property, plant, and equipment over assets. *ProductSimilarity* is the 10-K-based similarity scores (divided by 1,000) used by Hoberg et al. (2014). *HHI* is the Herfindahl-Hirschman Index at the level of 4-digit SIC industry. *Profitability* is operating income before depreciation over averaged assets. *Ln(MarketCap)* is the logarithm of the end-of-fiscal-year market capitalization (in millions USD). *Book-to-Market* is total equity over market capitalization. *BlockHolder* is a dummy variable equal to 1 if a firm is held by at least one F13 institutional shareholder with more than 5% ownership, and 0 otherwise. *S&P 500* is a dummy variable equal to 1 if a firm is in the S&P 500 index, and 0 otherwise. *R&D* is the research and development expenditure over assets. *Missing R&D* is a dummy variable equal to 1 if a firm report missing values for the the research and development expenditure, and 0 otherwise.

	Mean	Std	p5	p10	p25	p50	p75	p90	p95	N
InflationExposure	0.138	0.345	0.000	0.000	0.000	0.000	0.000	1.000	1.000	32,739
FirstInflation	0.033	0.178	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32,739
FirstMonetary	0.031	0.172	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32,739
FirstOilGas	0.020	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32,739
InflationDisclosure	0.222	0.415	0.000	0.000	0.000	0.000	0.000	1.000	1.000	32,739
MonetaryDisclosure	0.188	0.391	0.000	0.000	0.000	0.000	0.000	1.000	1.000	32,739
OilGasDisclosure	0.191	0.393	0.000	0.000	0.000	0.000	0.000	1.000	1.000	32,739
Derivative	0.327	0.469	0.000	0.000	0.000	0.000	1.000	1.000	1.000	32,739
Lawsuit	0.121	0.327	0.000	0.000	0.000	0.000	0.000	1.000	1.000	32,739
CPI_D1(t+1)	0.831	0.354	0.330	0.480	0.560	0.740	0.970	1.170	1.900	32,739
CPI_D1(t+2)	0.745	0.280	0.420	0.450	0.500	0.690	0.930	1.000	1.550	32,739
CPI_D1(t+3)	0.656	0.243	0.330	0.400	0.480	0.590	0.900	1.030	1.100	32,739
LongTermDebt	0.198	0.219	0.000	0.000	0.013	0.129	0.315	0.493	0.622	32,575
ShortTermMoney	0.209	0.330	-0.161	-0.086	-0.002	0.117	0.408	0.730	0.811	32,475
Inventory	0.077	0.117	0.000	0.000	0.000	0.017	0.117	0.233	0.325	32,289
PPE	0.389	0.437	0.000	0.000	0.029	0.233	0.614	1.038	1.224	32,694
ProductSimilarity	0.104	0.184	0.010	0.010	0.011	0.019	0.068	0.431	0.582	32,461
HHI	0.204	0.203	0.018	0.031	0.070	0.142	0.257	0.478	0.630	32,739
Profitability	0.050	0.221	-0.329	-0.090	0.020	0.083	0.144	0.209	0.267	31,119
Ln(MarketCap)	6.496	2.166	2.964	3.665	4.962	6.514	7.982	9.289	10.084	30,997
Book-to-Market	0.587	0.955	0.013	0.111	0.272	0.510	0.832	1.252	1.667	30,973
BlockHolder	0.744	0.436	0.000	0.000	0.000	1.000	1.000	1.000	1.000	32,739
S&P 500	0.142	0.349	0.000	0.000	0.000	0.000	0.000	1.000	1.000	32,739
R&D	0.045	0.118	0.000	0.000	0.000	0.000	0.031	0.131	0.240	32,739
Missing R&D	0.497	0.500	0.000	0.000	0.000	0.000	1.000	1.000	1.000	32,739

Table 5: **Inflation Risk Exposure and Inflation-Risk-Related Disclosure**

This table reports the results for estimating the following linear equation:

$$Disclosure_{i,t} = \alpha + \beta_1 \times InflationExposure_{i,t} + X'_{i,t} \times \theta + \gamma_j + \gamma_t + \epsilon_{i,t},$$

where *Disclosure* refers to *FirstInflation* in columns (1)-(2), *FirstMonetary* in columns (3)-(4), *FirstOilGas* in columns (5)-(6), and *Derivative* in columns (7)-(8), respectively. $FirstInflation_{i,t}$ is a dummy variable equal to 1 if firm i mentions inflation for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. $FirstMonetary_{i,t}$ is a dummy variable equal to 1 if firm i mentions monetary policy for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. $FirstOilGas_{i,t}$ is a dummy variable equal to 1 if firm i mentions oil and natural gas for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. $Derivative_{i,t}$ is a dummy variable equal to 1 if firm i reports non-zero unrealized derivative gain or loss in fiscal year t, and 0 otherwise. *InflationExposure* is a dummy variable equal to 1 if a firm is exposed to material inflation risk as identified by equation (4), and 0 otherwise. Table 4 provides definitions for other variables. Statistics are bootstrapped by resampling observations (with replacement) from the data in memory 200 times. Standard errors are clustered at the level of Fama-French 48 industries.

	FirstInflation		*FirstMonetary*		*FirstOilGas*		*Derivative*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
InflationExposure	-0.003	-0.004	-0.003	0.000	-0.003	-0.003	-0.040	0.008
	(-1.26)	(-1.43)	(-1.58)	(0.09)	(-1.61)	(-1.53)	(-1.64)	(0.58)
CPI_D1(t+1)		0.014		-0.003		0.012		0.051***
		(1.50)		(-0.35)		(1.56)		(3.40)
CPI_D1(t+2)		-0.006		-0.016		0.009		-0.005
		(-0.60)		(-1.27)		(0.72)		(-0.16)
CPI_D1(t+3)		0.065***		0.026		0.050***		-0.024
		(3.93)		(1.19)		(2.80)		(-0.48)
LongTermDebt		0.003		0.024***		-0.001		0.256***
		(0.76)		(4.04)		(-0.11)		(4.19)
ShortTermMoney		-0.005		-0.011***		-0.008**		-0.127***
		(-0.93)		(-2.89)		(-2.17)		(-3.82)
Inventory		0.010		0.016*		0.005		0.124
		(1.29)		(1.85)		(0.45)		(1.07)
PPE		-0.002		-0.003		0.001		0.046*
		(-0.56)		(-0.99)		(0.21)		(1.85)
ProductSimilarity		0.057***		0.049**		-0.003		-0.057
		(3.43)		(2.14)		(-0.17)		(-0.38)
HHI		-0.004		0.006		-0.009*		0.027
		(-0.64)		(0.84)		(-1.72)		(0.58)
Profitability		-0.006		0.004		-0.004		-0.013
		(-1.20)		(0.78)		(-1.06)		(-0.41)
Ln(MarketCap)		0.001		-0.000		0.002***		0.065***
		(0.85)		(-0.02)		(2.79)		(14.29)
Book-to-Market		0.000		0.002**		0.000		0.020***
		(0.12)		(2.17)		(0.05)		(3.26)
BlockHolder		0.002		0.000		0.004*		0.015
		(0.58)		(0.07)		(1.88)		(1.09)
S&P 500		-0.001		0.005		-0.007***		0.140***
		(-0.15)		(1.11)		(-2.93)		(4.19)
R&D		-0.039***		-0.022**		-0.009		-0.160*
		(-3.90)		(-2.31)		(-0.63)		(-1.74)
Missing R&D		-0.007*		0.001		0.001		-0.000
		(-1.81)		(0.51)		(0.23)		(-0.02)
Constant	0.033***	-0.022*	0.031***	0.014	0.021***	-0.040***	0.333***	-0.212***
	(24.52)	(-1.73)	(9.58)	(1.17)	(9.60)	(-3.14)	(11.41)	(-4.09)
Industry FE		X		X		X		X
Year FE		X		X		X		X
N	32,739	29,130	32,739	29,130	32,739	29,130	32,739	29,130
R^2	0.00	0.01	0.00	0.01	0.00	0.02	0.00	0.24

Table 6: **Inflation Risk Exposure and Inflation-Risk-Related Disclosure: Lead-Lag Analysis**

This table reports the results for estimating the following linear equation:

$$Disclosure_{i,t+n} = \alpha + \beta_1 \times InflationExposure_{i,t} + X'_{i,t} \times \theta + \gamma_j + \gamma_t + \epsilon_{i,t},$$

where *Disclosure* refers to *FirstInflation* in columns (1)-(2), *FirstMonetary* in columns (3)-(4), *FirstOilGas* in columns (5)-(6), and *Derivative* in columns (7)-(8), respectively. $FirstInflation_{i,t+n}$ is a dummy variable equal to 1 if firm i mentions inflation for the first time in Item 1A of the 10-K annual report of fiscal year $t+n$ $(1 \leq n \leq 3)$, and 0 otherwise. $FirstMonetary_{i,t+n}$ is a dummy variable equal to 1 if firm i mentions monetary policy for the first time in Item 1A of the 10-K annual report of fiscal year $t+n$ $(1 \leq n \leq 3)$, and 0 otherwise. $FirstOilGas_{i,t+n}$ is a dummy variable equal to 1 if firm i mentions oil and natural gas for the first time in Item 1A of the 10-K annual report of fiscal year $t+n$ $(1 \leq n \leq 3)$, and 0 otherwise. $Derivative_{i,t+n}$ is a dummy variable equal to 1 if firm i reports non-zero unrealized derivative gain or loss in fiscal year $t+n$ $(1 \leq n \leq 3)$, and 0 otherwise. *InflationExposure* is a dummy variable equal to 1 if a firm is exposed to material inflation risk as identified by equation (4), and 0 otherwise. Table 4 provides definitions for other variables. Statistics are bootstrapped by resampling observations (with replacement) from the data in memory 200 times. Standard errors are clustered at the level of Fama-French 48 industries.

	FirstInflation		*FirstMonetary*		*FirstOilGas*		*Derivative*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Panel A. Outcome variables in fiscal year t+1				
InflationExposure	0.001	0.002	-0.002	0.001	-0.004*	-0.003	-0.041*	0.011
	(0.58)	(0.98)	(-1.10)	(0.35)	(-1.88)	(-0.99)	(-1.75)	(0.90)
N	30,524	27,082	30,524	27,082	30,524	27,082	30,524	27,082
R^2	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.24
				Panel B. Outcome variables in fiscal year t+2				
InflationExposure	-0.000	-0.000	-0.004	-0.001	-0.003	-0.001	-0.042*	0.013
	(-0.14)	(-0.05)	(-1.45)	(-0.42)	(-1.45)	(-0.60)	(-1.80)	(1.09)
N	27,286	24,180	27,286	24,180	27,286	24,180	27,286	24,180
R^2	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.24
				Panel C. Outcome variables in fiscal year t+3				
InflationExposure	0.003	0.003	-0.001	-0.000	-0.002	-0.002	-0.038*	0.016*
	(1.55)	(1.51)	(-0.22)	(-0.18)	(-0.90)	(-0.81)	(-1.80)	(1.68)
N	24,078	21,323	24,078	21,323	24,078	21,323	24,078	21,323
R^2	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.24
Controls		X		X		X		X
Industry FE		X		X		X		X
Year FE		X		X		X		X

Table 7: **Size of Inflation Risk Exposure and Inflation-Risk-Related Disclosure**

This table reports the results for estimating the following linear equation. The sample is restricted to firms that are exposed to material inflation risk. equation (4) provides detailed procedures for how we identify exposed firms:

$$Disclosure_{i,t+n} = \alpha + \beta_1 \times SizeInflationExposure_{i,t} + X'_{i,t} \times \theta + \gamma_j + \gamma_t + \epsilon_{i,t},$$

where *Disclosure* refers to *FirstInflation* in columns (1)-(2), *FirstMonetary* in columns (3)-(4), *FirstOilGas* in columns (5)-(6), and *Derivative* in columns (7)-(8), respectively. $FirstInflation_{i,t+n}$ is a dummy variable equal to 1 if firm i mentions inflation for the first time in Item 1A of the 10-K annual report of fiscal year $t+n$ ($0 \leq n \leq 3$), and 0 otherwise. $FirstMonetary_{i,t+n}$ is a dummy variable equal to 1 if firm i mentions monetary policy for the first time in Item 1A of the 10-K annual report of fiscal year $t+n$ ($0 \leq n \leq 3$), and 0 otherwise. $FirstOilGas_{i,t+n}$ is a dummy variable equal to 1 if firm i mentions oil and natural gas for the first time in Item 1A of the 10-K annual report of fiscal year $t+n$ ($0 \leq n \leq 3$), and 0 otherwise. $Derivative_{i,t+n}$ is a dummy variable equal to 1 if firm i reports non-zero unrealized derivative gain or loss in fiscal year $t+n$ ($0 \leq n \leq 3$), and 0 otherwise. *SizeInflationExposure* is the absolute value of coefficient estimated from equation (3). Table 4 provides definitions for other variables. Statistics are bootstrapped by resampling observations (with replacement) from the data in memory 200 times. Standard errors are clustered at the level of Fama-French 48 industries.

	FirstInflation		*FirstMonetary*		*FirstOilGas*		*Derivative*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Panel A. Outcome variables in fiscal year t				
SizeInflationExposure	-0.001	0.002	-0.000	-0.002	-0.001	-0.002	-0.114***	-0.021
	(-0.43)	(0.54)	(-0.04)	(-0.40)	(-0.18)	(-0.53)	(-5.51)	(-1.37)
N	4,521	4,134	4,521	4,134	4,521	4,134	4,521	4,134
R^2	0.00	0.02	0.00	0.03	0.00	0.03	0.03	0.25
				Panel B. Outcome variables in fiscal year t+1				
SizeInflationExposure	-0.002	0.001	-0.000	-0.002	-0.001	-0.002	-0.117***	-0.023
	(-1.27)	(0.30)	(-0.09)	(-0.44)	(-0.78)	(-0.73)	(-5.53)	(-1.30)
N	4,219	3,852	4,219	3,852	4,219	3,852	4,219	3,852
R^2	0.00	0.02	0.00	0.03	0.00	0.03	0.03	0.25
				Panel C. Outcome variables in fiscal year t+2				
SizeInflationExposure	0.002	0.005	0.002	0.007	-0.001	0.003	-0.129***	-0.024
	(0.54)	(1.31)	(0.40)	(1.12)	(-0.28)	(1.05)	(-6.06)	(-1.37)
N	3,818	3,478	3,818	3,478	3,818	3,478	3,818	3,478
R^2	0.00	0.01	0.00	0.03	0.00	0.03	0.03	0.26
				Panel D. Outcome variables in fiscal year t+3				
SizeInflationExposure	0.002	-0.001	-0.002	0.003	-0.002	0.001	-0.142***	-0.033*
	(0.71)	(-0.29)	(-0.64)	(0.59)	(-1.14)	(0.22)	(-7.13)	(-1.79)
N	3,473	3,162	3,473	3,162	3,473	3,162	3,473	3,162
R^2	0.00	0.02	0.00	0.02	0.00	0.02	0.04	0.26
Controls		X		X		X		X
Industry FE		X		X		X		X
Year FE		X		X		X		X

Table 8: **Inflation Risk Exposure and Its Financial Disclosure: The Case of Securities Class Action Lawsuits**

This table reports the results for estimating the following linear equation:

$$\begin{aligned} \textit{FirstInflation}_{i,t} = \alpha + \beta_1 \times \textit{InflationExposure}_{i,t} + \beta_2 \times \textit{InflationExposure}_{i,t} \times \textit{Lawsuit}_{i,t} \\ + \beta_3 \times \textit{Lawsuit}_{i,t} + X'_{i,t} \times \theta + \gamma_j + \gamma_t + \epsilon_{i,t}, \end{aligned}$$

where $\textit{FirstInflation}_{i,t}$ is a dummy variable equal to 1 if firm i mentions inflation for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. $\Delta\textit{Length} \geq 15\%_{i,t}$ is a dummy variable equal to 1 if firm i experiences more than a 15% change in Item 1A of the 10-K annual report from fiscal year t-1 to t, and 0 otherwise. *InflationExposure* is a dummy variable equal to 1 if a firm is exposed to material inflation risk as identified by equation (4), and 0 otherwise. $\textit{Lawsuit}_{i,t}$ is sued in a securities class action lawsuit either in the current or previous fiscal year, and 0 otherwise. Table 4 provides definitions for other variables. Statistics are bootstrapped by resampling observations (with replacement) from the data in memory 200 times. Standard errors are clustered at the level of Fama-French 48 industries.

	FirstInflation			Δ*Length* $\geq$ 15%		
	(1)	(2)	(3)	(4)	(5)	(6)
InflationExposure×Lawsuit	0.017**	0.017**	0.017**	-0.018	-0.003	0.003
	(2.12)	(2.11)	(2.10)	(-0.86)	(-0.15)	(0.10)
Lawsuit	-0.002	-0.003	-0.003	0.030***	0.035***	0.030***
	(-0.78)	(-1.22)	(-1.18)	(3.62)	(5.25)	(4.12)
InflationExposure	-0.005*	-0.005**	-0.005**	0.010	0.001	0.001
	(-1.92)	(-1.99)	(-2.13)	(1.00)	(0.20)	(0.16)
Controls	X	X	X	X	X	X
Year FE		X			X	
Industry FE						
Industry × Year FE			X			X
N	32,739	29,130	29,130	32,739	29,130	29,130
R^2	0.00	0.01	0.04	0.00	0.05	0.09

Table 9: **Descriptive Statistics: Conference-Call Sample**

This table reports descriptive statistics at the level of conference call transcripts. Sample firms are restricted to Compustat firms headquartered in the U.S. The total number of words of each conference call transcript is restricted between 500 and 4,500. *InflationExposure* is a dummy variable equal to 1 if a firm is exposed to material inflation risk as identified by equation (4), and 0 otherwise. *CostDiscussion* is a dummy variable equal to 1 if managers quantitatively forecast own company's future input/operating costs during the presentation session of a conference call, and 0 otherwise. *PresentationLengh* is the number of words for the presentation section of a conference call. *Lawsuit* is a dummy variable equal to 1 if the firm is sued in a securities class action lawsuit either in the current year or previous year, and 0 otherwise. *LongTermDebt* is long-term debt over assets. *ShortTermMoney* is the short-term monetary position measured as the sum of cash and receivables minus current liabilities, scaled by assets. *Inventory* is total inventory over assets. *PPE* is the gross value of property, plant, and equipment over assets. *ProductSimilarity* is the 10-K-based similarity scores (divided by 1,000) used by Hoberg et al. (2014). *HHI* is the Herfindahl-Hirschman Index at the level of 4-digit SIC industry. *Profitability* is operating income before depreciation over averaged assets. *Ln(MarketCap)* is the logarithm of the end-of-fiscal-year market capitalization (in millions USD). *Book-to-Market* is total equity over market capitalization. *BlockHolder* is a dummy variable equal to 1 if a firm is held by at least one F13 institutional shareholder with more than 5% ownership, and 0 otherwise. *S&P 500* is a dummy variable equal to 1 if a firm is in the S&P 500 index, and 0 otherwise. *R&D* is the research and development expenditure over assets. *Missing R&D* is a dummy variable equal to 1 if a firm report missing values for the the research and development expenditure, and 0 otherwise.

	Mean	Std	p5	p10	p25	p50	p75	p90	p95	N
InflationExposure	0.126	0.331	0.000	0.000	0.000	0.000	0.000	1.000	1.000	108,239
CostDiscussion	0.168	0.619	0.000	0.000	0.000	0.000	0.000	1.000	1.000	108,239
Presentation	2,800	938	1,154	1,510	2,128	2,839	3,536	4,046	4,254	108,239
Lawsuit	0.102	0.302	0.000	0.000	0.000	0.000	0.000	1.000	1.000	108,239
LongTermDebt	0.416	0.215	0.109	0.155	0.265	0.399	0.530	0.674	0.785	89,227
ShortTermMoney	0.112	0.230	-0.186	-0.116	-0.034	0.059	0.226	0.448	0.587	88,385
Inventory	0.092	0.119	0.000	0.000	0.000	0.046	0.141	0.247	0.346	101,703
PPE	0.414	0.395	0.000	0.000	0.098	0.284	0.648	1.029	1.203	108,150
ProductSimilarity	6.794	11.458	1.039	1.098	1.339	2.361	5.319	19.583	36.147	104,571
HHI	0.059	0.035	0.024	0.028	0.037	0.051	0.068	0.096	0.137	108,239
Profitability	0.050	0.163	-0.263	-0.079	0.025	0.073	0.122	0.182	0.230	99,444
Ln(MarketCap)	7.405	1.909	4.209	4.952	6.141	7.414	8.658	9.853	10.604	101,024
Book-to-Market	0.510	0.369	0.050	0.122	0.250	0.433	0.693	1.016	1.280	100,998
BlockHolder	0.779	0.415	0.000	0.000	1.000	1.000	1.000	1.000	1.000	108,239
S&P 500	0.266	0.442	0.000	0.000	0.000	0.000	1.000	1.000	1.000	108,239
R&D	0.046	0.096	0.000	0.000	0.000	0.000	0.050	0.142	0.235	108,239
Missing R&D	0.440	0.496	0.000	0.000	0.000	0.000	1.000	1.000	1.000	108,239

Table 10: **Inflation Risk Exposure and Managerial Speech during Conference Calls**

This table reports the results for estimating the following linear equation.

$$CostDiscussion_{i,n,t} = \alpha + \beta_1 \times InflationExposure_{i,t} + \beta_2 \times InflationExposure_{i,t} \times Lawsuit_{i,t} + \beta_3 \times Lawsuit_{i,t} + X'_{i,t} \times \theta + \gamma_i + \gamma_t + \epsilon_{i,n,t},$$

where $CostDiscussion_{i,n,t}$ a dummy variable equal to 1 if managers of firm i quantitatively discuss about own company's future input/operating costs during the presentation session of the nth conference call hosted by the firm as of year-quarter t, and 0 otherwise. $Ln(Presentation)_{i,n,t}$ is the logarithm of the length of company i's presentation session (in words) in the nth conference call as of year-quarter t, and 0 otherwise. $Lawsuit_{i,t}$ is a dummy variable equal to 1 if firm i is sued in a securities class action lawsuit either in the current or previous fiscal year, and 0 otherwise. *InflationExposure* is a dummy variable equal to 1 if a firm is exposed to material inflation risk as identified by equation (4), and 0 otherwise. *Time* is a full set of year-quarter fixed effects. Table 4 provides definitions for other variables. Statistics are bootstrapped by resampling observations (with replacement) from the data in memory 200 times. Standard errors are clustered at the level of Fama-French 48 industries.

	CostDiscussion		*Ln(Presentation)*	
	(1)	(2)	(3)	(4)
InflationExposure×Lawsuit	0.037**	0.040**	-0.004	-0.002
	(2.26)	(2.36)	(-0.32)	(-0.12)
InflationExposure	-0.004	-0.009	-0.013*	-0.012
	(-0.47)	(-1.07)	(-1.79)	(-1.64)
Lawsuit	0.007	0.003	0.007	0.007
	(0.81)	(0.43)	(1.26)	(1.06)
Controls	X	X	X	X
Firm FE	X	X	X	X
Time FE	X		X	
Industry × Time FE		X		X
N	83,521	83,521	83,521	83,521
R^2	0.20	0.23	0.35	0.37

Table 11: **Value Destruction in Response to Future Unexpected Inflation**

This table reports the value destruction in response to a hypothetical increase in future unexpected inflation for exposed non-disclosing firms and exposed disclosing firms. Firms exposed to material inflation risk are identified by the rule in equation (4). Disclosing firms are firms that disclosed inflation risk in Item 1A of the 10-K annual report in 2020, and 0 otherwise. We project the value destruction based on firms' market value as of December 31, 2020. The following example illustrates our calculation: an annual rate of a 2% increase in unexpected inflation reduces the market value of exposed non-disclosing firms by $312 billion (= 2% × -4.780 × 4017.47) within one year. In this example, -4.780 is the averaged size of inflation exposure for exposed-nondisclosing firms (see equation (1) for a detailed description) and 4017.47 (in billion USD) is the aggregated market capitalization of all exposed-nondisclosing firms as of December 31, 2020.

	Value Destruction in $B				
			1 Year		
Annual rate=	2%	3%	4%	5%	6%
Exposed non-disclosing firms	-312	-469	-625	-781	-937
Exposed disclosing firms	-42	-62	-83	-104	-125
			2 Year		
Annual rate=	2%	3%	4%	5%	6%
Exposed non-disclosing firms	-625	-937	-1,250	-1,562	-1,875
Exposed disclosing firms	-83	-125	-166	-208	-249
			3 Year		
Annual rate=	2%	3%	4%	5%	6%
Exposed non-disclosing firms	-937	-1,406	-1,875	-2,343	-2,812
Exposed disclosing firms	-125	-187	-249	-311	-374

Calibration Paramaters for Destruction Analysis

	Exposure	Value ($B)
Exposed non-disclosing firms	-4.780	4017.47
Exposed disclosing firms	-4.156	499.30

Online Appendix: Undisclosed Material Inflation Risk

Not for Publication

Yaniv Konchitchki and Jin Xie

Figure A.1: **Examples of Disclosure of Material Inflation Risk**

The examples below illustrate disclosures of inflation risk that we extract from Item 1A of 10-K annual reports.

1. Whether we can manage this risk effectively depends mainly on the following: Our ability to manage fluctuations in commodity prices, interest and foreign exchange rates and the effects of local governmental initiatives to manage national economic conditions such as consumer spending and *inflation rates.*

— McDonald's 10-K for the year ended December 31, 2008

2. General economic factors beyond our control, and changes in the global economic environment, including fluctuations in *inflation* and currency exchange rates, could result in lower revenues, higher costs and decreased margins and earnings.

— Nike Inc 10-K for the year ended May 31, 2008

3. While our foreign operations represent significant opportunities to sell our services, a number of foreign countries where we operate have experienced unstable growth patterns, *high inflation*, currency devaluation, foreign exchange controls, instability in the banking sector and high unemployment.

— AT&T Inc 10-K for the year ended December 31, 2019

4. Concerns about the *systemic impact of inflation*, the availability and cost of credit, energy costs and geopolitical issues, combined with continued changes in business activity levels and consumer confidence, increased unemployment and volatile oil prices, have in the past and may in the future contribute to volatility in the capital and credit markets.

— American Airlines Group 10-K for the year ended December 31, 2015

5. We may experience additional volatility as a result of *inflationary pressures* and other macroeconomic factors in certain emerging market countries.

— Baxter International Inc 10-K for the year ended December 31, 2016

6. A continued or further decline in economic conditions, or an increase in price levels generally due to *inflationary pressures*, could adversely affect demand for any of our products and services and have a negative impact on our results of operations.

— Comcast 10-K for the year ended December 31, 2012

7. Higher interest rates, higher fuel and other energy costs, transportation costs, *inflation*, higher costs of labor, insurance and healthcare, foreign exchange rate fluctuations, ... adversely affect our domestic and international operations and our operating results.

— Wal Mart Stores Inc 10-K for the year ended January 31, 2013

Figure A.2: **Risk Topics**

In each world cloud of the material risks that firms disclose in the Item 1A of the 10-K annual report, a bigger font corresponds to a bigger weight for that word within each topic.


restaurant franchisees franchise brand food consumer employee information location publicity ingredient guest law
retail store consumer customer product brand inventory material merchandise retailer vendor
product material customer environmental facility law raw liability demand
user consumer platform advertising internet website online service brand cannabis
healthcare federal program service health law medicare regulation provider
plan tax cash agreement liability obligation
director agreement management executive officer cash expense asset
equipment vehicle fleet fuel service carrier customer lease automotive insurance
law tax covid regulation data foreign
interest loan asset rate mortgage borrower collateral
service client management fee transaction fund payment employee
product customer component supplier china manufacturing


service
network
customer
communication
satellite
subscriber
wireless
provider
programming
patent
approval
candidate
trial
clinical
product
development
regulatory
product
acquisition
distribution
distributor
indebtedness
customer
supplier
investor
director
officer
rule
warrant
public
limited
fund
insurance
trading
contract
asset
future
china
foreign
law
regulation
island
government
control
chinese
middot
hotel
gaming
aircraft
travel
agreement
airline
casino
license

Figure A.3: **Examples of Disclosure of Monetary Policy Risk**

The examples below illustrate disclosures of monetary policy risk that we extract from Item 1A of 10-K annual reports.

1. Changes in these regulatory, political, economic, or *monetary policies* and other factors could require the Company to significantly modify its current business practices and may adversely affect its future financial results.

— Intel's 10-K for the year ended February 14, 2014

2. *LIBOR* tends to fluctuate based on general interest rates, rates set by the *US Federal Reserve* and other *central banks*, the supply of and demand for credit in the London interbank market and general economic conditions.

—FirstEnergy Corp's 10-K for the year ended December 31, 2020

3. Subsequently, on November 30, 2020, the *Federal Reserve* and the Financial Conduct Authority in the United Kingdom announced that *LIBOR* would be phased out completely by June 20, 2023 and replaced by the *Secured Overnight Financing Rate ("SOFR").*

—American Electric Power's 10-K for the year ended December 31, 2020

4. Changes in these regulatory, political, economic, or *monetary policies* and other factors could require the Company to significantly modify its current business practices and may adversely affect its future financial results.

— Tiffany & Co's 10-K for the year ended January 31, 2020

5. Our international customers could have reduced access to working capital due to higher interest rates, reduced bank lending resulting from contractions in the *money supply* or the deterioration in the customer or its bank financial condition or the inability to access other financing.

— Seagate Technology's 10-K for the year ended June 28, 2019

6. For example, SOFR is a secured overnight rate, while *LIBOR* is an unsecured rate that represents *interbank funding* over different maturities.

— Nisource Inc's 10-K for the year ended December 31, 2019

7. Currently, the market has improved; however, there has been volatility on commercial paper spreads, as the supply of short term commercial paper has increased following recent actions by the *Federal Open Market Committee.*

— Progress Energy's 10-K for the year ended December 31, 2007

Figure A.4: **Examples of Disclosure of Oil & Gas Risk**

The examples below illustrate disclosures of oil or natural gas risk that we extract from Item 1A of 10-K annual reports.

1. Increases in the *price of oil* also can result in significant increases in the price of many of the components in our products, which may have a negative impact on margins or sales volumes.

— Spartan Motors Inc's 10-K for the year ended December 31, 2006

2. As a result, the market for our vehicles could be affected by numerous factors, such as: ... plug in hybrid electric vehicles and high fuel economy internal combustion engine vehicles volatility in the *cost of oil and gasoline* government regulations and economic incentives access to charging facilities and concerns about our future viability.

— Tesla Inc's 10-K for the year ended December 31, 2019

3. The cost of oil is a significant component in manufacturing and transportation costs, so increases in the price of petroleum products can adversely affect our profit margins.

— Nike's 10-K for the year ended May 31, 2019

4. Although Alcoa generally expects to meet the energy requirements for its alumina refineries and primary aluminum smelters from internal sources or from long term contracts, certain conditions could negatively affect Alcoa results of operations, including the following: significant increases in electricity costs rendering smelter operations uneconomic; significant increases in *fuel oil or natural gas prices*....

— Alcoa Inc's 10-K for the year ended December 31, 2013

5. These factors, combined with declining business and consumer confidence, increased unemployment and *volatile oil prices* have precipitated a global recession, which may cause further declines in credit and charge card usage and has already resulted in adverse changes in payment patterns, causing increases in delinquencies and default rates.

— American Express Co's 10-K for the year ended December 31, 2008

6. These factors, combined with declining business and consumer confidence, increased unemployment and *volatile oil prices* have precipitated a global recession, which may cause further declines in credit and charge card usage and has already resulted in adverse changes in payment patterns, causing increases in delinquencies and default rates.

— American Express Co's 10-K for the year ended December 31, 2008

7. Concerns about the systemic impact of inflation, the availability and cost of credit, energy costs and geopolitical issues, combined with continued changes in business activity levels and consumer confidence, increased unemployment and *volatile oil prices*, have in the past and may in the future contribute to volatility in the capital and credit markets.

— American Airlines Group Inc's 10-K for the year ended December 31, 2015

Table A.1: **Firms Exposed to Material Inflation Risk across Industries**

This table reports the distribution of the top 30 largest firms (ranked by market capitalization as of 2019) that are exposed to material inflation risk conditioning on whether these firms disclosed material inflation risk at least once in Item 1A of the 10-K annual report over the period of 2005 – 2020. Firms exposed to material inflation risk are identified by the rule in equation (2).

Exposed Disclosing	Exposed Not Disclosing
COMCAST	AT&T
Amgen	Verizon Communications
Thermo Fisher Scientific	AbbVie
Accenture	CVS Health
IBM	FIS Global
Enbridge	Stryker
United Parcel Service	Automatic Data Processing
Gilead Sciences	Enterprise Products
Fiserv	NXP Semiconductors
T-Mobile US	Johnson Controls
Duke Energy	SiriusXM
Global Payments	ONEOK
HCA Healthcare	Zimmer Biomet
Baxter International	WEC Energy Group
IQVIA	Eversource Energy
McKesson	PPL
Synopsys	MPLX
Equifax	Paychex
CooperCompanies	Agilent Technologies
Atmos Energy	CoStar Group
Fidelity National Financial	Omnicom Group
Bio-Rad Laboratories	Discovery
VEREIT	Labcorp
BorgWarner	Magellan Midstream Partners
Euronet Worldwide	Quest Diagnostics
Jazz Pharmaceuticals	Gartner
Catalent	Plains All American Pipeline
Teledyne FLIR	Equity Lifestyle Properties
Arrow Electronics	Universal Health Services
Encompass Health	Teradyne

Table A.2: **Inflation Risk Exposure and Inflation-Risk-Related Disclosure: Alternative Identifications of Inflation-Exposed Firms**

This table reports the results for estimating the following linear equation in which we identify negative coefficients (β) estimated from equation (4) at the 1% level:

$$Disclosure_{i,t} = \alpha + \beta_1 \times InflationExposure_{i,t} + X'_{i,t} \times \theta + \gamma_j + \gamma_t + \epsilon_{i,t},$$

where *Disclosure* refers to *FirstInflation* in columns (1)-(2), *FirstMonetary* in columns (3)-(4), *FirstOilGas* in columns (5)-(6), and *Derivative* in columns (7)-(8), respectively. $FirstInflation_{i,t}$ is a dummy variable equal to 1 if firm i mentions inflation for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. $FirstMonetary_{i,t}$ is a dummy variable equal to 1 if firm i mentions monetary policy for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. $FirstOilGas_{i,t}$ is a dummy variable equal to 1 if firm i mentions oil and natural gas for the first time in Item 1A of the 10-K annual report of fiscal year t, and 0 otherwise. $Derivative_{i,t}$ is a dummy variable equal to 1 if firm i reports non-zero unrealized derivative gain or loss in fiscal year t, and 0 otherwise. *InflationExposure* is a dummy variable equal to 1 if a firm is exposed to material inflation risk as identified by equation (4) with the exception that we require t-statistic $\leq$ -2.57, and 0 otherwise. Table 4 provides definitions for other variables. Statistics are bootstrapped by resampling observations (with replacement) from the data in memory 200 times. Standard errors are clustered at the level of Fama-French 48 industries.

	FirstInflation		*FirstMonetary*		*FirstOilGas*		*Derivative*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
InflationExposure	-0.004	-0.004	-0.005*	-0.002	-0.002	-0.002	-0.028	0.020
	(-1.07)	(-0.92)	(-1.83)	(-0.82)	(-0.69)	(-1.01)	(-1.07)	(1.10)
CPI_D1(t+1)		0.014		-0.003		0.012		0.051***
		(1.49)		(-0.35)		(1.56)		(3.38)
CPI_D1(t+2)		-0.006		-0.016		0.009		-0.005
		(-0.60)		(-1.28)		(0.72)		(-0.15)
CPI_D1(t+3)		0.065***		0.026		0.050***		-0.024
		(3.94)		(1.19)		(2.81)		(-0.49)
LongTermDebt		0.003		0.024***		-0.001		0.256***
		(0.76)		(4.03)		(-0.11)		(4.19)
ShortTermMoney		-0.005		-0.011***		-0.008**		-0.127***
		(-0.91)		(-2.91)		(-2.15)		(-3.82)
Inventory		0.010		0.016*		0.005		0.124
		(1.31)		(1.85)		(0.46)		(1.07)
PPE		-0.002		-0.003		0.001		0.046*
		(-0.54)		(-0.99)		(0.23)		(1.84)
ProductSimilarity		0.057***		0.049**		-0.003		-0.057
		(3.41)		(2.14)		(-0.18)		(-0.38)
HHI		-0.004		0.006		-0.009*		0.027
		(-0.65)		(0.84)		(-1.73)		(0.58)
Profitability		-0.006		0.004		-0.004		-0.013
		(-1.21)		(0.78)		(-1.07)		(-0.41)
Ln(MarketCap)		0.001		-0.000		0.002***		0.065***
		(0.88)		(-0.04)		(2.77)		(14.27)
Book-to-Market		0.000		0.002**		0.000		0.020***
		(0.11)		(2.19)		(0.03)		(3.25)
BlockHolder		0.002		0.000		0.004*		0.015
		(0.58)		(0.08)		(1.88)		(1.09)
S&P 500		-0.001		0.005		-0.007***		0.140***
		(-0.14)		(1.11)		(-2.93)		(4.19)
R&D		-0.039***		-0.022**		-0.009		-0.160*
		(-3.92)		(-2.32)		(-0.63)		(-1.74)
Missing R&D		-0.007*		0.001		0.001		-0.001
		(-1.81)		(0.51)		(0.23)		(-0.02)
Constant	0.033***	-0.022*	0.031***	0.015	0.020***	-0.040***	0.329***	-0.212***
	(24.25)	(-1.75)	(9.59)	(1.18)	(9.52)	(-3.17)	(11.64)	(-4.16)
Industry FE		X		X		X		X
Year FE		X		X		X		X
N	32,739	29,130	32,739	29,130	32,739	29,130	32,739	29,130
R^2	0.00	0.01	0.00	0.01	0.00	0.02	0.00	0.24

Table A.3: **Size of Inflation Risk Exposure and Inflation-Risk-Related Disclosure: Alternative Identifications of Inflation-Exposed Firms**

This table reports the results for estimating the following linear equation in which we identify negative coefficients β estimated from equation (4) at the 1% level. The sample is restricted to firms that are exposed to material inflation risk. equation (4) provides detailed procedures for how we identify exposed firms:

$$Disclosure_{i,t+n} = \alpha + \beta_1 \times SizeInflationExposure_{i,t} + X'_{i,t} \times \theta + \gamma_j + \gamma_t + \epsilon_{i,t},$$

where *Disclosure* refers to *FirstInflation* in columns (1)-(2), *FirstMonetary* in columns (3)-(4), *FirstOilGas* in columns (5)-(6), and *Derivative* in columns (7)-(8), respectively. $FirstInflation_{i,t+n}$ is a dummy variable equal to 1 if firm i mentions inflation for the first time in Item 1A of the 10-K annual report of fiscal year $t+n$ ($0 \leq n \leq 3$), and 0 otherwise. $FirstMonetary_{i,t+n}$ is a dummy variable equal to 1 if firm i mentions monetary policy for the first time in Item 1A of the 10-K annual report of fiscal year $t+n$ ($0 \leq n \leq 3$), and 0 otherwise. $FirstOilGas_{i,t+n}$ is a dummy variable equal to 1 if firm i mentions oil and natural gas for the first time in Item 1A of the 10-K annual report of fiscal year $t+n$ ($0 \leq n \leq 3$), and 0 otherwise. $Derivative_{i,t+n}$ is a dummy variable equal to 1 if firm i reports non-zero unrealized derivative gain or loss in fiscal year $t+n$ ($0 \leq n \leq 3$), and 0 otherwise. *SizeInflationExposure* is the absolute value of coefficients estimated from equation (3). Table 4 provides definitions for other variables. Statistics are bootstrapped by resampling observations (with replacement) from the data in memory 200 times. Standard errors are clustered at the level of Fama-French 48 industries.

	FirstInflation		*FirstMonetary*		*FirstOilGas*		*Derivative*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Panel A. Outcome variables in fiscal year t				
SizeInflationExposure	-0.003	0.004	-0.003	-0.004	-0.000	-0.004	-0.112***	-0.031
	(-0.67)	(0.88)	(-0.77)	(-0.72)	(-0.01)	(-1.29)	(-5.02)	(-1.39)
N	2,404	2,205	2,404	2,205	2,404	22,05	24,04	22,05
R^2	0.00	0.04	0.00	0.05	0.00	0.06	0.04	0.28
				Panel B. Outcome variables in fiscal year t+1				
SizeInflationExposure	-0.004	-0.000	0.001	-0.005	-0.002	-0.003	-0.117***	-0.030
	(-1.59)	(-0.06)	(0.17)	(-0.92)	(-1.20)	(-0.99)	(-5.21)	(-1.31)
N	2,242	2,057	2,242	2,057	2,242	2,057	2,242	2,057
R^2	0.00	0.03	0.00	0.05	0.00	0.05	0.04	0.28
				Panel C. Outcome variables in fiscal year t+2				
SizeInflationExposure	-0.001	0.007	0.001	0.006	-0.000	0.003	-0.128***	-0.028
	(-0.18)	(1.42)	(0.26)	(0.80)	(-0.06)	(0.72)	(-6.10)	(-1.12)
N	2,026	1,858	2,026	1,858	2,026	1,858	2,026	1,858
R^2	0.00	0.03	0.00	0.06	0.00	0.05	0.05	0.28
				Panel D. Outcome variables in fiscal year t+3				
SizeInflationExposure	-0.001	-0.001	-0.002	0.003	0.001	0.005	-0.144***	-0.043*
	(-0.31)	(-0.38)	(-0.34)	(0.44)	(0.39)	(1.13)	(-5.62)	(-1.72)
N	1,847	1,691	1,847	1,691	1,847	1,691	1,847	1,691
R^2	0.00	0.03	0.00	0.04	0.00	0.05	0.05	0.28
Controls		X		X		X		X
Industry FE		X		X		X		X
Year FE		X		X		X		X

Table A.4: **Estimation of Inflation Exposure: Summary of Regressions, 1996–2005**

This table reports the descriptive statistics for our estimation of firms' exposure to material inflation risk. The sample is restricted to Compustat firms headquartered in the U.S. We exclude firms with market value of equity less than $10 million or with a fiscal-year-end stock price less than $1 at least once over our sample period. *MarketCap* is the end-of-fiscal-year market capitalization (in million USD). We specify the following firm-by-firm regression model over the sample period of 1996 – 2005 to estimate firm i's exposure to material inflation risk:

$$CAR_{i,t} = \alpha + \beta \times Forecast\ Error_t + \epsilon_{i,t},$$

where $CAR_{i,t}$ is the cumulative daily market-adjusted returns (CAR) in the event window of [-1, +1] days relative to the date CPI of the last month of quarter t is released. *Forecast Error*$_t$ is the difference between CPI and the median value of CPI projected by professional forecasters. *Coefficient* and *t-statistic* refer to estimated $4 \times \beta$ and t-statistics. *InflationExposure* is a dummy variable equal to 1 if *t-statistic* is below -1.96, and 0 otherwise. Standard errors are adjusted by the Newey-West method.

	Mean	Std	p5	p10	p25	p50	p75	p90	p95	N
InflationExposure	0.086	0.280	0.000	0.000	0.000	0.000	0.000	0.000	1.000	3,793
Coefficient	-0.613	3.567	-6.774	-5.103	-2.337	-0.407	1.460	3.309	4.666	3,793
t-statistic	-0.159	1.368	-2.296	-1.878	-1.057	-0.183	0.686	1.513	2.132	3,793