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by Andrea Fabiani and Fabio Massimo Piersanti

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INFLATION, CAPITAL STRUCTURE AND FIRM VALUE

by Andrea Fabiani* and Fabio Massimo Piersanti*

Abstract

How does inflation affect firms' performance, conditional on their capital structure? To answer this question, we exploit survey-based inflation surprises from the euro area and analyze the cross-section of stock returns for non-financial companies on days of release of inflation data over the period 2020-2022. Our results suggest that, in reaction to a positive inflation surprise, firms with relatively higher leverage experience higher stock returns. Moreover, long-term leverage drives the adjustment, consistently with Fisherian theories, emphasizing the fall in the real value of debt liabilities associated with higher inflation.

JEL Classification: E31, E50, G12, G30, G32.
Keywords: inflation, capital structure, leverage, debt maturity, stock returns, high-frequency.
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1. Introduction[1]

After nearly three decades of moderate price growth, high inflation is back in the euro area. The annual growth rate of the euro area (EA) Harmonized Index of Consumer Prices (HICP) stood at 5% and 10% at the end of 2021 and 2022, respectively, against the highest value of 2.2% recorded over the period 2014-2020.[2]

Understanding the impact of inflation on firms' performance is important. This paper focuses on a leverage (capital structure) channel. That is, we ask whether firms with high leverage (i.e., the ratio of total liabilities to total assets) are affected differently by inflation shocks, as compared to those with low leverage, and if so, how. The answer to this question is not obvious. On one hand, inflation shrinks the real value of nominal liabilities, potentially benefiting firms with high leverage (Fisher 1933, Gomes et al. 2016). On the other hand, inflation, pushing central banks to raise nominal interest rates, may adversely affect highly-leveraged firms (Bernanke & Gertler 1989, Holmstrom & Tirole 1997). Moreover, there is little empirical evidence on the role played by firms' leverage in the transmission of inflation shocks, since the literature has mostly investigated *real* (rather than *financial*) channels.[3] Our paper aims at filling this gap, by asking how heterogeneity in firms' capital structure affects the pass-through of inflation on stock returns.

From an empirical standpoint, estimating the impact of inflation on stock returns via a capital structure channel poses several challenges. First, firms may anticipate inflation dynamics and endogenously adjust their capital structure (DeAngelo &

[1] We thank for useful comments Viral Acharya, Francesco Corsello, Vincenzo Cuciniello, Olivier Darmouni, Alessio De Vincenzo, Fabrizio Ferriani, Raffaele Gallo, Fadi Hassan, Dmitry Kuvshinov, Francesco Palazzo, Anatoli Segura, Federico Signoretti and Alex Tagliabracci as well as seminar participants at the Bank of Italy. The views expressed in this paper do not necessarily reflect the views of the Bank of Italy nor of the Eurosystem. All remaining errors are our own.

[2] Most other Advanced Economies experienced a similar acceleration in inflation dynamics over the 2021-2022 period, including the US. For a comparative discussion of the rise in inflation in the EA and in the US, see, among others, Visco (2023).

[3] Recent contributions analyzing firm-level and industry-level exposure to rising energy prices and supply-bottlenecks in global value chains - the main drivers of inflation in the euro area (Bank of Italy 2022, Corsello & Tagliabracci 2023) - include Amiti et al. (2022), Ferriani & Gazzani (2022), Fontagne et al. (2023).

Masulis 1980), generating a reverse causality bias. Second, inflation correlates with other sources of business cycle fluctuations (Galí 2015), which also influence both firms' capital structure and stock returns. Hence, it is not trivial to separate the impact of other macroeconomic information from that of inflation. One way to overcome the former issue is to focus on the implications of *unanticipated* adjustments in inflation, hence not yet incorporated in firms' decisions. Moreover, focusing on time intervals characterized by disproportionate importance of inflation news attenuates the latter concern that stock returns may reflect other macroeconomic *news* than inflation-related ones.

We design a high-frequency identification strategy plausibly matching those criteria. In brief, we evaluate the cross-sectional impact of inflation surprises - depending on firms' leverage - on daily stock returns for a sample of non-financial firms from the EA and in days when new inflation data was released over the period 2020-2022. More in detail, we define monthly inflation surprises as the difference between the realized value of the inflation rate (defined as the annual growth of the HICP) and the median forecast in a survey of professional forecasters compiled by Thomson Reuters.[4] Next, we regress daily stock returns in announcement dates against inflation surprises and their interaction with different firm characteristics, including leverage. In this setting, the high (daily) frequency of stock returns on inflation-announcement dates ensures that other macroeconomic news (different from inflation-related news) are unlikely to substantially affect stock returns. Furthermore, as we build inflation surprises based on a survey of professional forecasters, reverse causality between inflation and firms' capital structure requires that non-financial firms systematically beat inflation (HICP) forecasts by profes-

[4] Within each month, we focus on the date of the first announcement in the EA, taking into account announcements for France, Germany, Italy, Spain and the EA as a whole. Given the notable extent of synchronization of inflation dynamics in the EA, the first announcement has been shown to effectively convey the bulk of new information about EA inflation (Garcıaa & Wernerb 2021). Moreover, we focus on *flash* (preliminary) inflation estimates, rather than on *final* estimates, as the latter normally imply tiny adjustments relative to the *flash* estimates.

sional forecasters.[5] However, professional forecasters tend to react more promptly to macroeconomic news than non-financial firms (Coibion et al. 2020);[6] hence, this possibility seems rather implausible.

Our results are as follows. First, during announcement days with positive inflation surprises, firms with relatively higher leverage experience larger stock returns. Leverage plays an economically meaningful role in channeling the transmission of inflation shocks to stock returns. A 1 standard deviation (s.d.) larger inflation surprise generates relatively greater stock returns among firms with 1 s.d. higher leverage by 5 b.p.. The heterogeneous response of firms with different leverage to inflation shocks explains about 2.5% of the total dispersion in stock returns in announcement dates in the sample period, and up to 11% of the cross-sectional dispersion.

We dig deeper into those findings in order to characterize the underlying economic mechanism. First, it turns out that longer-term leverage is mostly responsible for our capital-structure channel, in line with Fisherian debt-deflation theories (Fisher 1933, Gomes et al. 2016). On the contrary, relative reliance on floating-rate versus fixed-rate debt does not intermediate our capital structure channel. These results indicate that the decrease in the real value of the debt principal amount more than compensates potential revaluation of the debt interest component.[7]

Moreover, we try to understand whether our results generally extend to a longer period dating back to 2014, characterized by low and predictable inflation. It turns out that in such a longer sample the capital structure channel of inflation surprises is

[5] Importantly, as our regressions employ firm and sector*time fixed effects, for reverse causality to be a relevant source of bias, it has to be the case that leverage correlates with better forecasting ability within a given sector and point in time (after controlling for indicators of size and profitability).

[6] Neri et al. (2022) show that professional forecasters incorporate macroeconomic news more promptly in the current context of rising inflation in the EA.

[7] Indeed, while the ECB reacted to rising inflation by raising nominal short-term rates, real interest rates have mostly remained in negative territories. Hence, the revaluation of interest payments in real terms has been relatively small. Moreover, listed firms in our sample rely mostly on fixed-rate (bond-financed) long-term leverage, so fluctuations in interest rate payments due to rising nominal rates are likely to be very limited (and mostly related to short-term bank loans).

not statistically significant. One potential explanation is that inflation surprises become relatively more persistent during the recent (post-2020) high-inflation period, so positive inflation surprises signal higher future price growth, thereby bearing a larger influence on the real value of nominal long-term liabilities. The patterns of (stand-alone and cumulated) surprises for the EA depicted in Figure 2 suggest that this is the case. Nonetheless, we formally test this hypothesis by describing inflation surprises as an AR(1) process and looking for unknown structural breaks (Andrews 1993, 2003) in the persistence parameter. Indeed, the test returns a structural break in the post-2020 period (and specifically in July 2021), associated with a notable increase in persistence.

Finally, we horse-race our capital-structure channel versus a notable real channel of transmission of inflation shocks during the recent inflationary episode in the EA, namely firm-level exposure to energy costs. Our analysis suggests that the two channels operate independently of each other. Moreover, the real (energy-costs) channel is at least twice as strong as the leverage channel.

We organize the rest of the paper as follows. Section 2 briefly revises the related literature. Section 3 describes the data. Section 4 discusses the empirical strategy and presents the results. Section 5 briefly concludes.

2. Related Literature

Our paper relates to different strands of the literature. To start with, a well-established literature in empirical asset pricing, dating back at least to a seminal contribution by Fama & Schwert (1977), analyzes the relation between inflation and asset returns.[8] We contribute to this literature by showing that positive and persistent inflation surprises magnify stock returns for firms with high long-term leverage. By doing so, we complement evidence on the implications of deflation risk (Fleckenstein et al. 2017)

[8] Cieslak & Pflueger (2023) provide an up-to-date review of this literature.

for corporate bond returns, explained, among others, by a debt-deflation Fisherian mechanism (Kang & Pflueger 2015).

A close paper to ours is Bhamra et al. (2023), who show how long-term leverage mediates the effects of changes in inflation expectations on stock prices. Our focus is different, as we analyze the implications of inflation surprises (i.e., of deviations of actual inflation from inflation expectations). That is, while Bhamra et al. (2023) analyze the effects of secular shifts in inflation expectations, we rather investigate inflation shocks over the business-cycle. Relatedly, Konchitchki & Xie (2023) measure firm-level inflation risk at the sensitivity (beta) of quarterly stock returns to inflation surprises for US listed firms and find that inflation risk is only mildly negatively related to leverage. Our results suggest that the weak statistical significance might be due to the nature of inflation surprises, which turn out to affect firm value only when they exhibit some degree of persistence.

Our paper also relates to the broad literature identifying the effects of macroeconomic announcements on asset prices (see, among others, Beechey & Wright 2009, Gürkaynak et al. 2004, Bauer 2014, Gorodnichenko & Weber 2016). In this context, most related to us, Knox & Timmer (2023) show that US firms with high market power exhibit relatively higher stock returns on announcement dates, whereas Gil de Rubio Cruz et al. (2022) analyze more broadly the time-varying nature of the reaction of US stock returns to inflation surprises. Differently, our paper specifically focuses on a Fisherian (long-term leverage) channel. Moreover, we are virtually the first to conduct a high-frequency study on the effects of inflation surprises on stock returns in the euro area. In this respect, our novel identification exploits the empirical regularity that the bulk of information brought by inflation announcements in the euro area is associated with the first announcement across large euro area members (Garcıaa & Wernerb 2021).

Finally, a recent work by Brunnermeier et al. (2022) investigates the real effects of the Fisherian channel in the context of the German hyperinflation in the 1920s. We show that nominal and long-term debt contracts trigger a leverage channel of inflation shocks under less extreme scenarios (i.e., not characterized by hyperinflation), though under the caveat that inflation surprises must display some degree of persistence. Hence, our study informs macroeconomic models incorporating long-term leverage as a source of amplification of inflation and monetary policy shocks (De Fiore et al. 2011, Gomes et al. 2016, Jungherr et al. 2022).

3. Data & Summary Statistics

3.1. Realized and Surprise Inflation

We collect data from several sources. First, we gather macroeconomic data from Thomson Reuters Datastream.

In particular, we measure inflation expectations through the Thomson Reuters Poll of Professional Forecasters. Every month, Thomson Reuters polls a team of professional forecasters from different financial institutions about the expected level of inflation in several countries. Within the euro area, such surveys are available for France, Germany, Italy, and Spain as well as for the whole euro area. The survey occurs before the release of inflation data by the respective National statistical institutes (and by Eurostat for euro area data) and regards both the monthly and annual growth rate of the Index of Consumer Prices.[9] Importantly, the release of inflation data for European countries involves two stages. First, there is a preliminary (or flash) release of inflation estimates. Second, the different statistical institutes release the final inflation estimate, which incorporates eventual adjustments. Those adjustments are generally very small and flash estimates convey the lion's share of the

[9] National statistical institutes release CPI data both following national conventions and harmonized procedures allowing for the comparison of inflation data across European countries. In the latter case, inflation data are labeled as Harmonized Index of Consumer Prices (HICP). As we exploit a cross-country framework, we use HCPI data.

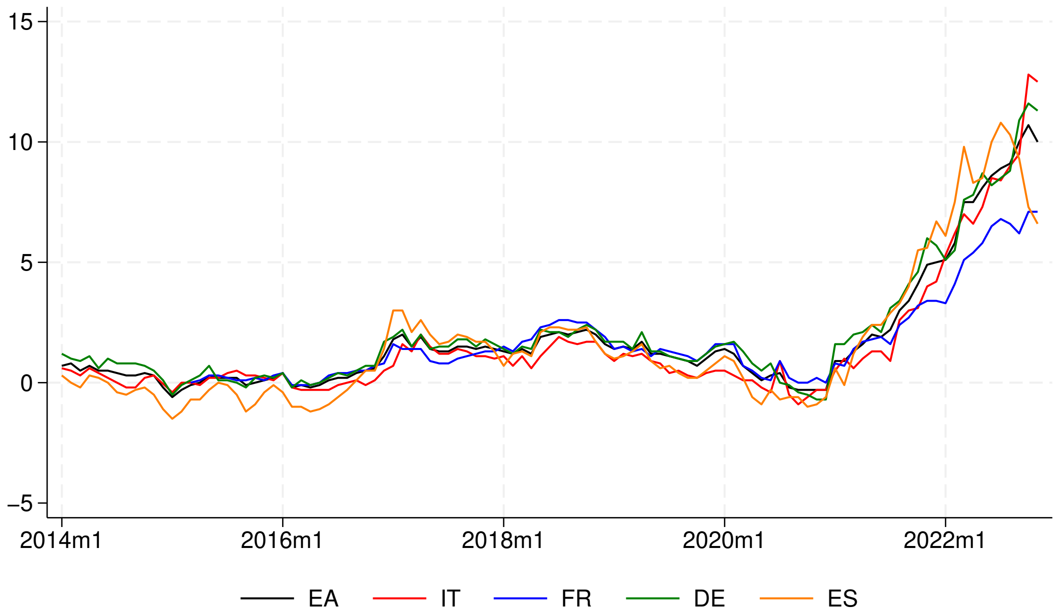
informative content associated with the release of inflation data (see, among others, Garcıaa & Wernerb 2021). Consistently, we rely on inflation expectations about flash estimates.

We build a calendar of publication dates of flash estimates for France, Germany, Italy, Spain, and for the EA over the sample period from January 2014 to November 2022.[10] Flash estimates are available throughout the whole sample period for Germany, Italy, Spain, and the euro area, whereas they start in 2016 for France. In each month, different countries publish information on different dates, typically at the end of the reference month for inflation data or at the latest at the beginning of the subsequent month. To better visualize the sequence of the release of flash estimates in different months, in Figure A1 of Appendix A we depict for each reference month inflation data (y-axis) the distance from the first release for the different countries (x-axis). Evidently, over our period of analysis, Germany and Spain are the most common first-movers. It is not surprising, then, that previous studies find that flash estimates from those countries are mostly responsible for adjustments in inflation expectations in the euro area (Garcıaa & Wernerb 2021), as market operators can infer overall adjustments for the euro area depending on the information released by the first-movers.

Figure 1 displays the monthly evolution of inflation, defined as the annual growth of the HICP, over the sample period. The chart reflects a notable extent of synchronization in inflation cycles across the different countries of the euro area, which further contributes to explaining why information released by the first-mover countries is especially important for inflation expectations in the euro area. Moreover, inflation has been very low, and generally below or close to the medium-run target of 2% at least up to the start of the Covid-19 pandemic in March 2020. Later on, inflation has generally been on the rising path, primarily fuelled by the bottlenecks

[10] The calendars of inflation-data release are available for instance at https://www.bloomberg.com/markets/economic-calendar.

FIGURE 1: HICP INFLATION



This figure shows the evolution of the annual growth of the Harmonized Index of Consumer Prices in selected countries of the euro area, namely France (FR), Germany (DE), Italy (IT) and Spain (ES). We also report the evolution of HICP inflation for the euro area (EA) as a whole. Data are reported with monthly frequency.

in global value-chains associated with the Covid-19 pandemic and by the rise in commodity prices spurred by the Russian-Ukraine conflict (see e.g. Bank of Italy 2022). For comparison, while HICP inflation averaged 0.87% in the euro area in the pre-Covid period, with a maximum value of 2.2%, it has been equal on average to 3.72% between 2020 and 2022, with the peak at 10.7%.

Throughout this period, we compare the monthly realized HICP inflation in a given country c, labeled as $\pi_{c,t}$, with the expectations from professional forecasters. We take the median expected HICP inflation as the consensus forecast, labeled as $\tilde{\pi}_{c,t}$. The difference between these variables can therefore be interpreted as a proxy of surprise inflation:

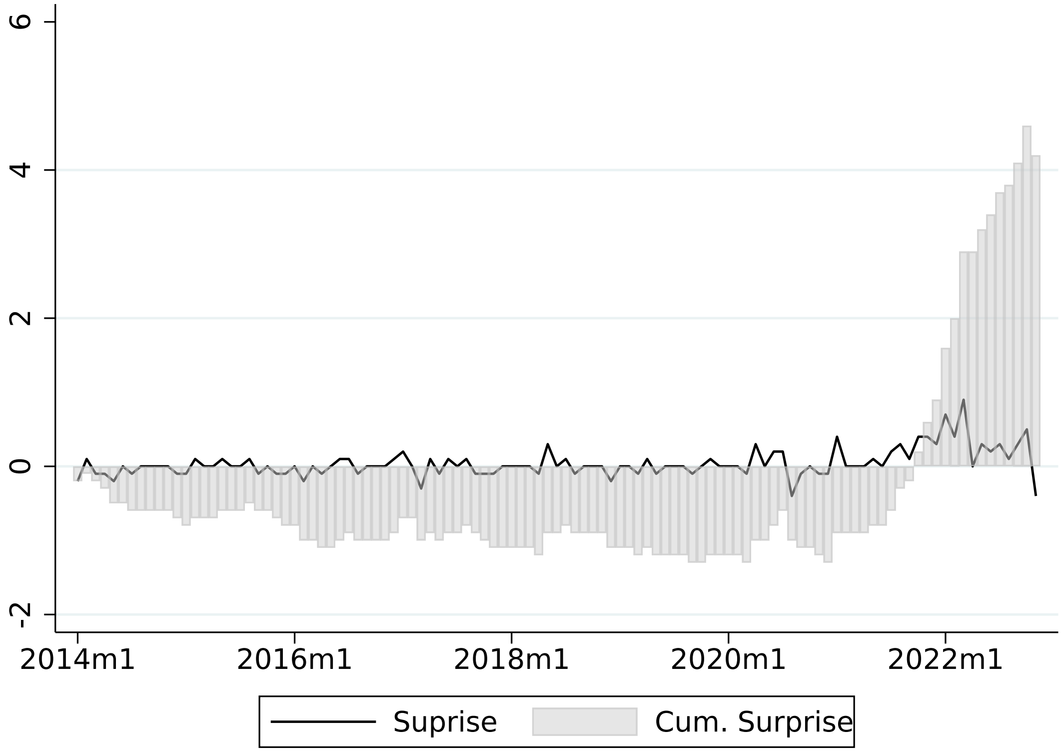
$$\varepsilon_{c,t} = \pi_{c,t} - \tilde{\pi}_{c,t} \tag{1}$$

Figure 2 plots surprise inflation for the euro area as a whole, both the monthly realization and the cumulated (across month) values, denoted by a line and bars, respectively. Inflation surprises are on average small and close to 3 b.p. over the whole period, as can be seen in the summary statistics Table A1 of Appendix A. Nonetheless, they display substantial variation over time, with an s.d. of about 19 b.p.. Interestingly, the pre-2020 period, characterized by low inflation (see Figure 1), displays small surprises, tilted toward negative values. Differently, the recent post-2020 period brings about large positive inflation surprises. Indeed, we report separately summary statistics for the sample starting in April 2020 in Table A2 of Appendix A and it turns out that during this time window, the average surprise is much higher and close to 17 b.p.. Moreover, rising cumulative surprises denote systematic inflation surprises, suggesting that professional forecasters had not been expecting a substantial increase in inflation.

In our empirical analysis, we will focus, however, on the series of inflation surprises associated with the first country releasing an inflation surprise.[11] The rationale behind this choice is that the first-mover surprises provide the largest informative content associated with the publication of flash estimates, as clear from the notable synchronization in inflation cycles across euro area countries. The resulting series, denoted by ε_t, has an average of 2 b.p. and s.d. of 30 b.p. over the whole period (and of 22 b.p. and 40 b.p. during the post-2020 period). Moreover, Figure 3 shows that the first inflation surprise is strongly positively correlated with the euro area surprise in the corresponding reference month. In particular, a higher positive first-surprise by 100 b.p. is associated with 49 b.p. higher euro area surprise and explains about half of its variation (proxied by the R-squared).

[11] When multiple countries release on the (first) same day, we take the average across the associated inflation surprises.

FIGURE 2: EURO AREA INFLATION SURPRISES



This figure shows the evolution of inflation surprises for the euro area. Inflation surprises are defined as the difference between realized HICP inflation from flash estimates and consensus forecasts, i.e. the median inflation expectation in the sample of Thomson Reuters Polls of Professional Forecasters. The black line depicts the monthly value of inflation surprises. The grey bars cumulate inflation surprises starting in January 2014.

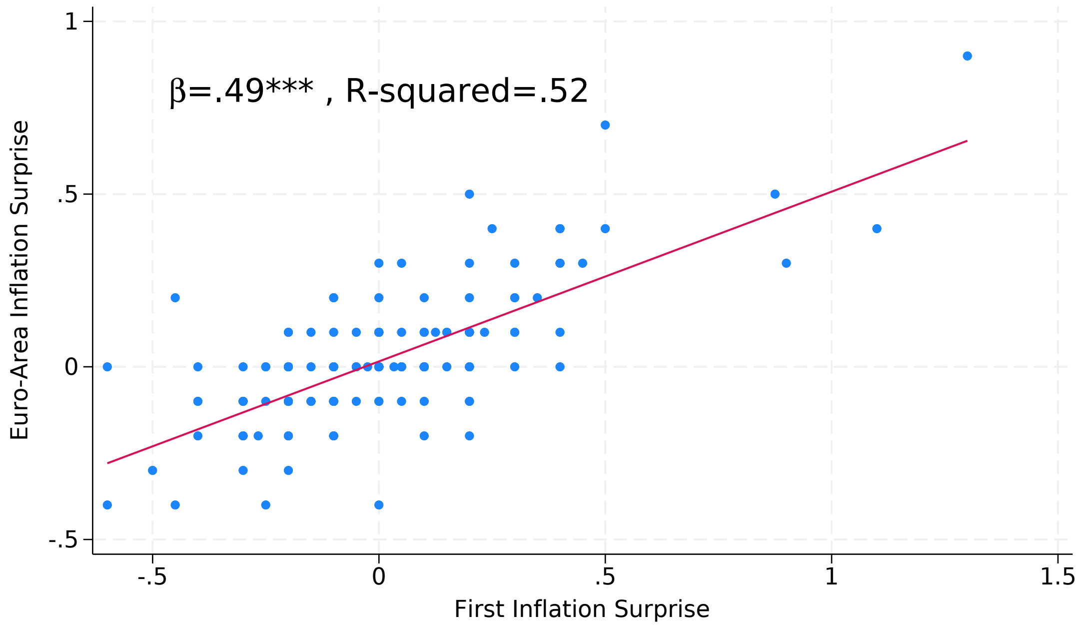
3.2. STOCK RETURNS & OTHER FIRM-LEVEL VARIABLES

Our sample consists of non-financial firms (excluding public utilities)[12] from the EURO STOXX index, the euro area subset of the STOXX Europe 600. Firms constituting this index have highly traded stocks and are therefore well-suited for high-frequency analyses of stock returns for euro area firms.[13] Therefore, in each month, our sample includes the current constituents of the index, retrieved from Thomson

[12] We follow the standard approach of excluding public utilities as their stock price might not reflect market dynamics, given the large extent of regulation they are subject to.

[13] For instance, Darmouni et al. (2020) analyze the high-frequency transmission of euro area monetary policy shocks on the same sample of firms.

FIGURE 3: EURO AREA INFLATION SURPRISES



This figure shows the relation between the Inflation surprise of the first-mover country in the sequence of inflation-data releases in the euro area (x-axis) and the realized euro area inflation surprise (y-axis). The coefficient β is estimated from a regression of euro area inflation surprises against first-mover surprises (plus a constant). Robust s.e.. *** denote significance at the 1% level.

Reuters Datastream.[14] From the same data source, we also gather (closing) daily stock prices. We label firm f's stock price in day d as $p_{f,d}$. Daily stock returns are hence defined as: $r_{f,d} = \ln p_{f,d} - \ln p_{f,d-1}$. Summary statistics in Appendix A Table A1 indicate that - over the broader sample from 2014 to 2022 - on days of the first release of inflation data, the average daily stock return equals -1 b.p.. Moreover, there is substantial variation, with 1 s.d. amounting to 180 b.p.. Stock returns display a similar distribution during the most recent (post-2020) high-inflation period (see Table A2 of Appendix A).

We link stock returns with balance sheet data from Standard & Poor's Capital IQ, providing relatively rich information on firms' capital structure. We retain an-

[14] The monthly series of the EURO STOXX constituents is denoted as LDJEURST in Datastream.

nual balance sheet data to maximize coverage. Our baseline proxy of firm leverage, $Leverage_{f,y}$, is the ratio between total liabilities and total assets, on average equal to 60% (see Table A1 in Appendix A). There is a notable amount of heterogeneity, as 1 s.d. amounts to 15%, mostly stemming from cross-sectional variation across firms, as leverage is sticky within a firm. Next, we split total liabilities into total debt and other liabilities and built related proxies of financial and non-financial leverage by rescaling those variables by total assets. Financial leverage, i.e. the ratio between total debt and total assets (labeled as $\frac{Debt}{TA}$), is on average equal to 26%. This suggests that a substantial portion of firm leverage is explained by other liabilities than debt, e.g. trade credit.

We gather additional information on firms' capital structure. In our analysis, two important dimensions of leverage are its maturity and its floating-rate share.[15] Regarding leverage maturity, Capital IQ provides information on short-term debt (i.e. with original maturity equal or below one year) and on the amount of long-term debt (i.e. with original maturity above 1 year) expiring in x-years, $x = 1, 2, .., 5$. Using that information, we first define a proxy of short-term leverage as the ratio between the value of debt expiring in 1 year or less and total assets, $\frac{ST\,Debt}{TA}$. Next, we define proxies of long-term leverage as the ratio between the amount of debt expiring in more than j years and total assets, $\frac{LT\,Debt\mathbf{j}y}{TA}$, $j = 1, 3, 5$.[16] Firms in our sample are relatively more reliant on long-term leverage. Indeed, short-term debt accounts on average for only 2% of total assets (and slightly less than 10% of financial leverage), as clear from summary statistics for the variable $\frac{STDebt}{TA}$ in Table A1 of Appendix A. The majority of the remaining long-term debt obligations have residual maturity between 1 and 3 years, suggested by the fact that the share of long-

[15] Both information are available only for financial leverage, i.e. for the debt component of total leverage, as for other liabilities it is not possible to infer from Capital IQ the residual maturity and whether they are subject to interest payments. Hence, when referring to notions such as long-term leverage or floating-rate leverage, it has to be kept in mind that we refer to financial leverage only.

[16] The choice of the horizons for computing different proxies of long-term leverage follows standard practice in the literature (see, among others, Custódio et al. 2013 and Kalemli-Özcan et al. 2022).

term debt peaks at the 1-year horizon. Moreover, we measure floating-rate leverage as the ratio between floating-rate debt and total assets, $\frac{Floating Rate\, Debt}{TA}$, on average equal to 6% (about one fourth of the average value for financial leverage). Put differently, firms in our sample use relatively more fixed-rate debt than floating-rate debt. Hence, it is not surprising that bond-financed leverage is on average larger than bank-financed leverage (see the summary statistics for the variables $\frac{Bond\, Debt}{TA}$ and $\frac{Bank\, Debt}{TA}$, respectively), as the vast majority of bond-debt is fixed-rate, differently from bank-leverage which is mostly floating-rate (Ippolito et al. 2018, Darmouni et al. 2020). In addition, we collect additional firm-level annual information, including log revenues, ROE (i.e., net income over equity), and the end-of-the-year price-to-book ratio, as well as a proxy of market-power given by the ratio between sales and costs of goods sold (COGS).[17,18]

Finally, we also gather information on proxies of firm-level exposure to inflation through energy channels. The recent surge in inflation in the EA has been largely driven by a rise in energy prices (Bank of Italy 2022). Hence, we proxy firm-level exposures to fluctuations in energy prices through measures of energy intensity. In detail, we collect information on firm-specific annual energy consumption (expressed in gigajoules) from Thomson Reuters Refinitiv. Next, we multiply energy consumption by the average energy price in a given year, thereby obtaining a proxy of energy costs. In particular, in the absence of further information on the different sources of energy consumed by non-financial firms in Refinitiv, we impute average

[17] Under the cost-minimization approach (De Loecker & Warzynski 2012), firm-level markups can be proxied via the sales to COGS ratio, scaled by the output elasticity of the goods sold by a given firm. Such elasticity is typically estimated at the industry (2-digit) level. As in our most robust regressions we will control for industry*time fixed effects, however, we can avoid rescaling the sales-to-COGS ratio with the output elasticity.

[18] In general, firm-level variables display very similar distributions in the post-2020 period as compared to the whole period of analysis, as clear from the comparison of summary statistics in Appendix A Tables A1 and A2.

yearly spot electricity prices (gathered from the European Energy Exchange).[19] We divide the resulting measure of energy costs by total revenues. Summary statistics in Appendix A Table A1 indicate that energy costs account on average for 2.7% of revenues in our sample.

4. Empirical Strategy & Results

4.1. Empirical Strategy

Our exercise compares stock returns of firms with heterogeneous capital structure on the first-day of announcement of inflation data in the euro area. Formally, we run the following regression:

$$r_{f,d(m)} = \beta_1 Leverage_{f,y-1} + \beta_2 \varepsilon_m * Leverage_{f,y-1} + \Gamma X_{f,m} + \mu_f + \mu_{s,d(m)} + u_{f,d(m)} \tag{2}$$

The dependent variable, $r_{f,d(m)}$, is the daily stock return for firm f in the first-day of release on inflation data in month-m, labeled as $d(m)$. Our key coefficient of interest is β_2, loading the interaction between the (first) inflation surprise, ε_m, and lagged firm leverage, $Leverage_{f,y-1}$. A positive estimated coefficient β_2 would suggest that, following the announcement of higher than expected inflation, firms with relatively bigger leverage experience larger stock returns (as compared to firms with smaller leverage).

We apply a vector of firm-level controls $X_{f,m}$, eventually fully interacted with the inflation surprise ε_m. $X_{f,m}$ includes lagged proxies of firm and stock profitabil-

[19] We operate the product between electricity prices and energy consumption after converting energy consumption from gigajoule to kilowatt hour, the unit of measure for pricing electricity. Electricity constitutes, along with gas, the major source of energy used by European firms. These two energy inputs account for at least 50% of total energy consumption by non-financial firms different from public utilities in the euro area (Eurostat). Applying the same procedure with gas prices does produce nearly identical findings (reflecting the large extent of correlation between electricity and gas prices).

ity (ROE and price-to-book ratio, respectively) and of firm size (log-revenues) as well as the firm-level monthly beta,[20] controlling for the fact that some firms may be in general more exposed to systematic risk. We also include lagged firm-level markups, accounting for the fact that firms with market power can pass-through increases in costs to prices, thereby performing better following inflation shocks (Knox & Timmer 2023).

Moreover, we augment the model with firm fixed effects, μ_f, and with sector*time fixed effects, $\mu_{s,d(m)}$. Hence, the identification of β_2 stems from the: i) cross-sectional comparison of stock returns of firms with different leverage in a given sector and announcement date, conditional on the inflation surprise; ii) within-firm comparison of stock returns, depending on the current inflation surprise and leverage. Being leverage extremely sticky within a given firm (firm fixed effects explain about 90% of the variation in firm leverage), however, the relative contribution of within-firm variation in firm leverage is small. As a result, β_2 mainly reflects the cross-sectional impact of firm leverage on the transmission of inflation surprises to stock returns. Finally, $u_{f,d(m)}$ is an error term, clustered at the firm-level, in line with the fact that our main coefficient is primarily identified by firm-level heterogeneity (MacKinnon et al. 2023).

4.2. Baseline Results

We report the results from the estimation of equation 2 over the key period of interest from April 2020 to November 2022 in Table 1.

Column 1 shows coefficient estimates from a regression model without any control or fixed effect. Column 2 augments the model by including the usual firm controls (fully interacted with the inflation surprise). Column 3 adds firm fixed effects. Column 4 additionally applies time fixed effects, absorbing any observed and un-

[20] We compute monthly time-varying firm-level betas regressing firm-level stock returns against the returns of the EURO STOXX index in 60-month rolling windows.

observed macroeconomic shocks. In column 5, we try to account for (1-digit) sector-specific sensitivity to inflation surprises by interacting sector fixed effects with the inflation surprise itself. Finally, column 6 controls for any (observed and unobserved) time-varying sectoral shock through sector*time fixed effects, hence replicating the most robust model in equation 2. Columns 7 and 8 replicate the latter two models, respectively, applying however more granular (2-digit) industry dummies. Across all such model specifications, the interaction between leverage and inflation surprises exerts a positive and statistically significant effect on stock returns.

TABLE 1: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - BASELINE RESULTS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Firm Daily Returns (%)							
ε	0.173***	0.175***	0.175***	-	-	-	-	-
	(0.0163)	(0.0167)	(0.0168)					
Leverage	-0.0347	-0.0707**	0.0905	0.0578	0.0924	0.0405	0.0973	0.0526
	(0.0281)	(0.0277)	(0.0914)	(0.101)	(0.0888)	(0.102)	(0.0874)	(0.112)
$\varepsilon * Leverage$	0.0396**	0.0524***	0.0576***	0.0544***	0.0500**	0.0409**	0.0627***	0.0493**
	(0.0156)	(0.0166)	(0.0172)	(0.0165)	(0.0195)	(0.0187)	(0.0200)	(0.0195)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	No	No	Yes	No	-	No	-
Sector(1-D)*ε	No	No	No	No	Yes	-	-	-
Sector(1-D)*Time FE	No	No	No	No	No	Yes	No	-
Sector(2-D)*ε	No	No	No	No	No	No	Yes	-
Sector(2-D)*Time FE	No	No	No	No	No	No	No	Yes
N	6081	6081	6081	6081	6081	6081	6081	5751
R^2	0.014	0.018	0.047	0.308	0.049	0.339	0.053	0.454

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. *Leverage* is the ratio between (lagged by one year) total liabilities and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

About the economic significance of the impact of leverage on the transmission of inflation shocks to firm value, it ought to be noticed that we standardize all variables in our regressions (a convention maintained throughout the paper). Hence, estimates in our preferred specification in column 6 indicate that firms with relatively higher leverage by a 1 s.d. (15%) respond to a 1 s.d. inflation surprise (30 b.p.) with higher stock returns by nearly 5 b.p.. For comparison, the average stock return over the sample period equals 13 b.p. (see Table A2 in Appendix A). Hence, inflation shocks substantially magnify firm value among firms with high leverage. For gauging the role of leverage in explaining the dispersion of stock returns during announcement dates, we resort to the dissection of total stock returns volatility into *between* and *within* volatility in Table A3 in Appendix A. The discussed estimates imply that the capital structure (leverage) channel of inflation surprises explains about 2.7% of the overall variation in stock returns in announcement dates in the sample period (April 2020 to November 2022), as proxied by its "total" s.d.. However, the fraction increases to 14% when considering the "between" variation, better reflecting cross-sectional dispersion in stock returns (see Table A3 in Appendix A). We take those values as lower and upper bounds, respectively, for measuring the contribution of the capital structure channel to explaining the reaction of stock returns to inflation surprises.

4.3. Robustness

We start by evaluating whether our results are driven by outliers. Our sample comprehends a relatively low number (210) of firms. Hence, both the estimated coefficients and related s.e. (clustered at the firm level) may disproportionately reflect the patterns for a few influential observations. To exclude that this is the case, we perform an influence-analysis (MacKinnon et al. 2023). In practice, we re-run model 2 excluding one firm (cluster) at a time and evaluate how this impacts coefficients' size/sign and significance. We report results in Figure A2 in Appendix A. On the y-axis, we report the estimated coefficients $\hat{\beta}_2$. On the y-axis, the p-values associated with the test with the null hypothesis: $H_0 : \hat{\beta}_2 = 0$. The displayed diagnostics are reassuring: all coefficients lie in a strict neighborhood of the baseline effect at 5 b.p., represented by the red triangle and corresponding to the coefficient in column 6 of Table 1, and all p-values are strictly below 10%.

An additional concern applying to our estimates is that inflation surprises derived from surveys are noisy proxies of inflation shocks.[21] Hence, we perform two placebo exercises to exclude the possibility that our coefficients reflect noisy variations in the data. First, we assign 10,000 randomly generated series of "fake" inflation shocks $\tilde{\epsilon}_{m,j}$, $j = 1, 2, ..., 10,000$ to calendar dates. We draw shocks from plausible normal distributions with first and second moments equal to those of the original inflation surprise ϵ_m series. Next, we sequentially estimate a version of model 2 in which we substitute the original inflation surprises with the different series of fake shocks. To the extent that our coefficient reflects noise in announcement dates, then it should be in the range of relatively central values in the distribution of coefficients based on randomly generated fake shocks. Plotting the distribution of such placebo-coefficients in Figure A3 of Appendix A, however, suggests that this is not the case. The distribution is clearly centered around 0 and our (unstandardized) coefficient - denoted by the red bar - is close to extreme values. In other words, randomly generated shocks oveer calendar days produce coefficients centered around 0 and are statistically inconsistent with our sample estimates.

Second, we generate 10,000 fake calendars in non-announcement windows, i.e. in the time-interval going from the last announcement date from euro area statistical agencies in a given month m and the first announcement in the next month $m + 1$ (see Figure A1 of Appendix A). We estimate model 2 in such fake calendars.

[21] Coibion et al. (2020) extensively discuss the limitations of existing inflation surveys (including surveys of professional forecasters) for measuring inflation expectations.

If inflation surveys are not associated with market surprises around the announcement date, but rather reflect secular shifts in macroeconomic news, then they should produce a consistent distribution of coefficients even when regressed against stock returns on different dates. Once again, Figure A4 of Appendix A provides comforting evidence against this hypothesis, as the true coefficient is an extreme value relative to the distribution of placebo-coefficients.

Third, there may be concerns that our results reflect the selected period of analysis. We run the baseline estimates run over the period from April 2020 to November 2022. We focus on this period because rising inflation in the euro area has primarily been driven by bottlenecks in supply chains due to the Covid-19 pandemic and to the energy price shocks associated with the Russian-Ukrainian conflict (see, e.g., Bank of Italy 2022). Nonetheless, there may be worries due to the fact that, for instance, variations in stock returns during 2020 rather reflects lockdowns associated with Covid. Moreover, as strong inflation dynamics materialized only in 2021, the shorter period starting from January 2021 represents a plausible alternative estimation sample. Indeed, we rerun all the key regressions in our paper over such a smaller sample period and the results are both qualitatively and quantitatively unchanged. In detail, we report the baseline results discussed so far in Table B1 of Appendix B.

4.4. MECHANISM

We dig deeper into our findings and try to characterize an underlying mechanism. To start with, in Table 2 we split total leverage (total liabilities to total assets ratio) into financial leverage (debt over total assets) versus non-financial leverage (non-debt liabilities over total assets). Interestingly, it turns out that both interact significantly and positively with inflation surprise and with comparable economic significance. This result holds in nearly any model specification (from the least constrained in column 1 to the most robust in column 7).

TABLE 2: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - FINANCIAL LEVERAGE *vs* OTHER LIABILITIES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Firm Daily Returns (%)						
$\varepsilon * \frac{Debt}{TA}$	0.0533***	0.0557***	0.0630***	0.0571**	0.0469**	0.0612**	0.0445*
	(0.0182)	(0.0186)	(0.0193)	(0.0226)	(0.0224)	(0.0238)	(0.0245)
$\varepsilon * \frac{OtherLiab}{TA}$	0.0202	0.0424**	0.0436**	0.0367*	0.0293	0.0552***	0.0473**
	(0.0181)	(0.0198)	(0.0201)	(0.0217)	(0.0211)	(0.0207)	(0.0209)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*ε	No	No	No	Yes	-	-	-
Sector(1-D)*Time FE	No	No	No	No	Yes	No	-
Sector(2-D)*ε	No	No	No	No	No	Yes	-
Sector(2-D)*Time FE	No	No	No	No	No	No	Yes
N	5730	5730	5730	5730	5730	5730	5441
R^2	0.007	0.013	0.053	0.056	0.269	0.062	0.394
p-value	0.05	0.00	0.00	0.01	0.02	0.00	0.00

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. *Leverage* is the ratio between (lagged by one year) total liabilities and total assets. Firm Controls include (lagged) ROE, beta, log revenues,price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

Absent detailed information on the characteristics of non-debt liabilities, we investigate a mechanism exploiting heterogeneity in financial leverage.[22] A classical theory, dating back to Fisher (1933), suggests that rising inflation benefits highly leveraged firms by deflating the value of nominal liabilities (such as debt). Under this hypothesis, nominal long-term liabilities are relatively more important than short-term liabilities in intermediating the transmission of inflation shocks on firm-value (Gomes et al. 2016). To test this hypothesis, we re-estimate model 2, substituting total leverage with our proxies of short-term and long-term leverage. We

[22] Kalemli-Özcan et al. (2022) follow a similar approach for analyzing debt-overhang in the euro area following the Sovereign Debt Crisis.

present the results in Table 3. In column 1, short-term leverage (i.e., with residual maturity below or equal to 1-year) does not interact significantly with inflation surprise. In column 2, we introduce long-term leverage, based on the 1-year threshold. The coefficient nearly grows by five times (as compared to that for short-term leverage) and becomes significant at the 5% level. Moreover, in columns 3 and 4 longer-term leverage (i.e., with residual maturity of more than 3 and 5 years, respectively) likely exerts a positive and significant effect on stock returns, conditional on positive inflation surprises. In column 5, we split financial leverage into mutually exclusive residual-maturity buckets (below 1 year, between 1 and 3 years, between 3 and and 5 years, and above 5 years). In such horse-race, the positive interaction between leverage and inflation surprises mostly reflects the role of very long-term liabilities with residual maturity above 5 years. For robustness, in Tables A6-A9 of Appendix A we show that the stronger statistical and economic significance of long-term leverage (as opposed to short-term leverage) hold irrespectively of the applied set of controls and/or fixed effects. To conclude, we additionally test the Fisherian mechanism exploiting the split between current and non-current liabilities. This allows us to link this section with the result that also non-debt liabilities matter for the transmission of inflation surprises to firm value. Reassuringly, results in Table A10 show that non-current liabilities drive the positive relation between total leverage (i.e., total liabilities over total assets) and stock returns conditional on positive inflation surprise.

One additional channel through which inflation may affect firm value via the capital structure is through inflation-induced variations in interest rates, for instance, associated with monetary policy rate adjustments. As rising inflation is generally linked to higher interest rates, we may expect firms with higher floating-rate leverage benefitting relatively less Ippolito et al. (2018). Interestingly, however, floating-rate leverage tends to be bank-financed, as opposed to bond-financed lever-

TABLE 3: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - LONG *vs* SHORT-TERM LEVERAGE & FLOATING *vs* FIXED-RATE LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Firm Daily Returns (%)							
	Debt Maturity					Bond vs Bank Debt		
$\varepsilon * \left(\frac{ST\,Debt}{TA}\right)$	0.0118				0.0116			
	(0.0309)				(0.0301)			
$\varepsilon * \left(\frac{LT\,Debt1y}{TA}\right)$		0.0739**						
		(0.0301)						
$\varepsilon * \left(\frac{LT\,Debt3y}{TA}\right)$			0.0805***					
			(0.0292)					
$\varepsilon * \left(\frac{LT\,Debt5y}{TA}\right)$				0.0722**	0.0925**			
				(0.0282)	(0.0395)			
$\varepsilon * \left(\frac{LT\,Debt\ btw\ 1-3y}{TA}\right)$					0.0104			
					(0.0337)			
$\varepsilon * \left(\frac{LT\,Debt\ btw\ 3-5y}{TA}\right)$					-0.0176			
					(0.0338)			
$\varepsilon * \left(\frac{Bond\,Debt}{TA}\right)$						0.0139		
						(0.0215)		
$\varepsilon * \left(\frac{Bank\,Debt}{TA}\right)$							0.0253	
							(0.0205)	
$\varepsilon * \left(\frac{Floating\,Rate\,Debt}{TA}\right)$								0.0466
								(0.0344)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector*Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3243	4659	4602	4633	2883	4840	5892	3552
R^2	0.356	0.341	0.342	0.345	0.366	0.356	0.339	0.348

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{ST\,Debt}{TA}$ is the ratio between short-term debt (i.e., debt with residual maturity equal or below to one-year) and total assets. $\frac{LT\,Debt1y}{TA}$ is the ratio between debt with maturity above one year and total assets. $\frac{LT\,Debt3y}{TA}$ is the ratio between debt with maturity above three years and total assets. $\frac{LT\,Debt5y}{TA}$ is the ratio between debt with maturity above five years and total assets. $\frac{LT\,Debt\ btw\ 1-3y}{TA}$ is the ratio between debt with maturity above one and equal to or below three years and total assets. $\frac{LT\,Debt\ btw\ 3-5y}{TA}$ is the ratio between debt with maturity above three and equal to or below five years and total assets. $\frac{Bond\,Debt}{TA}$ is the ratio between bond debt and total assets. $\frac{Bank\,Debt}{TA}$ is the ratio between bank debt and total assets. $\frac{Floating\,Rate\,Debt}{TA}$ is the ratio between floating-rate debt and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

age which is predominantly fixed rate. Bond-financed leverage may be more difficult to refinance in correspondence with adverse macroeconomic shocks, due to the fact that, among others, bond-financiers are relatively more dispersed (Bolton & Scharfstein 1996, Crouzet 2018, Darmouni et al. 2020). Hence, whether higher floating-rate leverage should be associated with larger or smaller stock returns is ultimately an empirical question. Results in columns (5)-(7) of Table 3 indicate that none of those variables is key for explaining the effect of inflation surprises on stock returns. If anything, the coefficients on floating-rate and bank-debt are relatively larger (see also Tables A11-A13 in Appendix A with different model specifications) and point to a relatively larger influence of bond-market frictions.[23] Finally, as our sample includes only current constituents of the EURO STOXX index, there may be concerns that our findings reflect survivorship bias. Hence, in Tables A4 and A5, we replicate our key regressions over the sample of firms entering the index at any point in time over the (longest available) period from January 2014 to November 2022 and, respectively, over the baseline period from April 2020 to November 2022. Both tables confirm the main finding that, conditional on a positive inflation surprise, firms with higher long-term leverage experience larger stock returns.

4.5. High vs Low-Inflation Periods

As clear from Figures 1 and 2, by running our regressions on the sample period ranging from April 2020 onward, we are focusing on a period characterized by high inflation and large inflation surprises, respectively. Hence, an interesting question is whether the capital structure channel of inflation surprises is operative also in the previous period (from January 2014 to March 2020) with low and predictable inflation.

In this respect, we report the results from the estimation of equation 2 in the dif-

[23] All the discussed tests deliver similar results if we start our estimation window in January 2021 rather than in April 2020 (see Tables B3-B11 in Appendix B).

TABLE 4: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - HIGH VS LOW-INFLATION PERIODS

	(1)	(2)	(3)
	Firm Daily Returns (%)		
	Post-2020	Pre-2020	Whole Period
$\varepsilon * Leverage$	0.0409**	-0.00846	0.0129
	(0.0187)	(0.0205)	(0.0126)
Firm Controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Sector(1-D)*Time FE	Yes	Yes	Yes
N	6081	14884	21158
R^2	0.339	0.352	0.333

This table shows the effects of inflation surprises on stock returns. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). In column 1, the sample period runs over the high-inflation period from 2020m4 to 2022m11. In column 2, the sample runs over the low-inflation period from 2014m1 to 2020m3. Finally, column 3 includes observation over the whole period from 2014m1 to 2022m11. ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. *Leverage* is the ratio between (lagged by one year) total liabilities and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. Standard errors in parenthesis clustered at the firm level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

ferent periods in Table 4. We split the sample period in high-inflation (Apr-2020 to Nov-2022) and low-inflation (Jan-2014 to Mar-2020) in columns 1 and 2, respectively. Next, we consider the whole period altogether in column 3. It turns out that firm leverage matters for the cross-sectional response of stock returns to an inflation surprise only in the high-inflation period. Differently, the previous time window from January 2014 to March 2020 is characterized by an insignificant interaction between inflation surprises and firm leverage. Since the low-inflation period weights relatively more in our 2014-2022 sample, the estimated coefficient over the whole period of the analysis is also not statistically different from zero. Importantly, we obtain analogous results if we set the beginning of the high-inflation period in January 2021 in Table B12 of Appendix B.

Next, we try to understand why inflation shocks affect firms' value only during the most recent period. One potential explanation is that inflation surprises become relatively more persistent during such a time interval, so that positive inflation surprises signal higher future price growth, thereby bearing a larger influence on the real value of nominal long-term liabilities. For testing this hypothesis, we first estimate an AR(1) process for inflation surprises over the whole period and over the two subsamples. We display the results in Table 5. Evidently, inflation surprises do not display a significant degree of persistence during the low-inflation period, whereas they do in the high-inflation period. To further verify whether the post-2020 period marks an increase in the persistence of inflation surprises, we model again EA inflation surprises as an AR(1) model and look for unknown structural breaks in the persistence parameter. We follow the approach in Andrews (1993). Confirming our conjecture, the test rejects the null hypothesis of no structural break and places the estimated structural break in July 2021. Moreover, we plot the time-varying Wald statistic associated to the Andrews (1993)'s test in Figure A5 of Appendix A. The figure suggests that, beyond the specific structural break date, the relation becomes unstable in 2020 (and even more in 2021), when the test statistics rise substantially to levels inconsistent with the null hypothesis of no structural breaks.

TABLE 5: PERSISTENCE OF INFLATION SURPRISE

$$\varepsilon_{EA,t} = \rho\varepsilon_{EA,t-1} + u_{EA,t}$$

Estimation Period	Whole Sample	pre-2020	post-2020
$\hat{\rho}$	0.33**	-0.084	0.43**
N	107	75	32

This table shows the different persistence of euro area inflation surprises over different periods in our sample. The whole sample runs from January 2014 to November 2022. The pre-2020 period runs from January 2014 to March 2020. The post-2020 period runs from April 2020 to November 2022. The table reports the estimated coefficient $\hat{\rho}$ from the AR(1) regression specified in the table heading. Robust s.e. clustered at the year-level. *** p<0.01, ** p<0.05, * p<0.1.

4.6. Financial *vs* Real Channels

To conclude, we compare our capital-structure channel against a notable *real* channel of transmission of inflation shocks in the recent high-inflation environment, namely rising energy prices. Hence, we horse-race our leverage channel against firm-level proxies of exposure to increased energy costs. We exploit the lagged annual energy costs paid by a given firm rescaled by total revenues.[24] Such proxy of energy costs already partially incorporates inflation dynamics in the numerator, as energy costs are obtained by multiplying energy consumption by the average yearly electricity price, which went up over our sample period.[25] This drives the strongly negative coefficient in columns 1-7 of Table A14, where we use firm and time fixed effects (on top of the usual firm controls). The leverage channel remains anyway significant when we consider most meaningful measures of long-term leverage in columns 3-7.

Differently, the interaction with the inflation surprise is small and not significant. Considering the combined effect of both the $EnergyCosts$ and $\varepsilon * EnergyCosts$ coefficients, a one s.d. deviation increase in energy costs exposure lowers stock returns by nearly 10 b.p.. Hence, in the post-2020 period, the energy-costs (real) channel is in general somewhat larger than the capital structure channel, which, depending on the different model specifications and definitions of leverage, is associated with an increase in stock returns in the range of 5-to-10 basis points.

5. Conclusion

We ask whether inflation shocks influence firms via a capital structure channel. To answer this question, we adopt a high-frequency identification strategy and analyze the cross-section of stock returns during dates of announcement of inflation data in

[24] For a similar approach, see Ferriani & Gazzani (2022).

[25] For robustness, we also run models in which we multiply energy consumption by the average price of gas, the other main energy source used by firms in the euro area. Results are robust to such modification. Tables are available upon request.

the euro area over the 2020-2022 period.

Our robust results show that firms with high leverage benefit from positive inflation surprises. In particular, in reaction to a 1 standard deviation (s.d.) higher inflation surprise, firms with larger leverage by a 1 s.d. experience relatively bigger stock returns by 5 b.p.. The effect is entirely driven by long-term leverage, in line with Fisherian theories emphasizing the reduction in the real value of debt liabilities associated with higher inflation. The capital-structure channel explains about 2.5% of the total variation in stock returns over announcement dates and 14% of the cross-sectional variation.

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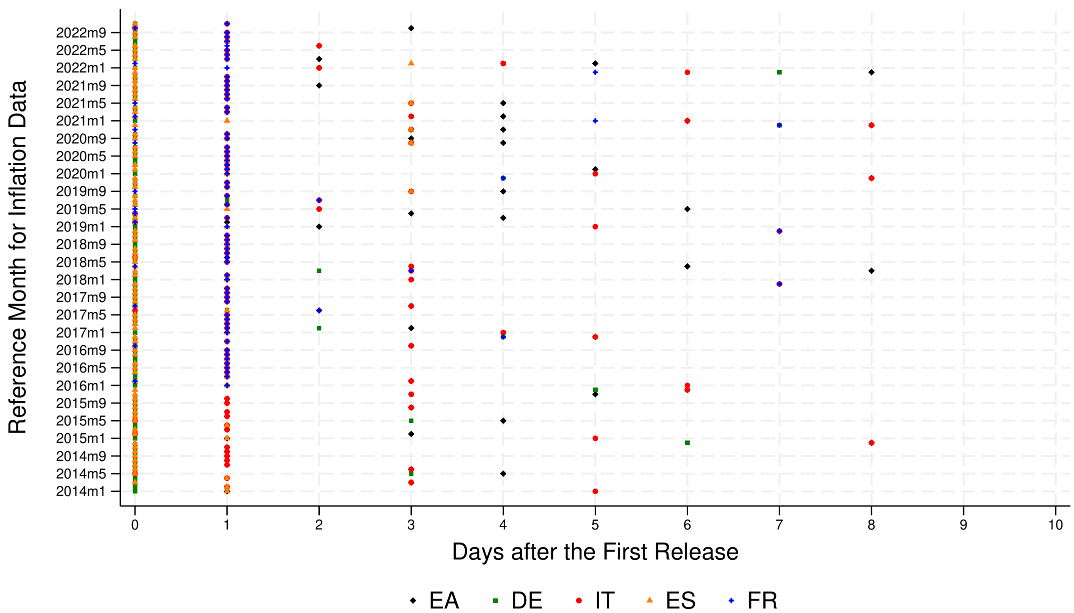
APPENDIX A

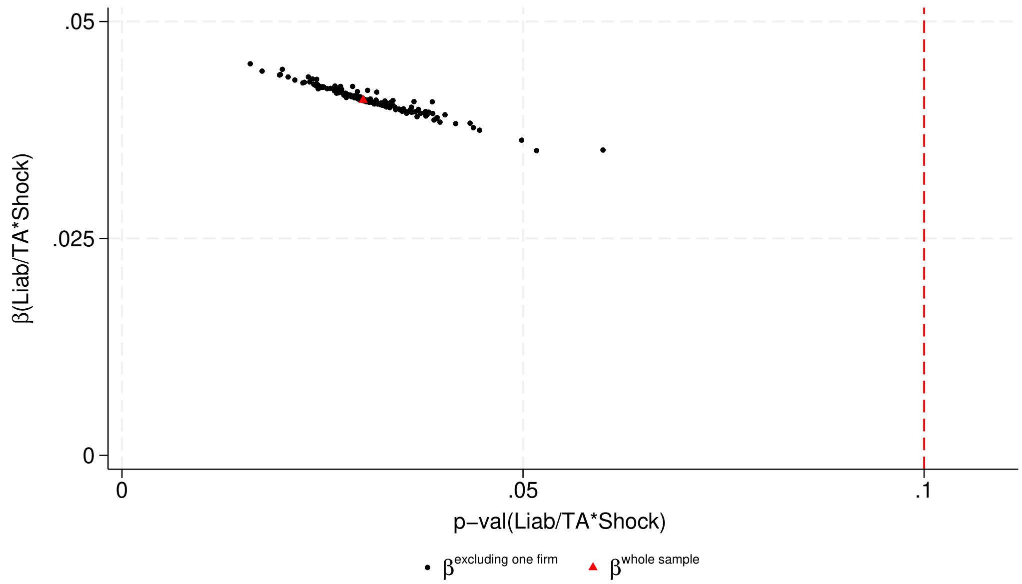
FIGURES

FIGURE A1: SEQUENCE OF INFLATION FLASH ESTIMATES



This figure shows the sequence of the release of inflation flash estimates in different months from selected euro area Countries, namely France (FR), Germany (DE), Italy (IT), Spain (ES) and from Eurostat for the whole euro area (EA). On the y-axis, we report the reference month for inflation data. On the x-axis, the days after the first release by any of those countries. Hence, in each month, countries with value 0 on the x-axis are the first to release flash inflation estimates. On the contrary, the most-right located countries are the last to release inflation data.

FIGURE A2: INFLUENCE ANALYSIS

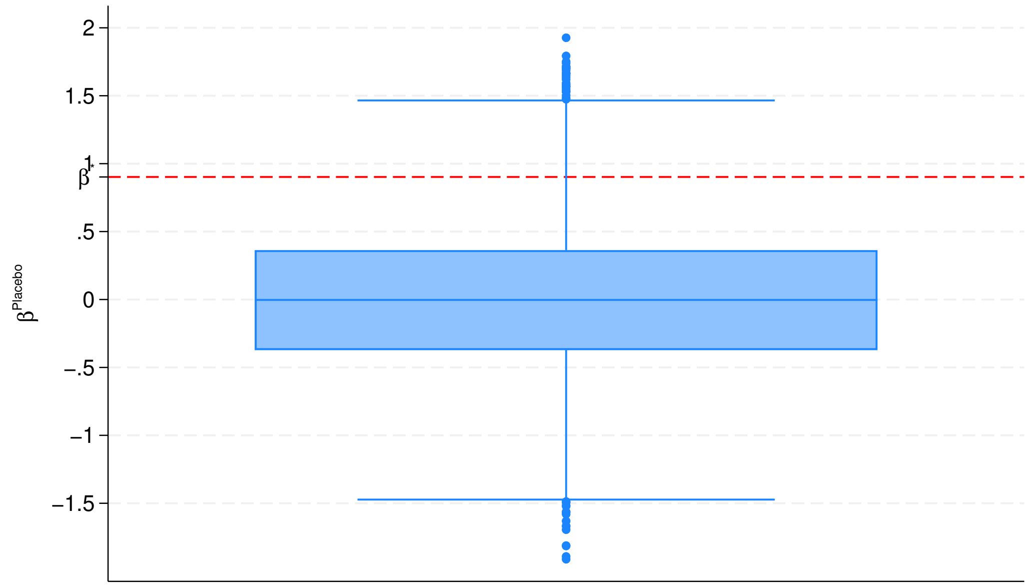


This figure shows the estimated coefficients from the following regression model:

$$r_{f,d(m)} = \beta_1 Leverage_{f,y-1} + \beta_2 \varepsilon_m * Leverage_{f,y-1} + \Gamma X_{f,m} + \mu_f + \mu_{s,d(m)} + u_{f,d(m)}$$

The dependent variable, $r_{f,d(m)}$, is the daily stock return for firm f in the first-day of release on inflation data in month-m, labelled as $d(m)$. ε_m is the (first) inflation surprise in month-m. $Leverage_{f,y-1}$ is lagged firm-leverage (total liabilities to total assets ratio). $X_{f,m}$ is a vector of firm-level controls - fully interacted with the inflation surprise ε_m - including lagged ROE, price-to-book ratio,log-revenues and firm-level beta. μ_f denotes firm fixed effects and $\mu_{s,d(m)}$ represents sector*time fixed effects. $u_{f,d(m)}$ is an error-term, clustered at the firm-level. On the y-axis, we report the estimated coefficient $\hat{\beta}_2$. On the x-axis, we report the p-value associated to the t-test with null-hypothesis: $H_0 : \hat{\beta}_2 = 0$. The red-triangle displays estimates from a model including all the firms in our sample. The black dots represents estimates from models excluding one firm at a time.

FIGURE A3: PLACEBO I: FAKE SHOCKS & TRUE CALENDAR

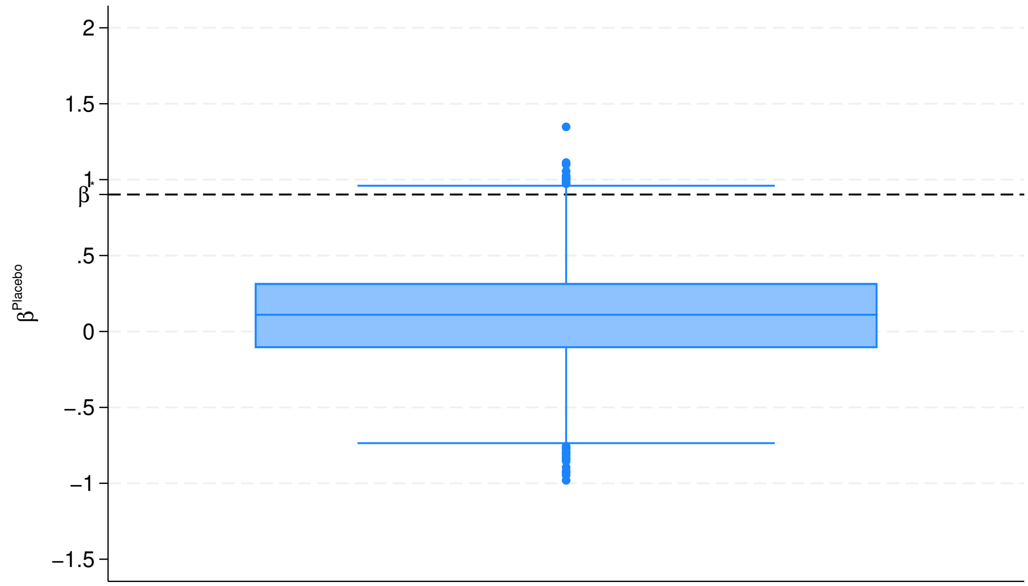


This figure shows the distribution of the estimated coefficients $\hat{\phi}_{2,j}, j = \{1, 2, ..., 10, 000\}$ from the following regression models:

$$r_{f,d(m)} = \phi_{1,j} Leverage_{f,y-1} + \phi_{2,j} \tilde{\epsilon}_{m,j} * Leverage_{f,y-1} + \Gamma_j X_{f,m} + \mu_f + \mu_{s,d(m)} + e_{f,d(m)}$$

The dependent variable, $r_{f,d(m)}$, is the daily stock return for firm f in the first-day of release on inflation data in month-m, labelled as $d(m)$. $\tilde{\epsilon}_{m,j}$ is the $j - thseries$ of fake inflation shocks. $Leverage_{f,y-1}$ is lagged firm-leverage (total liabilities to total assets ratio). $X_{f,m}$ is a vector of firm-level controls - fully interacted with the fake inflation surprise $\tilde{\epsilon}_{m,j}$ - including lagged ROE, price-to-book ratio, log-revenues, markup, and firm-level beta. μ_f denotes firm fixed effects and $\mu_{s,d(m)}$ represents sector*time fixed effects. $e_{f,d(m)}$ is an error-term, clustered at the firm-level. The red line is drawn in correspondence of the value β^*, equal to the non-standardized baseline coefficient in column 6 of Table 4.

FIGURE A4: PLACEBO I: TRUE SHOCK & FAKE CALENDARS

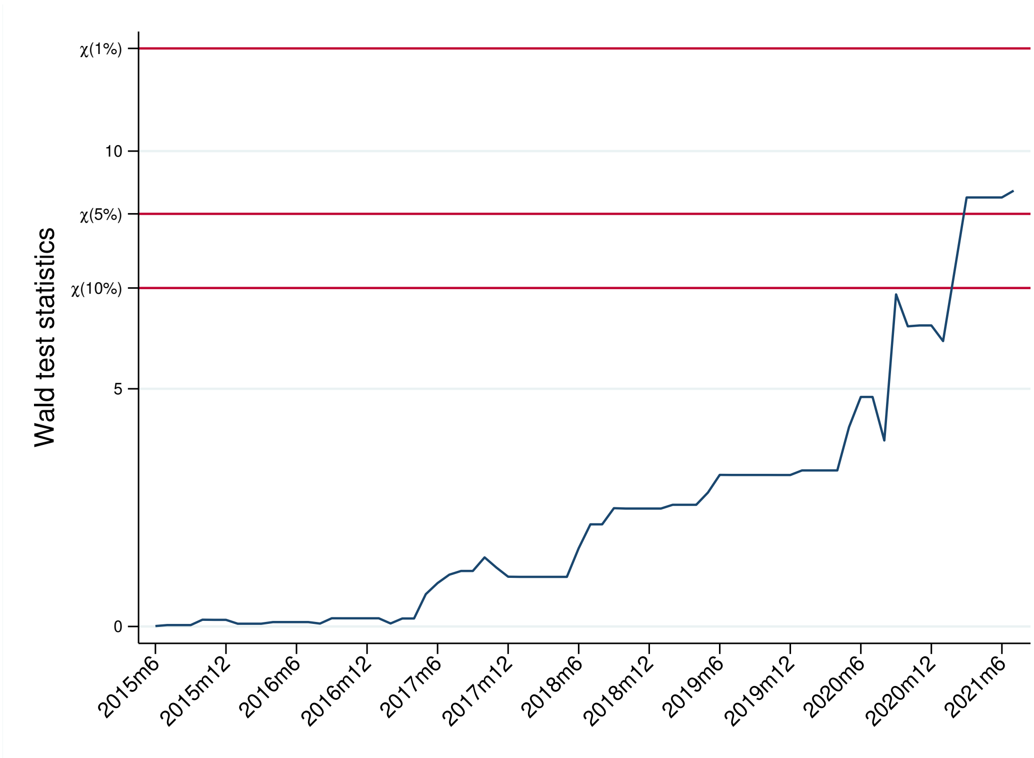


This figure shows the distribution of the estimated coefficients $\hat{\psi}_{2,j}, j = \{1, 2, ..., 10,000\}$ from the following regression models:

$$r_{f,\tilde{\delta}(m,j)} = \psi_{1,j} Leverage_{f,y-1} + \psi_{2,j} \varepsilon_m * Leverage_{f,y-1} + \Gamma_j X_{f,m} + \mu_f + \mu_{s,\tilde{\delta}(m,j)} + e_{f,\tilde{\delta}(m,j)}$$

The dependent variable, $r_{f,\tilde{\delta}(m)}$, is the daily stock return for firm f in the day $\tilde{\delta}(m,j)$ of month m, drawn from the fake calendar j. Note that $\delta_(m,j)$ are by construction days in which no inflation data release takes place. $\tilde{\epsilon}_{m,j}$ is the $j - thseries$ of fake inflation shocks. $Leverage_{f,y-1}$ is lagged firm-leverage (total liabilities to total assets ratio). $X_{f,m}$ is a vector of firm-level controls - fully interacted with the fake inflation surprise $\tilde{\epsilon}_{m,j}$ - including lagged ROE, price-to-book ratio, log-revenues, markup, and firm-level beta. μ_f denotes firm fixed effects and $\mu_{s,d(m)}$ represents sector*time fixed effects. $e_{f,d(m)}$ is an error-term, clustered at the firm-level. The red line is drawn in correspondence of the value β^*, equal to the non-standardized baseline coefficient in column 6 of Table 4.

Figure A5: Persistence of Inflation Surprise: Test for Unknown Structural Breaks



This figure shows the time-varying Wald statistic computed following the Andrews (1993)'s for unknown structural breaks for the AR(1) process:

$$\varepsilon_{EA,t} = \rho \varepsilon_{EA,t-1} + u_{EA,t}$$

where $\varepsilon_{EA,t}$ is the euro area inflation surprise. The null-hypothesis is that there are not structural breaks, i.e.: $H_0 : \rho_t = \rho * \forall t$. The chart displays the Wald-statistic for such test. In practice, the final result of the test depends on the maximum value of the test statistic over the sample period (the peak is in July 2021). The values $\chi^{y\%}$ report the threshold values for significance at the y%-level, $y = 1, 5, 10$, as tabulated in Andrews (2003). .

Tables (start in next page)

TABLE A1: SUMMARY STATISTICS (WHOLE PERIOD)

VARIABLES	(1) N	(2) mean	(3) sd	(4) p25	(5) p50	(6) p75
Inflation Surprises (%)						
ε_t	21,158	0.0208	0.295	-0.150	0	0.125
$\varepsilon_{EA,t}$	21,158	0.0294	0.194	-0.100	0	0.100
$\varepsilon_{FR,t}$	14,931	0.0477	0.209	-0.100	0	0.200
$\varepsilon_{IT,t}$	20,624	0.0671	0.404	-0.100	0	0.100
$\varepsilon_{DE,t}$	21,158	0.0176	0.290	-0.100	0	0.100
$\varepsilon_{ES,t}$	20,792	0.00589	0.389	-0.200	0	0.100
Stock Returns (%)						
Returns (%)	21,158	-0.0114	1.797	-0.858	0	0.869
Firm-Level Variables						
Leverage	21,158	0.598	0.154	0.506	0.605	0.707
$\frac{Debt}{TA}$	20,400	26.36	14.40	15.77	25.02	35.56
$\frac{Other\ Liab}{TA}$	20,400	33.69	13.91	23.66	30.57	41.86
$\frac{ST\ Debt}{TA}$	12,250	2.159	2.711	0.243	1.093	3.162
$\frac{LT\ Debt1y}{TA}$	15,807	18.52	10.86	11.02	16.96	24.67
$\frac{LT\ Debt3y}{TA}$	15,349	12.18	8.815	6.116	10.37	16.39
$\frac{LT\ Debt5y}{TA}$	15,871	9.126	8.099	2.886	7.298	13.18
$\frac{Bond\ Debt}{TA}$	16,936	17.70	10.26	10.20	16.01	23.77
$\frac{Bank\ Debt}{TA}$	20,293	9.965	10.97	2.445	6.390	13.48
$\frac{Floating\ Rate\ Debt}{TA}$	13,810	6.166	8.235	0.848	3.102	8.325
ROE	21,158	-1.55e-10	1.000	-0.389	0.0122	0.406
$Ln(Revenues)$	21,158	-1.34e-09	1.000	-0.660	-0.0260	0.698
PriceToBook	21,158	-1.47e-09	1.000	-0.579	-0.305	0.126
EnergyCosts	18,026	2.676	5.516	0.220	0.506	2.090
beta	21,158	-5.07e-10	1.000	-0.691	-0.100	0.626
Markup	21,158	2.98e-09	1.000	-0.596	-0.372	0.119

This table shows summary statistics over the whole sample period (Jan-2014 to Nov-2022). **Inflation Surprises**. Inflation surprises are the difference between the monthly realized annual growth for HICP and the median forecast by professional forecasters (expressed in %). ε_t is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\varepsilon_{EA,t}$ is the inflation surprise for the euro area. $\varepsilon_{FR,t}$ is the inflation surprise for France. $\varepsilon_{DE,t}$ is the inflation surprise for Germany. $\varepsilon_{IT,t}$ is the inflation surprise for Italy. $\varepsilon_{ES,t}$ is the inflation surprise for Spain. **Stock Returns** *Returns* are firm-level daily stock returns over the first date of announcement of inflation data in a given month (expressed in %). **Firm-Level Variables**. Unless otherwise stated, firm-level variables are lagged by one year and expressed in %. *Leverage* is the ratio between total liabilities and total assets . $\frac{Debt}{TA}$ is the ratio between total debt and total assets . $\frac{Other\ Liab}{TA}$ is the ratio between liabilities different from debt and total assets . $\frac{ST\ Debt}{TA}$ is the ratio between debt with residual maturity below or equal to 1-year and total assets . $\frac{LT\ Debt1y}{TA}$ is the ratio between debt with residual maturity above 1-year and total assets . $\frac{LT\ Debt3y}{TA}$ is the ratio between debt with residual maturity above 3-year and total assets . $\frac{LT\ Debt5y}{TA}$ is the ratio between debt with residual maturity above 5-year and total assets . $\frac{Bond\ Debt}{TA}$ is the ratio between bond debt and total assets . $\frac{Bank\ Debt}{TA}$ is the ratio between bank debt and total assets . $\frac{Floating\ Rate\ Debt}{TA}$ is the ratio between floating-rate debt and total assets . *ROE* is net income over equity . $Ln(Revenues)$ is the logarithm of total revenues (in million of euros). *PriceToBook* is the price-to-book ratio. *EnergyCosts* is the ratio between energy costs and total revenues. *beta* is the monthly lagged beta from 60-month rolling window regressions of monthly firm-level stock returns agains EURO STOXX-index returns. *Markup* is the revenues to COGS ratio.

TABLE A2: SUMMARY STATISTICS (POST-2020 PERIOD)

VARIABLES	(1) N	(2) mean	(3) sd	(4) p25	(5) p50	(6) p75
Inflation Surprises (%)						
ε_t	6,081	0.219	0.400	0	0.200	0.400
$\varepsilon_{EA,t}$	6,081	0.173	0.270	0	0.200	0.300
$\varepsilon_{FR,t}$	6,081	0.106	0.257	-0.100	0.100	0.300
$\varepsilon_{IT,t}$	6,081	0.285	0.640	-0.100	0.100	0.600
$\varepsilon_{DE,t}$	6,081	0.157	0.371	0	0.100	0.400
$\varepsilon_{ES,t}$	6,081	0.146	0.599	-0.100	0.100	0.400
Stock Returns (%)						
Returns (%)	6,081	0.135	2.024	-0.832	0	1.117
Firm-Level Variables						
$Leverage$	6,081	0.599	0.146	0.513	0.613	0.699
$\frac{Debt}{TA}$	4,847	18.06	10.33	10.72	16.12	25.39
$\frac{Other\ Liab}{TA}$	5,901	31.71	13.42	22.27	28.85	39.26
$\frac{ST\ Debt}{TA}$	3,412	2.113	2.638	0.215	1.147	3.185
$\frac{LT\ Debt1y}{TA}$	4,673	19.87	10.09	13.12	18.63	25.55
$\frac{LT\ Debt3y}{TA}$	4,616	12.96	8.389	6.952	11.39	17.66
$\frac{LT\ Debt5y}{TA}$	4,647	9.723	7.798	3.747	8.270	13.63
$\frac{Bond\ Debt}{TA}$	4,847	18.06	10.33	10.72	16.12	25.39
$\frac{Bank\ Debt}{TA}$	5,892	11.90	10.39	4.611	8.803	16.19
$\frac{Floating\ Rate\ Debt}{TA}$	3,558	5.336	7.277	0.525	2.398	6.978
ROE	6,081	-0.122	1.161	-0.465	-0.0540	0.384
$Ln(Revenues)$	6,081	0.00347	1.017	-0.632	-0.0196	0.714
$PriceToBook$	6,081	0.132	1.125	-0.515	-0.196	0.252
$EnergyCosts$	5,248	3.158	6.641	0.217	0.523	2.250
$beta$	6,081	0.0831	1.108	-0.677	0.0840	0.833
$Markup$	6,081	-0.00102	1.010	-0.590	-0.376	0.136

This table shows summary statistics over the post-2020 period (Apr-2020 to Nov-2022). **Inflation Surprises**. Inflation surprises are the difference between the monthly realized annual growth for HICP and the median forecast by professional forecasters (expressed in %). ε_t is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\varepsilon_{EA,t}$ is the inflation surprise for the euro area. $\varepsilon_{FR,t}$ is the inflation surprise for France. $\varepsilon_{DE,t}$ is the inflation surprise for Germany. $\varepsilon_{IT,t}$ is the inflation surprise for Italy. $\varepsilon_{ES,t}$ is the inflation surprise for Spain. **Stock Returns** *Returns* are firm-level daily stock returns over the first date of announcement of inflation data in a given month (expressed in %). **Firm-Level Variables**. Unless otherwise stated, firm-level variables are lagged by one year and expressed in %. *Leverage* is the ratio between total liabilities and total assets . $\frac{Debt}{TA}$ is the ratio between total debt and total assets . $\frac{Other\ Liab}{TA}$ is the ratio between liabilities different from debt and total assets . $\frac{ST\ Debt}{TA}$ is the ratio between debt with residual maturity below or equal to 1-year and total assets . $\frac{LT\ Debt1y}{TA}$ is the ratio between debt with residual maturity above 1-year and total assets . $\frac{LT\ Debt3y}{TA}$ is the ratio between debt with residual maturity above 3-year and total assets . $\frac{LT\ Debt5y}{TA}$ is the ratio between debt with residual maturity above 5-year and total assets . $\frac{Bond\ Debt}{TA}$ is the ratio between bond debt and total assets . $\frac{Bank\ Debt}{TA}$ is the ratio between bank debt and total assets . $\frac{Floating\ Rate\ Debt}{TA}$ is the ratio between floating-rate debt and total assets . *ROE* is net income over equity . $Ln(Revenues)$ is the logarithm of total revenues (in million of euros). *PriceToBook* is the price-to-book ratio. *EnergyCosts* is the ratio between energy costs and total revenues. *beta* is the monthly lagged beta from 60-month rolling window regressions of monthly firm-level stock returns agains EURO STOXX-index returns. *Markup* is the revenues to COGS ratio.

TABLE A3: STOCK RETURNS: WITHIN AND BETWEEN VARIATION

	N	sd(overall)	sd(between)	sd(within)
Whole Sample (2014/01-2022/11)	21,158	1.797	0.345	1.788
High-Inflation (2020/04 to 2022/11)	6,081	2.024	0.425	1.993
Low-Inflation (2014/01 to 2020/03)	14,884	1.671	0.376	1.660

This table decomposes the overall variation in stock returns, proxied by the standard deviation, in between and within variation.

TABLE A4: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - ALL EURO STOXX CONSTITUENTS OVER 2014-2022

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * Leverage$	0.00151						
	(0.0158)						
$\varepsilon * \left(\frac{Debt}{TA}\right)$		0.00457					
		(0.0172)					
$\varepsilon * \left(\frac{ST\ Debt}{TA}\right)$			-0.0250				-0.0198
			(0.0270)				(0.0303)
$\varepsilon * \left(\frac{LT\ Debt1y}{TA}\right)$				0.0361[a]			
				(0.0222)			
$\varepsilon * \left(\frac{LT\ Debt3y}{TA}\right)$					0.0543**		
					(0.0233)		
$\varepsilon * \left(\frac{LT\ Debt5y}{TA}\right)$						0.0487**	0.0560*
						(0.0226)	(0.0318)
$\varepsilon * \left(\frac{Debt\ btw\ 1-3y}{TA}\right)$							-0.00549
							(0.0282)
$\varepsilon * \left(\frac{Debt\ btw\ 3-5y}{TA}\right)$							-0.0102
							(0.0227)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	8476	8188	4445	6385	6259	6320	3858
R^2	0.316	0.317	0.326	0.330	0.333	0.333	0.339

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. *Leverage* is the ratio between total liabilities and total assets. $\left(\frac{Debt}{TA}\right)$ is the ratio between total debt and total assets. $\frac{ST\ Debt}{TA}$ is the ratio between short-term debt (i.e., debt with residual maturity equal or below to one-year) and total assets. $\frac{LT\ Debt1y}{TA}$ is the ratio between debt with maturity above one year and total assets. $\frac{LT\ Debt3y}{TA}$ is the ratio between debt with maturity above three years and total assets. $\frac{LT\ Debt5y}{TA}$ is the ratio between debt with maturity above five years and total assets. $\frac{LT\ Debt\ btw\ 1-3y}{TA}$ is the ratio between debt with maturity above one and equal to or below three years and total assets. $\frac{LT\ Debt\ btw\ 3-5y}{TA}$ is the ratio between debt with maturity above three and equal to or below five years and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1, , [a] p<0.15.

TABLE A5: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - ALL EURO STOXX CONSTITUENTS OVER 2020-2022

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * Leverage$	0.0165						
	(0.0202)						
$\varepsilon * \left(\frac{Debt}{TA}\right)$		0.0118					
		(0.0227)					
$\varepsilon * \left(\frac{ST\,Debt}{TA}\right)$			0.00759				0.0105
			(0.0275)				(0.0299)
$\varepsilon * \left(\frac{LT\,Debt1y}{TA}\right)$				0.0472*			
				(0.0277)			
$\varepsilon * \left(\frac{LT\,Debt3y}{TA}\right)$					0.0635**		
					(0.0273)		
$\varepsilon * \left(\frac{LT\,Debt5y}{TA}\right)$						0.0664**	0.0873**
						(0.0269)	(0.0387)
$\varepsilon * \left(\frac{Debt\ btw\ 1-3y}{TA} TA\right)$							-0.0136
							(0.0368)
$\varepsilon * \left(\frac{Debt\ btw\ 3-5y}{TA} TA\right)$							-0.0361
							(0.0324)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	6725	6533	3546	5040	4979	5010	3124
R^2	0.324	0.322	0.347	0.333	0.334	0.337	0.351

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. *Leverage* is the ratio between total liabilities and total assets. $\left(\frac{Debt}{TA}\right)$ is the ratio between total debt and total assets. $\frac{ST\,Debt}{TA}$ is the ratio between short-term debt (i.e., debt with residual maturity equal or below to one-year) and total assets. $\frac{LT\,Debt1y}{TA}$ is the ratio between debt with maturity above one year and total assets. $\frac{LT\,Debt3y}{TA}$ is the ratio between debt with maturity above three years and total assets. $\frac{LT\,Debt5y}{TA}$ is the ratio between debt with maturity above five years and total assets. $\frac{LT\,Debt\ btw\ 1-3y}{TA}$ is the ratio between debt with maturity above one and equal to or below three years and total assets. $\frac{LT\,Debt\ btw\ 3-5y}{TA}$ is the ratio between debt with maturity above three and equal to or below five years and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1, , ^{a} p<0.15.

TABLE A6: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF SHORT-TERM LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{ST\,Debt}{TA}\right)$	0.0304	0.0266	0.0313	0.0231	0.0118	0.0215	0.00334
	(0.0376)	(0.0360)	(0.0384)	(0.0328)	(0.0309)	(0.0318)	(0.0357)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	3412	3264	3264	3264	3243	3264	2899
R^2	0.013	0.019	0.055	0.056	0.356	0.061	0.517

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{ST\,Debt}{TA}$ is the ratio between short-term debt (i.e., debt with residual maturity equal or below to one-year) and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A7: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF LONG-TERM (MATURITY $>$ 1-YEAR) LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{LT\,Debt1y}{TA}\right)$	0.0609**	0.0629**	0.0693***	0.0779**	0.0739**	0.0799**	0.0838***
	(0.0239)	(0.0253)	(0.0255)	(0.0312)	(0.0301)	(0.0331)	(0.0297)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	4673	4673	4673	4673	4659	4673	4369
R^2	0.012	0.015	0.045	0.047	0.341	0.050	0.478

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{LT\,Debt1y}{TA}$ is the ratio between debt with maturity above one year and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1., ^{a} p<0.15.

TABLE A8: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF LONG-TERM (MATURITY > 3-YEAR) LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{LT\ Debt3y}{TA}\right)$	0.0685***	0.0726***	0.0787***	0.0913***	0.0805***	0.0978***	0.0833***
	(0.0236)	(0.0262)	(0.0266)	(0.0326)	(0.0292)	(0.0356)	(0.0278)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	4616	4616	4616	4616	4602	4616	4314
R^2	0.013	0.016	0.044	0.047	0.342	0.051	0.480

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{LT\ Debt3y}{TA}$ is the ratio between debt with maturity above three years and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$., ^{a} $p<0.15$.

TABLE A9: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF LONG-TERM (MATURITY > 5-YEAR) LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{LT\,Debt5y}{TA}\right)$	0.0660***	0.0662**	0.0714***	0.0823**	0.0722**	0.0867**	0.0788***
	(0.0232)	(0.0260)	(0.0267)	(0.0316)	(0.0282)	(0.0361)	(0.0280)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	4506	4506	4506	4506	4492	4506	4213
R^2	0.006	0.015	0.050	0.052	0.283	0.058	0.430

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{LT\,Debt5y}{TA}$ is the ratio between debt with maturity above five years and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1., ^{a} p<0.15.

TABLE A10: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF CURRENT AND NON-CURRENT LIABILITIES

	(1)		(2)		(3)	
			Daily Returns (%)			
$\varepsilon * \left(\frac{Curr\, Liab}{TA}\right)$	-0.00646		0.00482	0.00438		0.0210
	(0.0167)		(0.0173)	(0.0199)		(0.0202)
$\varepsilon * \left(\frac{NonCurr\, Liab}{TA}\right)$		0.0379**	0.0393**		0.0396**	0.0462**
		(0.0170)	(0.0179)		(0.0173)	(0.0186)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Time	Yes	Yes	Yes	-	-	-
Sector(2-D)*Time	No	No	No	Yes	Yes	Yes
N	6072	6072	6072	5742	5742	5742
R^2	0.340	0.340	0.340	0.454	0.455	0.455

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{Curr\, Liab}{TA}$ is the ratio between current liabilities and total assets. $\frac{NonCurr\, Liab}{TA}$ is the ratio between non-current liabilities and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$., ^{a} $p<0.15$.

TABLE A11: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF BOND-FINANCED LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{BondDebt}{TA}\right)$	0.00652	0.00408	0.00571	0.00868	0.0139	0.0104	0.0201
	(0.0228)	(0.0249)	(0.0244)	(0.0231)	(0.0215)	(0.0248)	(0.0232)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	4698	4698	4697	4697	4691	4697	4391
R^2	0.006	0.013	0.051	0.055	0.284	0.061	0.419

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{Bond\,Debt}{TA}$ is the ratio between bond debt and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$., ^{a} $p<0.15$.

TABLE A12: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF BANK-FINANCED LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{BankDebt}{TA}\right)$	0.0504**	0.0452**	0.0531***	0.0452**	0.0253	0.0498**	0.0125
	(0.0194)	(0.0196)	(0.0198)	(0.0203)	(0.0205)	(0.0252)	(0.0279)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	5722	5722	5722	5722	5722	5722	5433
R^2	0.007	0.013	0.051	0.054	0.268	0.059	0.394

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{Bond\,Debt}{TA}$ is the ratio between bond debt and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1., ^{a} p<0.15.

Table A13: Inflation Surprise, Firm Leverage and Stock Returns - The Role of Floating-Rate Leverage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{FloatingRateDebt}{TA}\right)$	0.0445	0.0542^{a}	0.0593^{a}	0.0581*	0.0466	0.0613*	0.0336
	(0.0323)	(0.0366)	(0.0358)	(0.0344)	(0.0344)	(0.0348)	(0.0329)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	3450	3450	3450	3450	3444	3450	3167
R^2	0.010	0.019	0.057	0.061	0.271	0.071	0.420

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{Floating\,Rate\,Debt}{TA}$ is the ratio between floating-rate debt and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$., ^{a} $p<0.15$.

TABLE A14: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - CAPITAL STRUCTURE *vs* ENERGY-EXPOSURE CHANNELS

	(1)	(2)	(3)	(4)	(5)	(6)
	Firm Daily Returns (%)					
EnergyCosts	-0.113**	-0.0773	-0.113**	-0.120**	-0.109**	-0.0719
	(0.0490)	(0.0606)	(0.0551)	(0.0561)	(0.0546)	(0.0631)
$\varepsilon * EnergyCosts$	-0.00953	0.00378	0.00588	0.00476	0.00340	0.0199
	(0.0120)	(0.0133)	(0.0123)	(0.0133)	(0.0137)	(0.0148)
$\varepsilon * Leverage$	0.0232					
	(0.0205)					
$\varepsilon * \left(\frac{ST\ Debt}{TA}\right)$		-0.00595				0.0144
		(0.0291)				(0.0305)
$\varepsilon * \left(\frac{LT\ Debt1y}{TA}\right)$			0.0662**			
			(0.0317)			
$\varepsilon * \left(\frac{LT\ Debt3y}{TA}\right)$				0.0665**		
				(0.0307)		
$\varepsilon * \left(\frac{LT\ Debt5y}{TA}\right)$					0.0559*	0.0979**
					(0.0314)	(0.0463)
$\varepsilon * \left(\frac{LT\ Debt\ btw\ 1-3y}{TA}\right)$						0.0322
						(0.0399)
$\varepsilon * \left(\frac{LT\ Debt\ btw\ 3-5y}{TA}\right)$						-0.0159
						(0.0466)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Time FE	Yes	Yes	Yes	Yes	Yes	Yes
N	5247	2846	4115	4079	4107	2531
R^2	0.342	0.354	0.344	0.345	0.347	0.361

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. *Leverage* is the ratio between (lagged by one year) total liabilities and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

APPENDIX B

In this Appendix, we rerun all the key regressions over the shorter sample period from January 2021 to November 2022. The only exception is table B12 where we run a regression on the whole sample (i.e. 2014-2022) and confront it with estimates run over the new sample split (i.e. 2014-2020 vs. 2021- November 2022).

TABLE B1: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - BASELINE RESULTS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Firm Daily Returns (%)							
ε	0.0661***	0.0697***	0.0712***					
	(0.0186)	(0.0186)	(0.0186)					
Leverage	-0.0232	-0.0905***	0.237^{a}	0.201	0.240^{a}	0.149	0.222^{a}	0.125
	(0.0332)	(0.0343)	(0.147)	(0.150)	(0.146)	(0.168)	(0.144)	(0.205)
$\varepsilon * Leverage$	0.0195	0.0548***	0.0561***	0.0561***	0.0474**	0.0429**	0.0693***	0.0623***
	(0.0171)	(0.0181)	(0.0181)	(0.0181)	(0.0206)	(0.0209)	(0.0189)	(0.0201)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	No	No	Yes	-	-	-	-
Sector(1-D)*ε	No	No	No	No	Yes	-	-	No
Sector(1-D)*Time FE	No	No	No	No	No	Yes	No	-
Sector(2-D)*ε	No	No	No	No	No	No	Yes	-
Sector(2-D)*Time FE	No	No	No	No	No	No	No	Yes
N	4376	4376	4376	4376	4376	4376	4376	4136
R^2	0.002	0.009	0.050	0.299	0.052	0.333	0.059	0.448

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. *Leverage* is the ratio between (lagged by one year) total liabilities and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

TABLE B2: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - FINANCIAL LEVERAGE *vs* OTHER LIABILITIES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				Firm Daily Returns (%)			
$\varepsilon * \frac{Debt}{TA}$	0.0374*	0.0601***	0.0629***	0.0534**	0.0487**	0.0599**	0.0498*
	(0.0207)	(0.0202)	(0.0202)	(0.0235)	(0.0243)	(0.0236)	(0.0259)
$\varepsilon * \frac{OtherLiab}{TA}$	-0.00193	0.0392*	0.0384*	0.0314	0.0283	0.0652***	0.0638***
	(0.0190)	(0.0211)	(0.0211)	(0.0231)	(0.0233)	(0.0200)	(0.0214)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*ε	No	No	No	Yes	No	No	No
Sector(1-D)*Time FE	No	No	No	No	Yes	No	No
Sector(2-D)*ε	No	No	No	No	No	Yes	No
Sector(2-D)*Time FE	No	No	No	No	No	No	Yes
N	4245	4245	4245	4245	4245	4245	4028
R^2	0.003	0.010	0.051	0.053	0.330	0.060	0.446
p-value	0.27	0.00	0.00	0.03	0.06	0.00	0.00

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. *Leverage* is the ratio between (lagged by one year) total liabilities and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

TABLE B3: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - LONG *vs* SHORT-TERM LEVERAGE & FLOATING *vs* FIXED-RATE LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Firm Daily Returns (%)							
	Debt Maturity					Bond vs Bank Debt		
$\varepsilon * \left(\frac{ST\,Debt}{TA}\right)$	0.0199				0.0104			
	(0.0325)				(0.0315)			
$\varepsilon * \left(\frac{LT\,Debt1y}{TA}\right)$		0.0571*						
		(0.0306)						
$\varepsilon * \left(\frac{LT\,Debt3y}{TA}\right)$			0.0625**					
			(0.0293)					
$\varepsilon * \left(\frac{LT\,Debt5y}{TA}\right)$				0.0558**	0.0678*			
				(0.0281)	(0.0394)			
$\varepsilon * \left(\frac{LT\,Debt\ btw\ 1-3y}{TA}\right)$					-0.0139			
					(0.0352)			
$\varepsilon * \left(\frac{LT\,Debt\ btw\ 3-5y}{TA}\right)$					0.00139			
					(0.0388)			
$\varepsilon * \left(\frac{Bond\,Debt}{TA}\right)$						0.00283		
						(0.0245)		
$\varepsilon * \left(\frac{Bank\,Debt}{TA}\right)$							0.0255	
							(0.0232)	
$\varepsilon * \left(\frac{Floating\,Rate\,Debt}{TA}\right)$								0.0351
								(0.0382)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector*Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2326	3369	3339	3361	2069	3513	4245	2576
R^2	0.355	0.327	0.327	0.328	0.357	0.350	0.329	0.343

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{ST\,Debt}{TA}$ is the ratio between short-term debt (i.e., debt with residual maturity equal or below to one-year) and total assets. $\frac{LT\,Debt1y}{TA}$ is the ratio between debt with maturity above one year and total assets. $\frac{LT\,Debt3y}{TA}$ is the ratio between debt with maturity above three years and total assets. $\frac{LT\,Debt5y}{TA}$ is the ratio between debt with maturity above three years and total assets. $\frac{Bond\,Debt}{TA}$ is the ratio between bond debt and total assets. $\frac{Bank\,Debt}{TA}$ is the ratio between bank debt and total assets. $\frac{Floating\,Rate\,Debt}{TA}$ is the ratio between floating-rate debt and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

Table B4: Inflation Surprise, Firm Leverage and Stock Returns - The Role of Short-Term Leverage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{ST\,Debt}{TA}\right)$	0.0260	0.0247	0.0283	0.0182	0.0199	0.0259	0.0224
	(0.0393)	(0.0349)	(0.0358)	(0.0306)	(0.0325)	(0.0289)	(0.0370)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	2446	2338	2338	2338	2326	2338	2081
R^2	0.003	0.016	0.063	0.065	0.355	0.071	0.517

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{ST\,Debt}{TA}$ is the ratio between short-term debt (i.e., debt with residual maturity equal or below to one-year) and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

TABLE B5: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF LONG-TERM (MATURITY > 1-YEAR) LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{LT\ Debt1y}{TA}\right)$	0.0535**	0.0611**	0.0638***	0.0620**	0.0571*	0.0627**	0.0542*
	(0.0228)	(0.0246)	(0.0245)	(0.0298)	(0.0306)	(0.0280)	(0.0300)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	3383	3383	3383	3383	3369	3383	3169
R^2	0.002	0.009	0.046	0.048	0.327	0.056	0.466

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{LT\ Debt1y}{TA}$ is the ratio between debt with maturity above one year and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1., [a] p<0.15.

TABLE B6: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF LONG-TERM (MATURITY > 3-YEAR) LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				Daily Returns (%)			
$\varepsilon * \left(\frac{LT\ Debt3y}{TA}\right)$	0.0546***	0.0639***	0.0666***	0.0651**	0.0625**	0.0688**	0.0605**
	(0.0207)	(0.0233)	(0.0232)	(0.0292)	(0.0293)	(0.0267)	(0.0278)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	3353	3353	3353	3353	3339	3353	3132
R^2	0.003	0.009	0.045	0.047	0.327	0.055	0.466

This table shows the effects of inflation surprises on stock returns during the period from April 2020 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{LT\ Debt3y}{TA}$ is the ratio between debt with maturity above three years and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1., [a] p<0.15.

TABLE B7: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF LONG-TERM (MATURITY > 5-YEAR) LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{LT\ Debt5y}{TA}\right)$	0.0519**	0.0585**	0.0600***	0.0579**	0.0558**	0.0662**	0.0593**
	(0.0205)	(0.0229)	(0.0230)	(0.0277)	(0.0281)	(0.0267)	(0.0281)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	3375	3375	3375	3375	3361	3375	3154
R^2	0.003	0.009	0.045	0.047	0.328	0.055	0.463

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{LT\ Debt5y}{TA}$ is the ratio between debt with maturity above five years and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1., ^{a} p<0.15.

TABLE B8: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF CURRENT AND NON-CURRENT LIABILITIES

	(1)		(2)		(3)	
			Daily Returns (%)			
$\varepsilon * \left(\frac{Curr\,Liab}{TA}\right)$	-0.0215		-0.00914	-0.00232		0.0181
	(0.0183)		(0.0196)	(0.0217)		(0.0223)
$\varepsilon * \left(\frac{NonCurr\,Liab}{TA}\right)$		0.0486***	0.0460**		0.0556***	0.0612***
		(0.0181)	(0.0194)		(0.0174)	(0.0190)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Time	Yes	Yes	Yes	-	-	-
Sector(2-D)*Time	No	No	No	Yes	Yes	Yes
N	4376	4376	4376	4136	4136	4136
R^2	0.333	0.333	0.333	0.447	0.448	0.448

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{Curr\,Liab}{TA}$ is the ratio between current liabilities and total assets. $\frac{NonCurr\,Liab}{TA}$ is the ratio between non-current liabilities and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1., ^{a} p<0.15.

TABLE B9: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF BOND-FINANCED LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{BondDebt}{TA}\right)$	0.0106	0.00710	0.00669	0.0101	0.00283	0.0107	0.000921
	(0.0234)	(0.0258)	(0.0256)	(0.0242)	(0.0245)	(0.0246)	(0.0255)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	3520	3520	3519	3519	3513	3519	3301
R^2	0.002	0.010	0.051	0.055	0.350	0.062	0.476

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{Bond\,Debt}{TA}$ is the ratio between bond debt and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$., ^{a} $p<0.15$.

TABLE B10: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF BANK-FINANCED LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{BankDebt}{TA}\right)$	0.0450**	0.0350^a	0.0392*	0.0267	0.0255	0.0269	0.0177
	(0.0226)	(0.0223)	(0.0221)	(0.0223)	(0.0232)	(0.0266)	(0.0284)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	4245	4245	4245	4245	4245	4245	4028
R^2	0.003	0.009	0.050	0.052	0.329	0.060	0.446

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{Bond\,Debt}{TA}$ is the ratio between bond debt and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$., ^{a} $p<0.15$.

TABLE B11: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - THE ROLE OF FLOATING-RATE LEVERAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Daily Returns (%)						
$\varepsilon * \left(\frac{FloatingRateDebt}{TA}\right)$	0.0365	0.0226	0.0272	0.0278	0.0351	0.0211	0.0153
	(0.0360)	(0.0380)	(0.0371)	(0.0371)	(0.0382)	(0.0382)	(0.0396)
Firm Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Sector(1-D)*Surprise	No	No	No	Yes	-	-	-
Sector(1-D)*Time	No	No	No	No	Yes	No	-
Sector(2-D)*Surprise	No	No	No	No	No	Yes	-
Sector(2-D)*Time	No	No	No	No	No	No	Yes
N	2582	2582	2582	2582	2576	2582	2363
R^2	0.005	0.014	0.053	0.058	0.343	0.069	0.465

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. $\frac{Floating\ Rate\ Debt}{TA}$ is the ratio between floating-rate debt and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. The symbol "-" denotes variables and or fixed effects absorbed by the inclusion of other fixed effects. Standard errors in parenthesis clustered at the firm level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$., [a] $p<0.15$.

TABLE B12: INFLATION SURPRISE, FIRM LEVERAGE AND STOCK RETURNS - HIGH VS LOW-INFLATION PERIODS

	(1)	(2)	(3)
	Firm Daily Returns (%)		
	Post-2021	Pre-2021	Whole Period
$\varepsilon * Leverage$	0.0429**	-0.00651	0.0129
	(0.0209)	(0.0193)	
Firm Controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Sector(1-D)*Time FE	Yes	Yes	Yes
N	4376	16779	21158
R^2	0.333	0.343	0.333

This table shows the effects of inflation surprises on stock returns during the period from January 2021 to November 2022. The dependent variable is given by firm-level daily stock returns, expressed in percentage points (%). In column 1, the sample period runs over the high-inflation period from 2021m1 to 2022m11. In column 2, the sample runs over the low-inflation period from 2014m1 to 2020m12. Finally, column 3 includes observation over the whole period from 2014m1 to 2022m11. ε is the inflation surprise of the first-country releasing inflation data in a given month in the euro area. *Leverage* is the ratio between (lagged by one year) total liabilities and total assets. Firm Controls include (lagged) ROE, beta, log revenues, price-to-book ratio, and markup, all eventually fully interacted with the inflation surprise ε. Standard errors in parenthesis clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

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