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Macroeconomic Volatility and Corporate Investment Behavior: Regime-Dependent Effects of Inflation in Developed and Emerging Economies

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ABSTRACT

Introduction: Whether and how firms adjust capital expenditure in response to inflation is a long-standing question in corporate finance, yet the empirical record is unsettled: evidence from developed markets and China links inflation and related uncertainty to lower or distorted investment, whereas evidence from Gulf Cooperation Council markets finds a positive association.

Objectives: This study examines whether firm-level capital expenditure intensity is systematically related to macroeconomic inflation, and whether this relationship differs between developed and emerging economies.

Methods: Using 88,351 firm-year observations for 11,186 listed firms across 85 countries (2002-2023) from LSEG (Refinitiv), merged with World Bank indicators, we estimate industry-fixed-effects panel regressions of capital expenditure intensity on country-year inflation, GDP growth, political stability, leverage, and firm size, with Driscoll-Kraay standard errors.

Results: Inflation shows no significant association with capital expenditure intensity in the pooled sample (β = -0.00004, p = 0.883), but this null result masks two offsetting, regime-specific effects: positive in emerging economies (β = 0.00093, $p < 0.01$) and negative, marginally significant, in developed economies (β = -0.00036, $p < 0.10$); a formal interaction test confirms this cross-regime difference is significant (β = -0.00139, $p < 0.01$). The heterogeneity is robust to firm fixed effects and two-way clustered standard errors, but not to controlling for globally common shock periods: with year fixed effects, or simple indicators for the 2008-09 crisis, COVID-19, and the 2021-22 inflation surge, the interaction term loses significance.

Conclusions: We interpret this as evidence that part of the apparent heterogeneity reflects differential exposure to global shocks rather than a purely structural channel, and report this sensitivity transparently. The analysis is observational and cannot rule out reverse causality. This study is among the first to test the inflation-investment relationship across a harmonised, 85-country panel, and to subject a cross-regime interaction test to explicit global-shock robustness checks.

Keywords: Inflation; Corporate investment; Capital expenditure; Macroeconomic uncertainty; Emerging markets; Developed markets; Panel data; Driscoll-Kraay standard errors.

JEL Classification: E22, E31, G31.

1. INTRODUCTION

Capital expenditure decisions are forward-looking commitments made under uncertainty about future demand, costs, and financing conditions. Inflation is one of the most visible sources of that uncertainty: it distorts relative price signals, complicates the interpretation of nominal returns, and typically raises the cost of capital as central banks tighten monetary policy in response. Cross-country evidence further shows that the volatility of inflation itself,

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not just its level, differs systematically with a country's institutional quality and stage of development, with inflation persistence and income levels the strongest predictors of volatility across income groups (Merza, Alawin, & Husain, 2025) — motivating this study's explicit test of whether the investment consequences of inflation likewise differ across the developed-emerging divide, rather than assuming a common global channel. Whether and how firms adjust capital expenditure in response to inflation is accordingly a long-standing question in corporate finance, yet the empirical record is unsettled (Binder, Ozturk, & Sheng, 2025; Ha & So, 2024; Wang, Chen, Chen, & Huang, 2016). Studies using Chinese firm-level data link lower inflation uncertainty to greater over-investment, an effect amplified by managerial overconfidence (Wang et al., 2016), and the closely related economic-policy-uncertainty literature finds that policy uncertainty depresses capital expenditure and corporate borrowing more broadly (Gulen & Ion, 2016). Yet evidence from Gulf Cooperation Council (GCC) markets finds the opposite sign: inflation is positively associated with corporate investment, a pattern attributed to the effect of inflation on the nominal value of collateral and revenue in that regional context (Farooq, Tabash, Hamouri, Daniel, & Safi, 2023). This tension — a real-options/cost-of-capital channel that should dampen investment under inflation, set against a nominal-collateral channel that can amplify it — has not, to our knowledge, been tested directly within a single, harmonised cross-country dataset capable of identifying where each channel dominates. This study tests whether firm-level capital expenditure intensity is systematically related to country-year inflation, and whether the sign and significance of that relationship differs between developed and emerging economies, using a large multi-country panel of listed firms merged with World Bank macroeconomic and governance data.

Consistent with the mixed literature summarised above, two hypotheses are developed. First, following the real-options and cost-of-capital channels that dominate the developed-market and China-focused literature, this study tests whether higher inflation is associated with lower capital expenditure intensity (H1). Second, it tests whether this relationship is not uniform across institutional contexts, but instead differs significantly between developed and emerging economies, reflecting the divergent channels documented separately in prior work (H2). Using 88,351 firm-year observations for 11,186 listed firms across 85 countries between 2002 and 2023, drawn from the LSEG (Refinitiv) database and merged with World Bank macroeconomic and governance indicators, the study estimates industry-fixed-effects panel regressions with Driscoll-Kraay standard errors — chosen specifically because firms within the same country-year share common macroeconomic shocks that would otherwise bias conventional firm-clustered inference. In brief, the study finds no significant relationship between inflation and capital expenditure intensity in the pooled, combined sample. This null result, however, conceals two significant and opposite-signed regime-specific effects: inflation is positively associated with capital expenditure intensity among emerging-economy firms, and negatively, albeit only marginally significantly, associated with capital expenditure intensity among developed-economy firms. A formal interaction test confirms that this cross-regime difference is itself statistically significant. The result is robust to a squared-inflation specification, which finds no evidence of curvature, and to a one-year lag on inflation.

This study makes two contributions. First, it tests the inflation-investment relationship within a single, harmonised 85-country panel rather than relying on separate single-region studies, allowing the sign of the relationship to be compared directly, on the same outcome measure and estimator, across institutional contexts. Second, it shows that a formal interaction test detects a statistically significant cross-regime difference in the inflation-investment relationship that a pooled specification conceals, and it goes beyond the interaction test alone by subjecting this heterogeneity to a battery of robustness checks — firm fixed effects, two-way clustered standard errors, and controls for globally common shock periods — that prior single-region studies of this question have not applied. The heterogeneity is robust to firm-level composition effects and to alternative inference approaches, but not to controlling for the 2008-09 financial crisis, the COVID-19 pandemic, and the 2021-22 global inflation surge, indicating that at least part of the apparent developed-emerging divergence reflects differential exposure to global shocks rather than a purely structural, institution-specific channel. We report this sensitivity transparently rather than selecting the specification that most favours the paper's headline claim, and we return to its interpretation throughout the paper. The remainder of the paper is organised as follows. Section 2 reviews the theoretical framework and empirical literature and develops the study's hypotheses. Section 3 describes the data, variable measurement, model specification, and estimation technique. Section 4 presents the empirical results, including a set of additional

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robustness checks (Sections 4.6-4.8). Section 5 discusses the findings. Section 6 concludes, and Section 7 sets out the study's implications and limitations.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Theoretical Framework

Real options theory provides the core mechanism through which macroeconomic uncertainty is expected to affect corporate investment: because investment is often partially irreversible and can typically be delayed, higher macroeconomic uncertainty — of which inflation volatility is one component — raises the value of waiting relative to investing now, leading rational managers to defer capital expenditure until uncertainty resolves (Bernanke, 1983; Dixit & Pindyck, 1994). Inflation compounds this mechanism in a way that is specific to the price level rather than to macroeconomic uncertainty generally: Baldwin and Ruback (1986) show that when future price levels are uncertain, inflation creates a valuable option to switch between assets of different useful lives, so that its net effect on the incentive to invest is non-monotonic rather than uniformly negative even within the real-options framework. Bloom (2009) provides the canonical empirical demonstration of this mechanism at the macro level, showing that second-moment (uncertainty) shocks generate sharp, temporary drops in aggregate investment and hiring even without any change in first-moment fundamentals, and that activity subsequently rebounds as uncertainty resolves — precisely the dynamic the real-options channel predicts. A complementary cost-of-capital channel operates through monetary policy: central banks typically respond to inflation with higher policy rates, mechanically raising the discount rate applied to investment projects and reducing the set of projects that clear the hurdle rate. This mechanism is more precisely a monetary-policy channel than a discount-rate channel per se, and the distinction matters: a separate literature starting from firms' realised discount rates, rather than the policy rate, reaches the opposite conclusion. Because firms' nominal required returns to capital are empirically sticky with respect to expected inflation, a rise in expected inflation that outpaces the adjustment in firms' nominal discount rates mechanically lowers the real discount rate applied to future cash flows and raises real investment (Fukui, Gormsen, & Huber, 2024). Corhay and Tong (2025) document a related, opposite-signed channel operating through long-term nominal corporate debt: higher expected inflation erodes borrowers' real liabilities and default risk, even as it contracts credit supply from lenders' balance sheets. The present study's cost-of-capital channel therefore reflects one plausible mapping from inflation to investment — most relevant where monetary policy responds promptly and credibly to inflation surprises — rather than the only mechanism theory admits; Section 7.2 revisits this as an interpretive qualification of the developed-economy result. Together, the real-options and monetary-policy channels predict a negative relationship between inflation and investment in institutional settings where monetary policy responds promptly and credibly to inflation surprises.

A third, less frequently emphasised channel works in the opposite direction. Where firms hold substantial real assets, or where debt and revenue are contracted in nominal terms, inflation can raise the nominal value of collateral and reported revenue, easing financing constraints and, at the margin, supporting rather than depressing investment (Farooq et al., 2023). This nominal-collateral benefit is not unconditional, however: where firm or country debt is denominated in foreign currency rather than the local unit of account, inflation-linked currency depreciation raises, rather than erodes, the real burden of that debt — a foreign-currency-debt channel that Pradhan and Hiremath (2021) document as a material drag on investment among Indian firms, and that works directly against the nominal-collateral mechanism just described. Because the LSEG/World Bank data used here do not identify the currency denomination of individual firms' debt, the analysis cannot separate firms for which the nominal-collateral channel dominates from firms for which the foreign-currency-debt channel dominates; the positive emerging-economy coefficient reported in Section 4 should be read as the net of these two offsetting mechanisms rather than as evidence that the collateral channel operates uniformly. This nominal-collateral channel is theoretically distinct from — and directly opposed to — the real-options and cost-of-capital channels, and its relative strength plausibly depends on the depth and sophistication of a country's financial system, the maturity structure of corporate debt, and the extent to which monetary policy responds credibly to inflation. This tension motivates the present study's central empirical question: not simply whether inflation is associated with investment, but whether the sign of that association is itself conditional on the institutional (developed versus emerging) context in which the firm operates.

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A related, firm-level financing-constraints channel is also relevant. Fazzari, Hubbard, and Petersen (1988) establish that firms' investment sensitivity to internal cash flow reflects a financing hierarchy in which external funds carry a cost premium over internal capital — a mechanism through which inflation could affect investment indirectly, by eroding the real value of internally generated cash flow or by tightening the terms on which external finance is available, independently of the real-options and nominal-collateral channels described above. Separately, monetary policy transmits to corporate investment unevenly across firms: younger, non-dividend-paying firms adjust capital expenditure and borrowing more sharply in response to interest-rate changes than older, dividend-paying firms, because their collateral values are more sensitive to monetary policy (Cloyne, Ferreira, Froemel, & Surico, 2023). This firm-level heterogeneity channel operates alongside, and could plausibly interact with, the country-level developed-versus-emerging heterogeneity this study documents; neither the financing-constraints nor the firm-level monetary-transmission channel is tested directly here, but both motivate the firm-level extensions flagged as directions for future research in Section 7.1.

2.2 Macroeconomic Uncertainty and Corporate Investment: Broader Evidence

Beyond inflation specifically, a broader literature links macroeconomic uncertainty to corporate investment decisions. Abdoh and Maghyereh (2020) show that product market competition moderates the relationship between oil-price uncertainty and corporate investment using COMPUSTAT data. Cao, Sun, and Guo (2020) similarly find that oil-price uncertainty asymmetrically depresses investment efficiency among Chinese renewable-energy firms, with the effect concentrated among firms with weaker investment opportunities. Li, Magud, and Valencia (2020) extend this uncertainty framework to emerging markets, finding that financially weaker firms respond more sharply to U.S. monetary policy shocks and financial-market volatility. Rashid, Nasimi, and Nasimi (2022) disaggregate uncertainty into firm-specific, macroeconomic, and political components in the Pakistani context, finding that firm size moderates the adverse investment effects of each. Ososuakpor (2021a, 2021b) applies real options theory directly to Nigerian firms, isolating the distinct effects of market versus macroeconomic uncertainty — including exchange-rate, interest-rate, and inflation components specifically — on corporate investment decisions. Moraghen, Seetanah, and Sookia (2023) show that exchange-rate levels and volatility affect foreign direct investment differently across sectors of the Mauritian economy, and Pradhan and Hiremath (2021) find that foreign-currency debt exposure affects Indian firms' investment amid currency depreciation. At the capital-structure margin, Chow, Muhammad, Bany-Ariffin, and Cheng (2018) show that corporate governance moderates the relationship between macroeconomic uncertainty and capital structure across seven Asia-Pacific markets, while Gomes and Schmid (2021) link corporate leverage and default risk to macroeconomic volatility in a general-equilibrium asset-pricing framework. Across this literature, macroeconomic uncertainty consistently emerges as a first-order determinant of corporate investment and financing behaviour, with effects systematically moderated by firm-level characteristics (size, financial strength) and institutional context — a pattern this study extends specifically to inflation and to the developed-versus-emerging-economy distinction.

2.3 Inflation and Corporate Investment: Empirical Evidence and the Regime Question

Firm-level evidence on inflation specifically broadly supports an inflation/uncertainty-investment dampening effect, though the precise channel, and even the sign, vary across studies. Using a sample of Chinese listed firms, Wang et al. (2016) find that lower inflation uncertainty is associated with more over-investment, and that this effect is amplified by managerial overconfidence — implying the inflation channel operates partly through behavioural bias rather than pure rational real-options logic, and partly through the state-owned/non-state-owned ownership distinction specific to the Chinese institutional setting. Using a textual, news-based index of policy uncertainty — a related but distinct construct from inflation itself — Gulen and Ion (2016) find that policy uncertainty depresses capital expenditure, with the effect concentrated among firms with higher investment irreversibility and greater dependence on government spending, consistent with the real-options channel described in Section 2.1.

By contrast, Farooq et al. (2023), using firm-level data for six GCC countries over 2007-2020 and a system-GMM estimator, find a positive relationship between inflation and corporate investment, which they attribute to inflation's effect on the nominal value of collateral and revenue supporting production expansion in that regional context. This is a direct reversal of the sign reported in the China- and policy-uncertainty literature, and it is not obviously attributable to methodology alone, since Farooq et al. (2023), like the present study, use firm-level panel data with

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macroeconomic controls. A plausible reconciliation is that the GCC and Chinese/developed-market settings differ systematically in exactly the institutional dimensions — financial market depth, exchange-rate regime, monetary policy credibility — that theory suggests should determine whether the real-options/cost-of-capital channel or the nominal-collateral channel dominates. No study, to our knowledge, has tested this reconciliation directly within a single dataset and estimator, rather than comparing point estimates informally across separate papers with different samples, time periods, and specifications. This motivates the present study's inclusion of GDP growth and political stability as joint macroeconomic controls, rather than relying on inflation alone, and its explicit test of developed-versus-emerging heterogeneity.

Two very recent studies extend this evidence using cross-country designs closer in spirit to the present study, and are worth engaging directly given their currency and proximity to the research question. Ha and So (2024), using a panel structural VAR spanning the G7 advanced economies and seven large emerging markets, find that higher inflation uncertainty is followed by significant declines in economic activity, with investment among the most strongly affected components, and report that the magnitude of this effect differs between their advanced- and emerging-economy groupings. Binder et al. (2025), using inflation-forecast disagreement as a measure of inflation uncertainty across 33 countries and panel local projections, show that higher inflation uncertainty reduces real economic activity both at the country level (lower industrial production) and at the firm level (lower real sales and employment), with the effect amplified by financial and trade openness. Both studies test inflation uncertainty — the dispersion or unpredictability of inflation — rather than the inflation level tested in H1 and H2 below, and neither estimates a formal developed-versus-emerging interaction on a firm-level capital-expenditure outcome specifically. The present study is complementary: it tests the level of inflation rather than its uncertainty, uses a firm-level capital-expenditure measure rather than aggregate industrial production or firm sales/employment, and estimates an explicit interaction test within a single 85-country firm-level panel rather than a country-level structural VAR.

H1: Higher inflation is associated with lower firm-level capital expenditure intensity.

H2: The inflation-capital expenditure intensity relationship differs significantly between developed-economy and emerging-economy firms.

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Sample and Data Sources

The data are drawn from the LSEG (Refinitiv) database, merged at the firm-year level with World Bank World Development Indicators (inflation, GDP growth) and Worldwide Governance Indicators (political stability and absence of violence/terrorism). The raw dataset comprises 102,003 firm-year observations for listed firms headquartered in 99 countries between 2002 and 2024. After listwise deletion of missing values on the dependent variable, the independent variable, and all control variables, the analytical sample retains 88,351 firm-year observations (86.6% of the raw sample) for 11,186 firms across 85 countries and 59 TRBC industry groups, spanning 2002-2023.

Economies are classified as developed or emerging using the LSEG (Refinitiv) database's own Economy Classification field, which assigns each firm's country of headquarters to one of the two categories. Following this classification, the combined analytical sample is split into an emerging-economies sub-sample (21,756 firm-year observations, 50 countries) and a developed-economies sub-sample (66,595 firm-year observations, 35 countries). Of the 99 countries represented in the raw sample, 14 are absent from the analytical sample after listwise deletion: eleven small financial centres and offshore domiciles (Bahamas, Bermuda, Botswana, Faroe Islands, Gibraltar, Guernsey, Isle of Man, Jersey, Liechtenstein, Monaco, and Puerto Rico), for which World Bank inflation, GDP growth, or political-stability data are unavailable for the full sample window; Taiwan, for which the World Bank does not report standard WDI/WGI indicators because Taiwan is not a World Bank member; and Argentina and Sudan, for which the relevant World Bank series are incomplete over parts of 2002-2023.

To limit the influence of extreme outliers and data-entry artefacts — the raw dependent and leverage variables include implausible values (e.g., a maximum capital-expenditure-intensity ratio exceeding 1,100%, evidently reflecting reporting anomalies for a small number of firm-years with near-zero total assets) — capital expenditure intensity,

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leverage, inflation, and GDP growth are each winsorized at the 1st and 99th percentiles of their respective pooled distributions prior to estimation.

3.2 Model Specification

The baseline model is estimated as an industry-fixed-effects pooled panel regression:

$$CapExTA(i,t) = \beta 0 + \beta 1 \cdot Inflation(c,t) + \beta 2 \cdot GDPgrowth(c,t) + \beta 3 \cdot PoliticalStability(c,t) + \beta 4 \cdot DebtTA(i,t) + \beta 5 \cdot lnTA(i,t) + IndustryFE + \varepsilon(i,t)$$

where i indexes firms, c indexes the firm's headquarters country, and t indexes years. H1 corresponds to $\beta 1 < 0$. The model deliberately omits country and year fixed effects: because Inflation, GDPgrowth, and PoliticalStability are themselves measured at the country-year level, saturating the model with country and year fixed effects would substantially absorb the variation the study aims to estimate. Instead, the cross-sectional dependence this design choice introduces — firms headquartered in the same country in the same year share identical values of all three macroeconomic regressors, and plausibly correlated residuals — is addressed directly through the choice of standard-error estimator (Section 3.4) rather than through fixed effects. Section 4.8 revisits this choice directly by re-estimating the model with year fixed effects and with indicators for globally common shock periods, to test whether the baseline results are sensitive to global, rather than country-specific, time variation.

To test H2, the baseline model is re-estimated separately on the emerging-economies and developed-economies sub-samples, and a pooled interaction specification is estimated:

$$CapExTA(i,t) = \gamma 0 + \gamma 1 \cdot Inflation(c,t) + \gamma 2 \cdot Developed(c) + \gamma 3 \cdot (Inflation \times Developed)(c,t) + \gamma 4 \cdot GDPgrowth(c,t) + \gamma 5 \cdot PoliticalStability(c,t) + \gamma 6 \cdot DebtTA(i,t) + \gamma 7 \cdot lnTA(i,t) + IndustryFE + \varepsilon(i,t)$$

where Developed(c) is an indicator equal to 1 for firms headquartered in a developed economy. H2 corresponds to $\gamma 3 \neq 0$.

As a further robustness check, a non-linear specification adds a squared inflation term, $Inflation^2(c,t)$, to the combined-sample baseline model, testing whether the inflation-investment relationship is curvilinear rather than linear. A second robustness check re-estimates the combined-sample baseline model with a one-year lag on inflation, Inflation(c,t-1), constructed from country-year inflation values shifted forward by one year within each country, to probe whether the contemporaneous result is sensitive to simultaneity between inflation and investment timing. Sections 4.6-4.8 report three further checks: firm fixed effects in place of industry fixed effects, two-way clustered standard errors, and year fixed effects / global-shock indicators.

3.3 Variable Definitions and Measurement

Table 1. Variable Definitions

Variable	Type	Definition	Source
CapExTA	Dependent	Capital Expenditures - Total, scaled by Total Assets, firm i, year t	LSEG (Refinitiv)
Inflation	Independent	Country-year annual % change in consumer prices, assigned by firm's country of headquarters and fiscal year	World Bank WDI
GDPgrowth	Control	Country-year annual % change in real GDP	World Bank WDI
PoliticalStability	Control	Political Stability and Absence of Violence/Terrorism, WGI standard scale (observed range in this sample: -2.40 to +1.75; full WGI scale approximately -2.5 to +2.5, higher = more stable)	World Bank WGI
DebtTA	Control	Debt - Total, scaled by Total Assets, firm i, year t	LSEG (Refinitiv)
lnTA	Control	Natural logarithm of Total Assets, firm i, year t	LSEG (Refinitiv)
Industry FE	Control	59 TRBC Industry Group fixed effects	LSEG (Refinitiv)

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Note: WDI = World Development Indicators; WGI = Worldwide Governance Indicators; TRBC = The Refinitiv Business Classification.

3.4 Estimation Technique

Given the cross-sectional dependence likely to arise from shared macroeconomic shocks across firms within the same country-year — a concern the model specification in Section 3.2 makes structurally unavoidable — Driscoll-Kraay standard errors (Driscoll & Kraay, 1998) are used throughout in place of conventional firm-clustered standard errors. Driscoll-Kraay standard errors are robust to general forms of cross-sectional and temporal dependence and do not require the number of cross-sectional units to be small relative to the number of time periods, making them well suited to a large, unbalanced, cross-country firm panel of this kind. All models are estimated as pooled OLS with industry fixed effects (implemented as industry dummy variables) and Driscoll-Kraay standard errors (Bartlett kernel, four-period bandwidth), using the pooled-panel implementation in the linearmodels Python package. Variance inflation factors are computed for all continuous regressors to assess multicollinearity (Section 4.2).

The Driscoll-Kraay estimator is implemented on a panel indexed by firm and year, with the kernel-based correction applied across the full contemporaneous cross-section of firms in each year — a more conservative assumption about the scope of cross-sectional dependence than restricting correlation to firms headquartered in the same country-year. Section 4.7 reports two-way clustered standard errors (clustered by firm and by country-year) as an alternative inference approach for comparison, since two-way clustering is a more common choice than Driscoll-Kraay for firm-level (as opposed to country-level) panels of this kind.

4. EMPIRICAL RESULTS

4.1 Descriptive Statistics

Table 2 reports descriptive statistics for the combined sample and separately for the emerging-economies and developed-economies sub-samples. Emerging-economy firm-years exhibit higher average inflation (3.75% versus 2.50%) and GDP growth (4.38% versus 1.89%), and markedly lower political stability (-0.42 versus 0.58), than developed-economy firm-years, consistent with the institutional divergence the study's hypotheses are designed to exploit.

Table 2. Descriptive Statistics

Panel: Combined (N = 88,351)

Variable	Mean	SD	Min	Median	Max
CapEx/TA	0.0440	0.0459	0.0002	0.0314	0.2434
Inflation (%)	2.8069	2.4636	-1.1387	2.1301	11.6473
GDP growth (%)	2.5055	3.1096	-7.4406	2.5124	9.6896
Political Stability	0.3342	0.6169	-2.3969	0.3862	1.7532
Debt/TA	0.2527	0.1888	0.0000	0.2312	0.8399
ln(Total Assets)	22.1384	1.9342	11.6109	22.1306	29.4711

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Panel: Emerging (N = 21,756)

Variable	Mean	SD	Min	Median	Max
CapEx/TA	0.0451	0.0466	0.0002	0.0317	0.2434
Inflation (%)	3.7532	2.9601	-1.1387	2.8992	11.6473
GDP growth (%)	4.3761	3.5286	-7.4406	4.7885	9.6896
Political Stability	-0.4167	0.4576	-2.3969	-0.4799	1.2236
Debt/TA	0.2419	0.1840	0.0000	0.2222	0.8399
ln(Total Assets)	22.0910	1.8776	14.6109	22.0388	29.4711

Panel: Developed (N = 66,595)

Variable	Mean	SD	Min	Median	Max
CapEx/TA	0.0437	0.0457	0.0002	0.0312	0.2434
Inflation (%)	2.4978	2.1913	-1.1387	1.9853	11.6473
GDP growth (%)	1.8944	2.6915	-7.4406	2.3954	9.6896
Political Stability	0.5795	0.4383	-1.6252	0.5824	1.7532
Debt/TA	0.2562	0.1902	0.0000	0.2341	0.8399
ln(Total Assets)	22.1539	1.9521	11.6109	22.1582	28.9267

Note: CapEx/TA, Debt/TA, Inflation, and GDP growth are winsorized at the 1st and 99th percentiles of their pooled combined-sample distributions (Section 3.1).

4.2 Correlation and Multicollinearity Diagnostics

Table 3 reports pairwise correlations among the study's continuous variables for the combined sample. Inflation is negatively correlated with political stability (r = -0.363) and positively correlated with GDP growth (r = 0.260), consistent with the disproportionate representation of higher-inflation, higher-growth, lower-stability emerging economies in the sample. All variance inflation factors are well below the conventional threshold of 10 (maximum 1.21), indicating multicollinearity is not a material concern for the regression estimates that follow.

Table 3. Correlation Matrix and Variance Inflation Factors (Combined Sample)

	CapEx/TA	Inflation	GDP gr.	Pol. Stab.	Debt/TA	ln(TA)
CapEx/TA	1					
Inflation	0.01	1				
GDP growth	0.019	0.26	1			
Political Stability	0.029	-0.363	-0.292	1		
Debt/TA	0.112	-0.001	-0.041	-0.008	1	
ln(Total Assets)	-0.128	-0.131	-0.039	0.023	0.11	1
VIF	-	1.21	1.13	1.21	1.01	1.03

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Note: VIF computed among Inflation, GDP growth, Political Stability, Debt/TA, and ln(Total Assets) only; not computed for the dependent variable.

4.3 Main Regression Results

Table 4 reports the baseline results for the combined sample and separately for the emerging-economies and developed-economies sub-samples. In the combined sample, Inflation is not significantly associated with capital expenditure intensity (β = -0.00004, p = 0.883), providing no support for H1 in the pooled specification. However, the sub-sample results reveal a striking divergence: in the emerging-economies sample, Inflation is positive and highly significant (β = 0.00093, p < 0.01), while in the developed-economies sample, Inflation is negative and marginally significant (β = -0.00036, p < 0.10). GDP growth is positively associated with capital expenditure intensity in the combined and emerging-economies samples (p < 0.05 in both) but not in the developed-economies sample. Political Stability is significant in all three samples but with an opposite sign in the emerging-economies sample (negative) relative to the combined and developed-economies samples (positive). Debt/TA is positive and significant throughout, and firm size (lnTA) is negative and significant in the combined and developed-economies samples, consistent with larger, more mature firms exhibiting lower capital-expenditure intensity relative to their asset base.

To help gauge economic, not just statistical, significance: a one-standard-deviation increase in inflation (2.96 percentage points in the emerging sub-sample) is associated with a 0.275-percentage-point increase in CapEx/TA — about 6.1% of the emerging sub-sample's mean CapEx/TA of 4.51%. A one-standard-deviation increase in inflation in the developed sub-sample (2.19 percentage points) is associated with a 0.079-percentage-point decrease in CapEx/TA, about 1.8% of the developed sub-sample's mean of 4.37%. The emerging-economy effect is therefore economically, and not only statistically, more prominent than the marginal developed-economy effect.

Table 4. Baseline Regression Results: Capital Expenditure Intensity

	Combined	Emerging	Developed
Inflation	-4E-05 -3E-04 [t = -0.15]	0.00093*** -3E-04 [t = 3.10]	-0.00036* -2E-04 [t = -1.71]
GDP growth	0.00046** -2E-04 [t = 2.00]	0.00055** -2E-04 [t = 2.39]	0.0002 -3E-04 [t = 0.80]
Political Stability	0.00171** -8E-04 [t = 2.19]	-0.00375*** -0.001 [t = -3.23]	0.00574*** -0.001 [t = 5.47]
Debt/TA	0.00563*** -0.001 [t = 4.58]	0.00979** -0.005 [t = 2.17]	0.00615*** -9E-04 [t = 6.68]

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ln(Total Assets)	-0.00229*** -4E-04 [t = -5.45]	-3E-04 -3E-04 [t = -1.14]	-0.00272*** -4E-04 [t = -6.33]
Industry FE	Yes	Yes	Yes
N	88,351	21,756	66,595
R^2	0.2565	0.296	0.2708
F-statistic	483.43***	147.08***	392.28***

Note: Coefficients from pooled OLS with industry fixed effects; Driscoll-Kraay standard errors in parentheses (Bartlett kernel, 4-period bandwidth); t-statistics in brackets. ***p < 0.01, **p < 0.05, *p < 0.10 (two-tailed). Industry fixed-effect coefficients omitted for brevity.

4.4 Heterogeneity Test: Developed versus Emerging Economies

Table 4's sub-sample comparison suggests a materially different sign for the inflation coefficient across economy type; this is confirmed formally in Table 5, which reports a pooled specification interacting Inflation with a Developed-economy indicator, alongside the full set of controls and industry fixed effects. The interaction term, Inflation × Developed, is negative and significant (β = -0.00139, p < 0.01), confirming that the inflation-capital expenditure intensity relationship differs significantly between developed and emerging economies in this baseline specification. H2 is accordingly supported in the baseline specification, subject to the robustness checks reported in Sections 4.6-4.8. The base Inflation term in this specification (β = 0.00084, p < 0.05), which captures the emerging-economy (reference-group) effect, is directionally consistent with, though not identical in magnitude to, the stand-alone emerging-economies estimate in Table 4, reflecting the pooled specification's shared control coefficients and industry fixed effects across both groups.

Table 5. Heterogeneity Test: Inflation x Developed-Economy Interaction (Pooled Sample, N = 88,351)

Variable	Coefficient	Std. Error	p-value
Inflation	0.00084**	0.00043	0.0498
Developed (indicator)	0.00191	0.00201	0.3420
Inflation x Developed	-0.00139***	0.00045	0.0021
GDP growth, Political Stability, Debt/TA, ln(TA)	included	-	-
Industry FE	Yes	-	-

Note: Driscoll-Kraay standard errors (Bartlett kernel, 4-period bandwidth). ***p < 0.01, **p < 0.05, *p < 0.10 (two-tailed).

4.5 Robustness Checks: Non-Linearity and Simultaneity

Table 6 reports two robustness checks on the combined-sample baseline result. First, a squared inflation term is added to test for a curvilinear relationship; neither the linear nor the squared term is statistically significant (p = 0.391 and p = 0.204, respectively), providing no evidence that the null combined-sample result masks a non-linear

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relationship. Second, the baseline model is re-estimated using a one-year lag on inflation, constructed from country-year inflation values shifted forward by one year within each country (N = 87,689, reflecting the loss of each country's first sample year); the lagged inflation coefficient remains statistically insignificant (β = 0.00054, p = 0.190), and the control-variable coefficients are materially unchanged from the contemporaneous specification, indicating the combined-sample null result is not an artefact of simultaneity between inflation and investment timing.

Table 6. Robustness Checks (Combined Sample)

Variable	Model A: Squared Inflation	Model B: Lagged Inflation (t-1)
Inflation (t)	-0.00047 (0.00055)	--
Inflation² (t)	0.0000490 (0.0000390)	--
Inflation (t-1)	--	0.00054 (0.00041)
GDP growth	included	0.00047** (0.00023)
Political Stability	included	0.00259** (0.00102)
Debt/TA	included	0.00561*** (0.00113)
ln(Total Assets)	included	-0.00223*** (0.00043)
Industry FE	Yes	Yes
N	88,351	87,689
R^2	0.2566	0.2564

Note: Driscoll-Kraay standard errors in parentheses (Bartlett kernel, 4-period bandwidth). ***p < 0.01, **p < 0.05, *p < 0.10 (two-tailed).

4.6 Additional Robustness Check: Firm Fixed Effects

Sections 4.6-4.8 report three additional checks that probe whether the baseline and interaction results in Sections 4.3-4.4 are sensitive to the fixed-effects and standard-error choices discussed in Sections 3.2 and 3.4: firm fixed effects in place of industry fixed effects, two-way clustered standard errors in place of Driscoll-Kraay standard errors, and year fixed effects / global-shock indicators in place of the baseline's country-year-only specification.

Table 7 re-estimates the combined-sample baseline and interaction models with firm fixed effects in place of industry fixed effects, addressing the concern that industry-level controls do not purge time-invariant, firm-specific investment propensities that could differ systematically between developed- and emerging-economy firms within the same industry. Under firm fixed effects, the combined-sample Inflation coefficient remains statistically insignificant (β = 0.00021, p = 0.527), consistent with the industry-FE baseline. More importantly for H2, the Inflation x Developed interaction remains negative and highly significant (β = -0.00131, p < 0.001) — similar in magnitude to the industry-FE estimate of -0.00139 reported in Table 5. The Developed indicator itself is necessarily absorbed by firm fixed effects, since a firm's country classification does not vary over time in this sample. The within-firm R^2 is low (1.6%), as expected once firm-specific intercepts absorb most cross-sectional variation, but the interaction result surviving this considerably more demanding specification indicates that the developed-emerging heterogeneity in Table 5 is not an artefact of firm composition within industries.

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Table 7. Robustness Check: Firm Fixed Effects (Combined Sample, N = 88,351)

Variable	Combined, Firm FE	Interaction, Firm FE
Inflation	0.00021 (0.00033), p = 0.527	0.00121** (0.00052), p = 0.020
Inflation x Developed	--	-0.00131*** (0.00037), p < 0.001
GDP growth	0.00024 (0.00020)	included
Political Stability	0.00584*** (0.00106)	included
Debt/TA	-0.00749*** (0.00243)	included
ln(Total Assets)	-0.00689*** (0.00119)	included
Firm FE	Yes	Yes
N	88,351	88,351
Within R^2	0.0164	--

Note: Firm-level panel regressions with firm fixed effects; Driscoll-Kraay (kernel) standard errors in parentheses (Bartlett kernel, 4-period bandwidth). Developed is time-invariant within firm and is absorbed by firm fixed effects. ***p < 0.01, **p < 0.05, *p < 0.10 (two-tailed).

4.7 Additional Robustness Check: Two-Way Clustered Standard Errors

Table 8 re-estimates the industry-FE baseline and interaction models with standard errors two-way clustered by firm and by country-year, an inference approach more commonly used than Driscoll-Kraay standard errors for firm-level (rather than country-level) panels, and one that directly targets the correlation structure motivating the choice of estimator in Section 3.4 (common shocks to firms headquartered in the same country-year). Point estimates are unchanged, as clustering affects only standard errors, not coefficients. The combined-sample Inflation coefficient remains insignificant (p = 0.856), and the Inflation x Developed interaction remains negative and highly significant (β = -0.00139, p < 0.001) — in fact more precisely estimated under two-way clustering than under Driscoll-Kraay standard errors in Table 5. The core results in Sections 4.3-4.4 are therefore robust to this alternative, and arguably more standard, choice of inference procedure.

Table 8. Robustness Check: Two-Way Clustered Standard Errors (Firm x Country-Year), Industry FE

Variable	Combined	Interaction
Inflation	-0.00004 (0.00021), p = 0.856	0.00084*** (0.00029), p = 0.004
Developed (indicator)	--	0.00191 (0.00242), p = 0.430
Inflation x Developed	--	-0.00139*** (0.00033), p < 0.001
GDP growth	0.00046** (0.00021)	included
Political Stability	0.00171* (0.00091)	included
Debt/TA	0.00563*** (0.00198)	included
ln(Total Assets)	-0.00229*** (0.00026)	included
Industry FE	Yes	Yes
N	88,351	88,351

Note: Pooled OLS with industry fixed effects; two-way clustered standard errors (firm and country-year) in parentheses. ***p < 0.01, **p < 0.05, *p < 0.10 (two-tailed).

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4.8 Additional Robustness Check: Year Fixed Effects and Global-Shock Indicators

Table 9 reports the most consequential of the three additional checks. Panel A adds year fixed effects to the industry-FE combined-sample and interaction specifications. Panel B replaces the full set of year fixed effects with three simple indicators for globally synchronized shock periods — the 2008-09 global financial crisis, the 2020-21 COVID-19 pandemic, and the 2022-23 global inflation surge — to make the mechanism more transparent. In both panels, the result changes materially relative to the baseline. With year fixed effects, the combined-sample Inflation coefficient turns positive and marginally significant (β = 0.00033, p = 0.058), rather than null as in Table 4, and, most importantly, the Inflation x Developed interaction that supports H2 in Table 5 loses statistical significance entirely (β = -0.00018, p = 0.458 with full year fixed effects; β = -0.00031, p = 0.150 with the three crisis indicators). The crisis-period indicators are themselves large and highly significant: capital expenditure intensity is markedly higher during the 2008-09 financial crisis window and markedly lower during the COVID-19 pandemic and the 2021-22 inflation surge, holding the other covariates fixed. Country-year inflation itself was highly elevated in these same episodes (the pooled sample's average country-year inflation was 6.0% in 2022 and 3.6% in 2008, against a full-sample average of 2.8%), so a specification that does not separately control for these globally synchronized episodes risks attributing to the developed/emerging institutional channel what is at least partly a shared exposure to a small number of global shocks. Section 5 discusses the interpretation of this finding, and Section 7.2 records it as an explicit limitation.

Table 9. Robustness Check: Year Fixed Effects and Global-Shock Indicators (Combined Sample, N = 88,351)

Panel A: Year Fixed Effects

Variable	Combined, Industry + Year FE	Interaction, Industry + Year FE
Inflation	0.00033* (0.00017)	0.00045** (0.00022)
Developed (indicator)	--	-0.00182 (0.00125)
Inflation x Developed	--	-0.00018 (0.00025), p = 0.458
GDP growth	0.00083*** (0.00018)	included
Political Stability	0.00022 (0.00072)	included
Debt/TA	0.00673*** (0.00111)	included
ln(Total Assets)	-0.00302*** (0.00060)	included
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	88,351	88,351
R^2	0.2718	--

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Panel B: Crisis-Period Indicators (in place of full year FE)

Variable	Interaction + Crisis Indicators
Inflation	0.00061* (0.00033)
Developed (indicator)	-0.00217** (0.00091)
Inflation x Developed	-0.00031 (0.00022), p = 0.150
GFC indicator (2008-09)	0.00901*** (0.00187)
COVID indicator (2020-21)	-0.00936*** (0.00215)
2021-22 inflation-surge indicator (2022-23)	-0.00784*** (0.00245)
GDP growth, Political Stability, Debt/TA, ln(TA)	included
Industry FE	Yes
N	88,351

Note: Pooled OLS with industry fixed effects; Driscoll-Kraay standard errors in parentheses (Bartlett kernel, 4-period bandwidth). GFC indicator = 1 for years 2008-2009; COVID indicator = 1 for years 2020-2021; inflation-surge indicator = 1 for years 2022-2023. ***p < 0.01, **p < 0.05, *p < 0.10 (two-tailed).

5. DISCUSSION

The central finding of this study is that the inflation-corporate investment relationship appears regime-dependent rather than uniform in the baseline specification. Pooling developed- and emerging-market firms into a single specification, as much of the existing literature implicitly does when drawing general conclusions from single-country samples, produces a null result that obscures two real, offsetting, and individually significant effects in that baseline. In emerging economies, inflation is positively associated with capital expenditure intensity, consistent with the nominal-collateral and revenue-appreciation channel documented for GCC markets by Farooq et al. (2023): where financial systems are shallower and a larger share of firm assets and revenue are effectively repriced in nominal terms, inflation can ease rather than tighten the financing constraints that bind investment. This positive estimate is a net effect: as Section 2.1 discusses, it nets any offsetting foreign-currency-debt burden effect (Pradhan & Hiremath, 2021) against the nominal-collateral benefit, and the data used here cannot separate firms for which one channel dominates from firms for which the other does. In developed economies, by contrast, inflation is negatively (albeit only marginally significantly) associated with capital expenditure intensity, consistent with the real-options and cost-of-capital channels that dominate the China-focused and policy-uncertainty literature (Wang et al., 2016; Gulen & Ion, 2016): where monetary policy responds more credibly and mechanically to inflation, the resulting rise in discount rates and precautionary deferral of irreversible investment appears to outweigh any nominal-collateral benefit.

This pattern is consistent with, and extends, the broader macroeconomic-uncertainty literature's repeated finding that the investment consequences of uncertainty are moderated by firm- and country-level characteristics rather than uniform across contexts (Rashid et al., 2022; Li et al., 2020; Chow et al., 2018). The present study's contribution is to show that this moderation extends specifically to the sign, not merely the magnitude, of the inflation-investment relationship, and to demonstrate this within a single dataset and estimator via a directly interpretable interaction test rather than an informal comparison of point estimates drawn from separate papers using different samples, time periods, and specifications.

A final consideration qualifies this central finding, and we discuss it here at some length because it materially affects how confidently H2 should be read. Sections 4.6-4.8 show that while the developed-emerging interaction is robust to firm fixed effects and to two-way clustered inference — both of which address plausible alternative explanations involving firm composition and the precise form of cross-sectional dependence — it loses statistical significance once year fixed effects, or simply indicators for the 2008-09 financial crisis, the COVID-19 pandemic, and the 2021-22 global inflation surge, are added to the specification. Global inflation itself was highly elevated in exactly these episodes, and capital expenditure intensity moved sharply during each one for reasons plausibly unrelated to the

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paper's hypothesized channels: a broad-based investment expansion around the pre-2008 credit boom, a sharp pandemic-era investment contraction, and renewed capital-spending caution during the 2022 inflation surge. Because these episodes were globally synchronized rather than confined to either developed or emerging economies, a specification that does not separately absorb them can attribute part of what is really a shared exposure to global shocks to the developed/emerging institutional channel the paper otherwise emphasizes.

We read this as an important qualification rather than a refutation of H2. The interaction coefficient is directionally consistent with the theoretical channels in Section 2.1 throughout — positive in emerging economies, negative in developed economies — and does not change sign under any specification reported in this paper, including the year-fixed-effects specification. What changes across specifications is our confidence that the difference is precisely estimated once global, contemporaneously shared shocks are appropriately absorbed. One interpretation is that the baseline interaction genuinely reflects the institutional channels in Section 2.1, and that these channels happen to be especially active precisely during the crisis and inflation-surge episodes the year-fixed-effects specification absorbs, so that removing those episodes removes much of the useful identifying variation along with any confound. An alternative, more skeptical interpretation is that the baseline interaction is substantially a global-shock artefact and would not survive in a sample or period without such large, synchronized episodes. The present analysis cannot fully adjudicate between these interpretations; doing so would require either a considerably longer sample period spanning multiple business cycles with less-correlated global timing, or a research design that separates country-specific from globally synchronized inflation variation directly (for example, an event-study design built around idiosyncratic rather than globally synchronized inflation shocks, or an instrument for country-year inflation that is plausibly uncorrelated with global business-cycle conditions). We flag this explicitly as a direction for future research in Section 7.1, and record the underlying sensitivity as a limitation in Section 7.2 rather than resolving it here.

The reversal of the Political Stability coefficient's sign between the emerging-economies sample (negative) and the developed-economies sample (positive) is a secondary, and less theoretically anticipated, finding. One plausible reading is that within the relatively low, and more variable, range of political-stability scores observed among emerging-market firm-years in this sample, incremental stability may coincide with periods of policy tightening or reduced state-directed investment activity rather than with the kind of institutional deepening that supports long-run capital formation; this interpretation is offered cautiously, as the analysis is not designed to identify the mechanism, and it is flagged here as a candidate direction for future research rather than a confirmed explanation.

The consistently positive and significant Debt/TA coefficient across most samples and specifications is consistent with a mechanical channel — firms that raise more debt use part of the proceeds to fund capital expenditure — as well as with the broader capital-structure literature's finding that leverage and investment decisions are jointly determined rather than independent (Chow et al., 2018; Gomes & Schmid, 2021; see also the financing-constraints channel discussed in Section 2.1). Notably, this sign reverses under firm fixed effects (Table 7, Section 4.6), where Debt/TA becomes negative and significant — a pattern consistent with within-firm increases in leverage sometimes coinciding with periods of financial distress or asset-light restructuring rather than expansionary investment, a reversal consistent with the negative firm-level leverage-investment relationship that Naumoski, Arsov, and Cvetkoska (2022) document for emerging South-East European economies, and with debt-overhang theories of capital structure more broadly, and a further illustration of how the choice of fixed-effects structure can materially change the interpretation of even the study's most robust-looking control coefficients. The negative firm-size coefficient in most samples and specifications is consistent with larger, more mature firms investing less intensively relative to their asset base than smaller, higher-growth firms, a standard finding in the corporate-investment literature.

6. CONCLUSION

This study examined whether firm-level capital expenditure intensity is systematically related to macroeconomic inflation, and whether that relationship differs between developed and emerging economies, using 88,351 firm-year observations for 11,186 listed firms across 85 countries between 2002 and 2023. The pooled, combined-sample baseline result finds no significant relationship between inflation and capital expenditure intensity, which would, taken in isolation, suggest H1 is not supported. However, this null result is shown to conceal two significant, opposite-signed, regime-specific effects in the baseline specification: a positive inflation-investment relationship among

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emerging-economy firms, and a negative (marginally significant) relationship among developed-economy firms. A formal interaction test confirms this cross-regime difference is statistically significant in the baseline specification, supporting H2. Both results are robust to a squared-inflation specification, which finds no evidence of curvature, and to a one-year lag on inflation.

The cross-regime heterogeneity underlying H2 is further robust to firm fixed effects, which rules out firm-composition explanations, and to two-way clustered standard errors, an alternative and arguably more standard inference approach for firm-level panels. It is not, however, robust to controlling for globally common shock periods — the 2008-09 financial crisis, COVID-19, and the 2021-22 inflation surge — under either year fixed effects or simple crisis-period indicators (Section 4.8). H2 is accordingly best read as provisionally, rather than unconditionally, supported: the direction of the effect is stable across every specification tested, but its statistical precision depends on whether globally synchronized shock periods are separately absorbed. We view transparently reporting this sensitivity, rather than presenting only the specification most favourable to the paper's headline claim, as itself part of the paper's contribution.

These findings reconcile, rather than adjudicate between, two strands of prior literature that have reported opposite signs for the inflation-investment relationship using different single-region samples. Rather than treating the GCC evidence of Farooq et al. (2023) and the Chinese and policy-uncertainty evidence of Wang et al. (2016) and Gulen and Ion (2016) as contradictory, the baseline results here suggest both may be correct within their respective institutional contexts, and that the sign of the inflation-investment relationship is itself an empirical question conditional on the institutional environment in which the firm operates — with the caveat that separating this institutional channel cleanly from shared exposure to global shocks remains an open question for future work.

7. IMPLICATIONS AND LIMITATIONS

7.1 Implications

For corporate managers, the findings suggest that the appropriate response to rising inflation is not uniform but depends on the firm's institutional environment: in emerging-market settings, inflation may ease rather than tighten investment financing constraints, while in developed-market settings the traditional cost-of-capital and real-options logic for deferring investment continues to apply, albeit only marginally significantly in this sample. This guidance should be read with the same caution flagged in Section 4.8 and Section 7.2: the developed-versus-emerging distinction in how firms should read an inflation shock is best supported outside of globally synchronized crisis and inflation-surge episodes, during which other, shared considerations are likely to dominate firm-level capital-budgeting decisions regardless of a firm's institutional environment.

For researchers, the results caution against generalising single-country or single-region findings on the inflation-investment relationship to other institutional contexts without direct testing, and they illustrate the value of a formal interaction test, together with a full battery of fixed-effects and inference robustness checks, for adjudicating whether apparently conflicting findings reflect genuine heterogeneity, sampling and specification differences, or shared exposure to global shocks. Future firm-level work could usefully combine the country-level heterogeneity documented here with the firm-level financing-constraints (Fazzari et al., 1988) and monetary-transmission (Cloyne et al., 2023) channels discussed in Section 2.1, and could pursue identification strategies — such as event studies around idiosyncratic rather than globally synchronized inflation shocks — capable of separating institutional channels from global-shock exposure more cleanly than the fixed-effects approach used here.

For policymakers in emerging economies, the positive association between inflation and investment intensity documented here should not be read as license to tolerate high inflation, since the analysis does not test, and cannot speak to, the many other channels through which inflation affects firm value, consumer welfare, and macroeconomic stability.

7.2 Limitations

Several limitations qualify these conclusions. First, the analysis is observational: while industry fixed effects and Driscoll-Kraay standard errors address cross-sectional dependence from shared macroeconomic shocks, the design cannot rule out reverse causality (for example, aggregate investment booms plausibly contribute to, rather than

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merely respond to, inflation) or omitted time-varying country-level confounders correlated with both inflation and investment. Second, country fixed effects are deliberately excluded from the baseline specification because inflation, GDP growth, and political stability are themselves country-year-level regressors that such fixed effects would substantially absorb; this design choice trades identification of the effect of interest against the possibility that some other unobserved, time-invariant country-level factor is driving the estimated relationship.

Third, and most importantly for the paper's central contribution, Section 4.8 shows that the Inflation x Developed interaction underlying H2 is not robust to controlling for globally common shock periods (the 2008-09 financial crisis, COVID-19, and the 2021-22 inflation surge) via year fixed effects or simple crisis-period indicators, even though it is robust to firm fixed effects and two-way clustered inference. This is the single most consequential limitation identified in this study, and readers should weight H2 accordingly: the direction of the heterogeneity is stable across all specifications tested, but its statistical significance is not.

Fourth, the developed-economy Inflation coefficient in the baseline specification is only marginally significant at the 10% level, and should be interpreted with corresponding caution rather than as strong evidence of a negative relationship in that sub-sample. Fifth, the economy classification (developed versus emerging) is adopted directly from the LSEG (Refinitiv) database's own Economy Classification field rather than constructed independently, and alternative classification schemes (e.g., IMF or MSCI) could in principle yield different sub-sample compositions, particularly for a handful of borderline economies. Sixth, the squared-inflation check in Section 4.5 tests only for smooth curvature in the inflation-investment relationship; it cannot detect a discrete threshold or regime-switching pattern under which the relationship's sign or magnitude changes abruptly once inflation crosses a specific rate, a possibility made more salient by a pooled sample spanning both low-and-stable and hyperinflationary country-years. A formal panel threshold regression is a natural extension not implemented here. Seventh, a natural-seeming alternative to the year-fixed-effects check in Section 4.8 — re-estimating with country-by-year fixed effects — is not econometrically feasible here: because Inflation, GDP growth, and Political Stability are themselves defined at the country-year level, country-by-year fixed effects would absorb them entirely, leaving the Inflation coefficient unidentified. The year-fixed-effects and crisis-indicator specifications already reported in Section 4.8 are the closest feasible approximation, absorbing globally common shocks while preserving the cross-country variation in inflation the identification strategy requires. Eighth, and finally, while the squared-inflation, one-year-lag, firm-fixed-effects, and two-way-clustering robustness checks address non-linearity, simultaneity, firm composition, and inference-procedure concerns respectively, none of these — nor the year-fixed-effects check — constitutes a full instrumental-variable or quasi-experimental identification strategy, and a valid instrument for country-year inflation that is plausibly uncorrelated with global business-cycle conditions was not available in this dataset.

DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

DATA AVAILABILITY STATEMENT

The firm-level data used in this study were sourced from the LSEG (Refinitiv) Workspace database, access to which requires a commercial license. The country-level macroeconomic and governance indicators were sourced from the World Bank's World Development Indicators and Worldwide Governance Indicators databases, both publicly available at https://databank.worldbank.org. The compiled analytical dataset and estimation code are available from the corresponding author upon reasonable request.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES

During the preparation of this manuscript, the authors used an AI-based analysis and writing assistant (Claude, Anthropic) to help implement and cross-check the robustness regressions reported in Sections 4.6-4.8 and to assist with drafting, reference verification and copy-editing. All AI-assisted analysis and text were reviewed, verified against the underlying data, and edited by the authors, who take full responsibility for the content of this publication.

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