The Elusive Balance Sheet Effect: Corporate Investment and Currency Depreciations

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ABSTRACT

Do exchange rate depreciations curtail investment when firms owe in foreign currency? Using a novel dataset on 7,136 firms from 27 emerging markets (2001–2022), we merge detailed debt composition with balance sheet data to revisit this question. Contrary to conventional wisdom, we find little evidence that foreign-denominated debt systematically depresses capital expenditures. The exception arises in episodes of sharp depreciations, when investment does contract for exposed firms. Our results suggest that foreign debt is not inherently problematic, but it becomes a source of vulnerability under extreme currency shocks.

KEYWORDS: Foreign currency debt, Balance sheet effects, Corporate investment

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I. Introduction

Since the 1970s, global debt has consistently increased, both in absolute figures and relative to GDP (IMF, 2022). However, the pattern of debt accumulation has varied significantly in recent decades. Prior to the Global Financial Crisis (GFC), most debt growth was concentrated in the financial sector of North Atlantic economies. After the GFC, nonfinancial corporations (NFCs) in emerging market economies (EMEs) have driven much of the acceleration in borrowing (Avdjiev et al., 2020). This growth can be measured against different yardsticks. In relation to Advanced Economies (AEs), EMEs debt stock ratio jumped from 11% in 2003 to almost a 50% in 2024 (IIF, 2023, 2025). As a share of GDP, private debt in EMEs went from 60.3% (46.2%) in the 2000s to 104.1% (66.6%) in the 2010s, and 128.1% (68.8%) in 2023 including (excluding) China (IMF, 2024). Lastly, NFCs surpassed governments as the largest borrowers, a situation that contrasts with AEs (IIF, 2025) but also EMEs in the early 2000s (IMF, 2024).

History shows that a rapid rise in foreign-denominated debt accumulated by the private non-financial sector can be dangerous to the home economy. Latin America in the 1980s (Sachs, 1989, p. 13) and East Asian countries in the late 1990s (Radelet et al., 1998) are the most prominent examples of this, all of them leading to the conversion of that private debt into public. However, even without reaching those extremes, the accumulation of foreign debt can have detrimental effects on the firm in the case of a depreciation. Such an event affects the firms through two different channels: a balance sheet channel and a competitive channel. The former increases the value of foreign debt denominated in domestic currency, hence deteriorating the financial health of the company. For those firms that export, a depreciation implies a positive shock through the competitive channel.

Firm-level studies focused on foreign-denominated debt and investment have been limited due to the lack of systematic data on it, especially on bank-based debt. Hence, this type of studies could be divided into two broad groups. The first one includes those in which all types of foreign-denominated debt (i.e., both bank-based and market-based) have been considered, sometimes with liquid foreign-denominated financial assets too. As such level of systematic data was not available through paid databases, this first group of studies is characterized by involving many times some degree on hand-collected data and/or a specific database and therefore being limited to either one country or small group of countries.

Within this first group, Bleakley and Cowan (2008) study Argentina, Brazil, Chile, Colombia, and Mexico during the 1990s and find that firms holding more foreign-denominated debt do not invest less than firms indebted in local currency after a depreciation. The reason for this, they argue, is that the former hedges the currency denomination of their liabilities with the exchange rate sensitivity of their operating income. Also for Latin America, Kalemli-Ozcan et al (2016) measure how lending and balance sheet channels impact corporate investment during major currency devaluations. It shows that when banking crises accompany currency crises, domestic exporters with unhedged foreign debt cut investment, while foreign exporters (despite similar debt) increase it due to better credit access, an effect absent in pure currency crises. In the case of individual countries, for Mexico both Pratap et al (2003) and Aguiar (2005) find that holding foreign-denominated debt in a devaluation adversely affects firms' investment. Similarly, Demirkılıç (2021) finds that a depreciation has a negative effect on investment for those Turkish firms with foreign currency debt and a mismatch with foreign-denominated assets. This is also the case for Korean firms (2016). Endrész and Harasztosi (2014) also find that those Hungarian firm with more FX loans had a more marked decline in investment than those who didn't during the Great Recession. On the other hand, Echeverry et al (2003) find no significant effect of a depreciation in firm-level investment in Colombia. Neither do Bonomo et al (2003) for Brazilian firms, Benavente et al (2003) for Chile.

The second group typically takes a larger sample of countries but at the trade-off of losing information on foreign-denominated debt. In this case, papers either focus on market-based debt only or take some aggregate level of foreign denominated debt and merge it with firm-level information. Serena and Sousa (2017) use firms' bond issuances from 36 EMEs over the period 1998–2014 and find that exchange rate depreciation has a contractionary impact on firms' investment for those firms who issued foreign-denominated bonds. Banerjee et al (2022) find the same result for a panel of firms from both AE and EME firms between 2000 and 2019 (with a stronger effect for the latter group of countries) although they use country-level data to calculate the ratio of FX debt to total debt. Also along these lines, Jin et al (2021) use information of affiliates and local firms of multinational parents from 26 countries. They measure foreign debt using bond issuances information and find the local firms without foreign currency debt are more resilient to currency depreciations, while multinational affiliates suffer steeper declines in sales and investment when their parent companies also face a currency crisis in their home country. In a different analytical exercise, Dao et al (2021) find that that depreciations increase profits, investment, and asset growth for financially constrained tradable-sector firms with higher labor shares for a panel of firms from 68 AEs and EMEs over the 2000–2014 period. However, they do not take foreign-denominated debt but rather total leverage in their baseline estimation. Once they consider foreign-denominated debt using national level data, they also find a negative effect on investment (Dao et al., 2021, pp. 21–22).

Our paper takes the best of both groups by including different types of foreign-denominated debt (the advantage of the first group) but also including a large number of companies (the advantage of the second group): 7,136 firms from 27 EMEs. We do so by exploiting the module on 'Capital Structure' provided by Capital IQ. This module provides information on the currency denomination and type of debt (although imperfect for the latter) regarding the stock of debt. We merge this information with financial statement data retrieved from Compustat. To the best of our knowledge, this is the first study that uses such level of granularity in foreign-denominated debt for a large number of firms. Only Avdjiev et al (2024) uses similar data but focuses on the interaction between local and foreign-denominated debt to show that a stronger U.S. dollar reduces credit access for smaller, domestically focused, less profitable "local" firms, while "global" firms (larger, export-oriented, and highly profitable) remain unaffected. Mid-sized firms, however, experience a decline in dollar-denominated borrowing and replace it with local currency debt.

In this paper we do not find a negative effect of the interaction of the logarithmic change in real exchange rate with dollar and FX-denominated debt. We do find, however, a negative effect of that interaction in cases of high depreciation. These results suggest that up to a certain point, debt denominated in foreign currency is not necessarily problematic for firms. However, in more uncertain contexts marked by high exchange rate volatility, foreign-denominated debt negatively affects capital expenditures. The paper is structured in the following way. Section 2 presents the data and section 3, the methodology. We then discuss our econometric results and conclude.

II. Data

We use information on 7,136 active and inactive publicly-listed firms from emerging market economies, excluding firms belonging to finance and utilities as it is customary (the complete list of firms per country can be found in Table A1). Data begins in 2001 and ends in 2022. We retrieve information from 2 modules of Compustat accessed through WRDS. We first get information on balance sheet data through Compustat Global. We merge this information using firm identifiers with the module on Capital Structure. We also retrieve information on nominal exchange rates from Compustat and real exchange rates from the Bank of International Settlements. Exchange rates are always expressed using the domestic currency as the reference currency. Hence, an increase in the exchange rate means a depreciation in the domestic currency vis-à-vis the USD (in the case of nominal exchange rate) and a basket of trading partners (in the case of real exchange rates).

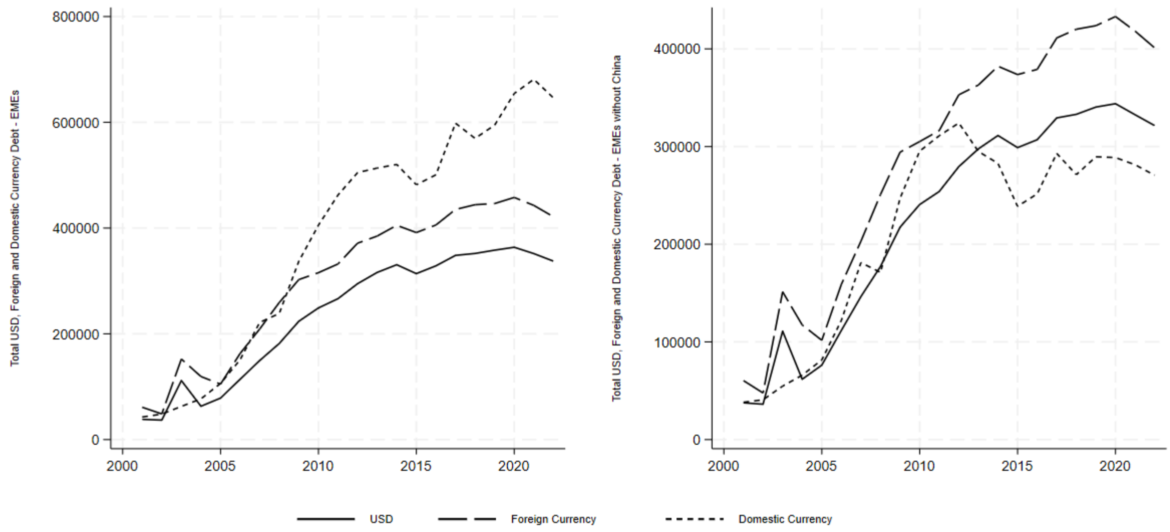
The main novelty of this paper comes from the module on Capital Structure so we will briefly describe it. This dataset systematizes information on debt composition from the notes to the financial statements. From this decomposition there are potentially two main sub-categories: the type of debt and currency denomination. The first one distinguishes, among others, bank-based from market-based debt. However, and probably due to the liberty and also ambiguity in which firms present such information, we have corroborated that this differentiation is not reliable by visually observing information by some large firms.[1] Currency composition, on the other hand, is more reliable for reasons we will explain below. We hence calculate total debt in USD, foreign and local currency per company and year.

Values in the Capital Structure database are expressed in local currency and, depending on the case, in individual units, thousands or millions. Values in Compustat Global are expressed in millions of local currency. We hence convert debt into millions expressed in local currency. Figure 1 compares the evolution of total debt denominated in USD, foreign and domestic currency. It also illustrates the sharp difference with and without China. When China is included, not only the absolute value changes but also the dynamic of debt in domestic currency which surpasses by far the debt in foreign currency and grows throughout the whole period. When China is excluded, all categories of debt grow rapidly until the Tapper Tantrum and then more slowly (with debt in domestic currency actually falling). The evolution reported in Figure 1 is very similar in its trend and values to those reported by Avdjiev et al (Avdjiev et al., 2024, Graphs 2 and A1).[2] Moreover, the slower growth in foreign currency and fall in domestic currency is not related to a change in the composition of the sample of a decrease in the number of firms as it can be seen in Table A2.

Figure 1. Evolution of debt denominated in USD, Foreign and Domestic currency, 2001-2022. Millions of USD.

[1] In Figure A1 we present the results for the Brazilian mining company Vale. The amount that is presented as “Other” between 2013 and 2020 corresponds, in reality, to market-based debt.

[2] Following what we did in Figure A1, we compare the currency composition manually collected for Vale to that computed by Compustat in Figure A2. As it can be seen the composition and evolution is similar.



III. Methodology

Our paper follows the estimation method proposed by Bleakley and Cowan (2008) and used in subsequent literature. It focuses on the effect of the interaction between lagged FX exposure with the logarithmic change of real exchange rate on investment. We hence estimate the following model:

$$y_{i,t} = \alpha\left(fxdebt_{i,t-1}\ x\ \Delta e_t\right) + \ \beta_X\ X_{i,t-1} + \ \gamma_{j,t} + \delta_{k,t} + \theta_t + \varepsilon_{i,t} \qquad (1)$$

Where subscripts *i*, *j*, *k* and *t* stand for firm, country, industry and year respectively. The dependent variable (*y*) is the capital expenditure of the firm. The coefficient of the interaction term, α, is our main point of interest. As it is the case of previous studies and due to lack of information, we do not control for earnings in foreign currency. Hence, α captures all exchange rate related effects: not only the detrimental balance sheet effect of a depreciation but also the expansionary effect of the competitive channel. If firms are matching the currency composition of their balance sheet with their income stream, then the sign of the interaction will be ambiguous and ultimately depends on the size of each channel. If firms are not matching the currency composition of their balance sheet with their income stream, then the sign of the interaction should be negative.

The vector X includes our control variables measured in t-1 to account for predetermined factors. They include the interaction of the logarithmic change in real exchange rate with total debt (because firm may have a large proportion of foreign debt but low debt in general); the logarithm of total assets measured in USD to control for size; the net income before extraordinary items to account for internal cash flow; growth in sales to account for growth prospects, as well as total debt and debt denominated in foreign currency to control for pre-existing levels of debt and foreign-denominated debt. All variables, including capital expenditures, are normalized by total assets (except the logarithm of total assets and sales growth). We also add the interaction between the logarithmic change of real exchange rate with fx-debt but restricted to events of high depreciation (more than 30%). In our last specification, we also control for the lagged value of capital expenditures. Our baseline estimation is a fixed-effects regression that starts with the interaction term only and progressively adds the control variables. In all cases, we also include country (γ) and sector[3] (δ) specific trends as well as year-dummies (θ).

$$\begin{aligned} y_{i,t} = \alpha\left(fxdebt_{i,t-1}\ x\ \Delta e_t\right) + \ \beta_1\ (debt_{i,t-1}\ x\ \Delta e_t)_{i,t-1} + \ \beta_2\ X_{i,t-1} + \ \beta_3\ log\ total\ assets_{i,t-1} + \\ \beta_4\ net\ income_{i,t-1} + \ \beta_5\ growth\ in\ sales_{i,t-1} + \ \beta_6\ dollar\ debt_{i,t-1} + \ \beta_7\ debt_{i,t-1} + \\ \beta_8\ (fxdebt_{i,t-1}\ x\ \Delta e_t\ x\ high\ dep)_{i,t-1} + \beta_9\ y_{i,t-1} + \ \gamma_{j,t} + \delta_{k,t} + \theta_t + \varepsilon_{i,t} \end{aligned} \qquad (2)$$

[3] Defined by the two-digit North American Industrial Classification System (NAICS) codes.

We winsorize variables at the 1% in each tail to deal with outliers. The descriptive statistics of the winsorized values is presented in Table 1.

Table 1. Descriptive Statistics

Variables	Obs.	Mean	Median	Min.	Max.	Std. Dev.
Capital Expenditures/Total Assets	94913	0.053	0.036	0	0.298	0.054
Log of Total Assets	94913	5.662	5.671	0.222	9.914	1.802
Net Income Before Extraordinary Items/Total Assets	94913	0.033	0.035	-0.406	0.300	0.088
Sales Growth	94573	0.159	0.096	-0.793	2.917	0.431
Foreign Currency Debt/Total Assets	85685	0.038	0	0	0.521	0.099
Total Liabilities/Total Assets	94908	0.238	0.211	0	0.968	0.182
Log Change in Real Exchange Rate	94913	-0.003	-0.006	-0.178	0.220	0.064

IV. Results

Table 2 shows our results for the different specifications of equation 1. In all of them, we do not find evidence that the interaction between dollar denominated debt and the logarithmic change of the real exchange rate has a statistically significant effect on capital expenditures. We don not find, either a statistically significant effect on the total stock of dollar debt, nor the interaction of dollar debt with the logarithmic change of real exchange rate for events of high depreciation. The latter result changes, however, once we include the lagged dependent variable. Once we do it, the latter interaction becomes negative and statistically significant at the 5% level.

Table 2. Estimation results for equation 1, EMEs, 2001-2022

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	Dependent variable: Capital Expenditures					
Dollar debt x Δ log real exchange rate	0.0143	0.0274	0.0224	0.0236	0.0305	-0.0106
	(0.019)	(0.023)	(0.022)	(0.025)	(0.022)	(0.021)
Total debt x Δ log real exchange rate		-0.0084	-0.0076	-0.0112	-0.0076	0.0027
		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
corr_xy				0.0003		
				(0.000)		
Log total assets			-0.0040***	-0.0036***	-0.0040***	-0.0041***
			(0.000)	(0.001)	(0.000)	(0.000)
Net income before extraordinary items			0.0652***	0.0610***	0.0651***	0.0451***
			(0.003)	(0.003)	(0.003)	(0.003)
Growth in sales			0.0034***	0.0032***	0.0034***	0.0023***
			(0.000)	(0.000)	(0.000)	(0.000)
Dollar debt			-0.0001	-0.0010	0.0005	0.0004
			(0.004)	(0.005)	(0.004)	(0.003)
Total debt			-0.0240***	-0.0242***	-0.0241***	-0.0288***
			(0.002)	(0.002)	(0.002)	(0.002)
Dollar debt x Δ log real exchange rate					-0.0506	-0.0579**
x High Depreciation					(0.038)	(0.026)
Lagged capital investment						0.3403***
						(0.006)
Constant	0.0643***	0.0642***	0.0756***	0.0743***	0.0756***	0.0755***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)
Observations	94,913	94,913	90,717	85,397	90,717	89,474
R-squared	0.081	0.081	0.104	0.097	0.104	0.220
Number of firms	7,136	7,136	7,126	7,060	7,126	7,113
Country-Year Effects	YES	YES	YES	YES	YES	YES
Sector-Year Effects	YES	YES	YES	YES	YES	YES
Controls	NO	NO	YES	YES	YES	YES

Each column displays the results of OLS fixed effect regression. The dependent variable is capital expenditure. Estimates of the independent variables are listed in each row. Firm-level independent variables are once-lagged, and are scaled by the lag of total assets (except growth in sales). The number of observations varies because of the specifications and data availability. Standard errors are clustered by firm and are in parentheses. [*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$].

Given the overwhelming representation of Chinese firms in our sample of firms, in Table 3 we replicate the different econometric exercises excluding China. Results are qualitatively the same of Table 2, indicating that Chinese firms do not drive the overall results. Here as well, the interaction of dollar debt with the logarithmic change of real exchange rate for events of high depreciation only becomes statistically significant once the lagged investment is included.

We include further exercises in Tables 4 and 5. In the former, we replicate the exercises for FX (rather than dollar only) denominated debt. Results are once again maintained although the interaction of FX debt with the logarithmic change of real exchange rate for events of high depreciation becomes statistically insignificant. In Table 5 we replicate the same exercises but for nominal depreciation. In this case, the interaction becomes negative and statistically significant once again.

Table 3. Estimation results for equation 1, EMEs without China, 2001-2022

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	Dependent variable: Capital Expenditures					
Dollar debt x Δ log real exchange rate	0.0041	0.0093	-0.0033	-0.0113	0.0051	-0.0306
	(0.018)	(0.022)	(0.022)	(0.025)	(0.022)	(0.021)
Total debt x Δ log real exchange rate		-0.0038	0.0029	0.0029	0.0031	0.0167*
		(0.010)	(0.009)	(0.010)	(0.009)	(0.009)
corr_xy				0.0000		
				(0.001)		
Log total assets			-0.0082***	-0.0079***	-0.0082***	-0.0080***
			(0.001)	(0.001)	(0.001)	(0.001)
Net income before extraordinary items			0.0651***	0.0607***	0.0650***	0.0516***
			(0.004)	(0.004)	(0.004)	(0.004)
Growth in sales			0.0024***	0.0022***	0.0024***	0.0011*
			(0.001)	(0.001)	(0.001)	(0.001)
Dollar debt			-0.0005	-0.0016	0.0001	0.0001
			(0.005)	(0.005)	(0.005)	(0.004)
Total debt			-0.0203***	-0.0203***	-0.0203***	-0.0230***
			(0.003)	(0.003)	(0.003)	(0.002)
Dollar debt x Δ log real exchange rate					-0.0437	-0.0574***
x High Depreciation					(0.036)	(0.022)
Lagged capital investment						0.3197***
						(0.009)
Constant	0.0247	0.0240	0.0668***	0.0625***	0.0668***	0.0888***
	(0.019)	(0.019)	(0.020)	(0.020)	(0.020)	(0.021)
Observations	49,979	49,979	48,067	44,230	48,067	47,028
R-squared	0.074	0.074	0.102	0.096	0.102	0.207
Number of firms	3,560	3,560	3,550	3,484	3,550	3,537
Country-Year Effects	YES	YES	YES	YES	YES	YES
Sector-Year Effects	YES	YES	YES	YES	YES	YES
Controls	NO	NO	YES	YES	YES	YES

Each column displays the results of OLS fixed effect regression. The dependent variable is capital expenditure. Estimates of the independent variables are listed in each row. Firm-level independent variables are once-lagged, and are scaled by the lag of total assets (except growth in sales). The number of observations varies because of the specifications and data availability. Standard errors are clustered by firm and are in parentheses. [*** p < 0.01, ** p < 0.05, * p < 0.1].

Table 4. Estimation results for equation 1, FX debt, EMEs, 2001-2022

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	Dependent variable: Capital Expenditures					
FX debt x Δ log real exchange rate	0.0077	0.0197	0.0188	0.0197	0.0218	-0.0151
	(0.015)	(0.020)	(0.019)	(0.021)	(0.019)	(0.019)
Total debt x Δ log real exchange rate		-0.0084	-0.0083	-0.0120	-0.0082	0.0039
		(0.009)	(0.009)	(0.009)	(0.009)	(0.008)
corr_xy				0.0003		
				(0.000)		
Log total assets			-0.0040***	-0.0036***	-0.0040***	-0.0041***
			(0.000)	(0.001)	(0.000)	(0.000)
Net income before extraordinary items			0.0652***	0.0610***	0.0652***	0.0451***
			(0.003)	(0.003)	(0.003)	(0.003)
Growth in sales			0.0034***	0.0032***	0.0034***	0.0022***
			(0.000)	(0.000)	(0.000)	(0.000)
FX debt			-0.0001	-0.0010	0.0003	0.0002
			(0.004)	(0.005)	(0.004)	(0.003)
Total debt			-0.0241***	-0.0242***	-0.0241***	-0.0288***
			(0.002)	(0.002)	(0.002)	(0.002)
FX debt x Δ log real exchange rate					-0.0224	-0.0254
x High Depreciation					(0.027)	(0.022)
Lagged capital investment						0.3403***

						(0.006)
Constant	0.0644***	0.0643***	0.0758***	0.0745***	0.0759***	0.0755***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)
Observations	94,913	94,913	90,717	85,397	90,717	89,474
R-squared	0.081	0.081	0.104	0.097	0.104	0.220
Number of firms	7,136	7,136	7,126	7,060	7,126	7,113
Country-Year Effects	YES	YES	YES	YES	YES	YES
Sector-Year Effects	YES	YES	YES	YES	YES	YES
Controls	NO	NO	YES	YES	YES	YES

Each column displays the results of OLS fixed effect regression. The dependent variable is capital expenditure. Estimates of the independent variables are listed in each row. Firm-level independent variables are once-lagged, and are scaled by the lag of total assets (except growth in sales). The number of observations varies because of the specifications and data availability. Standard errors are clustered by firm and are in parentheses. [*** p < 0.01, ** p < 0.05, * p < 0.1].

Table 5. Estimation results for equation 1, change in nominal exchange rate, EMEs, 2001-2022

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	Dependent variable: Capital Expenditures					
Dollar debt x Δ log exchange rate	-0.0196	0.0146	0.0201	0.0243	0.0484**	0.0272
	(0.019)	(0.022)	(0.021)	(0.022)	(0.022)	(0.020)
Total debt x Δ log exchange rate		-0.0249***	-0.0072	-0.0051	-0.0073	-0.0030
		(0.006)	(0.006)	(0.007)	(0.006)	(0.006)
corr_xy				0.0001		
				(0.000)		
Log total assets			-0.0040***	-0.0036***	-0.0040***	-0.0043***
			(0.000)	(0.000)	(0.000)	(0.000)
Net income before extraordinary items			0.0680***	0.0641***	0.0679***	0.0483***
			(0.003)	(0.003)	(0.003)	(0.002)
Growth in sales			0.0027***	0.0026***	0.0028***	0.0018***
			(0.000)	(0.000)	(0.000)	(0.000)
Dollar debt			-0.0025	-0.0039	-0.0022	-0.0015
			(0.004)	(0.004)	(0.004)	(0.003)
Total debt			-0.0251***	-0.0254***	-0.0250***	-0.0303***
			(0.002)	(0.002)	(0.002)	(0.002)
Dollar debt x Δ log exchange rate					-0.0739**	-0.0648**
x High Depreciation					(0.035)	(0.028)
Lagged capital investment						
Constant	0.0714***	0.0791***	0.0905***	0.0879***	0.0901***	0.0939***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)
Observations	109,430	109,430	104,710	98,598	104,710	103,253
R-squared	0.077	0.077	0.099	0.093	0.099	0.210
Number of firms	8,326	8,326	8,309	8,229	8,309	8,289
Country-Year Effects	YES	YES	YES	YES	YES	YES
Sector-Year Effects	YES	YES	YES	YES	YES	YES
Controls	NO	NO	YES	YES	YES	YES

Each column displays the results of OLS fixed effect regression. The dependent variable is capital expenditure. Estimates of the independent variables are listed in each row. Firm-level independent variables are once-lagged, and are scaled by the lag of total assets (except growth in sales). The number of observations varies because of the specifications and data availability. Standard errors are clustered by firm and are in parentheses. [*** p < 0.01, ** p < 0.05, * p < 0.1].

V. Discussion

We have revisited the relationship between foreign-denominated debt, exchange rate depreciations, and corporate investment, using a uniquely large sample of 7,136 firms across 27 emerging markets. Our results contribute to a literature marked by divergent findings. Single-country studies with detailed data often highlight contractionary balance sheet effects (e.g., Pratap et al., 2003; Aguiar, 2005; Endrész and Harasztosi, 2014), while others find little or no effect (Bleakley and Cowan, 2008; Bonomo et al., 2003). Multi-country analyses tend to identify negative effects of depreciations when foreign currency debt is high (Serena and Sousa, 2017; Banerjee et al., 2022), but they typically rely on partial measures of FX exposure.

By combining firm-level financial statements with granular information on debt denomination from Capital IQ, we bridge these two strands. Consistent with Bleakley and Cowan's (2008) "Much Ado About Nothing?" hypothesis, our baseline results suggest that foreign-denominated debt does not systematically depress capital expenditures. One interpretation is that firms actively hedge currency exposures—whether through matching revenues and liabilities or by other financial instruments—so that the balance sheet and competitive channels offset each other under normal conditions.

At the same time, our results highlight that this insurance is not complete. In episodes of large depreciations, the balance sheet effect prevails: firms with higher foreign-denominated debt reduce investment significantly. This aligns with studies documenting vulnerability during crises (Aguiar, 2005; Demirkılıç, 2021), and suggests that the adverse effects of FX debt materialize primarily under stress scenarios rather than in regular times.

Taken together, our findings nuance the view that foreign currency debt is inherently contractionary. Instead, it appears conditionally problematic: relatively innocuous when exchange rate movements are moderate, but a source of fragility when depreciation episodes are sharp and prolonged. For policymakers, this underscores the importance of monitoring corporate currency mismatches not as a constant drag on investment, but as an amplification mechanism of crises.

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Appendix

Table A1. Number of firms per country

Country	Number of Firms
Argentina	26
Brazil	238
Bulgaria	42
Chile	93
China	3,576
Colombia	28
Greece	122
Hungary	12
India	18
Indonesia	466
Latvia	11
Lithuania	20
Malaysia	540
Mexico	89
Morocco	39
North Macedonia	1
Peru	51
Philippines	117
Poland	414
Romania	127
Russia	99
Saudi Arabia	119
Serbia	16
South Africa	62
Thailand	522
Turkey	252
United Arab Emirates	36

Table A2. Total number of firms and number of firms reporting debt in USD and foreign currency per year, 2001-2022

Year	Number of firms	Number of firms reporting debt in USD	Number of firms reporting debt in foreign currency
2001	80	22	25
2002	887	324	391
2003	1087	391	461
2004	1303	427	515
2005	1613	441	542
2006	2567	528	707
2007	2702	617	791
2008	3116	738	929
2009	3450	786	966
2010	3866	924	1136
2011	3987	981	1195
2012	4413	1002	1239
2013	4759	1055	1326
2014	5121	1058	1359
2015	5475	1095	1419
2016	5699	1090	1428
2017	5963	1092	1465
2018	6320	1113	1474
2019	6705	1109	1485
2020	6710	1068	1433

2021	6675	1037	1364
2022	6451	918	1203

Figure A1. Vale's type of debt, 2007-2022 using Capital Structure information from Capital IQ

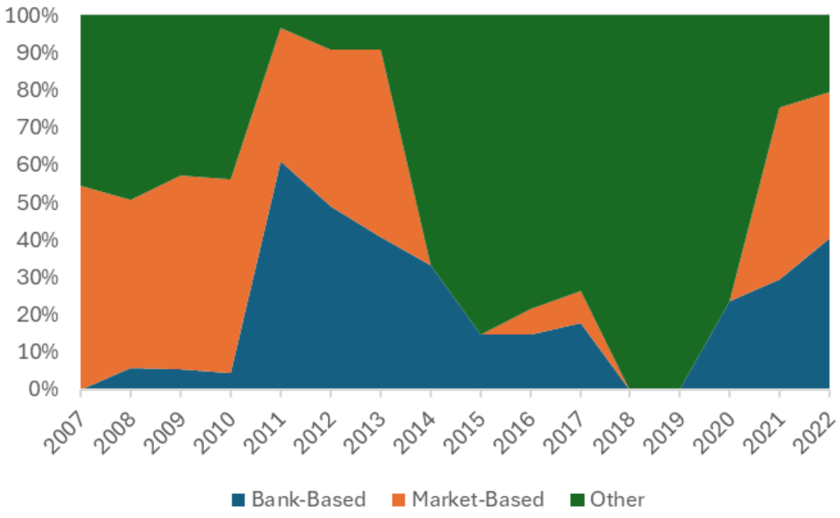

Figure A2. Vale's debt denominated in local currency of Vale, 2007-2022 using Capital Structure information from Capital IQ