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Currency mismatches in emerging markets: Effects on corporate liquidity, investment dynamics and performance☆

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ABSTRACT

We examine how USD-denominated bond issuance by non-financial listed firms in emerging market economies affects cash holdings and real activity under currency depreciations and shifting external borrowing conditions. Using firm-year data for 1655 listed firms in fifteen EMEs (2001–2016) and an issuance-based measure of offshore access, we find that issuing abroad raises cash holdings and increases investment with a lag, consistent with a *save-to-invest* motive. These effects are stronger when country-level risk-adjusted domestic–U.S. borrowing spreads are high. Depreciations dampen the contemporaneous cash buildup but do not systematically reduce investment or competitiveness. Instead, firms expand working capital and, when depreciations coincide with high spreads, increase sales and capacity utilization, indicating adjustment through liquidity and operational margins rather than sharp balance-sheet distress.

1. Introduction

Since the global financial crisis (GFC), non-financial corporations in emerging market economies (EMEs) have increasingly shifted their borrowing from domestic credit markets toward international debt markets, predominantly through U.S. dollar–denominated instruments (Bruno & Shin, 2017; Calomiris et al., 2022). Within EMEs, this expansion has been driven disproportionately by international bond issuance rather than cross-border bank lending, with USD-denominated instruments growing faster than local-currency corporate debt amid abundant global liquidity, lower interest rates in international markets, and strong investor demand for yield. By the mid-2010s, four-quarter rolling issuance of international bonds by EME non-financial firms had reached close to USD 1 trillion, several times higher than in the immediate post-crisis period (International Monetary Fund, 2018).

This rapid expansion has raised persistent concerns about currency mismatches and financial stability. Even among large, publicly listed firms with access to international capital markets, foreign-currency borrowing is often only partially hedged, as limited depth

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in derivative markets and institutional frictions limit the scope and raise the cost of risk management. While our sample ends in 2016, these vulnerabilities have intensified in recent years: U.S. dollar asset holdings by non-U.S. investors nearly doubled from about USD 16 trillion in 2015 to roughly USD 31 trillion by 2024, while average hedging ratios remained well below full coverage for many institutional investors (International Monetary Fund, 2025). As a result, exchange-rate depreciations can generate balance-sheet stress and raise the risk of destabilizing "rush-to-hedge" dynamics, particularly in economies with shallow FX markets.

These developments raise first-order questions about financial stability and firm behavior in emerging markets. Early work emphasizes the potential for contractionary balance-sheet effects when firms borrow in foreign currency, particularly in environments characterized by bank-based external finance, short maturities, and limited hedging opportunities, where depreciations mechanically increase the domestic-currency value of liabilities and weaken firms' net worth. A complementary concern is that offshore dollar borrowing may fuel carry-trade behavior, with firms acting as surrogate intermediaries that borrow abroad and accumulate liquid assets when global conditions are favorable (Bruno & Shin, 2017; Zhao & Shin, 2013).

However, firm-level evidence shows that these effects are not universal. In the Chilean case, Benavente et al. (2003) document offsetting — and in some cases positive — effects of depreciations on investment and sales for firms with dollar-denominated debt, reflecting competitiveness gains, while Bleakley and Cowan (2008) show that firms with foreign-currency debt do not systematically reduce real activity following depreciations, instead adjusting along operational margins. By contrast, adverse effects arise in specific contexts: Kim et al. (2015) find that during the Korean crisis, foreign-currency debt amplified distress among small, non-exporting firms, and Caballero (2021) document significant investment contractions following depreciations for firms with foreign-currency bond exposure. This heterogeneity suggests that the real effects of foreign-currency debt depend not only on exposure itself, but also on how foreign borrowing is used and integrated into firms' financing strategies.

Against this background, this paper examines how USD-denominated bond issuance by EME firms shapes cash holdings, investment dynamics, and short-run operational activity in the presence of exchange-rate depreciations and changing external borrowing conditions. Building on De Gregorio and Jara (2024), who show that offshore borrowing is often used to build liquidity buffers that support future investment rather than to sustain carry trades, we analyze how this *save-to-invest* motive interacts with exchange-rate movements and external financing conditions. Our empirical approach focuses on USD bond issuance rather than the outstanding stock of foreign-currency debt, allowing us to capture marginal financing decisions and the timing of firms' access to international capital markets.

Our findings indicate that USD-denominated bond issuance is followed by higher cash holdings and higher investment in subsequent periods. External borrowing conditions — proxied by the country-level risk-adjusted domestic–U.S. borrowing spread — amplify this mechanism, strengthening the link between offshore issuance, cash accumulation, and next-period investment. Currency depreciations attenuate the contemporaneous cash buildup associated with offshore borrowing, particularly for large firms, investment-grade firms, and firms operating in industries with high external financial dependence, but do not translate into systematic contractions in capital expenditures or profitability. Instead, firms with greater USD borrowing expand working capital following depreciations, pointing to active short-run operational adjustments — such as inventories or trade credit — rather than immediate retrenchment.

Overall, these results speak directly to the debate on whether waves of foreign-currency corporate borrowing in EMEs constitute a source of financial fragility or a mechanism that enhances firms' resilience to external shocks. We find limited evidence of a dominant balance-sheet channel through which depreciations translate into lower investment or profitability. Instead, access to international bond markets appears to facilitate liquidity buffering and reallocation across adjustment margins when exchange-rate shocks materialize. In this sense, offshore borrowing functions as an intertemporal financing device rather than as a source of immediate balance-sheet fragility.

This paper contributes to the literature on foreign-currency borrowing and financial stability in emerging markets in three main ways. First, we shift the focus from the outstanding stock of foreign-currency debt to bond issuance in foreign currency, capturing marginal financing decisions and the timing of firms' access to international bond markets. This distinction helps reconcile mixed evidence in the literature by showing that the real effects of currency depreciations depend on how foreign borrowing is used, rather than on accumulated balance-sheet positions alone. Second, we explicitly integrate exchange-rate movements with global financial conditions by conditioning firms' responses on the country-level risk-adjusted domestic–U.S. borrowing spread. This framework highlights the role of offshore borrowing as an intertemporal financing device through which firms accumulate liquidity in advance and deploy it for future investment, consistent with a *save-to-invest* motive. Third, by jointly examining cash holdings, investment, and short-run operational adjustments, we provide a unified view of how firms manage exchange-rate risk across multiple margins. Our results show that, within this sample of listed EME borrowers, USD-denominated bond issuance is not associated with systematic real-side contractions following depreciations, but instead coincides with resilient investment and operational activity.

The remainder of the paper is structured as follows. Section 2 describes the data and empirical framework. Section 3 presents the results. Section 4 concludes and discusses implications for financial stability and policy.

2. Data sources and empirical framework

Our analysis builds on the database constructed in De Gregorio and Jara (2024), which we extend with additional variables capturing firm outcomes and macroeconomic conditions. Firm-level data — including bond issuance and balance-sheet information — are obtained from LSEG Workspace, while country-level macroeconomic variables are sourced from the World Bank. We exclude financial firms, drop observations with missing values for key variables, and trim outliers in the top and bottom 1% of each

variable. Our final dataset comprises 17,874 firm-year observations for 1655 listed non-financial firms across fifteen emerging market economies (EMEs) over the period 2001–2016.[1]

We examine how currency depreciations and global financial conditions shape the relationship between offshore debt issuance and firms' liquidity and real-side decisions. To do so, we extend the empirical framework of De Gregorio and Jara (2024) by explicitly incorporating exchange-rate depreciations and their interaction with external borrowing conditions. Currency movements may affect firms through valuation effects on foreign-currency liabilities as well as through changes in competitiveness, with the relative importance of these channels depending on firms' financing structure and access to international capital markets.

We estimate separate models for each outcome variable, allowing the timing of effects to differ across outcomes. Changes in cash holdings are modeled using contemporaneous regressors. For investment, real-side adjustment margins, and performance/competitiveness outcomes, we include contemporaneous and lagged terms to capture dynamic responses to offshore financing decisions and exchange-rate shocks. Eqs. (1)–(3) present the baseline specifications for cash holdings, investment and real-side adjustment margins, and operating outcomes, respectively:

$$\begin{aligned}\Delta Cash_{i,t} = {} & \beta_1 FXBHA_{i,t} + \beta_2\left(FXBHA_{i,t} \times FXDep_{c,t}\right) + \beta_3\left(FXBHA_{i,t} \times Sp_{c,t}\right) \\ & + \beta_4\left(FXBHA_{i,t} \times FXDep_{c,t} \times Sp_{c,t}\right) + \beta_5 FXDep_{c,t} + \beta_6 Sp_{c,t} + \beta_7\left(FXDep_{c,t} \times Sp_{c,t}\right) \\ & + \gamma_1 DCBA_{i,t} + \gamma_2 CFO_{i,t} + \gamma_3 Ofunds_{i,t} + \boldsymbol{\gamma}_4' \boldsymbol{X}_{i,t} + \boldsymbol{\gamma}_5' \boldsymbol{M}_{c,t} + f_i + \tau_t + \varepsilon_{i,c,t}.\end{aligned} \tag{1}$$

where $\Delta Cash_{i,t}$ denotes the change in cash and short-term financial assets scaled by lagged total assets. This specification captures the immediate liquidity response to offshore bond issuance, exchange-rate movements, and external borrowing conditions.

$$\begin{aligned}Inv_{i,t} = {} & \theta_1 FXBHA_{i,t} + \theta_2\left(FXBHA_{i,t} \times FXDep_{c,t}\right) + \theta_3\left(FXBHA_{i,t} \times Sp_{c,t}\right) \\ & + \theta_4\left(FXBHA_{i,t} \times FXDep_{c,t} \times Sp_{c,t}\right) + \theta_5 FXBHA_{i,t-1} + \theta_6\left(FXBHA_{i,t-1} \times FXDep_{c,t-1}\right) \\ & + \theta_7\left(FXBHA_{i,t-1} \times Sp_{c,t-1}\right) + \theta_8\left(FXBHA_{i,t-1} \times FXDep_{c,t-1} \times Sp_{c,t-1}\right) \\ & + \delta_1 FXDep_{c,t} + \delta_2 FXDep_{c,t-1} + \delta_3 Sp_{c,t} + \delta_4 Sp_{c,t-1} \\ & + \gamma_1 DCBA_{i,t} + \gamma_2 DCBA_{i,t-1} + \gamma_3 CFO_{i,t} + \gamma_4 CFO_{i,t-1} + \gamma_5 Ofunds_{i,t} + \gamma_6 Ofunds_{i,t-1} \\ & + \boldsymbol{\gamma}_7' \boldsymbol{X}_{i,t-1} + \boldsymbol{\gamma}_8' \boldsymbol{M}_{c,t-1} + f_i + \tau_t + \varepsilon_{i,c,t}.\end{aligned} \tag{2}$$

where $Inv_{i,t}$ denotes capital expenditures scaled by lagged total assets. To examine real-side adjustment mechanisms beyond capital expenditures, we use the same specification as in Eq. (2) but replacing $Inv_{i,t}$ with total investment ($T.Inv_{i,t}$) and the change in working capital ($\Delta WC_{i,t}$).

Finally, to assess operating performance and competitiveness outcomes, we estimate the following dynamic model:

$$\begin{aligned}Y_{i,t} = {} & \phi_1 FXBHA_{i,t} + \phi_2\left(FXBHA_{i,t} \times FXDep_{c,t}\right) + \phi_3\left(FXBHA_{i,t} \times Sp_{c,t}\right) \\ & + \phi_4\left(FXBHA_{i,t} \times FXDep_{c,t} \times Sp_{c,t}\right) + \phi_5 FXBHA_{i,t-1} + \phi_6\left(FXBHA_{i,t-1} \times FXDep_{c,t-1}\right) \\ & + \phi_7\left(FXBHA_{i,t-1} \times Sp_{c,t-1}\right) + \phi_8\left(FXBHA_{i,t-1} \times FXDep_{c,t-1} \times Sp_{c,t-1}\right) \\ & + \lambda_1 FXDep_{c,t} + \lambda_2 FXDep_{c,t-1} + \lambda_3 Sp_{c,t} + \lambda_4 Sp_{c,t-1} \\ & + \rho_1 DCBA_{i,t-1} + \rho_2 CFO_{i,t-1} + \rho_3 Ofunds_{i,t-1} + \boldsymbol{\rho}_4' \boldsymbol{X}_{i,t-1} + \boldsymbol{\rho}_5' \boldsymbol{M}_{c,t-1} + f_i + \tau_t + \varepsilon_{i,c,t}.\end{aligned} \tag{3}$$

where $Y_{i,t}$ denotes operating income ($Operating\ Income_{i,t}$), non-operating income ($Nonoper.\ Income_{i,t}$), log sales ($\ln(Sales)_{i,t}$), or asset turnover ($Sales_{i,t}/Assets_{i,t-1}$).

Across Eqs. (1)–(3), subscripts i, c, and t denote firm, country, and year, respectively. For brevity, firm-level variables omit the country subscript. The key explanatory variable is $FXBHA_{i,t}$, aggregate USD-denominated bond issuance scaled by lagged total assets. Following Kim and Weisbach (2008), sources of funds are decomposed into domestic-currency bond issuance ($DCBA_{i,t}$), cash flow from operations ($CFO_{i,t}$), and other sources of funds ($Ofunds_{i,t}$). The vector of firm-level controls $\boldsymbol{X}_{i,t}$ includes size ($TA_{i,t}$), Tobin's Q ($TQ_{i,t}$), leverage ($DTA_{i,t}$), debt maturity structure ($LTD_{i,t}$), sales intensity ($STA_{i,t}$), foreign revenue exposure ($FRev_{i,t}$), and net derivative positions ($NDer_{i,t}$). Currency depreciations ($FXDep_{c,t}$) are measured as the demeaned year-on-year log change in the real exchange rate (higher values indicate depreciations). Global financial conditions are captured by the risk-adjusted spread ($Sp_{c,t}$), defined as the demeaned domestic-currency lending rate minus the U.S. Moody's Seasoned Baa corporate bond yield, scaled by the implied volatility from three-month at-the-money FX options. The vector of country-level controls $\boldsymbol{M}_{c,t}$ includes GDP growth ($GDPgrowth_{c,t}$), private credit to GDP ($PrivCredit/GDP_{c,t}$), and the natural logarithm of GDP per capita ($\ln(GDP)_{c,t}$), among other macroeconomic controls. All specifications include firm fixed effects (f_i) and year fixed effects (τ_t). Standard errors are clustered at the country level.[2]

[1] The firm-level data cover the following countries: Argentina (222), Brazil (1267), Chile (667), China (8308), Colombia (80), India (2397), Indonesia (871), Malaysia (999), Mexico (641), Peru (232), Philippines (287), Poland (324), South Africa (103), Thailand (1245), and Turkey (231). Countries are selected based on their inclusion in the MSCI Emerging Markets Index and the availability of sufficiently rich firm-level data over the sample period.

[2] Tables A.1 and A.2 in report detailed variable definitions and summary statistics, respectively.

Table 1
Cash holdings, foreign bond issuance, and currency depreciations.

	Dependent variable: $\Delta Cash_{i,t}$								
	Total sample			Credit rating		Size		Industry financial dependence	
				Non-Inv. Grade	Inv. Grade	Low $P<50$	High $P>50$	Low $P<50$	High $P>50$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$FXBHA_{i,t}$	0.306***	0.296***	0.296***	0.293***	0.289***	0.342***	0.295***	0.250***	0.448***
	(0.037)	(0.040)	(0.039)	(0.041)	(0.058)	(0.092)	(0.042)	(0.028)	(0.083)
$FXBHA_{i,t}\times FXDep_{c,t}$		−0.575*	−0.578*	−0.052	−1.361***	1.601	−1.951***	−0.809**	−0.438
		(0.282)	(0.280)	(0.792)	(0.420)	(1.213)	(0.535)	(0.316)	(0.948)
$FXBHA_{i,t}\times Sp_{c,t}$		0.075***	0.080**	0.041	0.092**	0.032	0.127	0.086***	0.032
		(0.017)	(0.027)	(0.056)	(0.040)	(0.047)	(0.083)	(0.028)	(0.194)
$FXBHA_{i,t}\times FXDep_{c,t}\times Sp_{c,t}$			−0.117	0.881	−0.030	−0.843	−0.111	−0.102	4.824**
			(0.518)	(2.506)	(0.665)	(0.702)	(1.242)	(0.534)	(1.813)
$DCBA_{i,t}$	0.226***	0.227***	0.227***	0.236***	0.223***	0.221***	0.243***	0.214***	0.244***
	(0.017)	(0.017)	(0.017)	(0.029)	(0.020)	(0.019)	(0.025)	(0.027)	(0.018)
$CFO_{i,t}$	0.291***	0.291***	0.291***	0.258***	0.319***	0.308***	0.267***	0.314***	0.285***
	(0.037)	(0.038)	(0.038)	(0.042)	(0.032)	(0.045)	(0.030)	(0.051)	(0.035)
$Ofunds_{i,t}$	0.204***	0.204***	0.204***	0.237***	0.184***	0.209***	0.198***	0.173***	0.238***
	(0.017)	(0.018)	(0.018)	(0.020)	(0.027)	(0.024)	(0.018)	(0.018)	(0.021)
$FRev_{i,t}$	−0.005	−0.004	−0.004	−0.002	−0.004	−0.008	0.001	−0.001	−0.006
	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)	(0.010)	(0.007)	(0.008)	(0.008)
$NDer_{i,t}$	0.594	0.529	0.531	0.789	0.152	0.198	0.591	0.158	1.828**
	(0.417)	(0.418)	(0.417)	(0.499)	(0.497)	(0.573)	(0.524)	(0.326)	(0.705)
$TQ_{i,t}$	0.012***	0.012***	0.012***	0.014**	0.011***	0.013***	0.012***	0.008**	0.014***
	(0.002)	(0.002)	(0.002)	(0.005)	(0.001)	(0.001)	(0.004)	(0.003)	(0.000)
$TA_{i,t}$	0.010**	0.010**	0.010**	0.004	0.015***	0.018**	0.001	0.008	0.013***
	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.007)	(0.004)	(0.005)	(0.003)
$DTA_{i,t}$	−0.088**	−0.092**	−0.092**	−0.042	−0.110***	−0.116**	−0.066**	−0.045*	−0.138***
	(0.034)	(0.033)	(0.033)	(0.027)	(0.029)	(0.042)	(0.023)	(0.023)	(0.029)
$LTD_{i,t}$	0.008	0.008	0.008	0.003	0.008**	0.009	0.006	−0.006	0.019**
	(0.006)	(0.007)	(0.007)	(0.011)	(0.003)	(0.008)	(0.005)	(0.005)	(0.007)
$STA_{i,t}$	−0.033***	−0.034***	−0.034***	−0.024*	−0.038***	−0.035***	−0.032***	−0.024***	−0.043***
	(0.007)	(0.007)	(0.007)	(0.012)	(0.005)	(0.009)	(0.006)	(0.007)	(0.009)
$GDPgrowth_{c,t}$	−0.001	−0.001	−0.001	−0.002**	−0.001	−0.002*	−0.001	−0.002***	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
$PrivCredit/GDP_{c,t}$	−0.031	−0.034	−0.034	−0.037	−0.028*	−0.039	−0.028	−0.016	−0.058**
	(0.018)	(0.022)	(0.021)	(0.025)	(0.015)	(0.029)	(0.020)	(0.020)	(0.022)
$\ln(GDP)_{c,t}$	−0.009	−0.010*	−0.011	−0.011	−0.013**	−0.020**	−0.003	−0.006	−0.007
	(0.007)	(0.006)	(0.006)	(0.012)	(0.005)	(0.009)	(0.009)	(0.008)	(0.004)
$FXDep_{c,t}\times Sp_{c,t}$			−0.004	0.037*	−0.035*	0.017	−0.023	0.009	0.002
			(0.021)	(0.021)	(0.017)	(0.017)	(0.026)	(0.017)	(0.059)
$Sp_{c,t}$		0.000	0.000	0.003	−0.001	−0.001	0.002	0.002	0.001
		(0.002)	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.001)	(0.005)
$FXDep_{c,t}$		−0.015	−0.013	0.008	−0.019	−0.027	0.006	−0.020	−0.036*
		(0.022)	(0.021)	(0.023)	(0.026)	(0.030)	(0.026)	(0.028)	(0.017)
Observations	17,879	17,516	17,516	6396	11,107	8818	8697	8728	8,788
R-squared	0.237	0.239	0.239	0.311	0.219	0.233	0.257	0.246	0.242
Adj. R-squared	0.157	0.157	0.157	0.221	0.137	0.146	0.178	0.163	0.159
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Ordinary least squares estimates of Eq. (1). The dependent variable is $\Delta Cash_{i,t}$ (change in cash and short-term financial assets over lagged total assets). $FXBHA_{i,t}$ is the aggregate USD-denominated bond issuance scaled by lagged total assets. $FXDep_{c,t}$ is a currency-depreciation measure computed as the demeaned log change in the *real* exchange rate from $t-1$ to t (higher values = depreciation). $Sp_{c,t}$ is the demeaned risk-adjusted external finance premium defined as the domestic-currency lending rate minus the U.S. Moody's Seasoned Baa corporate bond yield, scaled by the implied volatility from 3M at-the-money FX options. Firm-level controls are included. Columns (1)–(3) report estimates for the total sample. The sample is then split by credit ratings (columns 4–5), firm size (columns 6–7), and industry financial dependence (columns 8–9). All specifications include firm fixed effects and year fixed effects. Standard errors, clustered at the country level, are reported in parentheses. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.10$.

3. Results

We first present cash holdings (Table 1) and investment dynamics (Table 2). In both tables, columns (1)–(3) report results for the full sample. To explore heterogeneity, we split the sample by credit rating (columns 4–5), firm size (columns 6–7), and industry financial dependence (columns 8–9). Firms are classified as investment grade or non-investment grade, where the latter includes firms rated between BB+ and D as well as unrated firms. Size groups are defined using the firm-level historical median of total assets (Arslan et al., 2006), and industry financial dependence is split at the median following Rajan and Zingales (1998).

Table 2
Investment, foreign bond issuance, and currency depreciations.

	Dependent variable: $Inv_{i,t}$								
	Total sample			Credit rating		Size		Industry financial dependence	
	(1)	(2)	(3)	Non-Inv. Grade (4)	Inv. Grade (5)	Low $P<50$ (6)	High $P>50$ (7)	Low $P<50$ (8)	High $P>50$ (9)
$FXBHA_{i,t}$	0.117***	0.105***	0.102***	0.122***	0.097***	0.117***	0.094***	0.093***	0.166***
	(0.022)	(0.016)	(0.018)	(0.030)	(0.015)	(0.030)	(0.021)	(0.017)	(0.029)
$FXBHA_{i,t}\times FXDep_{c,t}$		−0.132	−0.115	0.115	0.015	0.238	−0.328	−0.007	−0.829
		(0.193)	(0.201)	(0.367)	(0.224)	(0.136)	(0.292)	(0.132)	(1.201)
$FXBHA_{i,t}\times Sp_{c,t}$		0.036***	0.021*	0.047	0.023*	0.008	0.027**	0.028**	−0.070
		(0.005)	(0.011)	(0.046)	(0.013)	(0.019)	(0.011)	(0.011)	(0.068)
$FXBHA_{i,t}\times FXDep_{c,t}\times Sp_{c,t}$			0.403**	1.090	0.353	1.138***	0.045	0.297**	0.457
			(0.168)	(1.252)	(0.212)	(0.114)	(0.171)	(0.138)	(2.408)
$FXBHA_{i,t-1}$	0.057***	0.055***	0.055***	0.089***	0.044**	0.042	0.057***	0.059***	0.150***
	(0.017)	(0.008)	(0.008)	(0.021)	(0.016)	(0.030)	(0.011)	(0.011)	(0.043)
$FXBHA_{i,t-1}\times FXDep_{c,t-1}$		−0.423	−0.414	−0.043	−0.268	−0.628	−0.268	−0.251	−2.499
		(0.325)	(0.320)	(0.362)	(0.408)	(0.432)	(0.422)	(0.183)	(2.104)
$FXBHA_{i,t-1}\times Sp_{c,t-1}$		0.064***	0.067***	0.146**	0.064***	0.090***	0.053*	0.065***	0.407**
		(0.005)	(0.015)	(0.060)	(0.019)	(0.018)	(0.026)	(0.016)	(0.176)
$FXBHA_{i,t-1}\times FXDep_{c,t-1}\times Sp_{c,t-1}$			−0.112	0.751	−0.114	−0.008	0.001	−0.080	−7.551
			(0.246)	(0.563)	(0.267)	(0.175)	(0.412)	(0.224)	(4.320)
$DCBA_{i,t}$	0.126***	0.128***	0.129***	0.183***	0.107***	0.122***	0.137***	0.097***	0.161***
	(0.015)	(0.016)	(0.016)	(0.040)	(0.009)	(0.020)	(0.013)	(0.016)	(0.030)
$DCBA_{i,t-1}$	0.027**	0.027**	0.027**	0.065***	0.012**	0.012	0.053**	0.027	0.031***
	(0.010)	(0.011)	(0.011)	(0.016)	(0.005)	(0.009)	(0.020)	(0.016)	(0.010)
$CFO_{i,t}$	0.113***	0.116***	0.115***	0.127***	0.104***	0.125***	0.095***	0.087***	0.134***
	(0.007)	(0.007)	(0.007)	(0.020)	(0.010)	(0.014)	(0.010)	(0.012)	(0.003)
$CFO_{i,t-1}$	0.055***	0.058***	0.058***	0.046**	0.063***	0.057***	0.058***	0.036***	0.073***
	(0.014)	(0.013)	(0.013)	(0.019)	(0.007)	(0.016)	(0.009)	(0.010)	(0.010)
$Ofunds_{i,t}$	0.142***	0.142***	0.142***	0.176***	0.124***	0.152***	0.130***	0.128***	0.157***
	(0.012)	(0.011)	(0.011)	(0.027)	(0.011)	(0.019)	(0.011)	(0.014)	(0.016)
$Ofunds_{i,t-1}$	0.016*	0.021**	0.021**	0.041***	0.007	0.024***	0.019*	0.028***	0.016
	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)	(0.010)	(0.005)	(0.012)
$FRev_{i,t-1}$	0.002	0.001	0.002	0.005	0.002	0.004	0.000	0.011	−0.012
	(0.004)	(0.005)	(0.005)	(0.008)	(0.008)	(0.011)	(0.008)	(0.007)	(0.008)
$NDer_{i,t-1}$	−0.029	−0.182	−0.162	−0.003	−0.290	−0.908	0.084	−0.335	0.042
	(0.310)	(0.357)	(0.330)	(0.447)	(0.543)	(0.635)	(0.380)	(0.410)	(0.546)
$TQ_{i,t-1}$	0.011***	0.012***	0.012***	0.017***	0.009***	0.011***	0.014***	0.013***	0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)	(0.002)
$TA_{i,t-1}$	−0.009**	−0.008*	−0.008*	−0.009**	−0.006	−0.000	−0.018***	−0.018***	−0.001
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.002)	(0.004)	(0.002)	(0.002)
$DTA_{i,t-1}$	−0.089***	−0.088***	−0.088***	−0.100***	−0.073***	−0.086***	−0.091***	−0.064***	−0.110***
	(0.014)	(0.011)	(0.011)	(0.027)	(0.006)	(0.008)	(0.018)	(0.010)	(0.008)
$LTD_{i,t-1}$	0.032***	0.032***	0.032***	0.026***	0.028***	0.034***	0.027***	0.024***	0.037***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)	(0.001)
$STA_{i,t-1}$	−0.002	−0.001	−0.001	0.011*	−0.005	−0.000	−0.004	0.001	−0.003
	(0.008)	(0.007)	(0.007)	(0.006)	(0.006)	(0.005)	(0.011)	(0.009)	(0.008)
$GDPgrowth_{c,t-1}$	0.000	0.001**	0.001**	0.001	0.001**	0.000	0.002***	0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
$PrivCredit/GDP_{c,t-1}$	0.020	0.015	0.014	0.040	−0.026***	0.001	0.026	0.017	0.026
	(0.026)	(0.027)	(0.027)	(0.029)	(0.007)	(0.016)	(0.036)	(0.028)	(0.017)
$\ln(GDP)_{c,t-1}$	−0.018**	−0.008	−0.007	−0.009	−0.012*	−0.008	−0.004	−0.002	−0.003
	(0.008)	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.009)	(0.005)	(0.012)
$FXDep_{c,t}$		−0.016	−0.020*	−0.010	−0.033*	−0.030*	−0.007	−0.025	−0.000
		(0.010)	(0.011)	(0.019)	(0.018)	(0.014)	(0.016)	(0.015)	(0.025)
$FXDep_{c,t-1}$		−0.038**	−0.044**	0.004	−0.068***	−0.050***	−0.038	−0.037**	−0.041*
		(0.016)	(0.016)	(0.020)	(0.012)	(0.017)	(0.023)	(0.017)	(0.022)
$Sp_{c,t}$		−0.001	−0.002	−0.001	−0.001	−0.002	−0.002	−0.002	−0.006***
		(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.001)
$Sp_{c,t-1}$		−0.002**	−0.002**	−0.002	−0.004***	−0.001	−0.002	−0.002	−0.004
		(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)
Observations	15,635	14,820	14,820	5178	9624	7364	7455	7293	7,526
R-squared	0.540	0.546	0.546	0.610	0.525	0.499	0.595	0.541	0.557
Adj. R-squared	0.485	0.489	0.489	0.549	0.466	0.432	0.544	0.481	0.500
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Ordinary least squares estimates of Eq. (2). The dependent variable is $Inv_{i,t}$ (investment, capital expenditures over lagged total assets). $FXBHA_{i,t}$ is the aggregate USD-denominated bond issuance scaled by lagged total assets. $FXDep_{c,t}$ is a currency-depreciation measure computed as the demeaned log change in the *real* exchange rate from $t-1$ to t (higher values = depreciation). $Sp_{c,t}$ is the demeaned risk-adjusted external finance premium defined as the domestic-currency lending rate minus the U.S. Moody's Seasoned Baa corporate bond yield, scaled by the implied volatility from 3M at-the-money FX options. Firm-level controls are included. Columns (1)–(3) report estimates for the total sample. The sample is then split by credit ratings (columns 4–5), firm size (columns 6–7), and industry financial dependence (columns 8–9). All specifications include firm fixed effects and year fixed effects. Standard errors, clustered at the country level, are reported in parentheses. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.10$.

3.1. Cash holdings

Table 1 reports the estimated results of Eq. (1) for cash holdings. Columns 1 to 3 of Table 1 show that USD-denominated bond issuance is associated with a positive and statistically significant increase in cash holdings. This result indicates that offshore bond issuance is systematically used to accumulate liquidity rather than being immediately transformed into fixed investment or

operational spending. Consistent with a liquidity-management interpretation, issuing abroad relaxes short-term financing constraints and allows firms to temporarily retain resources in liquid form.

The strength of this cash response is closely linked to global financial conditions. The interaction term $FXBHA_{i,t} \times Sp_{c,t}$ is positive and statistically significant for the full sample, as well as for large firms, investment-grade firms, and firms operating in industries with low external financial dependence. This pattern indicates that when foreign borrowing is relatively cheap compared to domestic financing — after adjusting for exchange-rate risk — firms accumulate more cash following offshore issuance. Economically, this is consistent with a carry-type liquidity channel: favorable risk-adjusted spreads increase the incentive to issue USD-denominated debt and temporarily park part of the proceeds in liquid assets.

Currency depreciations operate through a distinct channel. The interaction $FXBHA_{i,t} \times FXDep_{c,t}$ is negative and statistically significant for the same set of firms, indicating that exchange-rate depreciations partially erode the liquidity gains from offshore issuance. This effect reflects balance-sheet valuation pressures: as the domestic-currency value of foreign liabilities rises, firms retain a smaller fraction of issuance proceeds as cash. Importantly, this effect operates at the margin. The baseline coefficient on $FXBHA_{i,t}$ remains positive, implying that depreciations dampen — but do not reverse — the liquidity accumulation associated with offshore borrowing. The triple interaction term, $FXBHA_{i,t} \times FXDep_{c,t} \times Sp_{c,t}$, is not statistically significant across most specifications, suggesting that spreads and depreciations affect cash holdings through separate mechanisms rather than through a compounded interaction.

In sum, the evidence points to a clear cash-holding mechanism. Offshore bond issuance increases liquidity primarily through a carry-driven channel linked to favorable global financial conditions. Exchange-rate depreciations introduce balance-sheet pressures that weaken this response but do not eliminate it. As a result, offshore borrowing functions as a short-term liquidity management tool rather than a source of immediate financial stress, allowing firms to smooth cash positions even in the presence of currency depreciations.[3]

3.2. Investment dynamics

Table 2 reports the estimated results of Eq. (2) for capital investment. In columns 1 to 3, the coefficient on $FXBHA_{i,t}$ is positive and statistically significant, indicating that offshore bond issuance is associated with higher contemporaneous investment on average. More importantly, the interaction term $FXBHA_{i,t} \times Sp_{c,t}$ is positive and significant for the full sample and for financially stronger firms, particularly investment-grade firms (column 5) and firms operating in industries with low external financial dependence (column 8). This pattern suggests that favorable risk-adjusted foreign borrowing conditions allow firms issuing USD-denominated debt to translate part of the financing advantage into higher investment even within the same period. By contrast, the interaction $FXBHA_{i,t} \times FXDep_{c,t}$ is not statistically significant across specifications, indicating that contemporaneous currency depreciations do not systematically affect investment following offshore issuance.

Most importantly, the coefficient on $FXBHA_{i,t-1}$ is positive and statistically significant for the full sample and across most subsamples, indicating that firms issuing USD-denominated bonds increase investment in subsequent periods. This delayed response is fully consistent with a *save-to-invest* mechanism: firms raise foreign funding in advance, accumulate financial capacity, and convert these resources into productive investment with a lag.

This intertemporal investment response is strongly boosted by global financial conditions. The interaction $FXBHA_{i,t-1} \times Sp_{c,t-1}$ is positive and statistically significant for the full sample and is again concentrated among investment-grade firms and firms in industries with low external financial dependence (columns 5 and 8). This result indicates that favorable risk-adjusted spreads at the time of issuance amplify subsequent investment, reinforcing the interpretation that offshore borrowing primarily finances future capital expenditures rather than immediate investment.

In contrast, interactions between USD issuance and currency depreciations — both contemporaneous and lagged — are generally not statistically significant, suggesting that exchange-rate depreciations do not materially constrain firms' investment responses following offshore borrowing, consistent with the evidence in Bleakley and Cowan (2008). Firms appear to anticipate exchange-rate risk or adjust along other margins, preventing depreciations from translating into systematic investment contractions. Similarly, the triple interaction term $FXBHA_{i,t} \times FXDep_{c,t} \times Sp_{c,t}$ is not statistically significant in either contemporaneous or lagged specifications, indicating that currency depreciations do not meaningfully alter the role of external financial conditions in shaping the investment response to offshore issuance.

Therefore, the evidence from Table 2 strongly supports a *save-to-invest* interpretation. Offshore bond issuance increases investment primarily with a lag, and this effect is amplified when global financial conditions are favorable, particularly for financially strong firms. Exchange-rate depreciations do not play a first-order role in shaping investment outcomes. Offshore borrowing, therefore, functions as a forward-looking financing strategy that allows firms to smooth investment over time, rather than as a channel through which currency depreciations generate real investment contractions.[4]

[3] In Appendix B, we report robustness tests for the cash-holding regressions in Eq. (1). Appendix Table B.1 adds firm-level and macroeconomic controls; Appendix Table B.2 introduces additional lags of issuance and financial conditions; Appendix Table B.3 adds more restrictive country–year–industry fixed effects; and Appendix Table B.4 replaces the continuous depreciation measure with an alternative definition. Appendix Table B.5 further splits the sample between firms that, on average, actively use hedging derivatives and firms that do not, allowing us to assess whether the cash-holding responses to USD issuance and currency depreciations differ systematically with explicit financial hedging activity.

[4] In Appendix C, we report robustness tests for the investment regressions in Eq. (2). Appendix Table C.1 adds firm-level and macroeconomic controls; Appendix Table C.2 introduces additional lags of issuance and financial conditions; Appendix Table C.3 adds more restrictive country–year–industry fixed effects;

3.3. Real-side adjustment under currency depreciations

This subsection analyzes real-side adjustment mechanisms beyond capital expenditures. Table 3 reports estimates of Eq. (2) for two complementary real-side outcomes. Panel A employs an alternative definition of firm investment that captures broader adjustments in firms' real activities beyond capital expenditures alone. Specifically, following Richardson (2006), total investment, $T.Inv_{i,t}$, is defined as the sum of capital expenditures, acquisitions, and research and development expenses, minus sales of property, plant, and equipment, all scaled by lagged total assets. This measure reflects net investment in productive capacity and intangible assets while allowing for asset reallocation through divestitures. It is therefore well suited to capture firms' aggregate investment responses to exchange-rate and financial shocks. Using this broader definition is particularly relevant in our setting, as firms exposed to foreign-currency debt may adjust not only physical capital expenditures but also acquisitions, R&D, and asset sales when facing currency depreciations and changes in external financial conditions.

Panel B of Table 3 examines changes in working capital, $\Delta WC_{i,t}$, defined as the change in net working capital scaled by lagged total assets. Working capital captures short-run operational adjustments — such as inventories, trade receivables, and payables — that firms can modify more rapidly than fixed capital. This distinction allows us to separately identify longer-horizon investment decisions (Panel A) and short-term operational responses to exchange-rate shocks (Panel B). Firms facing currency depreciations may adjust working capital to sustain production, manage liquidity needs, or exploit competitiveness gains, even when longer-term investment remains unchanged. The joint analysis of total investment and working capital therefore provides a more comprehensive characterization of firms' real-side adjustment mechanisms.

Panel A shows that the contemporaneous interaction between USD bond issuance and currency depreciations, $FXBHA_{i,t} \times FXDep_{c,t}$, is not statistically significant across specifications. By contrast, the contemporaneous interaction between USD bond issuance and the risk-adjusted spread between foreign and local interest rates, $FXBHA_{i,t} \times Sp_{c,t}$, is positive and statistically significant in several specifications, indicating that favorable external financing conditions are associated with higher contemporaneous investment for firms issuing USD-denominated debt. However, the contemporaneous triple interaction, $FXBHA_{i,t} \times FXDep_{c,t} \times Sp_{c,t}$, is not statistically significant across specifications (with the exception of small firms), suggesting that currency depreciations do not systematically alter the immediate effect of financial conditions on investment.

More importantly, the economically relevant patterns emerge through lagged interactions. The interaction between lagged USD bond issuance and the lagged risk-adjusted spread, $FXBHA_{i,t-1} \times Sp_{c,t-1}$, is positive and statistically significant across most specifications. This finding indicates that firms that issued USD-denominated debt in the previous period increase investment subsequently when external financing conditions were favorable, highlighting the forward-looking nature of firms' financing decisions. In this sense, foreign borrowing precedes and facilitates future investment, consistent with an intertemporal investment motive.

At the same time, the lagged interaction between USD bond issuance and currency depreciations, $FXBHA_{i,t-1} \times FXDep_{c,t-1}$, is negative and statistically significant in several specifications, suggesting that exchange-rate shocks can constrain future investment for firms with foreign-currency debt issuance. The lagged triple interaction, $FXBHA_{i,t-1} \times FXDep_{c,t-1} \times Sp_{c,t-1}$, is not consistently significant, indicating that favorable financing conditions do not systematically offset the adverse effects of depreciations on subsequent investment.[5]

These results are consistent with the *save-to-invest* hypothesis (De Gregorio & Jara, 2024). Firms accumulate foreign-currency debt in advance to build investment capacity, and the positive association between lagged USD bond issuance and subsequent investment — particularly when spreads are favorable — indicates that foreign borrowing is primarily used to finance productive investment in future periods rather than short-term carry-trade arbitrage. The fact that depreciations affect investment mainly with a lag further supports a forward-looking interpretation in which exchange-rate shocks influence firms' future investment capacity rather than contemporaneous investment decisions.

Panel B complements the investment results by focusing on short-run operational adjustments through changes in working capital, $\Delta WC_{i,t}$. In contrast to total investment, the contemporaneous interaction between USD bond issuance and currency depreciations, $FXBHA_{i,t} \times FXDep_{c,t}$, is positive and statistically significant across most specifications, indicating that firms with higher USD bond issuance expand working capital following depreciations. This response is consistent with active short-term adjustments along the operational margin — such as inventories or trade credit — rather than immediate balance-sheet distress, closely mirroring the inventory-investment evidence in Bleakley and Cowan (2008). The contemporaneous interaction between USD bond issuance and the spread, $FXBHA_{i,t} \times Sp_{c,t}$, is weaker and occasionally negative, suggesting that tighter financial conditions do not primarily affect short-run operational decisions.

Appendix Table C.4 replaces the continuous depreciation measure with an alternative definition; and Appendix Table C.5 further splits the sample between firms that, on average, actively use hedging derivatives and firms that do not, allowing us to assess whether the intertemporal investment responses to USD issuance and currency depreciations differ systematically with explicit financial hedging activity. Overall, the robustness results remain consistent with an intertemporal *save-to-invest* mechanism.

[5] Formally, the marginal effect of lagged external financial conditions on total investment for firms with USD bond issuance is given by

$$\frac{\partial T.Inv_{i,t}}{\partial \mathrm{Sp}_{c,t-1}} = \Theta_{(\mathrm{FXBHA}_{i,t-1} \times \mathrm{Sp}_{c,t-1})}\,\mathrm{FXBHA}_{i,t-1} + \Theta_{(\mathrm{FXBHA}_{i,t-1} \times \mathrm{FXDep}_{c,t-1} \times \mathrm{Sp}_{c,t-1})}\,\mathrm{FXBHA}_{i,t-1} \times \mathrm{FXDep}_{c,t-1},$$

where $\Theta_{(\mathrm{FXBHA}_{i,t-1} \times \mathrm{Sp}_{c,t-1})}$ and $\Theta_{(\mathrm{FXBHA}_{i,t-1} \times \mathrm{FXDep}_{c,t-1} \times \mathrm{Sp}_{c,t-1})}$ denote the estimated coefficients on the interactions $\mathrm{FXBHA}_{i,t-1} \times \mathrm{Sp}_{c,t-1}$ and $\mathrm{FXBHA}_{i,t-1} \times \mathrm{FXDep}_{c,t-1} \times \mathrm{Sp}_{c,t-1}$ in Eq. (2), respectively. This expression shows that exchange-rate depreciations may attenuate or amplify the role of financial conditions in shaping future investment, but do not eliminate the financial channel.

Table 3
Alternative investment definition, working capital, and currency depreciations.

	Total sample			Credit rating		Size		Ind. fin. dep.	
	(1)	(2)	(3)	Non-Inv. Grade (4)	Inv. Grade (5)	Low $P<50$ (6)	High $P>50$ (7)	Low $P<50$ (8)	High $P>50$ (9)
Panel A: Total Investment ($T.Inv_{i,t}$)									
$FXBHA_{i,t}$	0.127***	0.112***	0.111***	0.127***	0.127***	0.102***	0.122***	0.110***	0.172**
	(0.027)	(0.021)	(0.022)	(0.038)	(0.036)	(0.034)	(0.025)	(0.024)	(0.062)
$FXDep_{c,t}$		−0.013	−0.015	−0.003	−0.031*	−0.032*	0.003	−0.009	−0.025
		(0.011)	(0.012)	(0.017)	(0.016)	(0.016)	(0.018)	(0.016)	(0.024)
$Sp_{c,t}$		0.000	0.000	−0.001	0.001	−0.001	0.001	0.001	−0.004***
		(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.002)	(0.001)
$FXBHA_{i,t}\times FXDep_{c,t}$		−0.010	−0.007	0.109	0.248	0.370*	−0.308	0.082	−1.058
		(0.229)	(0.236)	(0.569)	(0.371)	(0.200)	(0.364)	(0.217)	(1.250)
$FXBHA_{i,t}\times Sp_{c,t}$		0.031***	0.026	0.134*	0.015	0.011	0.045	0.032	−0.045
		(0.009)	(0.018)	(0.076)	(0.025)	(0.023)	(0.032)	(0.019)	(0.108)
$FXBHA_{i,t}\times FXDep_{c,t}\times Sp_{c,t}$			0.150	0.765	0.142	1.024***	−0.449	0.063	−0.008
			(0.258)	(1.886)	(0.326)	(0.122)	(0.515)	(0.256)	(2.721)
$FXBHA_{i,t-1}$	0.061***	0.064***	0.064***	0.105***	0.051***	0.049	0.070***	0.066***	0.235***
	(0.015)	(0.011)	(0.011)	(0.027)	(0.015)	(0.031)	(0.015)	(0.010)	(0.073)
$FXDep_{c,t-1}$		−0.013	−0.019	0.028	−0.041***	−0.035**	−0.004	−0.015	−0.012
		(0.013)	(0.012)	(0.016)	(0.011)	(0.015)	(0.021)	(0.014)	(0.013)
$Sp_{c,t-1}$		−0.002**	−0.002**	0.000	−0.004***	0.000	−0.003*	−0.001	−0.003
		(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
$FXBHA_{i,t-1}\times FXDep_{c,t-1}$		−0.685*	−0.675*	−0.508	−0.235	−0.623*	−0.701*	−0.504**	−4.063
		(0.330)	(0.326)	(0.348)	(0.335)	(0.308)	(0.386)	(0.211)	(2.514)
$FXBHA_{i,t-1}\times Sp_{c,t-1}$		0.055***	0.056***	0.126**	0.059***	0.079***	0.045	0.054***	0.466***
		(0.006)	(0.015)	(0.047)	(0.016)	(0.017)	(0.028)	(0.014)	(0.133)
$FXBHA_{i,t-1}\times FXDep_{c,t-1}\times Sp_{c,t-1}$			−0.055	1.292**	−0.231	−0.123	0.083	−0.019	−8.409*
			(0.262)	(0.521)	(0.266)	(0.134)	(0.415)	(0.248)	(3.865)
Observations	14,963	14,194	14,194	4853	9316	7021	7172	7015	7179
Adj. R-squared	0.466	0.468	0.468	0.513	0.459	0.416	0.519	0.455	0.484
Panel B: Change in Working Capital ($\Delta WC_{i,t}$)									
$FXBHA_{i,t}$	−0.037**	−0.034*	−0.037**	−0.056**	−0.011	−0.028	−0.040***	−0.023	−0.072*
	(0.015)	(0.016)	(0.015)	(0.023)	(0.023)	(0.027)	(0.013)	(0.020)	(0.035)
$FXDep_{c,t}$		−0.097*	−0.079**	−0.058*	−0.050	−0.081*	−0.079**	−0.071**	−0.091
		(0.047)	(0.035)	(0.029)	(0.055)	(0.041)	(0.031)	(0.032)	(0.069)
$Sp_{c,t}$		−0.002	−0.002	−0.006	0.000	−0.000	−0.003	−0.004	−0.000
		(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
$FXBHA_{i,t}\times FXDep_{c,t}$		0.410***	0.378***	0.478	0.261	0.382	0.428*	0.466***	0.474
		(0.133)	(0.103)	(0.342)	(0.266)	(0.401)	(0.204)	(0.128)	(0.798)
$FXBHA_{i,t}\times Sp_{c,t}$		0.003	−0.016**	0.033	−0.025***	−0.023	−0.012	−0.011	−0.126
		(0.008)	(0.007)	(0.039)	(0.008)	(0.018)	(0.022)	(0.008)	(0.102)
$FXBHA_{i,t}\times FXDep_{c,t}\times Sp_{c,t}$			0.569***	−0.204	0.694***	−0.141	1.066**	0.462***	2.529
			(0.165)	(1.103)	(0.154)	(0.362)	(0.439)	(0.110)	(2.781)
$FXBHA_{i,t-1}$	−0.005	0.004	−0.000	0.001	−0.001	−0.016	0.003	−0.001	−0.025
	(0.016)	(0.017)	(0.017)	(0.021)	(0.031)	(0.037)	(0.017)	(0.014)	(0.082)
$FXDep_{c,t-1}$		−0.081**	−0.065**	0.020	−0.058	−0.077*	−0.056**	−0.036	−0.093**
		(0.035)	(0.030)	(0.029)	(0.033)	(0.039)	(0.025)	(0.031)	(0.033)
$Sp_{c,t-1}$		−0.004	−0.003	−0.002	−0.002	−0.005	−0.001	−0.001	−0.007
		(0.004)	(0.004)	(0.003)	(0.005)	(0.005)	(0.004)	(0.004)	(0.006)
$FXBHA_{i,t-1}\times FXDep_{c,t-1}$		0.828**	0.758**	0.407	0.486	0.258	1.042***	0.502	1.468
		(0.338)	(0.324)	(0.419)	(0.599)	(0.609)	(0.290)	(0.294)	(1.512)
$FXBHA_{i,t-1}\times Sp_{c,t-1}$		−0.014*	−0.027***	0.034	−0.028	−0.021	−0.037	−0.022**	−0.005
		(0.008)	(0.009)	(0.052)	(0.016)	(0.026)	(0.025)	(0.009)	(0.242)
$FXBHA_{i,t-1}\times FXDep_{c,t-1}\times Sp_{c,t-1}$			0.441**	−0.434	0.668*	0.111	0.572	0.428**	−0.698
			(0.148)	(1.045)	(0.325)	(0.362)	(0.370)	(0.152)	(3.424)
Observations	15,249	14,483	14,483	5043	9423	7242	7240	7039	7443
Adj. R-squared	0.531	0.541	0.544	0.599	0.569	0.519	0.569	0.570	0.529

Notes: Ordinary least squares estimates of Eq. (2). In Panel A, the dependent variable is $T.Inv_{i,t}$ (total investment, the sum of capital expenditures, R&D expenses and acquisitions minus sales of fixed assets, scaled by lagged total assets). In Panel B, the dependent variable is $\Delta WC_{i,t}$ (change in working capital over lagged total assets). $FXBHA_{i,t}$ is the aggregate USD-denominated bond issuance scaled by lagged total assets. $FXDep_{c,t}$ is a currency-depreciation measure computed as the demeaned log change in the *real* exchange rate from $t-1$ to t (higher values = depreciation). $Sp_{c,t}$ is the demeaned risk-adjusted external finance premium defined as the domestic-currency lending rate minus the U.S. Moody's Seasoned Baa corporate bond yield, scaled by the implied volatility from 3M at-the-money FX options. All specifications include firm fixed effects, year fixed effects, and firm-level controls. Columns (1)–(3) report estimates for the total sample. The sample is split by credit ratings (columns 4–5), firm size (columns 6–7), and industry financial dependence (columns 8–9). Standard errors, clustered at the country level, are reported in parentheses. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.10$.

Dynamic effects reinforce this interpretation. While the lagged interaction $FXBHA_{i,t-1} \times Sp_{c,t-1}$ is not robust across specifications, the lagged triple interaction $FXBHA_{i,t-1} \times FXDep_{c,t-1} \times Sp_{c,t-1}$ is positive and statistically significant in several cases, indicating that when depreciations occur under stressed financial conditions, firms intensify short-run operational adjustments. Importantly, this expansion of working capital occurs alongside resilient levels of total investment, suggesting that working capital acts as a flexible and complementary adjustment margin rather than a substitute for long-term investment.

A central hypothesis in Bleakley and Cowan (2008) is that the real effects of currency depreciations depend on firms' pre-existing exposure to foreign-currency debt. Their empirical strategy focuses on whether firms with larger USD-denominated liabilities respond differently to exchange-rate shocks, formalized through the interaction $StockUSD.Debt_{i,t-1} \times FXDep_{c,t}$. Finding a non-negative or insignificant coefficient on this interaction leads them to conclude that depreciations do not systematically reduce investment for firms with foreign-currency debt, as adverse balance-sheet effects are offset by competitiveness gains or operational adjustments.

Our empirical framework adopts the same conceptual logic but extends it along two dimensions. First, we measure focus on USD bond issuance, $FXBHA_{i,t}$, capturing marginal financing decisions rather than accumulated debt stocks. Second, we explicitly condition the interaction between USD bond issuance and depreciations on external financial conditions, measured by the spread. Consistent with Bleakley and Cowan (2008), we find no evidence of a dominant balance-sheet channel through which depreciations systematically reduce real activity. Instead, depreciations induce a reallocation across adjustment margins: firms maintain stable investment while simultaneously expanding short-run operational activity through working capital. This pattern is fully consistent with the distinction between operational flexibility and long-term capital formation emphasized by Bleakley and Cowan (2008) and with subsequent evidence that firms adjust short-term operations before fixed capital investment in response to currency shocks (Kim et al., 2015).

3.4. Operating performance and competitiveness

Table 4 reports estimates of Eq. (3) for operating performance and competitiveness outcomes. It complements the evidence in Table 3 by assessing whether the adjustment patterns documented above translate into changes in profitability, sales, and capacity utilization.

As in the related firm-level literature, identification relies on firms' differential responses to exchange-rate shocks rather than on the level effect of foreign-currency debt per se. Accordingly, the parameters of interest arise from interactions between USD bond issuance and currency depreciations, which difference out common macroeconomic effects and isolate heterogeneous firm-level responses driven by currency mismatches (Bleakley & Cowan, 2008; Dao et al., 2021; Kim et al., 2015). An important distinction in our setting is that by focusing on USD bond issuance, $FXBHA_{i,t}$, captures marginal financing decisions rather than the outstanding stock of foreign-currency liabilities. Table 4 therefore evaluates whether exchange-rate shocks interacting with USD bond issuance are associated with contractionary balance-sheet effects or with stable or improving operating outcomes.

The table reports results for four dependent variables: operating income over lagged assets (columns 1–2), non-operating income over lagged assets (columns 3–4), log sales (columns 5–6), and the sales-to-assets ratio (columns 7–8). Profitability measures capture valuation and balance-sheet channels, while sales and sales-to-assets proxy for competitiveness and capacity utilization.

Columns (1)–(4) show that profitability outcomes are largely insensitive to exchange-rate shocks. Interactions between USD issuance and currency depreciations — both contemporaneous and lagged — are economically small and statistically insignificant for operating and non-operating income. This absence of significant effects is informative, indicating that depreciations do not generate systematic balance-sheet losses or valuation effects following USD bond issuance. These results are consistent with Table 3, where investment remains stable and short-run adjustment occurs primarily through working capital.

By contrast, columns (5)–(8) reveal economically meaningful effects on sales and capacity utilization. The level of USD bond issuance, $FXBHA_{i,t}$, is positively and significantly associated with both log sales and the sales-to-assets ratio, implying that firms accessing USD bond markets operate at a larger scale and with higher utilization of existing productive capacity. This reflects scale and market-access advantages associated with foreign borrowing at the margin, rather than valuation effects linked to accumulated foreign-currency debt.

Consistent with the absence of balance-sheet distress, the interaction between USD issuance and currency depreciations, $FXBHA_{i,t} \times FXDep_{c,t}$, is generally insignificant for sales and sales-to-assets, ruling out a contractionary revenue channel following depreciations. The role of financial conditions emerges only when depreciations coincide with changes in the external financing environment. In particular, the triple interaction $FXBHA_{i,t} \times FXDep_{c,t} \times Sp_{c,t}$, and its lagged counterpart are positive and statistically significant for sales and capacity utilization. This pattern indicates that when depreciations occur under tighter external financial conditions, firms that previously issued USD bonds expand sales relative to assets, consistent with an active reallocation toward operational and competitiveness-driven margins.

Viewed jointly, Tables 3 and 4 point to a coherent adjustment mechanism. Currency depreciations do not trigger contractions in investment or profitability following USD-denominated bond issuance, nor do they generate balance-sheet-driven declines in operating outcomes. Instead, firms maintain stable investment while reallocating toward working capital and expanding sales and capacity utilization, particularly when depreciations interact with tighter financial conditions.[6]

[6] Figure D.1 in Appendix D reports local projections estimates corresponding to Table 4, showing impulse response functions for operating income, non-operating income, log sales, and sales-to-assets ratio over horizons $h = 0$ to $h = 8$ years. The local projections confirm the main patterns from Table 4: profitability measures (operating and non-operating income) show largely insignificant responses at short horizons, while log sales shows positive and significant responses consistent with expanded sales and capacity utilization. In contrast, some differences emerge for sales-to-assets ratio, which displays weaker and less consistent responses.

Table 4
USD-denominated bond issuance, currency depreciations, and competitiveness.

Dependent variable:	Operating Income		Nonoper.Income		Ln(Sales)		$Sales_t/Assets_{t-1}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$FXBHA_{i,t}$	0.005	0.005	0.001	−0.001	0.346***	0.338**	0.198***	0.189**
	(0.015)	(0.015)	(0.006)	(0.006)	(0.114)	(0.118)	(0.064)	(0.067)
$Sp_{c,t}$	0.001	0.001	0.001	0.000	0.064***	0.065***	0.043***	0.045***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.013)	(0.015)	(0.012)	(0.014)
$FXDep_{c,t}$	−0.027	−0.031	0.022**	0.019**	0.291	0.288	0.222	0.226
	(0.018)	(0.018)	(0.008)	(0.008)	(0.196)	(0.202)	(0.154)	(0.160)
$FXBHA_{i,t}\times FXDep_{c,t}$	0.215	0.239	0.062	0.073	1.476	1.502	0.363	0.401
	(0.234)	(0.221)	(0.097)	(0.081)	(1.267)	(1.283)	(0.815)	(0.824)
$FXBHA_{i,t}\times Sp_{c,t}$	0.004	0.000	−0.004	−0.011	−0.108	−0.146	−0.057	−0.106*
	(0.009)	(0.009)	(0.006)	(0.009)	(0.081)	(0.107)	(0.052)	(0.055)
$FXBHA_{i,t}\times FXDep_{c,t}\times Sp_{c,t}$		0.033		0.176		0.936		1.188**
		(0.187)		(0.174)		(1.011)		(0.477)
$FXBHA_{i,t-1}$	−0.004	−0.003	0.010*	0.009*	0.159***	0.150**	0.087***	0.080**
	(0.011)	(0.011)	(0.005)	(0.005)	(0.043)	(0.051)	(0.027)	(0.032)
$Sp_{c,t-1}$	0.002	0.001	0.002***	0.002***	0.018	0.016	0.013	0.011
	(0.002)	(0.002)	(0.000)	(0.000)	(0.011)	(0.013)	(0.008)	(0.009)
$FXDep_{c,t-1}$	−0.032**	−0.034**	0.017*	0.013	−0.105	−0.096	−0.160	−0.141
	(0.013)	(0.015)	(0.009)	(0.008)	(0.138)	(0.145)	(0.104)	(0.107)
$FXBHA_{i,t-1}\times FXDep_{c,t-1}$	0.012	0.019	0.014	0.016	0.719	0.616	0.475	0.361
	(0.107)	(0.116)	(0.107)	(0.099)	(1.100)	(0.980)	(0.778)	(0.782)
$FXBHA_{i,t-1}\times Sp_{c,t-1}$	0.012	0.019	−0.003	−0.004	−0.057	−0.139**	−0.041**	−0.104***
	(0.008)	(0.013)	(0.004)	(0.006)	(0.041)	(0.061)	(0.014)	(0.027)
$FXBHA_{i,t-1}\times FXDep_{c,t-1}\times Sp_{c,t-1}$		−0.162		0.013		2.221**		1.837***
		(0.226)		(0.084)		(0.791)		(0.448)
$DCBA_{i,t-1}$	0.003	0.003	0.006	0.006	0.117***	0.117***	0.071**	0.071**
	(0.005)	(0.005)	(0.003)	(0.003)	(0.029)	(0.030)	(0.025)	(0.025)
$CFO_{i,t-1}$	0.128***	0.128***	0.007	0.007	0.540***	0.539***	0.334***	0.332***
	(0.010)	(0.010)	(0.004)	(0.004)	(0.091)	(0.092)	(0.075)	(0.076)
$Ofunds_{i,t-1}$	0.009***	0.009***	0.005	0.005	0.120***	0.120***	0.080***	0.080***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.034)	(0.034)	(0.021)	(0.021)
$FRev_{i,t-1}$	0.007	0.007	0.002**	0.002**	0.246***	0.246***	0.096**	0.096**
	(0.007)	(0.007)	(0.001)	(0.001)	(0.042)	(0.041)	(0.033)	(0.033)
$NDer_{i,t-1}$	−0.166	−0.150	0.099	0.102	2.163	2.201	1.328	1.375
	(0.311)	(0.315)	(0.121)	(0.126)	(1.692)	(1.666)	(1.442)	(1.428)
$Size_{i,t-1}$	−0.015**	−0.015**	−0.001***	−0.001***	0.732***	0.732***	−0.191***	−0.191***
	(0.005)	(0.005)	(0.000)	(0.000)	(0.048)	(0.049)	(0.043)	(0.043)
$Debt/Assets_{i,t-1}$	−0.020	−0.020	−0.011	−0.011	−0.109**	−0.110**	−0.092***	−0.094***
	(0.014)	(0.013)	(0.007)	(0.007)	(0.038)	(0.037)	(0.029)	(0.028)
$LTDebt_{i,t-1}$	0.009***	0.010***	0.000	0.000	−0.094*	−0.093*	−0.060**	−0.060**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.047)	(0.048)	(0.021)	(0.022)
$GDPgrowth_{c,t-1}$	0.001***	0.001***	0.000	0.000	0.011***	0.011***	0.008***	0.008***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.004)	(0.002)	(0.002)
$PrivCredit/GDP_{c,t-1}$	−0.009	−0.013	0.023***	0.021**	−0.051	−0.056	−0.107*	−0.110
	(0.011)	(0.011)	(0.007)	(0.008)	(0.108)	(0.114)	(0.060)	(0.063)
$\ln(GDP)_{c,t-1}$	0.030***	0.032***	0.000	0.001	0.272***	0.275***	0.259***	0.259***
	(0.007)	(0.007)	(0.004)	(0.004)	(0.042)	(0.046)	(0.040)	(0.043)
Observations	14,498	14,498	14,246	14,246	14,752	14,752	14,807	14,807
R-squared	0.584	0.584	0.602	0.603	0.964	0.964	0.806	0.806
Adj. R-squared	0.532	0.532	0.551	0.552	0.959	0.959	0.782	0.782
Control Var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Ordinary least squares estimates of Eq. (3). The dependent variables are operating income over lagged total assets (columns 1–2), non-operating income over lagged total assets (columns 3–4), the natural logarithm of sales (columns 5–6), and asset turnover defined as sales in t over total assets in $t-1$ (columns 7–8). $FXBHA_{i,t}$ is the aggregate USD-denominated bond issuance scaled by lagged total assets. $FXDep_{c,t}$ is a currency-depreciation measure computed as the demeaned log change in the *real* exchange rate from $t-1$ to t (higher values = depreciation). $Sp_{c,t}$ is the demeaned risk-adjusted external finance premium defined as the domestic-currency lending rate minus the U.S. Moody's Seasoned Baa corporate bond yield, scaled by the implied volatility from 3M at-the-money FX options. Firm-level controls are included, except for Tobin's Q ($TQ_{i,t}$) sales intensity ($STA_{i,t}$). All specifications include firm and year fixed effects. Standard errors, clustered at the country level, are reported in parentheses. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.10$.

These findings are closely related to Bleakley and Cowan (2008), who emphasize heterogeneity based on foreign-currency debt exposure, but differ in an important dimension. While their analysis focuses on the stock of foreign-currency liabilities, our results highlight the role of marginal USD-denominated debt issuance. Consistent with more recent evidence (Alfaro et al., 2019; Dao et al., 2021; Kim et al., 2015), the absence of contractionary effects reflects not irrelevance of exchange-rate shocks, but a reallocation of adjustment toward flexible operational margins.

Overall, the evidence supports a forward-looking *save-to-invest* interpretation of USD-denominated debt issuance. Firms access foreign-currency bond markets in advance as part of an intertemporal financing strategy that builds investment and operational capacity. When exchange-rate shocks occur, this accumulated financing capacity allows firms to absorb depreciations without retrenchment and to reallocate resources toward operational expansion rather than balance-sheet repair.

4. Concluding remarks

This paper studies how USD-denominated bond issuance by listed non-financial firms in EMEs shapes liquidity, investment, and operating outcomes under currency depreciations and shifting external borrowing conditions. Using firm-year data for 2001–2016 and USD bond issuance, we estimate dynamic specifications that interact offshore issuance with exchange-rate movements and the risk-adjusted spread.

Three main results emerge. First, offshore issuance is associated with higher cash holdings, especially when global financial conditions are favorable. Currency depreciations dampen contemporaneous cash accumulation for large firms, investment-grade firms, and firms in industries with high external financial dependence. Second, investment responds with a lag: the level of issuance and its interaction with lagged spreads are positive, consistent with a *save-to-invest* channel, while exchange-rate depreciations do not systematically reduce investment. Third, real-side adjustment occurs through operational margins rather than contraction. Total investment remains stable, working capital expands following depreciations, and profitability measures are largely insensitive to exchange-rate shocks. Sales and capacity utilization, however, strengthen when depreciations coincide with tighter financial conditions, indicating a competitiveness-driven adjustment channel.

Currency mismatches have long been a critical concern of policymakers, contributing to a "fear of floating" and, in practice, limiting exchange-rate flexibility and potentially impairing external adjustment. However, this concern is not first-order in our sample of listed EME firms issuing USD-denominated bonds: we find little evidence of systematic contractionary balance-sheet effects on investment or income-based performance measures following depreciations. Instead, adjustment occurs through liquidity and operational margins, consistent with firms partially internalizing exchange-rate risk when accessing offshore bond markets.

CRediT authorship contribution statement

José De Gregorio: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Luis P. de la Horra: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Mauricio Jara: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used generative AI tools, including large language models, to assist with language editing and obtain suggestions on clarity and structure. After using these tools, the authors reviewed and edited the content as needed, and they take full responsibility for the content of the published article.

Declaration of competing interest

None.

Appendix A. Variable definitions and summary statistics

See Tables A.1 and A.2

Appendices B–D. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.najef.2026.102597.

Data availability

The data used in this study are proprietary and were obtained under license from LSEG Data & Analytics; restrictions apply to the availability of these data, which were used under license for this study. The replication code is available in a public GitHub repository at: https://github.com/lphr39/degregorio-et-al-2026.

Table A.1
Variable definitions.

Variable	Short description	Detailed description
Dependent Variables		
$\Delta Cash_{i,t}$	Change in cash holdings	Change in cash and short-term investments over lagged total assets.
$Inv_{i,t}$	Investment	Capital expenditures over lagged total assets.
$T.Inv_{i,t}$	Total Investment	Sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets, all scaled by lagged total assets.
$\Delta WC_{i,t}$	Change in Working Capital	Change in net working capital over lagged total assets.
$Operating\ Income_{i,t}$	Operating Income	Operating income over lagged total assets.
$Nonoper.\ Income_{i,t}$	Non-operating Income	Non-operating income over lagged total assets.
$\ln(Sales)_{i,t}$	Log Sales	Natural logarithm of sales.
Explanatory Variables		
$FXBHA_{i,t}$	Aggregated USD-denominated bond issuances	Aggregated total USD-denominated bond issuances over lagged total assets.
$DCBA_{i,t}$	Aggregated local currency bond issuances	Aggregated total local-currency bond issuances over lagged total assets.
$Sp_{c,t}$	Risk-adjusted spread	Demeaned risk-adjusted external finance premium defined as the domestic-currency lending rate minus the U.S. Moody's Seasoned Baa corporate bond yield, scaled by the implied volatility from 3M at-the-money FX options.
$FXDep_{c,t}$	Currency depreciation	Currency-depreciation measure computed as the demeaned log change in the real exchange rate from $t-1$ to t (higher values = depreciation).
$Dum.Dep_{c,t}$	Currency depreciation dummy	Dummy variable that takes the value 1 when there is a currency depreciation, 0 otherwise.
Firm-level Control Variables		
$TQ_{i,t}$	Tobin's Q	(Market capitalization + Total debt) divided by the replacement value of total assets.
$TA_{i,t}$	Size	Natural logarithm of total assets.
$DTA_{i,t}$	Debt ratio	Total debt to total assets.
$LTD_{i,t}$	Long-term debt	Long-term debt to total debt.
$CFO_{i,t}$	Cash flow	Cash flow from operating activities over lagged total assets.
$Ofunds_{i,t}$	Other sources of funds	Represents the difference between total sources of funds minus the sum of total bond issuances and cash flow from operations (Kim and Weisbach, 2008).
$FRev_{i,t}$	Foreign revenue	Foreign revenue over total assets.
$NDer_{i,t}$	Net derivatives	Derivative assets minus derivative liabilities, over total assets.
$STA_{i,t}$	Sales/Assets	Sales to total assets.
Country-level Variables		
$GDPgrowth_{c,t}$	GDP Growth	GDP growth rate.
$PrivCredit/GDP_{c,t}$	Private Credit	Domestic credit to private sector over GDP.
$\ln(GDP)_{c,t}$	GDP per capita	Natural logarithm of GDP per capita.
Fixed Effects		
Firm FE	Firm fixed effects	Set of firm dummies.
Year FE	Year fixed effects	Set of year dummies.
Country-Year-Industry FE	Country-year-industry fixed effects	Set of country-year-industry dummies.

Notes: Definitions of all variables used in the empirical analysis.

Table A.2
Summary statistics for all variables, 2001–2016.

Panel A: Descriptive statistics for Latin America, Europe, and Africa.

	Latin America												Europe		Africa	
	Argentina		Brazil		Chile		Colombia		Mexico		Peru		Poland		South Africa	
Variable	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
$\Delta Cash$	0.019	0.098	0.027	0.107	0.010	0.059	0.004	0.044	0.011	0.068	0.017	0.087	0.022	0.090	0.019	0.073
Inv	0.063	0.056	0.066	0.069	0.063	0.053	0.062	0.054	0.056	0.051	0.081	0.068	0.064	0.072	0.052	0.050
$T.Inv$	0.067	0.060	0.069	0.069	0.063	0.053	0.071	0.059	0.058	0.054	0.079	0.062	0.061	0.062	0.063	0.057
ΔWC	−0.039	0.087	−0.045	0.087	−0.048	0.120	−0.000	0.074	−0.030	0.062	−0.059	0.118	−0.032	0.092	−0.098	0.122
$Operating\ Income$	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
$Nonoper.\ Income$	0.054	0.088	0.064	0.076	0.059	0.050	0.072	0.055	0.072	0.074	0.096	0.067	0.059	0.070	0.100	0.054
$Ln(Sales)$	19.346	1.543	20.860	1.462	20.547	1.235	20.906	1.380	21.270	1.471	20.095	0.876	18.982	2.039	20.715	1.627
$FXBHA$	0.014	0.077	0.001	0.010	0.008	0.049	0.006	0.028	0.021	0.075	0.009	0.072	0.000	0.002	0.001	0.009
$DCBA$	0.007	0.043	0.013	0.045	0.020	0.073	0.015	0.047	0.011	0.054	0.007	0.023	0.020	0.071	0.003	0.013
CFO	0.086	0.108	0.094	0.106	0.082	0.076	0.093	0.083	0.096	0.084	0.117	0.083	0.068	0.112	0.052	0.076
$Ofunds$	0.031	0.109	0.089	0.175	0.126	0.170	0.038	0.094	0.051	0.151	0.115	0.188	0.065	0.168	0.104	0.160
$FRev$	0.059	0.154	0.049	0.135	0.094	0.191	0.107	0.183	0.145	0.221	0.066	0.149	0.117	0.212	0.226	0.243
$NDer$	−0.000	0.000	−0.000	0.002	−0.000	0.003	−0.001	0.003	−0.000	0.003	−0.000	0.002	−0.001	0.003	−0.001	0.004
TQ	0.871	0.682	1.126	0.811	1.048	0.421	1.268	0.687	1.207	0.760	1.134	0.708	1.178	0.969	1.448	1.107
TA	20.037	1.615	21.431	1.340	21.065	1.200	21.808	1.032	21.682	1.354	20.533	0.900	19.620	1.621	20.561	1.427
DTA	0.302	0.166	0.328	0.143	0.306	0.107	0.242	0.152	0.285	0.150	0.310	0.128	0.223	0.145	0.271	0.115
LTD	0.603	0.335	0.720	0.193	0.772	0.194	0.770	0.241	0.773	0.245	0.664	0.223	0.552	0.301	0.559	0.290
STA	0.697	0.566	0.633	0.402	0.746	0.502	0.423	0.268	0.726	0.352	0.740	0.392	0.936	0.590	1.238	0.516
$GDPgrowth$	2.387	5.930	2.369	3.232	3.972	2.172	4.011	1.571	2.214	2.398	5.238	2.449	3.426	1.485	2.774	1.848
$PrivCred/GDP$	0.137	0.023	0.497	0.139	0.938	0.140	0.446	0.065	0.232	0.064	0.268	0.062	0.459	0.110	1.424	0.124
$Ln(GDP)$	9.049	0.486	8.961	0.485	9.222	0.424	8.722	0.278	9.066	0.137	8.353	0.416	9.364	0.270	8.621	0.312
Obs.	270		1,566		688		101		708		252		424		115	

Panel B: Descriptive statistics for Asia and the total sample.

	Asia														Total Sample	
	China		India		Indonesia		Malaysia		Philippines		Thailand		Turkey		All	
Variable	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
$\Delta Cash$	0.043	0.132	0.019	0.086	0.025	0.100	0.017	0.085	0.018	0.079	0.018	0.081	0.022	0.079	0.030	0.111
Inv	0.083	0.090	0.100	0.103	0.082	0.089	0.055	0.067	0.061	0.061	0.072	0.090	0.078	0.072	0.078	0.086
$T.Inv$	0.087	0.083	0.095	0.088	0.076	0.072	0.057	0.064	0.066	0.065	0.067	0.077	0.078	0.071	0.080	0.078
ΔWC	−0.052	0.076	−0.056	0.089	−0.037	0.089	−0.043	0.082	−0.041	0.056	−0.059	0.110	−0.044	0.086	−0.050	0.085
$Operating\ Income$	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001
$Nonoper.\ Income$	0.059	0.057	0.069	0.075	0.074	0.077	0.062	0.062	0.078	0.048	0.073	0.076	0.070	0.079	0.064	0.066
$Ln(Sales)$	19.954	1.730	19.795	1.721	19.616	1.419	19.206	1.721	20.177	2.088	19.308	1.890	20.665	1.951	19.956	1.759
$FXBHA$	0.002	0.027	0.002	0.024	0.003	0.036	0.001	0.009	0.006	0.045	0.001	0.019	0.009	0.061	0.003	0.032
$DCBA$	0.019	0.068	0.010	0.041	0.019	0.074	0.016	0.064	0.020	0.058	0.032	0.086	0.002	0.012	0.017	0.064
CFO	0.058	0.098	0.080	0.098	0.080	0.106	0.059	0.087	0.083	0.090	0.068	0.120	0.086	0.115	0.070	0.100
$Ofunds$	0.174	0.241	0.115	0.192	0.169	0.225	0.074	0.152	0.116	0.217	0.149	0.197	0.022	0.083	0.137	0.215
$FRev$	0.053	0.129	0.064	0.158	0.076	0.156	0.099	0.201	0.039	0.107	0.065	0.164	0.105	0.227	0.067	0.156
$NDer$	−0.000	0.001	−0.000	0.001	−0.000	0.002	−0.000	0.001	−0.000	0.003	−0.000	0.001	0.000	0.002	−0.000	0.002
TQ	1.614	1.080	1.298	1.003	1.203	0.855	0.970	0.656	1.193	0.709	1.313	0.890	1.031	0.452	1.382	0.984
TA	20.676	1.477	20.367	1.591	20.047	1.343	20.100	1.593	21.493	1.319	19.984	1.504	21.025	1.585	20.619	1.539
DTA	0.301	0.162	0.366	0.167	0.317	0.170	0.275	0.172	0.307	0.155	0.356	0.166	0.332	0.163	0.313	0.163
LTD	0.374	0.300	0.808	0.261	0.634	0.299	0.555	0.307	0.765	0.243	0.559	0.295	0.530	0.267	0.545	0.331
STA	0.582	0.418	0.743	0.475	0.863	0.616	0.607	0.420	0.448	0.380	0.735	0.555	0.851	0.548	0.658	0.467
$GDPgrowth$	9.197	2.031	7.368	1.915	5.390	0.683	4.870	2.621	5.642	1.807	3.831	2.461	5.155	4.427	6.775	3.474
$PrivCred/GDP$	1.271	0.160	0.463	0.073	0.300	0.059	1.133	0.090	0.346	0.055	1.196	0.222	0.412	0.198	0.920	0.435
$Ln(GDP)$	8.284	0.681	6.954	0.421	7.732	0.510	8.919	0.343	7.731	0.265	8.357	0.372	9.071	0.401	8.261	0.847
Obs.	9,416		2,910		972		1,223		328		1,450		275		20,698	

Panel C: Descriptive statistics for time-series data.

Variable	Mean	S.D.
Sp	0.263	0.428
$FXDep$	0.010	0.026
Obs.	16	16

Notes: This table reports summary statistics for the variables used in the analysis over 2001–2016. For each country (Panels A and B), the columns report the mean and standard deviation (S.D.) across firm-year observations; Obs. denotes the number of firm-year observations. Panel A presents Latin America, Europe, and Africa; Panel B presents Asia and the total sample. Panel C reports time-series summary statistics for Sp and $FXDep$; Obs. in Panel C denotes the number of annual observations.

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