Private Portfolio Retrenchment and Foreign Exchange Intervention in Emerging Markets

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The global financial cycle moves prices and flows

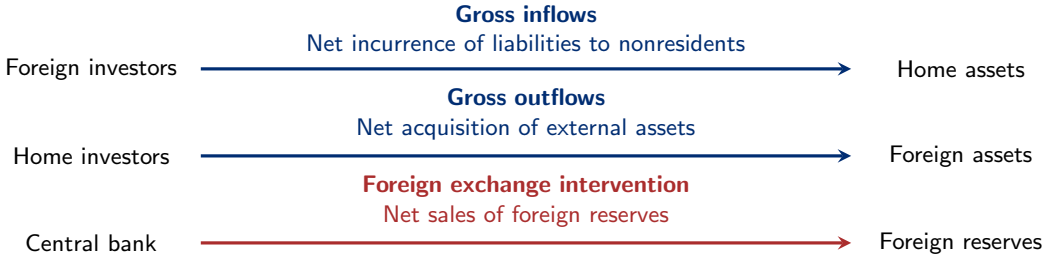
- Risky asset prices and cross-border investment comove across economies.
- Global risk-off $\rightarrow$ risky asset prices $\downarrow$ & cross-border investment $\downarrow$ (flight/retrenchment)

External balance sheet

Miranda-Agrippino and Rey (2020); Forbes and Warnock (2012); Davis and van Wincoop (2024)

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Lower correlation of VIX and outflows where FXI is more intensive

- VIX is a common proxy of global financial conditions in the literature.
- Larger VIX associates with lower gross portfolio outflows: domestic investors retrench.
- Among EMEs, this response is more pronounced in floaters.

Variable	G10 x Reserve	EM All	EM Floaters	EM Interveners
Gross PF Outflow	-0.190*	-0.097**	**-0.132****	**-0.066**
Reserve Sales	0.141	0.124***	0.091	0.154**

Correlations with $\Delta \log VIX$. Higher VIX denotes tighter global financial conditions.

Full table

Who absorbs flights?—Debate over FXI efficacy

FXI does the offsetting

- Central bank intervenes to offset flights.
- Less adjustment margin for private savers.
- More FXI $\Rightarrow$ less private retrenchment.

Private flows do the offsetting

- Private savers retrench to offset flights.
- Central bank intervention is not needed.
- Greater private absorption $\Rightarrow$ less FXI.

This paper: Is FXI stronger because private retrenchment is limited?

Who absorbs flights?—Debate over FXI efficacy

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Preview of findings

1. FXI is more intensive where private outflows are less return-elastic.
2. Larger pension and insurance sectors are associated with private retrenchment elasticity. Colombian pension funds reveal substantial heterogeneity across risk profiles.
3. Cross country FXI evaluation should be conditional on private absorption.

Related Literature

- **Capital retrenchment and private absorption of external shocks**
  (Forbes and Warnock, 2012; Avdjiev et al., 2022; Caballero and Simsek, 2020; Jeanne and Sandri, 2023; Davis and van Wincoop, 2024).
- **Foreign exchange intervention and its effectiveness**
  Theory: (Cavallino, 2019; Fanelli and Straub, 2021; Itskhoki and Mukhin, 2026; Basu et al., 2025; Jeanne and Sandri, 2023).
  Evidence: (Kuersteiner et al., 2018; Fratzscher et al., 2019; Blanchard et al., 2015; Beltran and He, 2024).
- **Inelastic demand and the portfolio-balance view of asset prices**
  (Gabaix and Koijen, 2024; Koijen and Yogo, 2019, 2026; Jiang et al., 2024; Greenwood et al., 2023; Gourinchas et al., 2025).
- **Exchange-rate dynamics driven by international portfolio flows**
  (Gabaix and Maggiori, 2015; Hau and Rey, 2005; Camanho et al., 2022; Zhou, 2025).

Outline

1. Introduction
2. Model
3. Empirics
   - Micro evidence from Colombia
   - Cross country evidence
4. Conclusion

Purpose of the model: private capacity determines FXI policy

- **Define private retrenchment elasticity, Γ_H:**
  How much home savers retrench per unit increase in relative excess return on home assets.
- **An exogenous structural parameter, Γ_H:**
  Reflects exogenous primitive parameters of the home savers.
- **Derive the FXI policy rule given this private capacity:**
  Γ_H determines extensiveness of official intervention.

A home-bond market with inelastic investor demands

- Two-period model of home bond market, with the foreign bond as the alternative asset.
  - This models a short-term (money) market.
  - Interest rates are given exogenously.
- Home savers, foreign investors, and the central bank trade a fixed supply of home bonds.
  - Home and foreign investors' demands are inelastic, à la Gabaix and Koijen (2024)
- The expected return differential combined with currency return clears the market.
  - The differential for short-term bonds is the *expected excess currency return*, rx^e.

$$rx^e = r - r^* - (\mathbb{E}s' - s)$$

Model timeline

Period 1: shock and rebalancing

An i.i.d. shock ε shifts foreign demand.

Home savers rebalance and the central bank follows predetermined FXI rule.

rx^e adjusts to clear the home-bond market.

Period 2: payoffs

The exchange rate S' is realized.

Each bond pays one unit in its currency.

Home savers retrench for higher return on home bonds

- Shares of foreign bonds is set at θ_i for each saver i with limited flexibility.
- Demand for foreign and home bonds in log-deviation.

$$b^*_{Hi} = -(1 - \theta_i + \kappa_i)\widehat{rx}, \qquad b_{Hi} = \frac{\theta_i}{1-\theta_i}(1 - \theta_i + \kappa_i)\widehat{rx}.$$

$$\widehat{rx} \equiv \mathbb{E}[rx] - \overline{rx}^e$$

- θ_i: 'target' foreign-bond share. κ_i: flexibility around the mandate.
- W_{i0}: initial wealth.
- Higher rx^e induces foreign-bond sales and home-bond purchases.

Γ_H defines the aggregate response

Aggregate portfolio responses

$$\widehat{B}_H = \frac{\Gamma_H}{P_H}\widehat{rx}, \qquad \widehat{B}^*_H = -\frac{\Gamma_H}{\bar{S}P_*}\widehat{rx}.$$

Private retrenchment semi-elasticity

$$\Gamma_H \equiv \int \theta_i W_{i0} \gamma_{Hi}\, di, \qquad \gamma_{Hi} = 1 - \theta_i + \kappa_i.$$

- Γ_H measures private retrenchment: a one-percentage-point increase in expected excess return induces retrenchment by $\Gamma_H/100$, in home-currency value.

Prediction 1

For a given aggregate savings, aggregate private retrenchment elasticity varies with the distribution of savings across savers with different foreign-bond shares (θ_i) and flexibility (κ_i).

Return to slide 26

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Return to slide 26

A reduced-form foreign demand with a demand shifter

$$B_F = \overline{B}_F \left(1 + \gamma^F \widehat{rx} + \varepsilon\right).$$

- $\gamma^F > 0$ captures foreign investors' return-elastic demand for home bonds.
- $\varepsilon < 0$ is an exogenous retreat from home-currency assets.

Private retrenchment dampens the return response without FXI

- Assuming fixed supply of home bonds.

$$0 = \widehat{B}_H + \widehat{B}_F$$

$$\widehat{rx} = -\frac{\overline{B}_F}{A^{LF}}\varepsilon, \qquad A^{LF} \equiv \frac{\Gamma_H}{P_H} + \gamma^F \overline{B}_F.$$

- A foreign retreat, $\varepsilon < 0$, raises the expected home-currency excess return.
- With a larger Γ_H, the shock is absorbed with less change in excess currency return.

FXI is weaker when private absorption is stronger

Central-bank problem

$$\min_{b_{CB}} \left[b_{CB}^2 + \zeta \widehat{rx}^{,2} \right]$$

- b_{CB}^2: intervention cost.
- $\zeta > 0$: relative weight on the welfare loss from the UIP deviation.

Linear rule

$$b_{CB} = \gamma_{CB}^{opt} \widehat{rx} \qquad \gamma_{CB}^{opt} = \frac{\zeta}{A^{LF}}$$

$$\frac{\partial \gamma_{CB}^{opt}}{\partial \Gamma_H} < 0$$

Prediction 2

FXI is more responsive to $\widehat{rx}$ when the private demand curve is less elastic to $\widehat{rx}$.

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FXI is more responsive to $\widehat{rx}$ when the private demand curve is less elastic to $\widehat{rx}$.

Policy endogeneity attenuates observed FXI effectiveness

- Holding private capacity fixed, stronger FXI dampens the excess currency return response to a global financial shock.
- FXI is weaker where private absorption is stronger. Then home savers offset more of the shock.
- FXI substitutes for private absorption: the observed gap in return responses across FXI regimes is therefore smaller than the true effect.

Prediction 3

Cross-country estimate of FXI effectiveness is more pronounced if differences in private absorption capacity are accounted for.

Return to slide 30

Outline

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3. Empirics
   - Elasticity estimation strategy
   - Correlation between Retrenchment elasticity and FXI
   - Source of elasticity: pension fund and insurance company
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Private semi-elasticity is the return response of gross portfolio outflows

$$\text{Gross PF Outflow}_{i,t} = \delta_i + \lambda \Delta rx^e_{i,t} + \eta \text{Gross PF Outflow}_{i,t-1} + \nu_{i,t}.$$

- Gross portfolio outflows exclude reserve transactions and are scaled by lagged GDP.
- rx^e measures expected excess currency return over one year ahead.
  - Use Consensus Economics exchange-rate forecasts.
- $\lambda < 0$: domestic investors retrench from foreign assets when home expected returns rise.
- Main panel: 19 EMEs, 2001Q1–2024Q2.

The VIX instruments $\Delta rx^e_{i,t}$

Identification problem

- Retrenchment itself changes rx^e in equilibrium.

Instrumental variable

- Instrument $\Delta rx^e_{i,t}$ with a proxy of foreign demand shock, ε
- Use VIX changes as the instrument.
  - Main results are robust to a set of alternative instruments.
    - Dollar index, Miranda-Agrippino and Rey (2022) global financial cycle factor, a common factor from US-originated portfolio flows.

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Retrenchment responds to returns in EMEs, but less than in AEs

	EME		AE	
	IV	OLS	IV	OLS
Δrx^e	**-0.084*** **	-0.023***	**-0.251***	-0.044
	(0.023)	(0.004)	(0.132)	(0.046)
Lag Dep. Var.	0.255***	0.243***	0.256**	0.233***
	(0.056)	(0.049)	(0.123)	(0.078)
No. Observations	1335	1335	440	440
Country FE	Yes	Yes	Yes	Yes
First-stage F-statistic	49.68		196.97	

Dependent variable: gross portfolio outflow/GDP. Δrx^e is instrumented with $\Delta \log VIX$ in the IV columns.

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FXI regimes are defined by policy **responses**, not official **declaration**

- We now compare retrenchment elasticity across FXI regimes within EMEs.
- Following Blanchard et al. (2015), estimate a country-level VAR with a common global capital-flow shock.
- Estimate the two-quarter cumulative response of net reserve sales to a capital-flow shock.
- Split the 19 flexible-regime EMEs at the median response: 9 floaters and 10 interveners.

VAR and country list

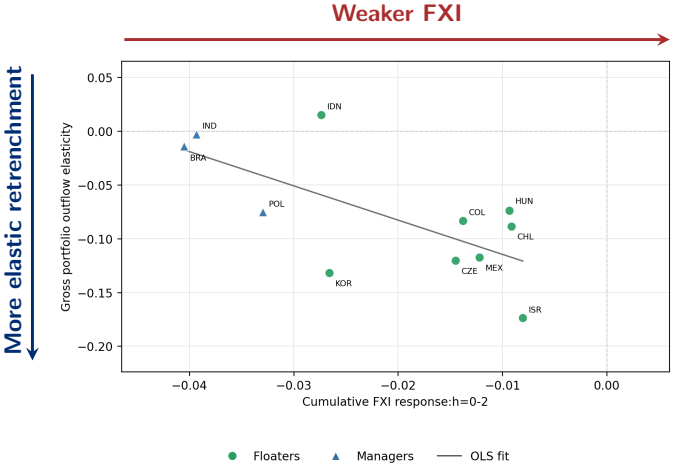
Private retrenchment is more elastic in floaters

	IV		OLS		
	Floater	Intervener	Floater	Intervener	Pooled
Δrx^e	**-0.095*** **	**-0.061**	-0.031***	-0.012***	-0.031***
	(0.013)	(0.060)	(0.005)	(0.004)	(0.005)
Intervener $\times \Delta rx^e$					**0.019*** **
					(0.006)
Lag Dep. Var.	0.261***	0.237**	0.250***	0.223**	0.244***
	(0.068)	(0.112)	(0.057)	(0.103)	(0.050)
No. Observations	738	597	738	597	1335
Country FE	Yes	Yes	Yes	Yes	Yes
First-stage F-statistic	98.14	9.20			

Gross portfolio outflow/GDP; country fixed effects and lagged outflows included.

Alternative instruments

Private elasticity and FXI intensity are negatively correlated



Country estimates

- Estimate country-specific semi-elasticities. (y-axis)
- Compare with the continuous VAR-based FXI response. (x-axis)

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Does pension & insurance development explain variation in the elasticity?

- We now look for the sources of cross-country variation in retrenchment elasticity.
- In AEs, mutual funds show more response to returns. (Bacchetta et al., 2023)
- Mutual funds are less prevalent in EMEs, but pension funds and insurance companies are.
  - Their portfolios include domestic and foreign assets.

Two complementary evidence

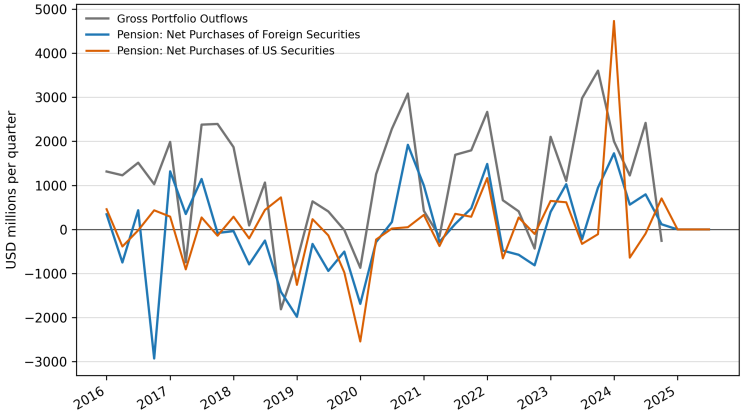
- **We provide two evidence supporting that larger pension-fund and insurance sectors make private retrenchment more elastic.**

1. Colombian microdata:
   – Do pension funds retrench from foreign assets when home expected returns rise?
   – How do their US Treasury purchases vary with the excess return?
2. Cross-country panel:
   – Are aggregate outflows more elastic where pension and insurance sectors are larger?

Colombian pension-fund data

- Colombian pension funds report detailed information on their holdings every month.
- It allows measuring valuation effect-proof net purchase outflows to foreign securities.
- The pension-driven flow is comparable to gross portfolio outflow of Colombia.
- And it declines as rx^e and the VIX increases.

Colombian pension outflow is significant



Net purchases	$\Delta \log VIX$	Δrx^e
US securities	-0.085	-0.114
Foreign securities	-0.166	-0.307

Net purchases are scaled by previous-quarter AUM.

Comparing Treasury purchase elasticities across funds

- Compare U.S. Treasuries (UST) net purchase elasticities across risk profiles.

$$y_{j,g,t} = \delta_{j,g} + \eta_g y_{j,g,t-1} + \lambda_g \Delta r x_t^e + \varepsilon_{j,g,t},$$
$$\Delta r x_t^e \text{ instrumented by } \Delta \log VIX_t.$$

- $y_{j,g,t}$: net UST purchases scaled by previous-quarter AUM; j: manager; g: risk profile.
- Estimate λ_g separately for each profile: High-, Moderate-, or Low-risk
- Absorb fund and risk-profile fixed effects. Cluster by fund and month.

Revisit model

Estimated Treasury retrenchment elasticities differ across risk profiles

- $\widehat{\lambda}_g$ captures the retrenchment in pesos for a percentage change in rx_t^e for a peso of total AUM.
- $\widehat{\lambda}_g = \theta_g \gamma_g$ by construction of $y_{j,g,t}$

Risk profile	$-\widehat{\lambda}$ (SE)	θ (%)	γ
High risk	0.026 (0.026)	1.298	1.99
Moderate risk	0.074 (0.025)	1.074	6.88
Low risk	0.085 (0.016)	1.648	5.15

Monthly 2SLS estimates. $-\widehat{\lambda}$ is retrenchment per peso of total AUM. Standard errors are in parentheses.

Countries with larger pension–insurance sectors have more elastic outflows

- Test whether retrenchment is more return-elastic where pension and insurance sectors are larger.
- Estimate the interaction regression, X_i^c: country-average pension and insurance assets/GDP.

$$\text{Gross PF Outflow}_{i,t} = \delta_i + \zeta_0 \Delta rx^e_{i,t} + \zeta_1 \left(X_i^c \times \Delta rx^e_{i,t}\right) + \eta \text{Gross PF Outflow}_{i,t-1} + \nu_{i,t}.$$

	IV	OLS
Δrx^e_{it}	-0.084***	-0.023***
	(0.022)	(0.004)
$X_i^c \times \Delta rx^e_{it}$	-0.001**	-0.000
	(0.000)	(0.000)
Lag gross portfolio outflow	0.271***	0.248***
	(0.061)	(0.051)
Observations	1335	1335
Countries	19	19
L-M Statistics	32.40	
Relative CV ($\alpha = 0.1$, $\tau = 0.1$)	29.28	

Instruments Δrx^e and its interaction with X_i^c with $\Delta \log VIX$ and $X_i^c \times \Delta \log VIX$

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Two endogeneity problems in evaluating FXI effectiveness

- **Within-country endogeneity:**
  Shocks move both intervention and exchange rates, as well as macroeconomic variables.
  - High frequency data inform this literature. (Kuersteiner et al., 2018; Fratzscher et al., 2019)
- **Cross-country approach:** Blanchard et al. (2015) compare exchange-rate and FXI responses to exogenous global capital-flow shocks across countries.
- **An additional endogeneity concern:**
  FXI policy is weaker when private retrenchment absorbs shock.
  The observed gap in return responses to global financial shocks across FXI regimes is attenuated.

$\Rightarrow$ Cross-country estimates of FXI effectiveness are biased toward zero if differences in private absorption capacity are omitted.

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$\Rightarrow$ Cross-country estimates of FXI effectiveness are biased toward zero if differences in private absorption capacity are omitted.

Evaluating FXI conditional on private capacity

- Compare response of $\Delta rx^e_{i,t}$ to VIX across interveners and floaters.

$$\Delta rx^e_{i,t} = \alpha_i + \beta_0 \Delta \log VIX_t + \beta_M \left(\Delta \log VIX_t \times Intervener_i\right) + \beta_X \left(\Delta \log VIX_t \times X^c_i\right) + \delta\, GrossInflow_{i,t-1} + \varepsilon_{i,t}.$$

- We use pension and insurance assets as a proxy for private absorption capacity.
- The model predicts $\beta_M < 0$ and that controlling for X^c_i makes β_M more negative.

Revisit model

Evaluating FXI conditional on private capacity

- Compare response of $\Delta rx^e_{i,t}$ to VIX across interveners and floaters.

$$\begin{aligned}\Delta rx^e_{i,t} = \alpha_i + \beta_0 \Delta \log VIX_t + \beta_M \left(\Delta \log VIX_t \times Intervener_i\right) \\ + \beta_X \left(\Delta \log VIX_t \times X^c_i\right) + \delta\, GrossInflow_{i,t-1} + \varepsilon_{i,t}.\end{aligned}$$

- We use pension and insurance assets as a proxy for private absorption capacity.
- The model predicts $\beta_M < 0$ and that controlling for X^c_i makes β_M more negative.

Revisit model

Conditioning on private capacity reveals a larger FXI gap

	VIX only	+ Intervener	+ Wealth
$\Delta \ln VIX$	3.751***	4.467***	4.610***
	(0.504)	(0.420)	(0.465)
$\Delta \ln VIX \times Intervener$		-1.590*	-1.918**
		(0.948)	(0.971)
$\Delta \ln VIX \times X_i^c$			-0.015*
			(0.009)
Gross inflow	0.018***	0.016***	0.016**
	(0.006)	(0.006)	(0.006)
R-squared	0.111	0.116	0.118
No. observations	1342	1342	1342
Countries	19	19	19
Country FE	Yes	Yes	Yes

Dependent variable: $\Delta rx_{i,t}^e$. Country fixed effects; country-clustered standard errors.

Return decomposition

Conclusion

1. When private outflows are less return-elastic, FXI is more intensive.
2. Pension funds and insurers help explain cross-country variation in private capacity; Colombian Treasury portfolios show why exposure, flexibility, and wealth allocation all matter.
3. FXI appears more stabilizing once private absorption capacity is held fixed.

Further research and Policy implication

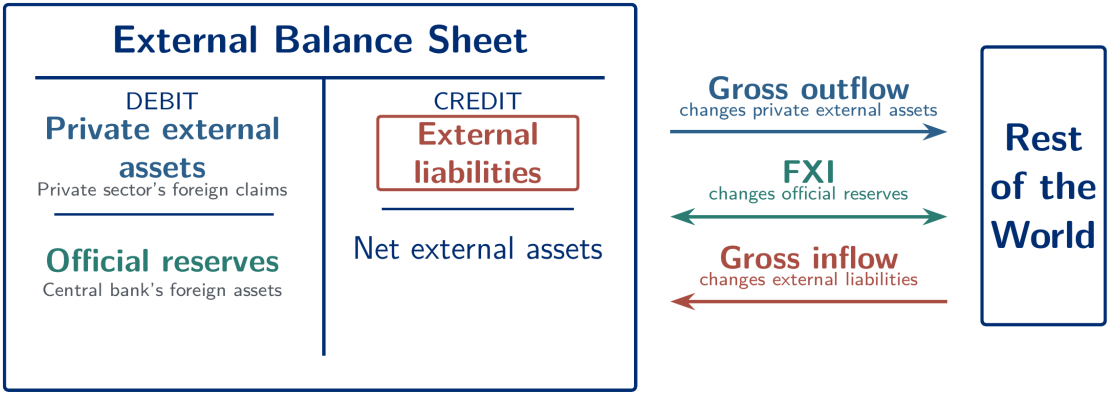
Further research

- To identify primitives of private retrenchment, the source of variation in micro-elasticity should be understood.
- Further research should explore how different investment mandates and regulatory environment limits portfolio choices.

Policy implications

- Some countries regulate overseas investment as a part of microprudential oversight.
- Regulation of institutional investors' foreign exposure should account for its effect on private shock absorption.

External Balance Sheet: Stocks and Flows



Return

Full Correlation Table

Variable	G10 x Reserve	EM All	EM Floaters	EM Managers
Gross PF Outflow	-0.190*	-0.097**	**-0.132****	**-0.066**
Gross PF Inflow	-0.164*	-0.228***	-0.190***	-0.261***
Net PF Inflow	-0.045	-0.158***	**-0.092**	**-0.217*****
FX Intervention	0.141	0.124***	0.091	0.154**
Net PF and Official Inflow	0.042	0.017	0.015	0.018
Exp. Excess Currency Return	0.357***	0.331***	0.390***	0.277***

Correlations with $\Delta \log VIX$. Flow variables are scaled by GDP.

Back

VAR-Based FXI Regime Classification

Country-specific recursive VAR

$$Y_{j,t} = (GKF_{j,t}, INT_{j,t}, GPKO_{j,t}, GPKI_{j,t}, FXI_{j,t}, ER_{j,t})'.$$

- Estimate a recursive VAR separately for each country; Cholesky identification follows the displayed ordering from most to least exogenous.
- INT: policy-rate differential; $GPKO$ and $GPKI$: gross private outflow and inflow; FXI: net reserve sales; ER: nominal appreciation.

Global capital inflow

$$GKF_{j,t} = \frac{4 \sum_{k \neq j} \text{Gross private inflow}_{k,t}}{\sum_{k \neq j} GDP_{k,t-1}}.$$

- A positive GKF shock is a surge in gross private inflows to the other sample countries.
- FXI intensity is the absolute two-quarter cumulative response of net reserve sales to this shock.

Country list Back

Countries in the VAR-Based Classification

Regime	Countries									
Floaters	CHL	COL	CZE	HUN	IDN	ISR	KOR	MEX	ZAF	
Interveners	BRA	IND	LKA	MYS	PER	PHL	POL	RUS	THA	TUR

VAR details Back

Alternative IV: TIC Common Factor

	Panel A: IV				Panel B: OLS			
	EM	AE	Floater	Intervener	EM	AE	Floater	Intervener
Δrx^e	-0.174**	-0.254	-0.247**	-0.068	-0.023***	-0.044	-0.031***	-0.012***
	(0.076)	(0.203)	(0.118)	(0.064)	(0.004)	(0.046)	(0.005)	(0.004)
Lag Dep. Var.	0.273***	0.256**	0.287***	0.239**	0.243***	0.233***	0.250***	0.223**
	(0.064)	(0.128)	(0.088)	(0.117)	(0.049)	(0.078)	(0.057)	(0.103)
No. Observations	1335	440	738	597	1335	440	738	597
Countries	19	5	9	10	19	5	9	10
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First-stage F-statistic	41.27	31.12	79.46	8.29				

Δrx^e is instrumented with the quarterly TIC common factor. Country fixed effects and lagged gross portfolio outflow are included; standard errors are clustered by country. OLS columns use the matching IV sample.

Construction GFCy factor Back

Construction of the TIC Common Factor

1. Normalize monthly U.S. purchases by lagged holdings

$$s_{i,m} = \frac{\text{estimated purchases of bonds}_{i,m} + \text{estimated purchases of equities}_{i,m}}{\text{holdings of bonds}_{i,m-1} + \text{holdings of equities}_{i,m-1}}.$$

2. Build comparable destination-country series

- Drop tax-haven/OFC rows; retain 45 destinations with at least 60 monthly observations; standardize each series to obtain $z_{i,m}$.

3. Extract the common component

$$z_{i,m} = \lambda_i f_m + e_{i,m}, \qquad f_m = \phi f_{m-1} + \eta_m, \qquad e_{i,m} = \rho_i e_{i,m-1} + \nu_{i,m}.$$

Estimate the one-factor model by maximum likelihood with the Kalman filter, orient the smoothed factor to have nonnegative correlation with the cross-country mean, and average it within each quarter. Monthly sample: 1994M4–2025M7. Data: Bertaut–Judson TIC estimated transactions (Bertaut and Judson, 2022).

TIC results GFCy factor Back

Alternative IV: Global Financial-Cycle Factor

	Panel A: IV				Panel B: OLS			
	EM	AE	Floater	Intervener	EM	AE	Floater	Intervener
Δrx^e	-0.489*	-1.023**	-0.588*	0.020	-0.023***	-0.044	-0.031***	-0.012***
	(0.259)	(0.435)	(0.316)	(0.392)	(0.004)	(0.046)	(0.005)	(0.004)
Lag Dep. Var.	0.335***	0.344*	0.345**	0.214	0.243***	0.233***	0.250***	0.223**
	(0.106)	(0.187)	(0.137)	(0.144)	(0.049)	(0.078)	(0.057)	(0.103)
No. Observations	1335	440	738	597	1335	440	738	597
Countries	19	5	9	10	19	5	9	10
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First-stage F-statistic	4.65	10.51	7.68	0.24				

Δrx^e is instrumented with the global financial-cycle factor from Miranda-Agrippino and Rey (2020). Country fixed effects and lagged gross portfolio outflow are included; standard errors are clustered by country.

TIC factor Dollar index Back

Alternative IV: Dollar Index

	Panel A: IV				Panel B: OLS			
	EM	AE	Floater	Intervener	EM	AE	Floater	Intervener
Δrx^e	-0.109**	-0.269*	-0.096***	-0.146	-0.026***	-0.039	-0.034***	-0.012**
	(0.043)	(0.142)	(0.035)	(0.151)	(0.004)	(0.059)	(0.005)	(0.005)
Lag Dep. Var.	0.241***	0.319***	0.239***	0.252*	0.223***	0.289***	0.228***	0.209*
	(0.065)	(0.101)	(0.076)	(0.135)	(0.053)	(0.063)	(0.062)	(0.111)
No. Observations	1050	340	599	451	1050	340	599	451
Countries	19	5	9	10	19	5	9	10
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First-stage F-statistic	22.75	395.87	44.12	2.85				

Δrx^e is instrumented with the dollar index. Country fixed effects and lagged gross portfolio outflow are included; standard errors are clustered by country.

GFCy factor Back

Country-Level Semi-Elasticity Estimates

Country	FXI group	λ_i	s.e.	1SFS
CHL	Floater	-0.089	0.147	28.318
COL	Floater	-0.083	0.036	10.485
CZE	Floater	-0.120	0.067	7.174
HUN	Floater	-0.074	0.047	12.555
IDN	Floater	0.015	0.011	7.151
ISR	Floater	-0.174	0.114	10.376
KOR	Floater	-0.132	0.048	13.929
MEX	Floater	-0.118	0.046	48.417
ZAF	Floater	-0.199	0.162	1.557
BRA	Managed Floater	-0.014	0.009	14.387
IND	Managed Floater	-0.003	0.003	6.511
LKA	Managed Floater	0.395	0.377	1.160
MYS	Managed Floater	-0.069	0.274	0.514
PER	Managed Floater	0.755	1.230	0.569
PHL	Managed Floater	0.123	0.170	2.029
POL	Managed Floater	-0.075	0.039	8.251
THA	Managed Floater	-1.709	3.228	0.367

Country-level 2SLS estimates of the gross portfolio outflow semi-elasticity.

Back

Colombian Micro Estimates: All Asset Scopes

Risk	$\widehat{\lambda}$ (SE)	θ (%)	κ	γ	Position	AUM	Γ	Γ/GDP
U.S. Treasuries								
High risk	-0.026 (0.026)†	1.298	1.00	1.99	0.39	30.00	0.77	0.0006
Moderate risk	-0.074 (0.025)†	1.074	5.89	6.88	2.19	203.57	15.03	0.0137
Low risk	-0.085 (0.016)	1.648	4.17	5.15	0.43	26.11	2.22	0.0019
Risk-profile sum	–	1.157	–	–	3.01	259.68	18.02	0.0162
Pooled 12 funds	-0.061 (0.023)	1.157	4.30	5.29	3.01	259.68	15.90	0.0142
All US								
High risk	0.041 (0.073)†	17.426	-1.06	-0.23	5.23	30.00	-1.22	-0.0009
Moderate risk	-0.063 (0.048)	9.711	-0.26	0.64	19.77	203.57	12.74	0.0116
Low risk	-0.079 (0.014)	5.758	0.42	1.37	1.50	26.11	2.05	0.0018
Risk-profile sum	–	10.205	–	–	26.50	259.68	13.57	0.0125
Pooled 12 funds	-0.031 (0.034)	10.205	-0.59	0.31	26.50	259.68	8.12	0.0072
All foreign								
High risk	0.049 (0.082)	58.082	-0.50	-0.08	17.42	30.00	-1.47	-0.0011
Moderate risk	-0.079 (0.071)	42.050	-0.39	0.19	85.60	203.57	16.12	0.0147
Low risk	-0.115 (0.022)†	15.622	-0.11	0.74	4.08	26.11	3.01	0.0026
Risk-profile sum	–	41.245	–	–	107.11	259.68	17.66	0.0162
Pooled 12 funds	-0.055 (0.055)	41.245	-0.45	0.13	107.11	259.68	14.23	0.0127

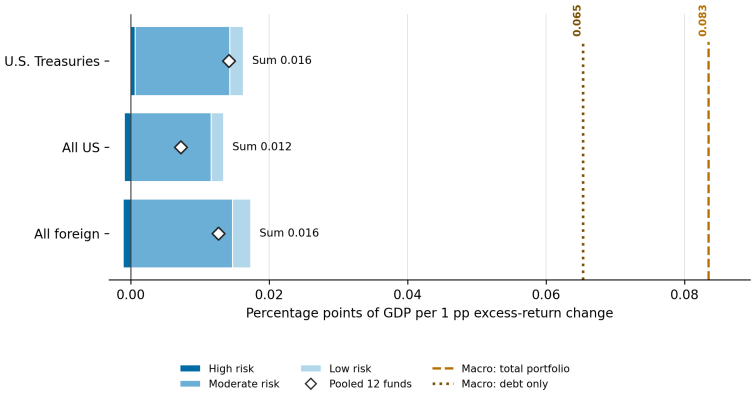
Monthly 2SLS estimates. Position, AUM, and Γ are trillions of COP; Γ/GDP is in percentage points of GDP.

Colombian Micro First Stages Are Strong

Estimation sample	$\widehat{\pi}$ (SE)	F-Stat	N
U.S. Treasuries			
High risk	6.008 (1.363)	19.41	396
Moderate risk	6.066 (1.329)	20.84	396
Low risk	6.031 (1.342)	20.19	396
Pooled 12 funds	6.033 (1.341)	20.23	1188
All US			
High risk	6.087 (1.351)	20.29	396
Moderate risk	6.100 (1.344)	20.60	396
Low risk	5.993 (1.302)	21.17	396
Pooled 12 funds	6.089 (1.344)	20.51	1188
All foreign			
High risk	6.080 (1.314)	21.42	396
Moderate risk	5.924 (1.343)	19.44	396
Low risk	6.065 (1.346)	20.31	396
Pooled 12 funds	6.061 (1.325)	20.91	1188

First stage for Δrx^e on $\Delta \log VIX$ within each estimation sample.

Micro Contributions Across Asset Scopes



Risk-profile contributions, pooled estimates, and macro benchmarks.

Breaking Down Expected Excess Currency Returns

	$\Delta(i - i^*)$			$\Delta(s^e - s)$		
	VIX only	+ Intervener	+ Wealth	VIX only	+ Intervener	+ Wealth
$\Delta \ln VIX$	1.044***	0.838***	0.947***	-3.371***	-4.232***	-4.337***
	(0.185)	(0.148)	(0.124)	(0.580)	(0.444)	(0.476)
$\Delta \ln VIX \times Intervener$		0.456	0.208		1.909*	2.150*
		(0.394)	(0.321)		(1.108)	(1.129)
$\Delta \ln VIX \times X_i^c$			-0.012***			0.011
			(0.004)			(0.010)
Gross inflow	0.020***	0.021***	0.020***	0.004	0.006	0.006
	(0.006)	(0.006)	(0.006)	(0.012)	(0.012)	(0.013)
R-squared	0.051	0.053	0.058	0.088	0.095	0.096
No. observations	1342	1342	1342	1342	1342	1342
Countries	19	19	19	19	19	19
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

FXI primarily reduces VIX pass-through to expected depreciation; pension–insurance assets reduce the interest-rate component.

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