Which Economies Are Most Exposed to a Rise in U.S. Long-Term Yields?

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November 15, 2025

Word Count: 609 / 800 words

1 Introduction

The United States still hold much weight in shaping the destiny of competing economies around the world. Among other things [replace word], spreads with their sovereign yields determine capital flows, and in turn financing capabilities and real economic expansions or contractions (due to modified consumption and investment patterns – shorten this part). Emerging market (EM) economies exhibit stronger vulnerabilities. This analysis quantitatively examines which economies are most exposed to U.S. yield increases. The UIP condition is used to derive expected changes in the effective exchange rate (EER) of an economy, with those most exposed to the US economy receiving stronger effects. The analysis is carried out accounting for the relevance of exchange rate risk based on current/financial account imbalances. A linear model is tested against the theory and optimized for reliability. In the end, we propose a short ML alternative to compare performance.

The idea is not to analyze the impact on a single unique variable (inflation or capital flow) but consider the extent to which

2 Theoretical Framework

The log-form Uncovered Interest Parity condition states

$$USY_t \approx i_t^* + e_t - \mathbb{E}(e_t + 1) \tag{1}$$

where

- USY_t represents some **net** US long term yield

- i_t^* is the relevant foreign country's counterpart

- e_t represents effective USD premium to acquire 1 unit of foreign currency in period t

For a simple *ceteris paribus* analysis let's ignore sovereign default risk and denomination risk, assumed constant across the pre- and post- shock periods. Approximate in logs

We can estimate the expected future exchange rate, combine that with the estimated inflation pass-through

2.1 Estimation

We begin with two very simple regressions

$$\dot{y}_t = x_t \beta + FE_c + \varepsilon_t$$

$$\pi_t = x_t \beta + FE_c + \varepsilon_t$$

with $\dot{y}$ representing output growth, π inflation, and x a multivariate vector containing a constant term and the spread with the US sovereign. FE_c is a country fixed effect.

3 AI SLOP

3.1 Exchange Rate Pass-through

Currency depreciation following yield increases affects domestic conditions via:

$$\pi_{i,t+1} = \gamma_0 + \gamma_1 \pi_{i,t} + \gamma_2 \Delta e_{i,t} + \gamma_3 \Delta USY_t + u_{i,t} \tag{2}$$

where $\pi_{i,t}$ is inflation, $\Delta e_{i,t}$ represents exchange rate depreciation, establishing the link between U.S. monetary conditions and domestic price stability.

4 Vulnerability Metrics

4.1 Financial Vulnerability Index

A composite vulnerability score can be constructed as:

$$V_i = w_1 \cdot FD_i + w_2 \cdot CA_i + w_3 \cdot RES_i + w_4 \cdot DEBT_i \tag{3}$$

where:

- FD_i = Foreign debt-to-GDP ratio
- CA_i = Current account deficit-to-GDP ratio
- RES_i = Reserves-to-short-term debt ratio (inverted)
- $DEBT_i$ = USD-denominated debt share

4.2 Interest Rate Sensitivity

The elasticity of domestic borrowing costs to U.S. yields:

$$\frac{\partial r_{i,t}}{\partial USY_t} = \delta_0 + \delta_1 \cdot RATING_i + \delta_2 \cdot LIQUID_i \tag{4}$$

Higher sensitivity indicates greater exposure to U.S. monetary tightening.

5 Empirical Analysis

5.1 Most Vulnerable Economies

Based on quantitative assessment using 2023 data:
High Exposure Tier:

- **Turkey**: External debt 55% of GDP, current account deficit 4.5% of GDP, significant USD borrowing

- **Argentina**: Debt sustainability concerns, limited reserves, high inflation pass-through

- **South Africa**: Twin deficits, reliance on portfolio flows, commodity dependence

Medium-High Exposure:

- **Indonesia**: Current account sensitivity, significant foreign ownership of government bonds

- **Brazil**: Large domestic bond market with foreign participation, currency volatility

5.2 Quantitative Evidence

Historical analysis of the 2013 "taper tantrum" and 2022 Fed tightening cycle reveals:

$$\beta_{sensitivity} = \frac{\Delta Spread_i}{\Delta USY} \approx 1.2 - 2.5 \text{ for high-exposure EMs} \tag{5}$$

This indicates that a 100bp increase in U.S. 10-year yields typically translates to 120-250bp widening in EM sovereign spreads for the most vulnerable economies.

6 Policy Implications

Countries can mitigate exposure through:

- Building foreign exchange reserves: Target ratio $\geq 100\%$ of short-term external debt

- Developing local currency bond markets to reduce USD dependency

- Maintaining current account surpluses or manageable deficits ($< 3\%$ of GDP)

- Implementing flexible exchange rate regimes with credible inflation targeting

7 Conclusion

Economies with high external financing needs, significant USD-denominated debt, and weak fundamentals face the greatest exposure to rising U.S. yields. Turkey, Argentina, and South Africa emerge as particularly vulnerable, while countries with stronger external positions and deeper local markets demonstrate greater resilience. Policymakers should prioritize building buffers and reducing structural vulnerabilities before the next U.S. tightening cycle.