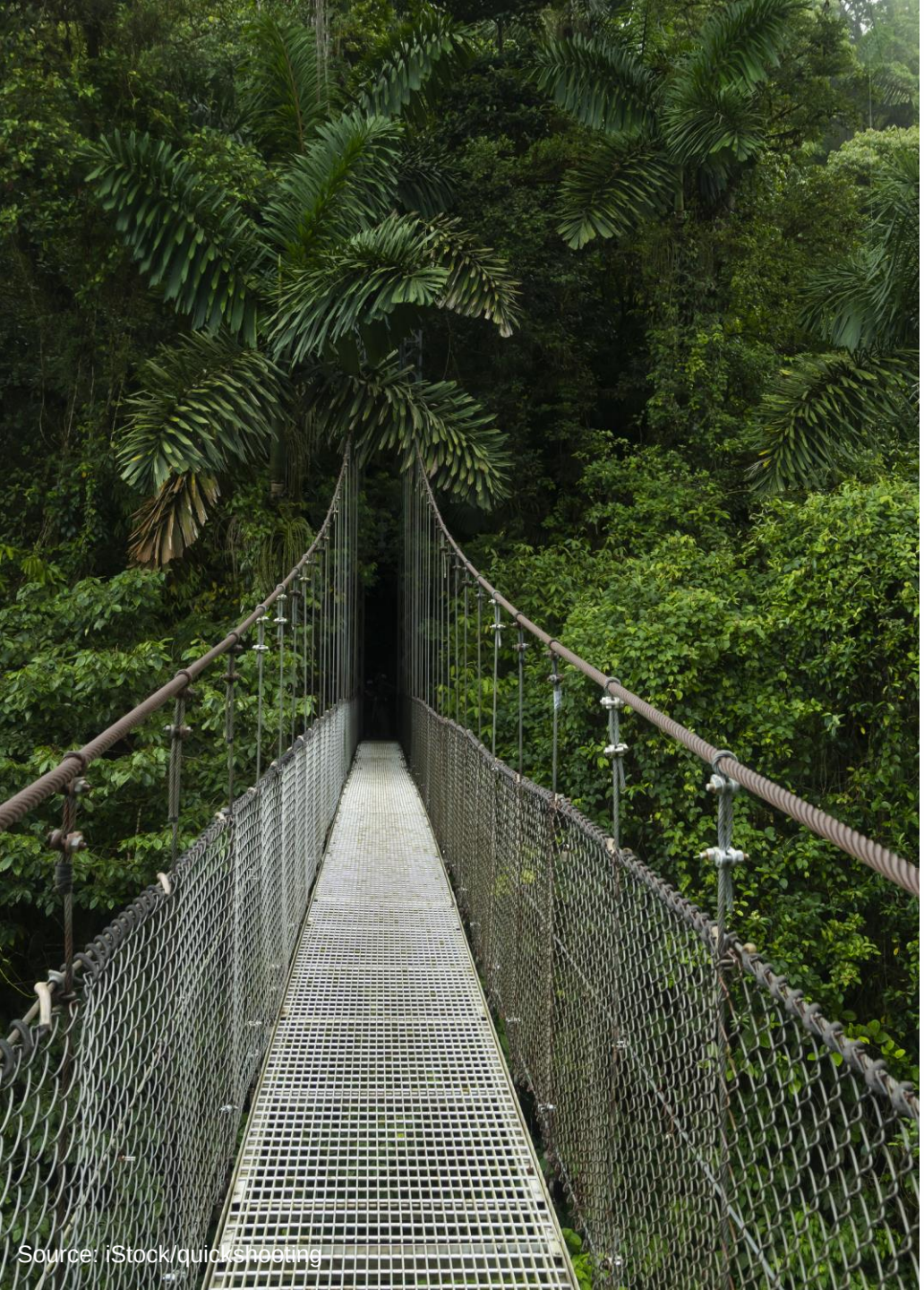

Source: iStock/quickshooting

# Road to Investment Grade: Drivers of Sovereign Spreads

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# Motivation and roadmap

1. Two key questions to be addressed:
   - ✓ Why are sovereign financing costs in CAPDR above those of EM-IG?
   - ✓ Which policies can help reduce financing costs in the region going forward?

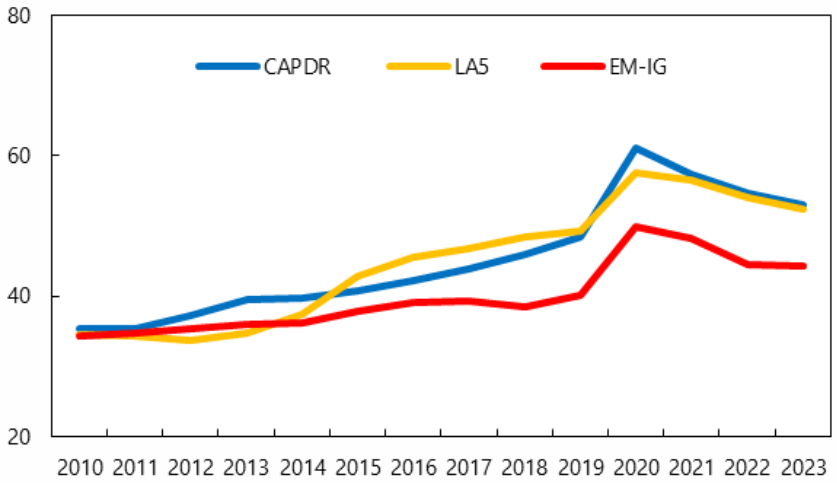
2. Roadmap:
   - ✓ Public debt trends and “r-g” in CAPDR, LA5 and EM-IG
   - ✓ Empirical analysis of determinants of sovereign spreads
   - ✓ Concluding remarks

# 2. PUBLIC DEBT TRENDS and r-g

# Public debt in CAPDR has increased steadily post-GFC, with interest expense rising fast despite recent debt reduction

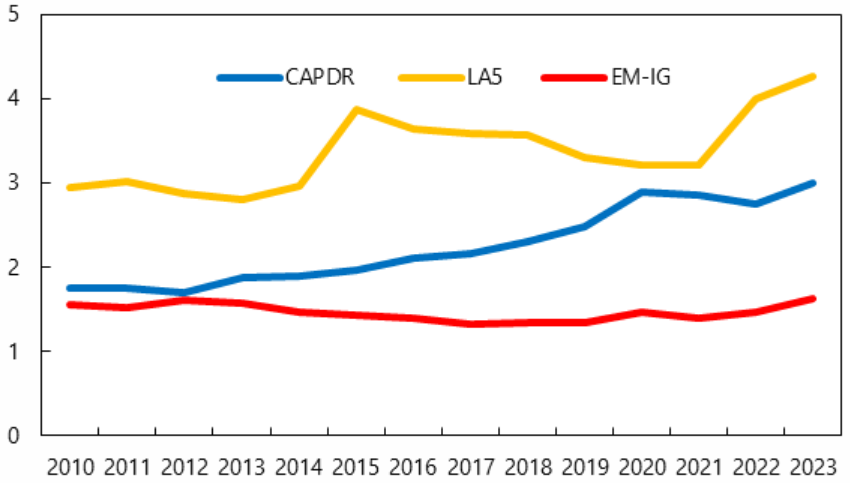
*Public debt has been increasing since 2014 in CAPDR and LA5, a process that accelerated with Covid…*

**General Government Gross Debt**
*(Percent of GDP)*



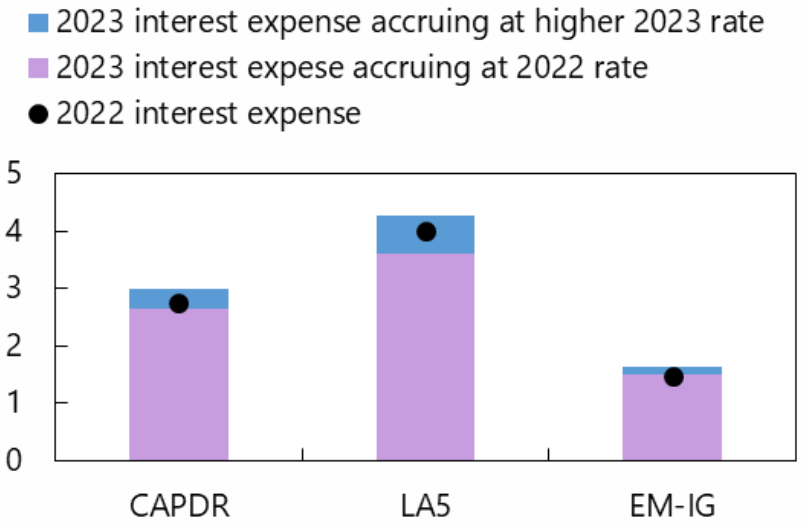

*… leading to substantial increases in interest expense in CPDR and LA5, well above the levels observed in EM-IG…*

**Interest Expense**
*(Percent of GDP)*




*… with higher rates in 2023 sizably contributing to the interest expense increase*

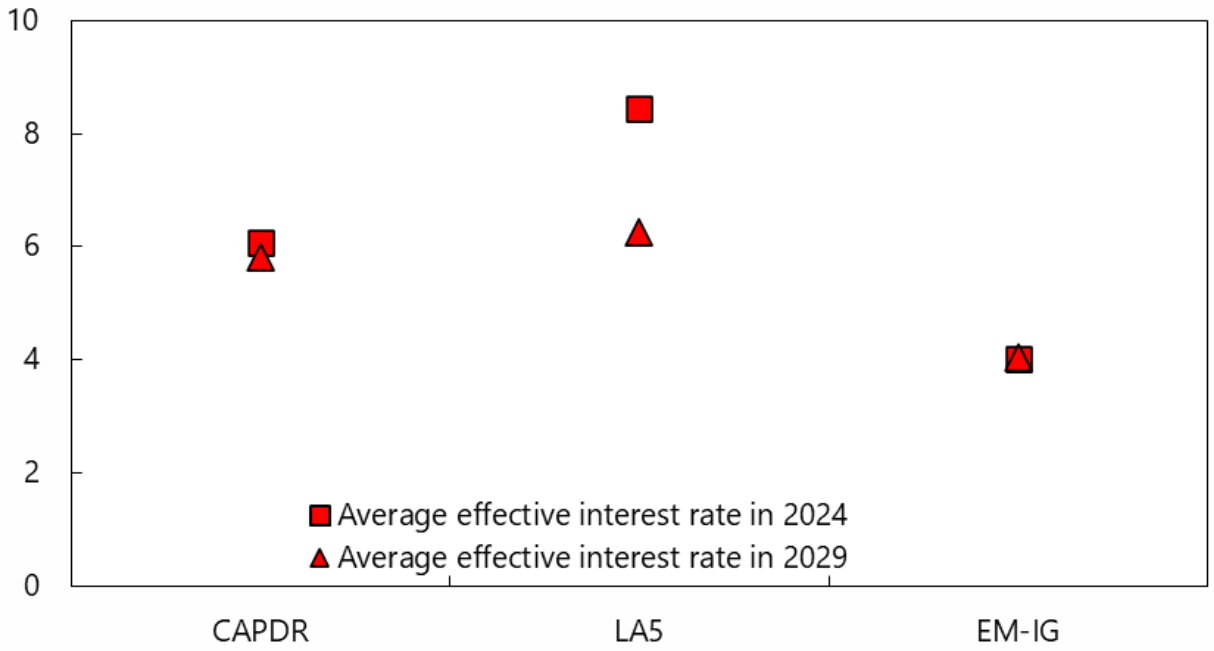
**Breakdown of 2023 Interest Expense**
*(Percent of GDP)*



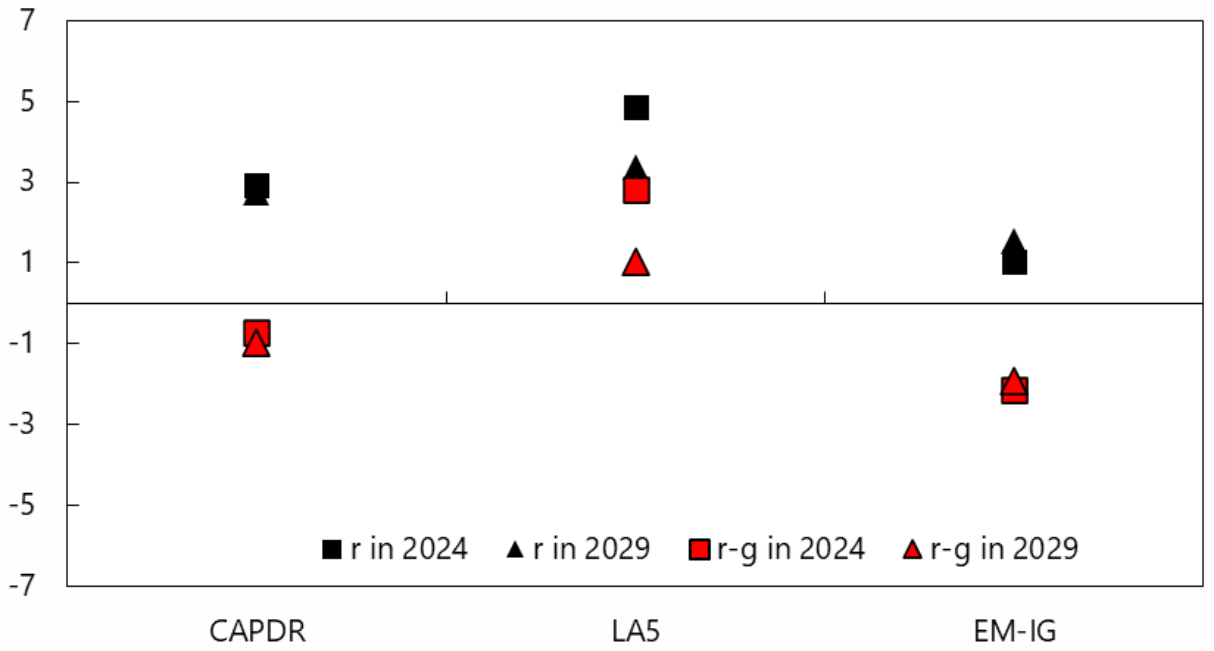
# Financing cost and ‘r-g’ are expected to remain high in several CAPDR and LA5 countries, well above EM-IG levels

*Further reductions in the public debt ratio in CAPDR will need to rely on growth and fiscal surpluses, in a context where interest payments will add significant pressures on the budget*

**Average effective interest rates**
*(Percent)*




**r-g**
*(Percentage points)*




Sources: IMF, World Economic Outlook database (April 2024); and IMF staff calculations.
Note: Aggregates are simple averages. CAPDR = Costa Rica, Dominican Republic, Guatemala, Honduras, Nicaragua, Panama, El Salvador. LA5 = Brazil, Chile, Colombia, Mexico and Peru. EM-IG = Qatar, Saudi Arabia, United Arab Emirates, Indonesia, Malaysia, Philippines, Thailand, Botswana, Mauritius, Kazakhstan, Bulgaria, Hungary, Croatia, Poland, Romania. r-g includes exchange rate valuation effects and is computed following Acosta-Ormaechea and Martinez (2021), see Annex for details.

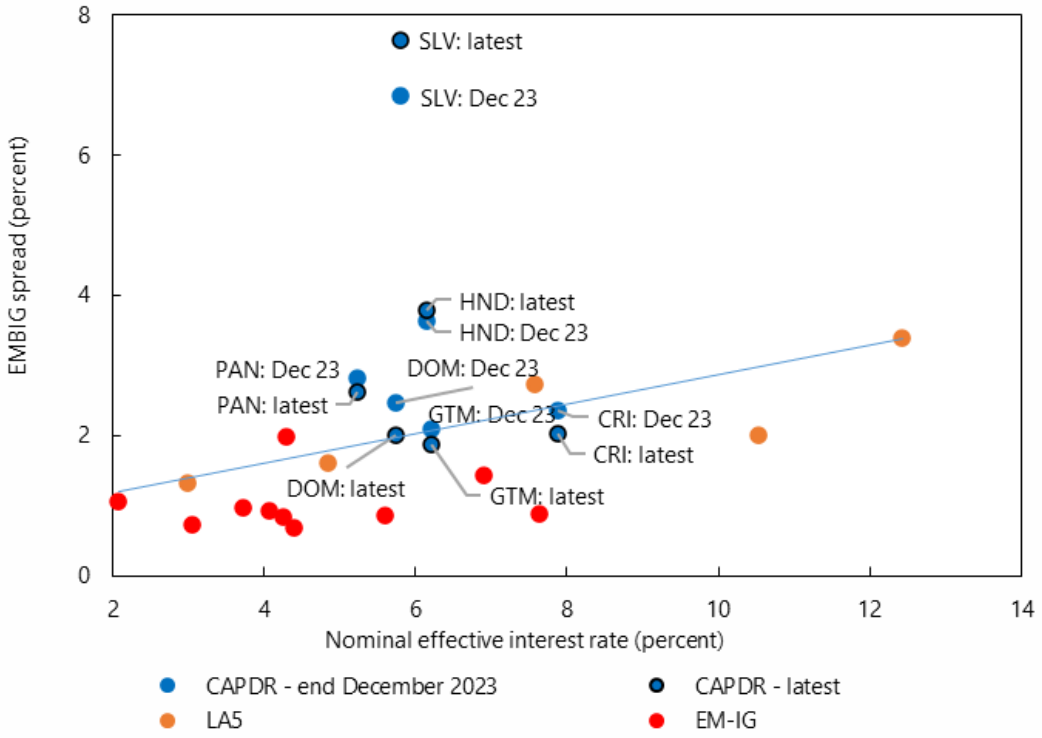
# 2. EMPIRICAL ANALYSIS OF DETERMINANTS OF SOVEREIGN SPREADS

# Why are effective interest rates and EMBIG spreads in CAPDR and LA5 higher than in EM-IG?

*Conditioning on Federal Funds rate, growth and inflation, improvements in governance, and reductions of interest expense to revenue and debt levels / FX exposures have larger impact in lowering spreads.*

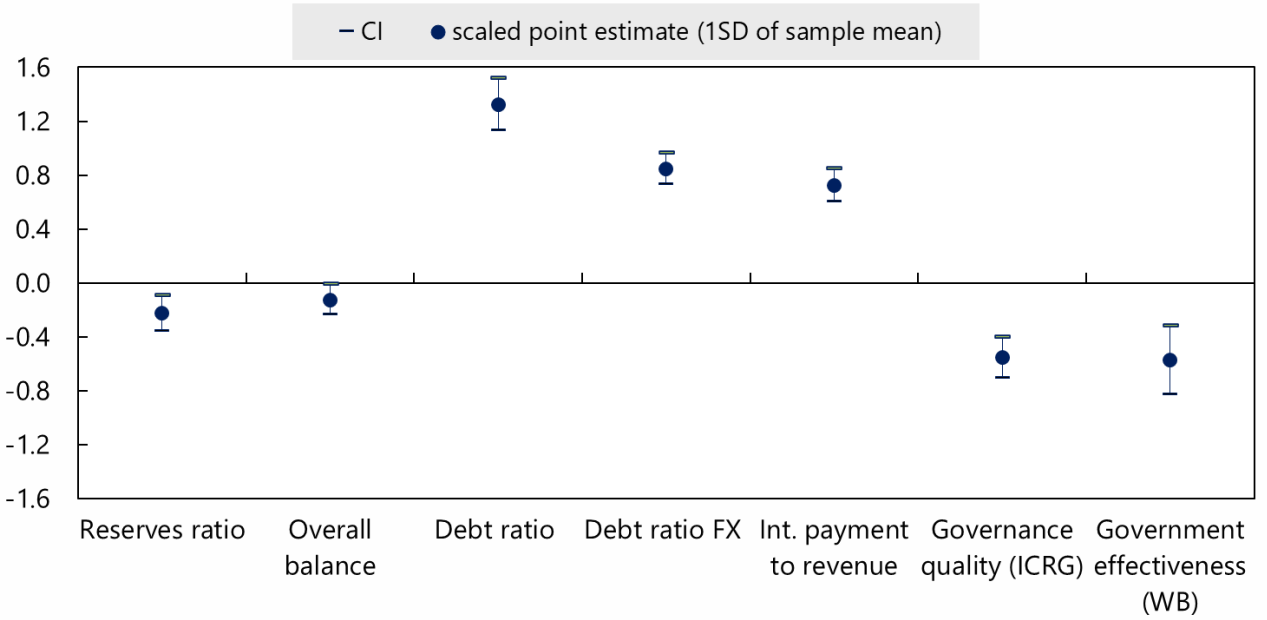
## Nominal effective interest rate on debt and EMBIG spread

*(2023, Percent)*




## Long-run coefficients from PMG regressions

*(dependent variable: EMBIG spread; Percentage points)*

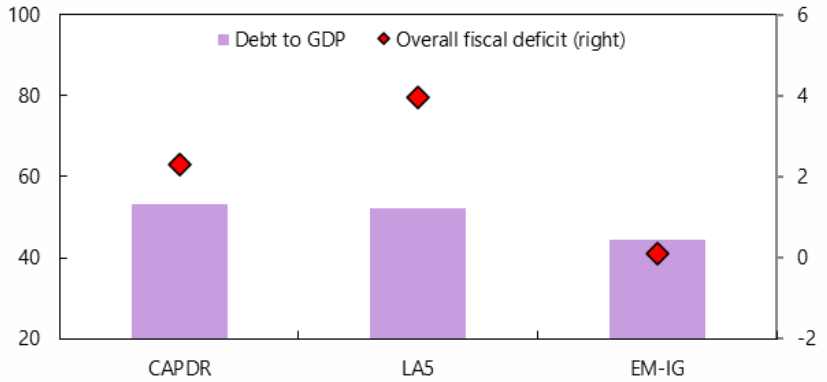



Source: Coefficients on EM-IG + CAPDR + LAC5 EMBIG spreads sample (14 countries, 2002-23, 287 obs.) significant at 1 percent (except overall balance and change debt ratio which are significant at 5 percent). Only countries with 15+ years of continuous data availability are used.

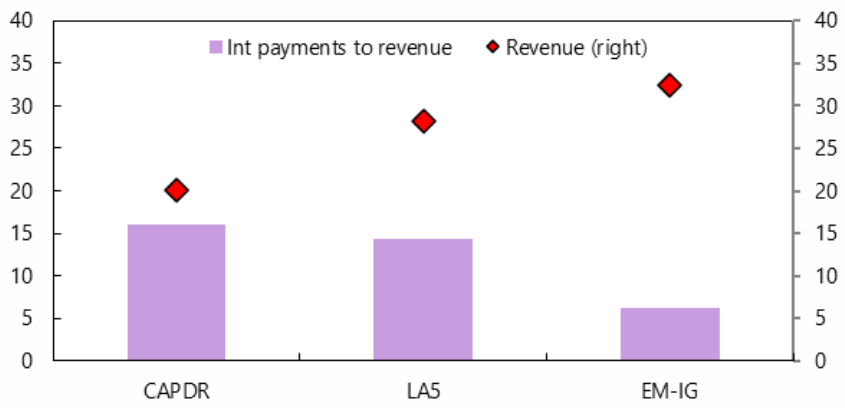
Sources: IMF, World Economic Outlook database (April 2024); World Bank Open Data; International Country Risk Guide (ICRG); Bloomberg; and IMF staff calculations.
Note: Aggregates are simple averages. CAPDR = Costa Rica, Dominican Republic, Guatemala, Honduras, Nicaragua, Panama, El Salvador. LA5 = Brazil, Chile, Colombia, Mexico and Peru. EM-IG = China, Hungary, India, Indonesia, Malaysia, Philippines, Poland, South Africa, Thailand; AE = Advanced Economies. The governance quality indicator is the unweighted addition of law and order, corruption, bureaucracy quality, and investment profile as in Acosta-Ormaechea and Morozumi (2017), where aggregates are simple averages.

# Public debt and deficits in CAPDR above those of EM-IG, with int. payments to revenue in CAPDR three times that of EM-IG

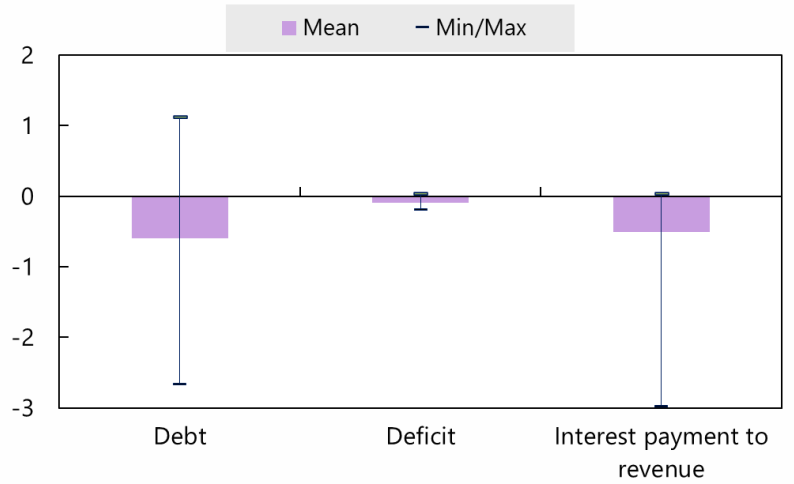
***General government gross debt and overall fiscal deficit, 2023***
*(Percent of GDP; Percent)*




***Interest expense and total revenue collection, 2023***
*(Percent; Percent of GDP)*



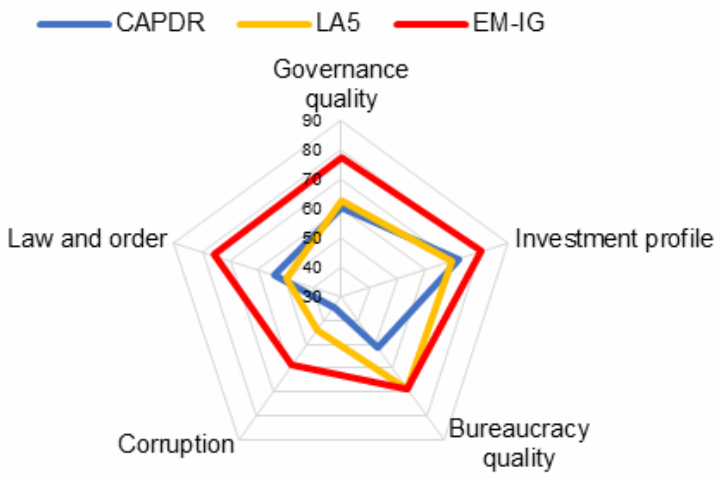

***Effect on spreads if CAPDR countries were to converge to EM-IG average in relevant dimensions***
*(Percentage points)*



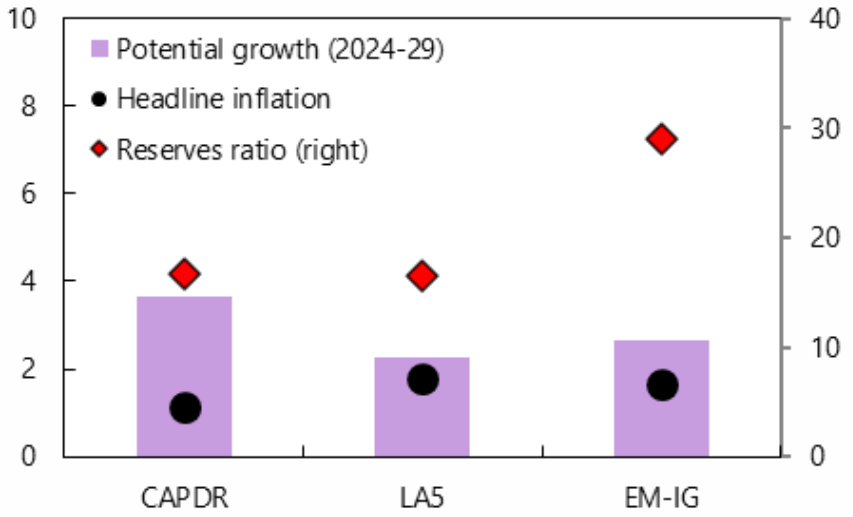

Sources: IMF, World Economic Outlook database (April 2024); and IMF staff calculations.
Note: Aggregates are simple averages. CAPDR = Costa Rica, Dominican Republic, Guatemala, Honduras, Nicaragua, Panama, El Salvador. LA5 = Brazil, Chile, Colombia, Mexico and Peru. EM-IG = Qatar, Saudi Arabia, United Arab Emirates, Indonesia, Malaysia, Philippines, Thailand, Botswana, Mauritius, Kazakhstan, Bulgaria, Hungary, Croatia, Poland, Romania.

# Governance quality and reserves in CAPDR below those of EM-IG; Growth/inflation in CAPDR comparable to EM-IG

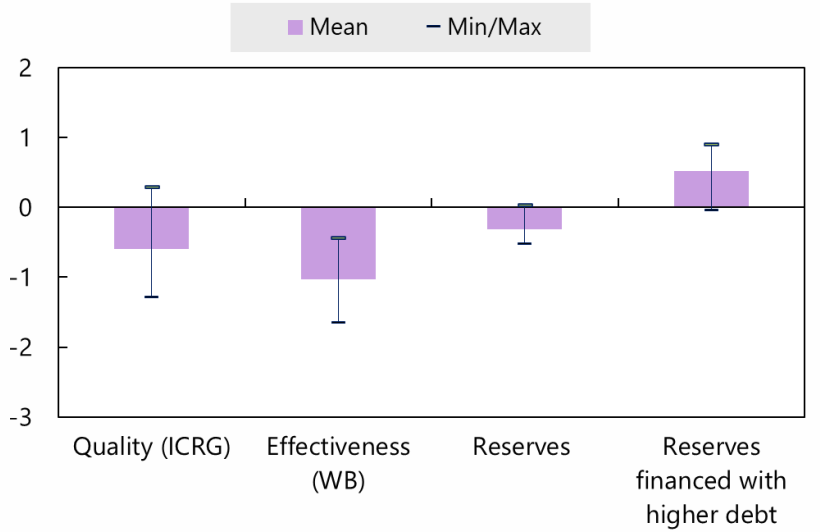
***Indicators of governance quality, 2023***
*(Relative to sample frontier; Percent)*




***Potential Real GDP growth, headline inflation and reserves ratio, 2023***
*(Percent; Percent of GDP)*




***Effect on spreads if CAPDR countries were to converge to EM-IG average in relevant dimensions***
*(Percentage points)*




Sources: IMF, World Economic Outlook database (April 2024); World Bank Open Data; International Country Risk Guide (ICRG); Bloomberg; and IMF staff calculations.
Note: Aggregates are simple averages. CAPDR = Costa Rica, Dominican Republic, Guatemala, Honduras, Nicaragua, Panama, El Salvador. LA5 = Brazil, Chile, Colombia, Mexico and Peru. EM-IG = China, Hungary, India, Indonesia, Malaysia, Philippines, Poland, South Africa, Thailand; AE = Advanced Economies. The governance quality indicator is the unweighted addition of law and order, corruption, bureaucracy quality, and investment profile as in Acosta-Ormaechea and Morozumi (2017), where aggregates are simple averages.

# Concluding Remarks

- Stepping up efforts to reduce financing costs including through improvements in credit ratings is an important policy agenda for the region going forward.

  - ✓ **Revenue mobilization efforts should remain a priority** (e.g., by improving design/breadth of income and consumption taxes, and revenue administration);
  - ✓ **Fiscal frameworks should be strengthened** (e.g., by enhancing fiscal rules/accounting/MTFF, spending efficiency and debt management); and
  - ✓ **Governance should be improved**, including by revisiting legal provisions that could facilitate issuances of external and local currency debt, while allowing for more competition/depth in domestic financial markets.

- Additional details discussed in the forthcoming WHD REO chapter on public debt.

# ANNEX. Determinants of sovereign spreads

# Empirical model for EMIG spreads regressions

Embig spreads ($y_{i,t}$); controls ($z_{i,j,t}$); and crises dummies ($gfc_t$; $covid_t$) related in ARDL (1,1) model:

$$y_{i,t} = \lambda_i y_{i,t-1} + \sum_{j=1}^{n} \delta_{0i,j}^{Z} z_{i,j,t} + \sum_{j=1}^{n} \delta_{1i,j}^{Z} z_{i,j,t-1} + \zeta_i gfc_{i,t} + \vartheta_i covid_{i,t} + \alpha_i + \epsilon_{i,t}, \qquad (1)$$

Reparameterizing in error-correction form gives:

$$\Delta y_{i,t} = \phi_i \left( y_{i,t-1} - \sum_{j=1}^{n} \theta_{i,j}^{Z} z_{i,j,t-1} - \theta_i^{\alpha} \right) + \sum_{j=1}^{n} \delta_{0i,j}^{Z} \Delta z_{i,j,t} + \zeta_i gfc_{i,t} + \vartheta_i covid_{i,t} + \epsilon_{i,t}, \qquad (2)$$

$\theta_{i,j}^{Z} = (\delta_{0i,j}^{Z} + \delta_{1i,j}^{Z})/(1-\lambda_i)$: impact of control variables on spreads (depends on $\lambda, \delta$); $\phi_i = -(1-\lambda_i)$: speed of adjustment.

Estimated with PMG/MG methods (Pesaran and Smith 1995; Pesaran et al. 1999)

# Dataset

## Descriptive statistics for full sample

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| VARIABLES | N | mean | sd | min | max |
| | | | | | |
| eff_int_fisc_net | 307 | 6.456 | 2.676 | 2.179 | 20.61 |
| embig | 301 | 2.599 | 2.271 | 0.193 | 18.39 |
| ff_rate | 308 | 1.488 | 1.636 | 0.0800 | 5.030 |
| real_GDP_growth | 308 | 3.887 | 3.792 | -17.67 | 15.84 |
| headline_inflation | 308 | 4.577 | 4.311 | -1.550 | 51.46 |
| reserves_ratio | 308 | 17.86 | 8.969 | 1.556 | 48.73 |
| primary_balance | 308 | -0.302 | 2.596 | -7.859 | 7.770 |
| overall_balance | 308 | -2.597 | 2.902 | -11.87 | 7.955 |
| debt_change | 307 | 0.558 | 4.520 | -13.80 | 26.66 |
| debt_ratio_FX_change | 307 | -0.144 | 2.903 | -15.53 | 18.22 |
| int_bill_to_revenue | 308 | 11.07 | 6.000 | 0.918 | 29.76 |
| governance_quality | 308 | 16.72 | 2.758 | 9.500 | 24 |
| Gee | 294 | 0.0925 | 0.515 | -1.075 | 1.238 |

Source: Descriptive statistics for EM-IG, LA5 and CAPDR countries (14 countries) during 2002-23. Countries with 15+ years of data are used.

# Empirical results

## Long-run coefficients from cross-country regressions of determinants of sovereign spreads

| Estimation method | Pooled Mean Group (PMG) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Country group | EM-IG+CAPDR+LA5 (EMBIG spread) | | | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| ***Dependent variable: EMBIG spread*** | | | | | | | | |
| Federal Funds effective rate | -0.0841*** | -0.0609** | -0.0389 | 0.0283 | -0.0101 | -0.0421* | -0.0284 | -0.0622*** |
| | (-4.01) | (-2.20) | (-1.45) | (1.26) | (-0.52) | (-1.84) | (-1.13) | (-2.86) |
| Real GDP growth | -0.0208 | -0.0178 | 0.00154 | 0.116*** | 0.0594*** | 0.0852*** | 0.0317 | 0.00284 |
| | (-1.24) | (-0.81) | (0.07) | (4.70) | (3.14) | (4.27) | (1.54) | (0.16) |
| Headline inflation | 0.182*** | 0.167*** | 0.170*** | 0.199*** | 0.183*** | 0.175*** | 0.151*** | 0.163*** |
| | (14.07) | (12.99) | (12.99) | (14.91) | (16.03) | (11.96) | (11.04) | (10.57) |
| **Reserves ratio** | **-0.0252*** ** | | | | | | | |
| | **(-3.38)** | | | | | | | |
| **Primary balance** | | **-0.0178** | | | | | | |
| | | **(-0.86)** | | | | | | |
| **Overall balance** | | | **-0.0430** ** | | | | | |
| | | | **(-2.19)** | | | | | |
| **Debt ratio** | | | | **0.0678*** ** | | | | |
| | | | | **(13.78)** | | | | |
| **Debt ratio FX** | | | | | **0.0845*** ** | | | |
| | | | | | **(14.46)** | | | |
| **Net interest payments to revenue** | | | | | | **0.121*** ** | | |
| | | | | | | **(11.75)** | | |
| **Quality of governance** | | | | | | | **-0.201*** ** | |
| | | | | | | | **(-7.14)** | |
| **Governance efficiency** | | | | | | | | **-1.115*** ** |
| | | | | | | | | **(-4.54)** |
| EC coefficient (ϕ) | -1.032*** | -1.075*** | -1.071*** | -1.098*** | -1.128*** | -1.137*** | -1.103*** | -1.088*** |
| | (-8.08) | (-9.21) | (-9.27) | (-13.77) | (-11.11) | (-11.58) | (-9.13) | (-9.61) |
| after-GFC dummy | 1.315** | 1.671** | 1.610** | 1.689** | 1.585** | 1.231* | 1.664** | 1.202* |
| | (2.15) | (2.47) | (2.46) | (2.21) | (2.02) | (1.73) | (2.24) | (1.75) |
| after-Covid dummy | -0.219 | -0.0961 | -0.111 | -0.741 | -0.592 | -0.318 | -0.0479 | -0.243 |
| | (-0.58) | (-0.17) | (-0.20) | (-1.19) | (-1.23) | (-0.83) | (-0.12) | (-0.41) |
| Countries | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Observations | 287 | 287 | 287 | 287 | 287 | 287 | 287 | 273 |
| Hausman (PMG vs MG), p-value | 0.920 | 0.749 | 0.764 | 0.962 | 0.995 | 0.760 | 0.991 | 0.860 |

Source: Coefficients on EM-IG, LA5 and CAPDR (EMBIG spreads) (14 countries, 2002-23, 287 obs.). Countries with 15+ years of data are used. PMG estimates are chosen relative to MG estimates since null of equality of long-run coefficients cannot be rejected at 1 percent.

# Empirical results: robustness check

## Long-run coefficients from cross-country regressions of determinants of sovereign spreads: no contemporaneous effect

| Estimation method | Pooled Mean Group (PMG) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Country group | EM-IG+CAPDR+LA5 (EMBIG spread) | | | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| ***Dependent variable: EMBIG spread*** | | | | | | | | |
| Federal Funds effective rate | -0.0862*** | -0.0866*** | -0.0729*** | -0.0170 | -0.0724*** | -0.0745*** | -0.0547** | -0.0735*** |
| | (-3.90) | (-3.04) | (-2.61) | (-0.74) | (-3.00) | (-2.88) | (-2.13) | (-3.11) |
| Real GDP growth | -0.0265 | -0.0253 | -0.0240 | 0.00594 | -0.0270 | -0.00664 | -0.00188 | -0.0238 |
| | (-1.52) | (-1.25) | (-1.20) | (0.33) | (-1.45) | (-0.33) | (-0.09) | (-1.32) |
| Headline inflation | 0.169*** | 0.167*** | 0.167*** | 0.176*** | 0.168*** | 0.175*** | 0.159*** | 0.165*** |
| | (12.94) | (12.62) | (12.55) | (11.26) | (12.75) | (12.78) | (11.45) | (12.05) |
| **Reserves ratio** | **-0.0309*** ** | | | | | | | |
| | **(-4.14)** | | | | | | | |
| **Primary balance** | | **0.0172** | | | | | | |
| | | **(0.91)** | | | | | | |
| **Overall balance** | | | **0.00114** | | | | | |
| | | | **(0.06)** | | | | | |
| **Debt ratio** | | | | **0.0334*** ** | | | | |
| | | | | **(6.78)** | | | | |
| **Debt ratio FX** | | | | | **-0.00826** | | | |
| | | | | | **(-0.88)** | | | |
| **Net interest payments to revenue** | | | | | | **0.0671*** ** | | |
| | | | | | | **(3.80)** | | |
| **Quality of governance** | | | | | | | **-0.128*** ** | |
| | | | | | | | **(-4.26)** | |
| **Governance efficiency** | | | | | | | | **-0.430*** |
| | | | | | | | | **(-1.80)** |
| EC coefficient ($\phi$) | -1.073*** | -1.070*** | -1.069*** | -1.109*** | -1.059*** | -1.101*** | -1.083*** | -1.083*** |
| | (-8.28) | (-8.81) | (-8.77) | (-11.67) | (-8.41) | (-10.22) | (-9.41) | (-8.94) |
| after-GFC dummy | 1.571** | 1.561** | 1.540** | 1.307** | 1.544** | 1.510** | 1.566** | 1.521** |
| | (2.20) | (2.23) | (2.22) | (2.06) | (2.22) | (2.08) | (2.27) | (2.20) |
| after-Covid dummy | -0.212 | -0.215 | -0.247 | -0.542 | -0.237 | -0.316 | -0.125 | -0.232 |
| | (-0.53) | (-0.54) | (-0.61) | (-1.20) | (-0.59) | (-0.78) | (-0.33) | (-0.60) |
| Countries | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Observations | 287 | 287 | 287 | 287 | 287 | 287 | 287 | 287 |
| Hausman (PMG vs MG), p-value | 0.833 | 0.834 | 0.739 | 0.995 | 0.923 | 0.971 | 0.951 | 0.860 |

Source: Coefficients on EM-IG, LA5 and CAPDR (EMBIG spreads) (14 countries, 2002-23, 287 obs.). Countries with 15+ years of data are used. PMG estimates are chosen relative to MG estimates since null of equality of long-run coefficients cannot be rejected at 1 percent.