DEVELOPED AND EMERGING COUNTRIES RISK ANALYSIS FROM AN INVESTMENT PERSPECTIVE

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INTRODUCTION

01

STRIKING A BALANCE...

Investors seek at **balancing** their portfolio in terms of **risk & return**

The most common ways to achieve it is **via diversification...**

In terms of **asset classes**

- Bonds
- Commodities
- Cash
- Stocks

Through **Geographical Diversification**

Should an investor be exposed more to ***Developed or Emerging Markets?***

It depends...

MARKET CLASSIFICATION

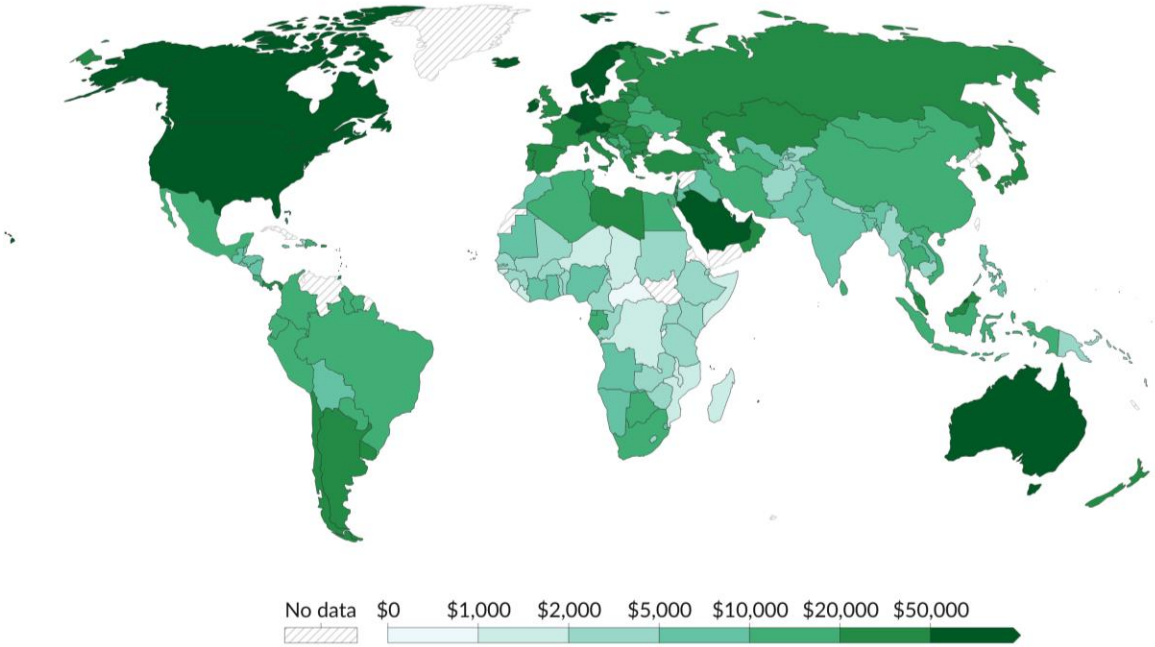
Gross national income (GNI) measures the **total income earned by residents of a country**, including income earned abroad (GDP refers only to domestical production). The World Bank classifies countries using this figure.

Developed Markets (DMs):

- Stable financial systems and political contexts
- Moderate volatility and predictable returns
- GNI per capita > $14,005

Emerging Markets (EMs):

- Rapid economic growth potential
- Higher volatility and external vulnerabilities
- GNI per capita: $1,146 to $14,005



Data source: Multiple sources compiled by World Bank (2024)

MARKET RISK

02

LIQUIDITY RISK COMPARISON

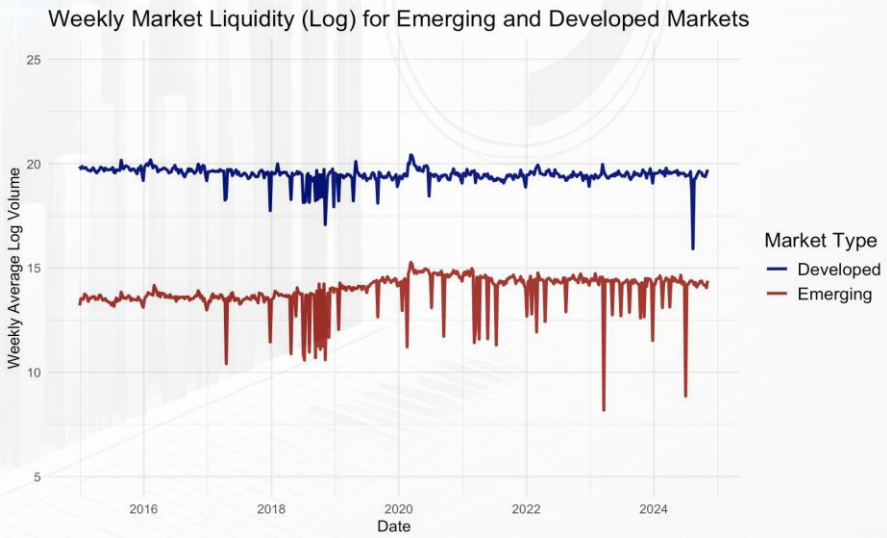
Developed Markets:

- More regulations, higher trading activity, and greater transparency.
- Lower transaction costs make developed markets more efficient and appealing.

Emerging Markets:

- Lower liquidity, higher transaction costs due to fewer participants and regulations.
- This results in wider bid-ask spreads, translating to high entry/exit costs.

➔Investors in emerging markets demand higher returns due to increased liquidity risks.



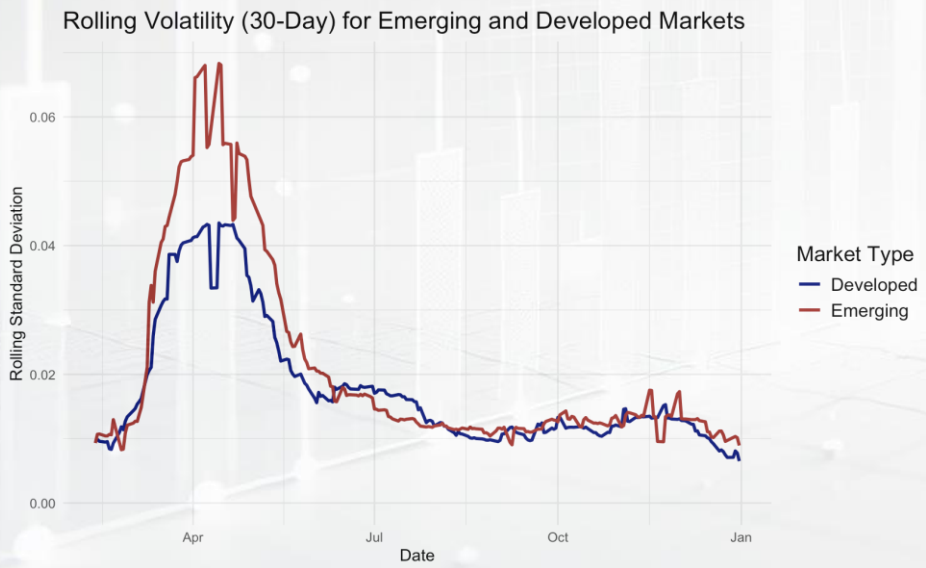
MARKET VOLATILITY

Emerging Markets:

- High sensitivity to economic shocks leads to increased price volatility.
- The COVID-19 pandemic illustrated heightened risk in these regions.

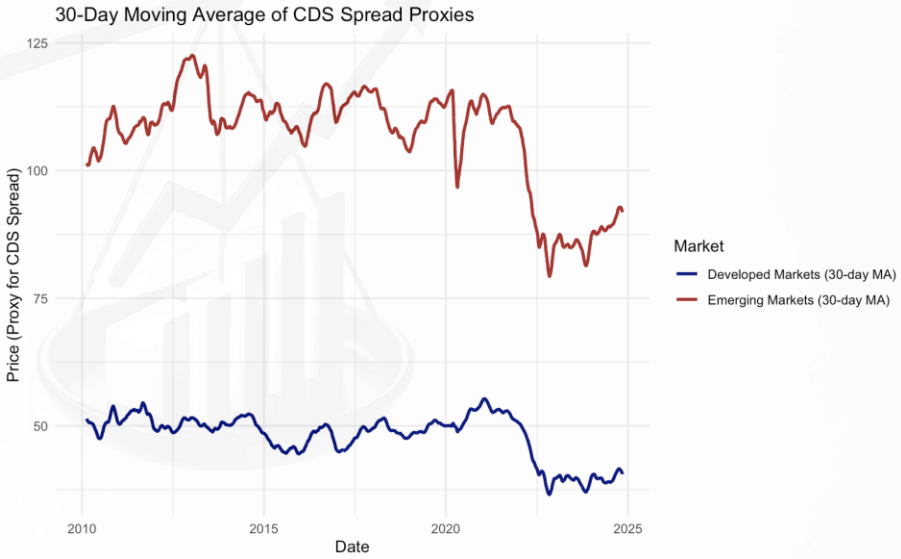
Developed Markets:

- Political stability and mature economies result in lower volatility.
- Coordinated policy responses help in crisis management.



➔ Managing volatility is crucial, especially for emerging markets that promise higher potential returns.

SOVEREIGN DEBT RISK



Risk Factor	Emerging Markets	Developed Markets
CDS Spreads	High (greater perceived risk)	Low (greater stability)
Economic Fundamentals	Weaker	Stronger
Vulnerability to Shocks	High	Low

➔ Sovereign debt risk assessment, especially via CDS spreads, is critical for evaluating investment viability.

POLITICAL RISK

03

POLITICAL STABILITY

Significant political unrest or institutional breakdowns that can affect investor confidence – it ensures predictable governance, safeguarding investments.

DEVELOPED MARKETS

Stable political **environments** supported by robust democratic institutions and **clear policy frameworks**. (i.e. Germany and Japan, scoring over 1.5 in the World Bank's PSI)

↓

Attract long-term investors with low-risk tolerance and preference for stability

SAFER INVESTMENT - LOWER YIELDS

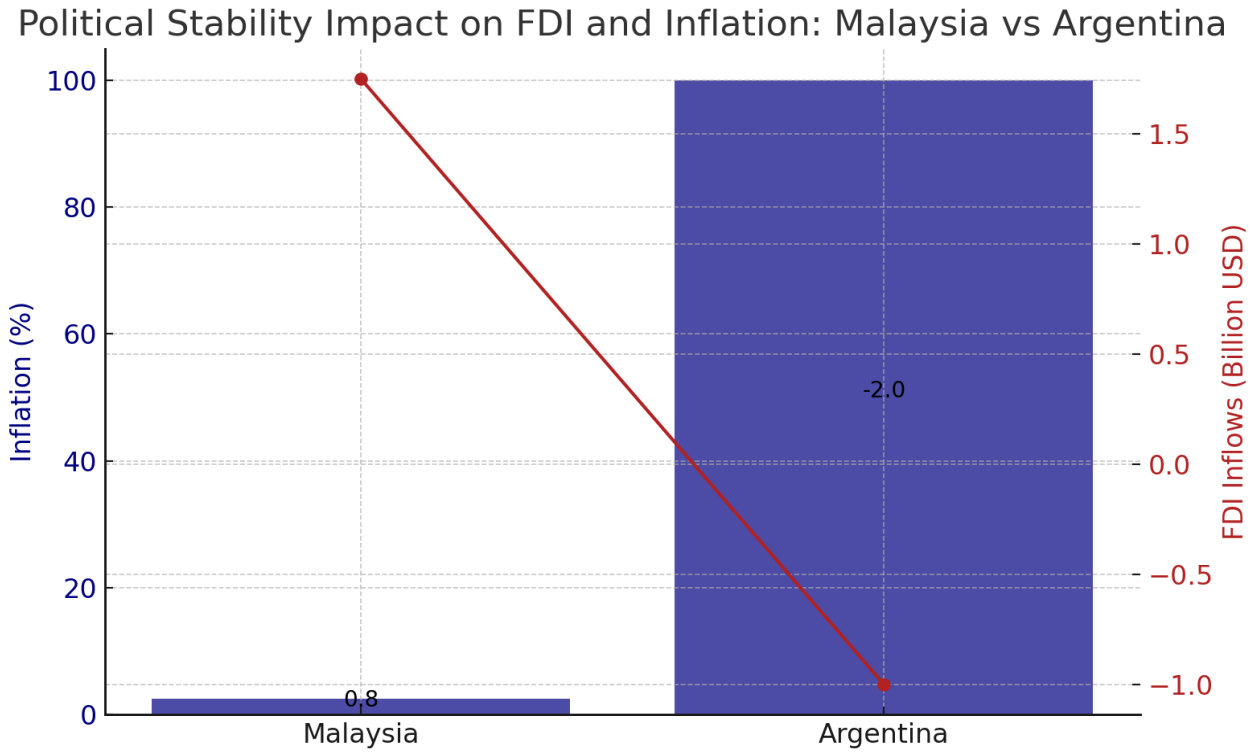
EMERGING MARKETS

Higher instability due to **weaker institutions**, **corruption**, policy **volatility**, and political unrest. (i.e. Brazil and South Africa, scoring below -0.5 in the World Bank's PSI)

↓

Instability can deter foreign direct investment (FDI) and amplify capital jumps during crises.

HIGH RISK – HIGH RETURN ENVIRONMENT



MALAYSIA

Political stability post-pandemic has revitalized FDI, with $1.75 billion inflows in 2024. Strong recovery driven by consistent governance and economic resilience.

ARGENTINA

Chronic political instability and economic mismanagement led to 100%+ inflation in 2024, deterring long-term investments.

- Malaysia demonstrates a positive PSI and low inflation, attracting significant FDI.
- Argentina's negative stability score aligns with soaring inflation and negligible FDI inflows.

REGULATORY RISK

Effectiveness of laws, investor protection, and adherence to transparent policymaking. It influences business operations and investment predictability.

DEVELOPED MARKETS

High scores in **Regulatory Quality (> 1.0)** due to transparency, strong property rights enforcement, and clear policy consistency (i.e. USA, UK, France)

↓

Favorable for strategic investments, particularly in highly regulated sectors like finance and healthcare.

EMERGING MARKETS

Low scores (< 0.5) reflect regulatory opacity, inconsistent enforcement, and risks of arbitrary policy shifts (i.e. Russia, Turkey)

↓

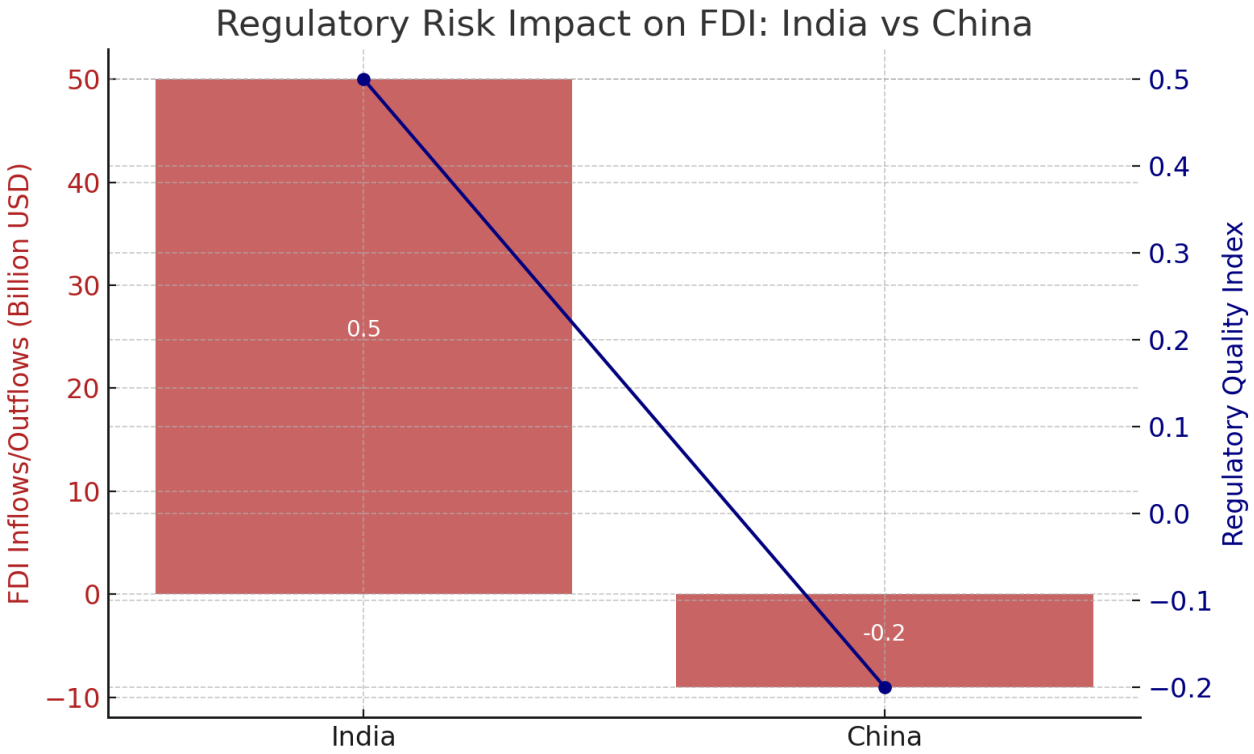
High unpredictability leads to risk premiums and higher due diligence requirements for investors.

INDIA

Improved regulations in property rights and FDI frameworks led to increased stability. Recognized as a growing hub for foreign investments in renewable energy.

CHINA

Government crackdowns (i.e. tech, education sectors) amplified regulatory risks, causing a $9 billion drop in FDI outflows in October 2024.



- India shows modest regulatory improvements, leading to substantial FDI inflows.
- China's regulatory crackdowns result in significant FDI outflows, reflected in its negative index score.

EXTERNAL RISK

04

GLOBAL TRADE DEPENDENCY

EMERGING MARKETS:
- High reliance on exports
- Low diversification

High vulnerability and dependendcy to global context

VARIABLES

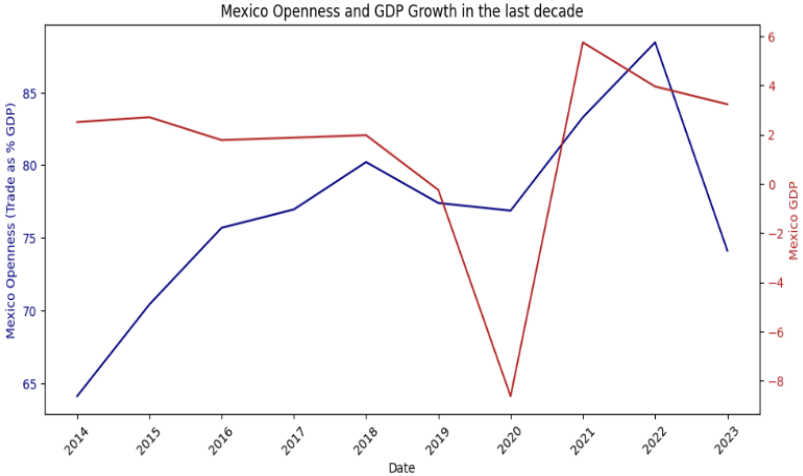
- Fluctuations in foreign investment
- Changes in global demand
- Trade policy shifts (eg. protectionism)

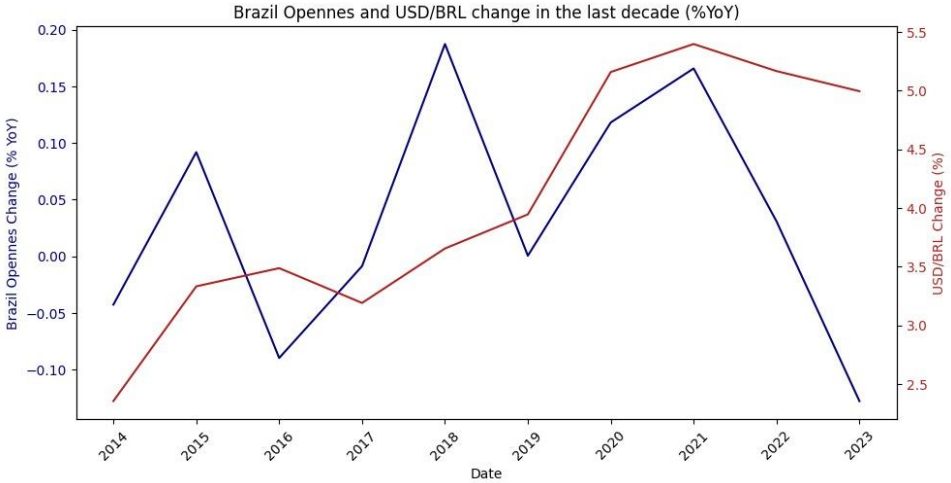
DEVELOPED MARKETS:
- Robust institutional frameworks
- Stronger financial reserves

EMERGING MARKETS:
- Amplified volatility in their equity markets during trade disruptions

MEXICO & BRAZIL: IS OPENESS A PROBLEM?

MEXICO:
Historically high level of openess
→ highly **integrated** into global supply chains.
Exports to the United States in sectors like **automotive**, electronics and manufacturing.
In 2020 GDP -8,63% due to exports-related industries collapse. Sharp recovery associated with **US factories reopening** post pandemic.





BRAZIL:
Big **supplier of raw materials** (iron ore) and soybeans
As **China** demand **collapsed** during COVID-19 pandemic: Decline in export revenues
→ widespread **economic contraction**
= increase in **unemployment** and a **depreciation** of the Brazilian Real

COMMODITY PRICE DEPENDENCY

Emerging markets
Heavy **dependence** on commodities exports

High **sensitivity** to commodities price **fluctuations**

Increased market **uncertainity**

Reduced investors' confidence

Increase in risk premiums

Equity risk premium in emerging markets is **significantly higher than in developed markets**, reflecting the **greater risks** investors face

OIL PRICE VOLATILITY: NIGERIA CASE

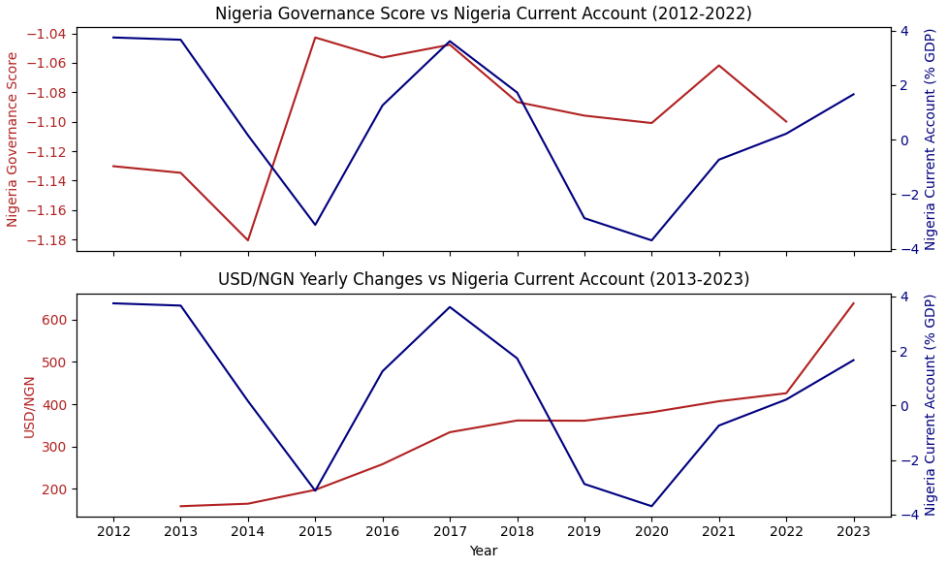
Oil price volatility has a **disproportionate impact** on emerging countries stock market (in comparision with developed countries)

Increases production costs

Reduces profit margins

Raises inflation

Depression of investments and stock prices



Nigeria is the **biggest African oil supplier**. Oil prices drop during COVID-19 pandemic **impacted** heavily the **financing capability** of the local **government**, limiting public expenditures →**Low governance score and hyperinflation**

COUNTRY RISK INDEX (CRI)

05

THE APPROACH

DATA GATHERING & CLEANING

We collected **16 key metrics** for **155 countries** spanning **from 1999 to 2022** to **build** an aggregated indicator (**CRI**) able to quantitatively asses the risk associated in investing in Emerging and Developed Markets. Four macrocategories are used: **1) Macroeconomic, 2) Public Finance, 3) External Financing, 4) Governance Stability.**

DATA AGGREGATION & CRI BUILD-UP

Data has been **cleaned,** dimensionally **reduced** and **normalized**. **64 countries** have been **eliminated** by considering low-influence countries the ones **having a GDP < 0.01 % of the World's Total GDP** (committing an error 0.48%). The **CRI** is created as an **equally weighted sum of** all the **cleaned key metrics** and normalized between **0 (minimum risk) and 1 (maximum risk).**

RISK – RETURN CORRELATION & REGRESSION

An **OLS univariate regression** between the **CRI** (predictor) and the **Yield of 10 year-maturity bonds** (response) has been performed. A **multidimensional regression using the single key metrics** has been done to evaluate the single effects on the response variable. Both have been performed on 3 different time ranges: short, medium and long/term

MAIN INDICATORS

Macroeconomic Stability*

Delta between 2022 data and k-preceding years to highlight trends and dump fluctuations of **GDP Growth, Inflation Rates,** and **Exchange Rates.**

Public Finance & Health*

Takes into account **Overall Balance** and **Public Gross Debt** and reflects the effect of fiscal policies and leverage.

External Financing & Strength

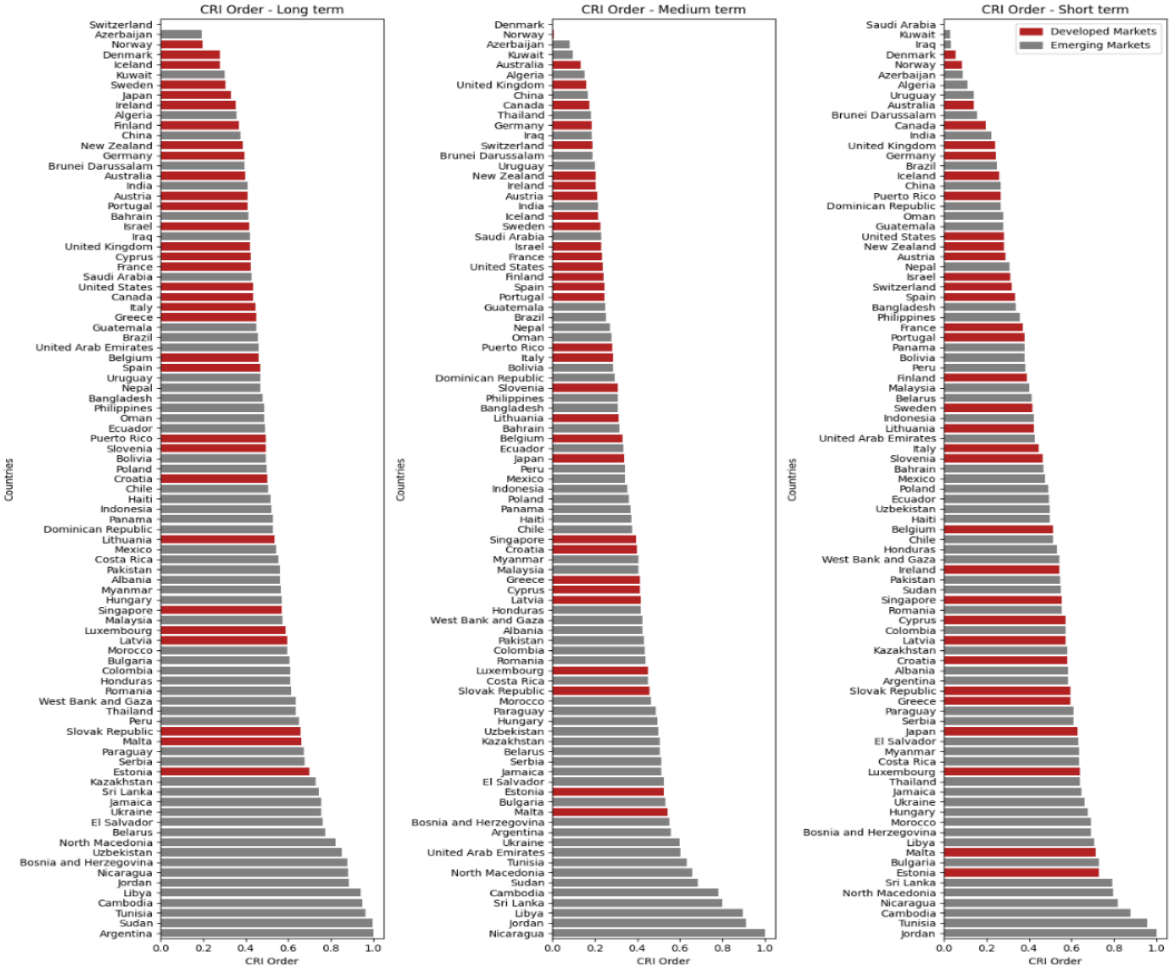
Time-independent indicators including **Short Term Debt, Long Term Debt,** and **Current Account** for assessing external funding.

Governance Stability & Quality

Equally weighted average of the **6 World Bank's Indicators**** to reflect the importance of the regulatory framework.

* Indicators in these two categories have been calculated as a difference between the last data point (2022) and the average of 3, 5 and 10 data points (yearly data) to create a 3 different CRIs. The main idea is to check if the risk smooths out on longer time frames.

** Voice & Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption.



Short-, Medium- and Long-Term Country Risk Index for all the analyzed countries (ranked by CRI).

MSCI CLASSIFICATION

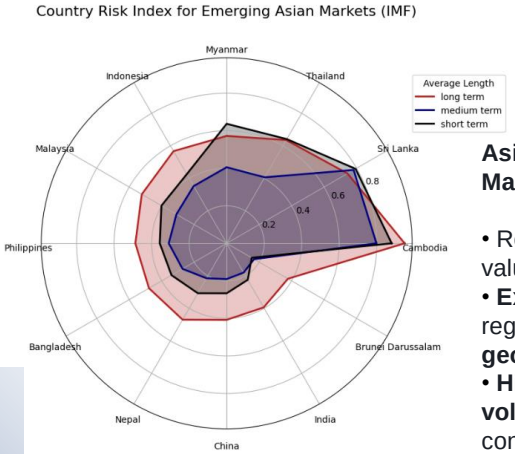
CRI Trends by Market:

- DMs display lower risk (CRI) values than EMs.
- In the long-term CRI, developed nations dominate the top rankings.
- Short-term CRI gives more weight to annual swings, reducing DMs' dominance.

Timeframe Impact:

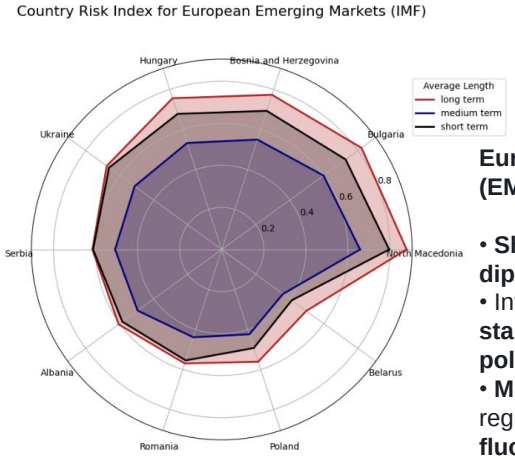
- 68% of results are timeframe-independent, but time-dependent indicators significantly affect rankings.
- Long-term risk is higher for most developed markets, except high-risk countries like Japan, Italy, and Ireland, due to increased debt-to-GDP in recent years.
- Emerging markets exhibit higher risk in the short term, driven by unstable conditions and external shocks (e.g., COVID-19, Russia-Ukraine conflict).

NARROWING EMs



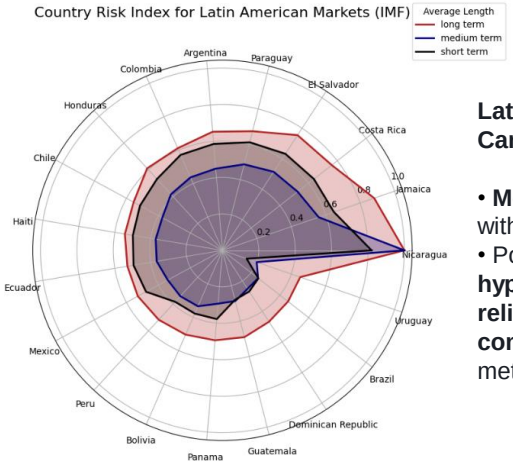
Asian Emerging Markets (EMA)

- Relatively **lower CRI** values.
- **Export dependency**, regulatory hurdles, and **geopolitical tensions**.
- **High short-term volatility** affects investor confidence.



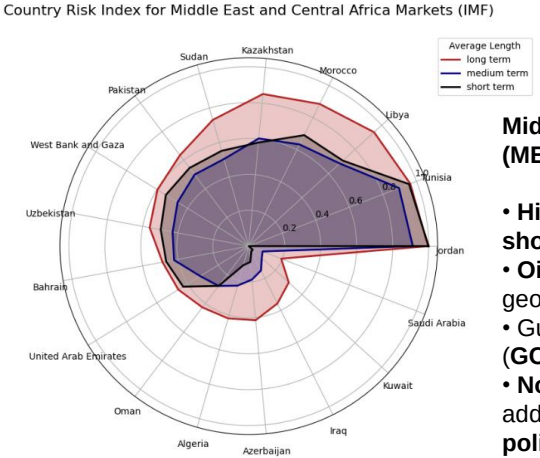
European Emerging Markets (EME)

- **Short-term** scores showing **dips**.
- Influenced by **EU-related stability** but challenged by **political shifts**.
- **Medium-term CRI reflects** regional instability and **fluctuating** of capital **inflows**.



Latin America and Caribbean (LATAM)

- **Moderate CRI** values with short-term declines.
- Political instability, **hyperinflation**, and **reliance on commodities** (e.g., oil, metals, corn, soybeans).



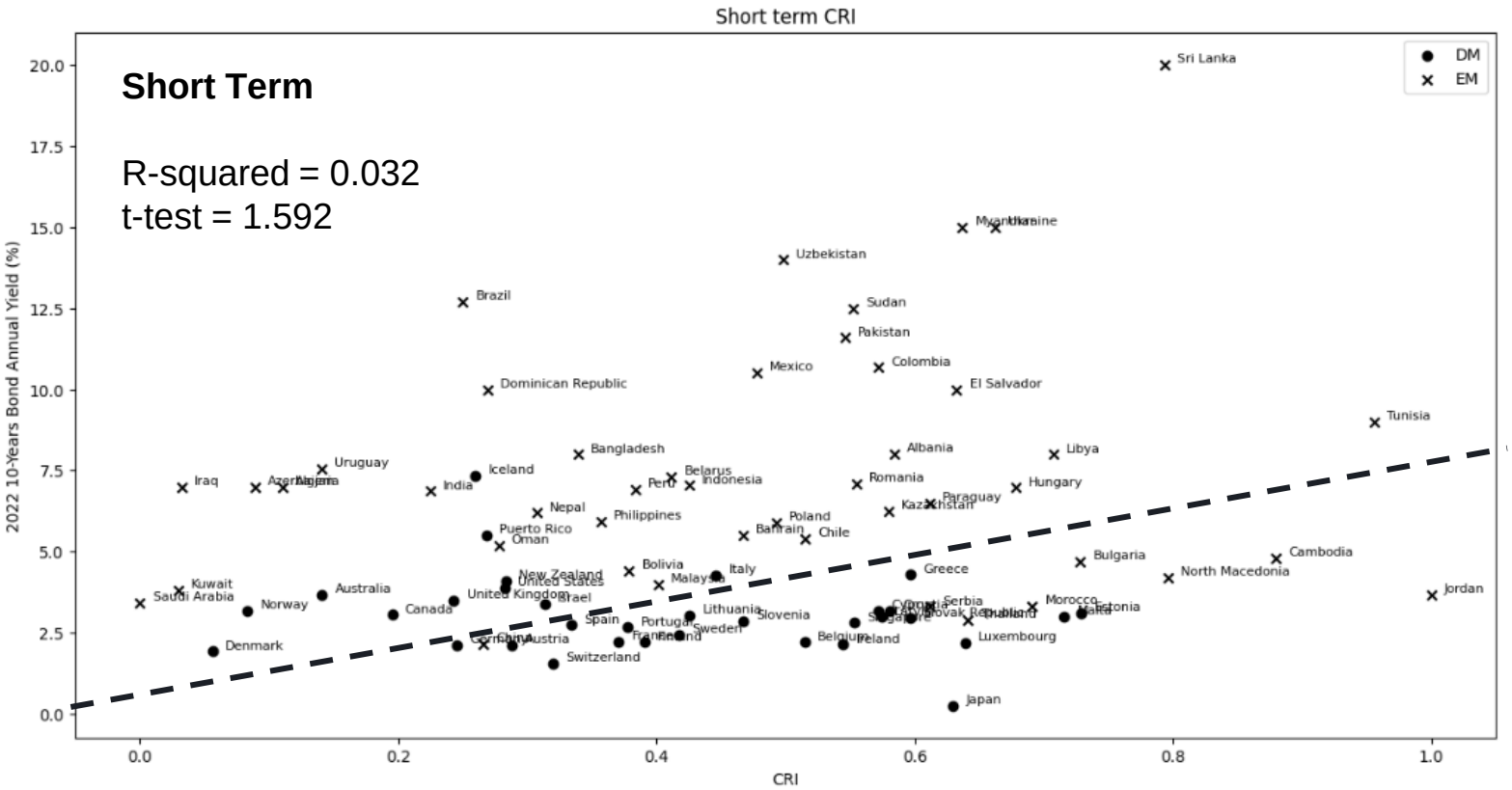
Middle East and Central Africa (MECA)

- **Highest CRI**, with significant **short-term volatility**.
- **Oil dependency** and geopolitical conflicts.
- Gulf Cooperation Council (**GCC**) countries are **wealthier**.
- **Non-GCC** nations face additional challenges due to **political instability**.

Short-, Medium- and Long-Term Country Risk Index, Emerging Asian Markets (top-left), Emerging European Markets (top-right),Latin America and Caribbean Markets (bottom-left), and Middle East and Central Africa Markets (bottom-right).

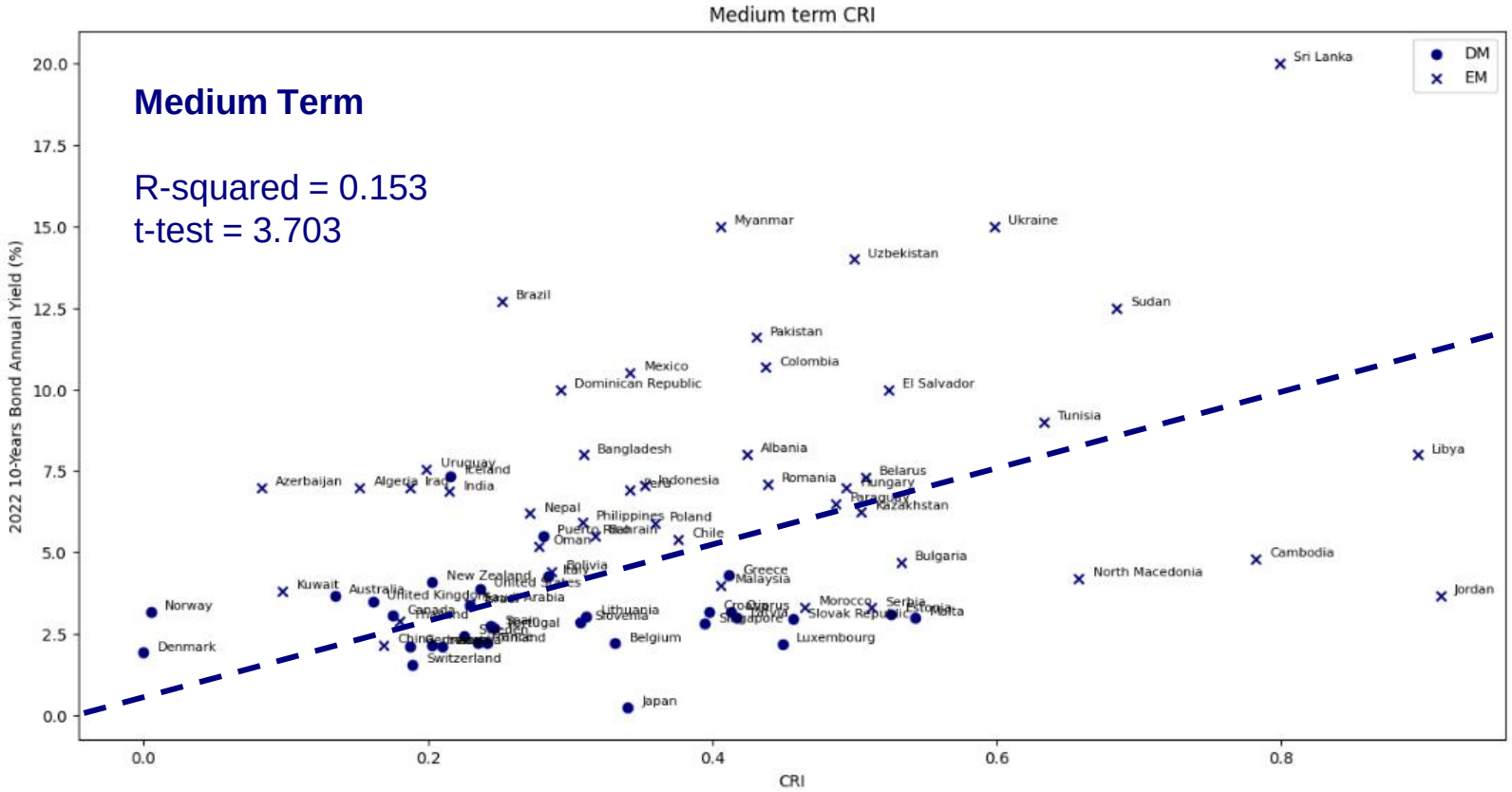
CRI – BOND YIELD CORRELATION

SHORT TERM



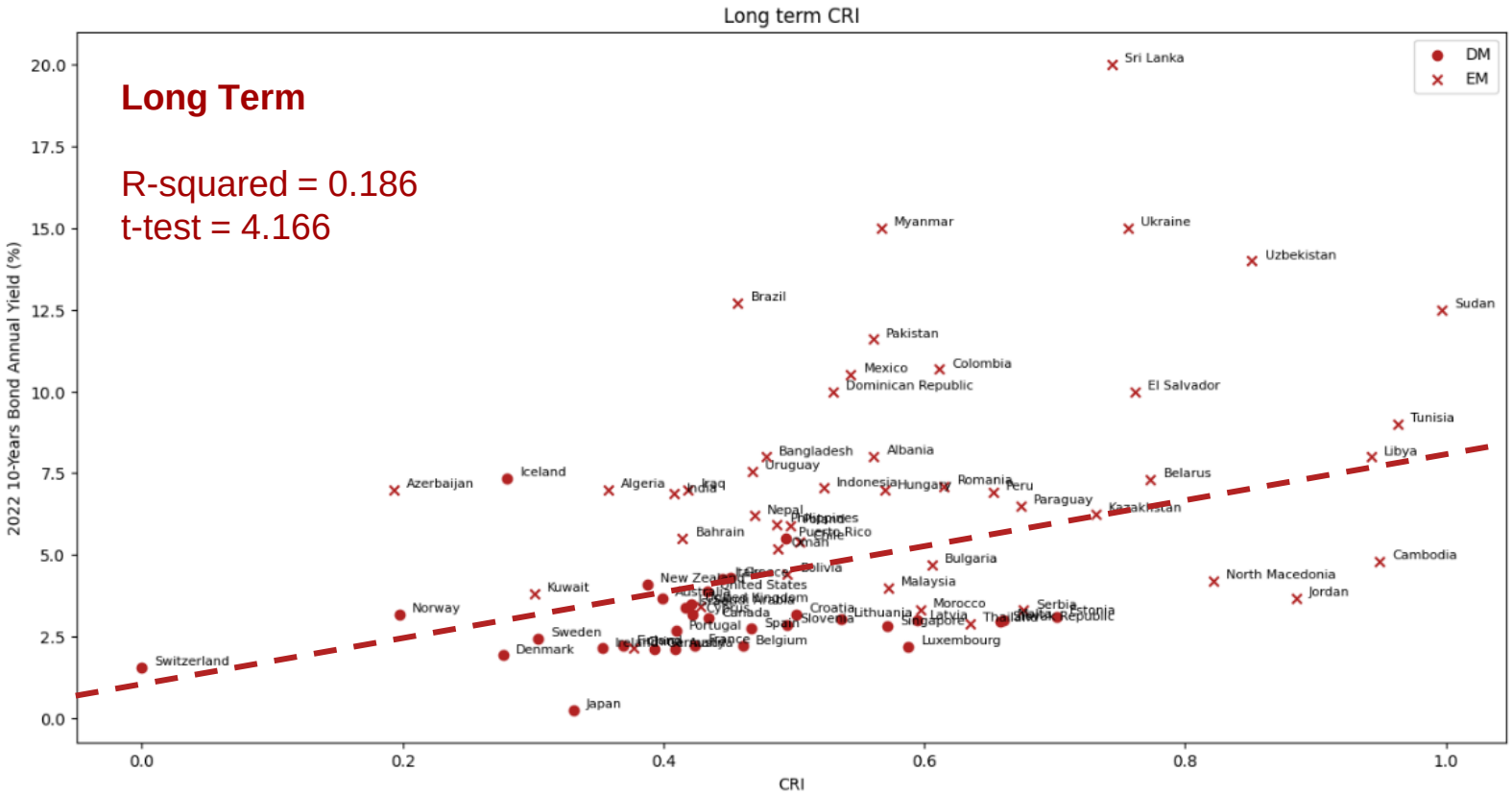
Short-Term correlation between10 years bond yield vs CRI score for >90 EMs and DMs.

MEDIUM TERM



Medium-Term correlation between10 years bond yield vs CRI score for >90 EMs and DMs.

LIONG TERM



Long-Term correlation between10 years bond yield vs CRI score for >90 EMs and DMs.

MULTIDIMENSIONAL REGRESSION

	R-Squared	F-Statistic
Short Term	0.823	4.8 e-21
Medium Term	0.837	3.6 e-22
Long Term	0.874	7.4 e-26

CONCLUSION

06

KEY POINTS

Developed markets provide **steady returns** with **lower risk**, appealing to risk-averse investors due to strong governance and stable economic structures.

Emerging markets offer **higher growth** potential but come with **greater risk** from economic volatility, external shocks, and political instability.

Policymakers in emerging markets should **prioritize** economic **diversification** and political **stability** to attract more foreign investment.

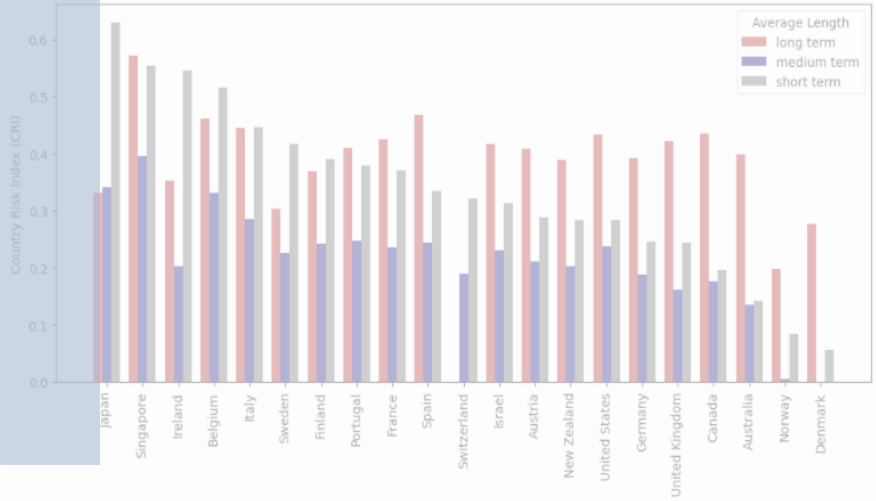
The **Country Risk Index** (CRI) is a valuable tool for **assessing** and forecasting **risk**, particularly for **distinguishing** short-, medium-, and long-term **investment profiles**.

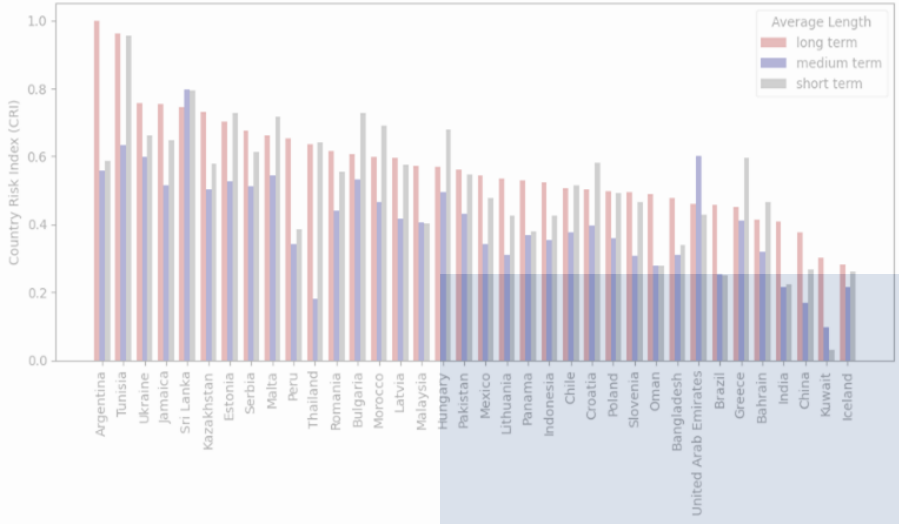
Regression analyses show that **CRI** indicators strongly **correlate with bond yields**, with **R-squared** values between **80%** and **90%** across time frames.

Enhancements to the CRI, such as **weighted aggregation** using OLS-derived coefficients or incorporating **non-linear relationships**, can **improve** its predictive **accuracy** and utility.

ANY QUESTIONS?

Thank you for your attention. We would really appreciate to clarify your doubts and curiosities ☺





BACK UP SLIDES …

BACKUP #1 - CRI

Python Dataframe	Description	Unit of Measurement	Macro Category	Value of Interest
gs_df	Aggregated of six Gov. Indexes by WB	Absolute Values	Governance	Last Value (-)*
op_df	Openness	Trade as % of GDP	External Strength	Last Value (+)**
er_df	Exchange Rates	Local Currency Unit normalized by USD	Macroeconomic	Last Value - Average of j preceding periods (+)
gr_df	GDP Growth	Annual % Growth	Macroeconomic	Last Value - Average of j preceding periods (-)
inf_df	Inflation Rates	Annual % Change	Macroeconomic	Last Value - Average of j preceding periods (+)
ob_df	Overall Balance	Lending/Borrowing as % of GDP	Public Finance	Last Value - Average of j preceding periods (-)
gd_df	Public Gross Debt	Debt as % of GDP	Public Finance	Last Value - Average of j preceding periods (+)
std_df	Short Term Debt	STD as % of GDP	External Financing	Last Value (+)
ltd_df	Long Term Debt	LTD as % of GDP	External Financing	Last Value (+)
ca_df	Current Account	Balance as % of GDP	External Financing	Last Value (-)

Tab. 3: Key indicators with their respective Units of Measurements (UOMs), dataframe names, category of belonging and calculation methods. Note that: ** (-) indicates that the indicator has a negative impact on the CRI (lowers risk). ** (+) indicates that the indicator has a positive impact on the CRI (increases risk).*

- Datasets Min-Max Normalization (between 0 and 1)
- CRI of time frame X has been calculated as:

$$CRI^X = \frac{1}{N}\sum_{i=1}^{N} Value\ of\ Interest_i$$

- There is a time dependence as indexes belonging to the Macroeconomic and Public Finance categories have been calculated as follows
- Where, J = 10, 5, 3 respectively for the long, medium, and short time frames.

$$Value\ of\ Interest_i\ (Public\ Finance, Macroeconomic) = Last\ Value\ (2022) - \frac{1}{J}\sum_{j=1}^{J} Value_j$$

MULTI-OLS STATS AND COEFFS

High R-squared values: All models have strong explanatory power (R^2>0.8 on all timeframes), indicating that the predictors collectively explain most of the variation in bond yields.
Robust overall significance: The F-statistic p-values are far below 0.05, hence the regression is statistically significant. But some predictors are **not statistically significant**

Long-Term Model:

• **Inflation rates** and **Openness**: Marginally non-significant.

• **Gross debt**: Extremely non-significant, indicating no apparent relationship with long-term bond yields.

Medium-Term Model:

• **Inflation rates**, **GDP growth rates**, **Gross debt**, **Current account**, **Short-term debt**: Non-significant.

Short-Term Model:

• **Inflation rates**: Marginally non-significant.

• **Openness** and **Short-term debt**: Non-significant.

Dep. Variable:	2022 Yield (%)	R-squared (uncentered):	0.874
Model:	OLS	Adj. R-squared (uncentered):	0.855
Method:	Least Squares	F-statistic:	45.91
Date:	Mon, 11 Nov 2024	Prob (F-statistic):	7.41e-26
Time:	09:28:20	Log-Likelihood:	-182.71
No. Observations:	76	AIC:	385.4
Df Residuals:	66	BIC:	408.7
Df Model:	10		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
inflation rates	4.5272	2.691	1.683	0.097	-0.845	9.899
gdp growth rates	-16.9688	3.708	-4.576	0.000	-24.372	-9.565
exchange rates	8.4498	2.353	3.591	0.001	3.751	13.148
overall balance	21.3296	4.946	4.313	0.000	11.455	31.205
gross debt	0.0897	2.482	0.036	0.971	-4.867	5.046
current account	0.9525	2.224	0.428	0.670	-3.488	5.393
openness	-3.0743	2.076	-1.481	0.143	-7.219	1.070
governance	-7.4802	1.621	-4.616	0.000	-10.716	-4.244
short term debt	-3.8475	2.474	-1.555	0.125	-8.787	1.092
long term debt	10.3731	2.751	3.771	0.000	4.880	15.866

LONG TERM

Dep. Variable:	2022 Yield (%)	R-squared (uncentered):	0.837
Model:	OLS	Adj. R-squared (uncentered):	0.812
Method:	Least Squares	F-statistic:	33.80
Date:	Mon, 11 Nov 2024	Prob (F-statistic):	3.59e-22
Time:	09:28:20	Log-Likelihood:	-192.68
No. Observations:	76	AIC:	405.4
Df Residuals:	66	BIC:	428.7
Df Model:	10		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
inflation rates	-11.8847	9.547	-1.245	0.218	-30.945	7.176
gdp growth rates	1.2694	3.734	0.340	0.735	-6.187	8.726
exchange rates	11.6345	2.295	5.069	0.000	7.052	16.217
overall balance	8.4092	3.029	2.776	0.007	2.361	14.457
gross debt	1.5193	2.879	0.528	0.599	-4.228	7.267
current account	0.0138	2.638	0.005	0.996	-5.253	5.280
openness	-4.8049	2.375	-2.023	0.047	-9.547	-0.063
governance	-5.8745	1.754	-3.349	0.001	-9.376	-2.372
short term debt	-3.4149	3.434	-0.995	0.324	-10.270	3.440
long term debt	5.7428	3.329	1.725	0.089	-0.905	12.390

MEDIUM TERM

Dep. Variable:	2022 Yield (%)	R-squared (uncentered):	0.823
Model:	OLS	Adj. R-squared (uncentered):	0.796
Method:	Least Squares	F-statistic:	30.68
Date:	Mon, 11 Nov 2024	Prob (F-statistic):	4.77e-21
Time:	09:28:20	Log-Likelihood:	-195.73
No. Observations:	76	AIC:	411.5
Df Residuals:	66	BIC:	434.8
Df Model:	10		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
inflation rates	-4.9638	3.104	-1.599	0.115	-11.162	1.235
gdp growth rates	-0.3418	3.651	-0.094	0.926	-7.632	6.948
exchange rates	15.1599	2.984	5.080	0.000	9.202	21.118
overall balance	4.9835	3.294	1.513	0.135	-1.593	11.560
gross debt	5.3481	2.688	1.990	0.051	-0.018	10.714
current account	2.5014	2.777	0.901	0.371	-3.044	8.047
openness	-4.1253	2.513	-1.642	0.105	-9.143	0.892
governance	-8.1053	1.823	-4.447	0.000	-11.745	-4.466
short term debt	-2.7662	2.999	-0.922	0.360	-8.754	3.221
long term debt	7.0349	3.300	2.132	0.037	0.447	13.623

SHORT TERM