Final Project

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Back ground

- Green, Social, and Sustainability Bonds
  - Financial securities issued by organizations to raise funding for a portfolio of projects…
  - …that are expected to generate "green" or "social" (or both!) benefits
  - Borrowers are expected to provide allocation and impact reports
- Environmental Performance Index (EPI)
  - Provided by Yale and Columbia
  - Uses 58 performance indicators across 11 issue categories
  - Ranks 180 countries on climate change performance, environmental health, and ecosystem vitality

Research question

- What is the relationship between the amount of funding raised through Green and Sustainability bonds and a country's EPI score?

Approach

- Dataset 1: Bond issuances
  - Green and Sustainability bond issuance volumes (USD millions)
  - Total local currency bond issuance volumes (USD millions)
  - Broken down per issuer (Government and Corporate) and bond label (Green and Sustainability)
  - Limited to ASEAN+3 economies
    - droped China as outlier
  - Taken from the Asian Development Bank's AsianBondsOnline portal
- Dataset 2: EPI
  - Aggregated into a score
  - Comprehensively covers a wide range of environmental issues, not just a single or limited issues
  - Though this analysis is focused on ASEAN+3, dataset contains global information which can be useful especially when comparing against world standards
  - Two-year time horizon which does not directly match Bond data
- Clean df_index

Findings

Rising issuance volume

- Upward trending (in nominal terms)

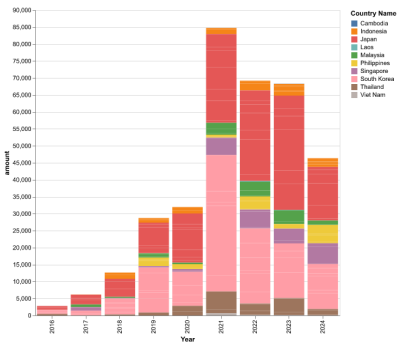

Figure 1: Consolidated issuance volume, 2016 - 2024YTD

- From Dashboard: By filtering countries on bar chart over time, we can see whethre this trend is common in this area or not.
  - JP, SK contributes to forming the trend with large and increasing volume
  - But other countries such as SG, ID, PH, KH generally increases the issuance based on their own size of volume
- Possible reasons:
  - Paris commitments
  - Energy crisis due to geopolitical conflicts
  - Growth of ESG market segment
  - More generally, higher deficits due to the pandemic

Global downtrend in EPI

- Regional (and global) drop in EPI scores

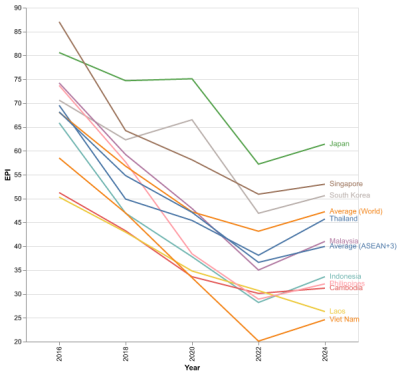

Figure 2: EPI scores, 2016 - 2024

- From Dashboard: We can also convert the nominal values into the gap from world average. As we see the relative performance of each countries, the scores of ASEAN+3 countries other than JP, SK and SG are lower than the average. And the whole ASEAN+3 trend is still on downtrend.
- Possible reasons:
  - Higher standards for performance
  - More developments focused on economic growth rather than environmental targets

Weak to negative relation

- Plot example: South Korea

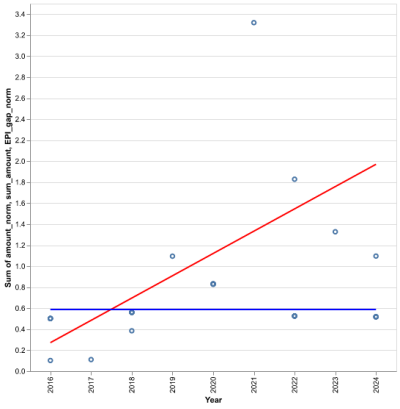

Figure 3: Linear Regression on time series data (Consolidated issuance volume, EPI score, 2016 - 2024

- From Dashboard: we can see other countries' result
- Linear regression on time series data to draw trend lines
- Normalized data for more meaningful comparison
  - Bonds are expressed in USD millions
  - EPI scores are 0 to 100

Summary and areas for further research

- Summary
  - Lower scores observed despite higher issuance volumes
  - Possible that EPI scores would have decreased even more if not for these investments
  - Could be a signal of "greenwashing"
- Areas for further research
  - Use of project-level data or more specific categorization of use of proceeds
  - Other potential determinants of EPI scores (e.g. GDP, specific investments into renewable energy, etc.)
  - Other peer comparisons aside from region